



# IOM Logistics Emergency Catalogue



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IOM Logistics Emergency Catalogue  
First edition  
Geneva 2015 (Revised 2016)  
For further information please contact [ShelterSupport@iom.int](mailto:ShelterSupport@iom.int)

Cover Photo: Bentiu POC, South Sudan, February 2015. The vast majority of shelter materials at this site have been provided by the IOM-managed common NFI pipeline.

# Introduction

The International Organization for Migration (IOM) has played a major role in humanitarian response operations for many decades. Since 2005, IOM has delivered Non Food Items (NFIs) in emergency response in more than 40 countries. In 2014 alone, IOM distributed NFIs to more than 550,000 households (HH), while over 780,000 HH were served with NFIs in 2015. Given the ongoing and increasing scale of responses it seems timely that IOM should develop and share a global catalogue with the intention of accelerating the procurement process by improving precision in specifications.

This is a first edition of the IOM Logistics Emergency Catalogue, containing core items for international procurement. Unless otherwise stated, the specifications are as per the IFRC/ICRC catalogue which can be found online at: [procurement.ifrc.org/catalogue](http://procurement.ifrc.org/catalogue).

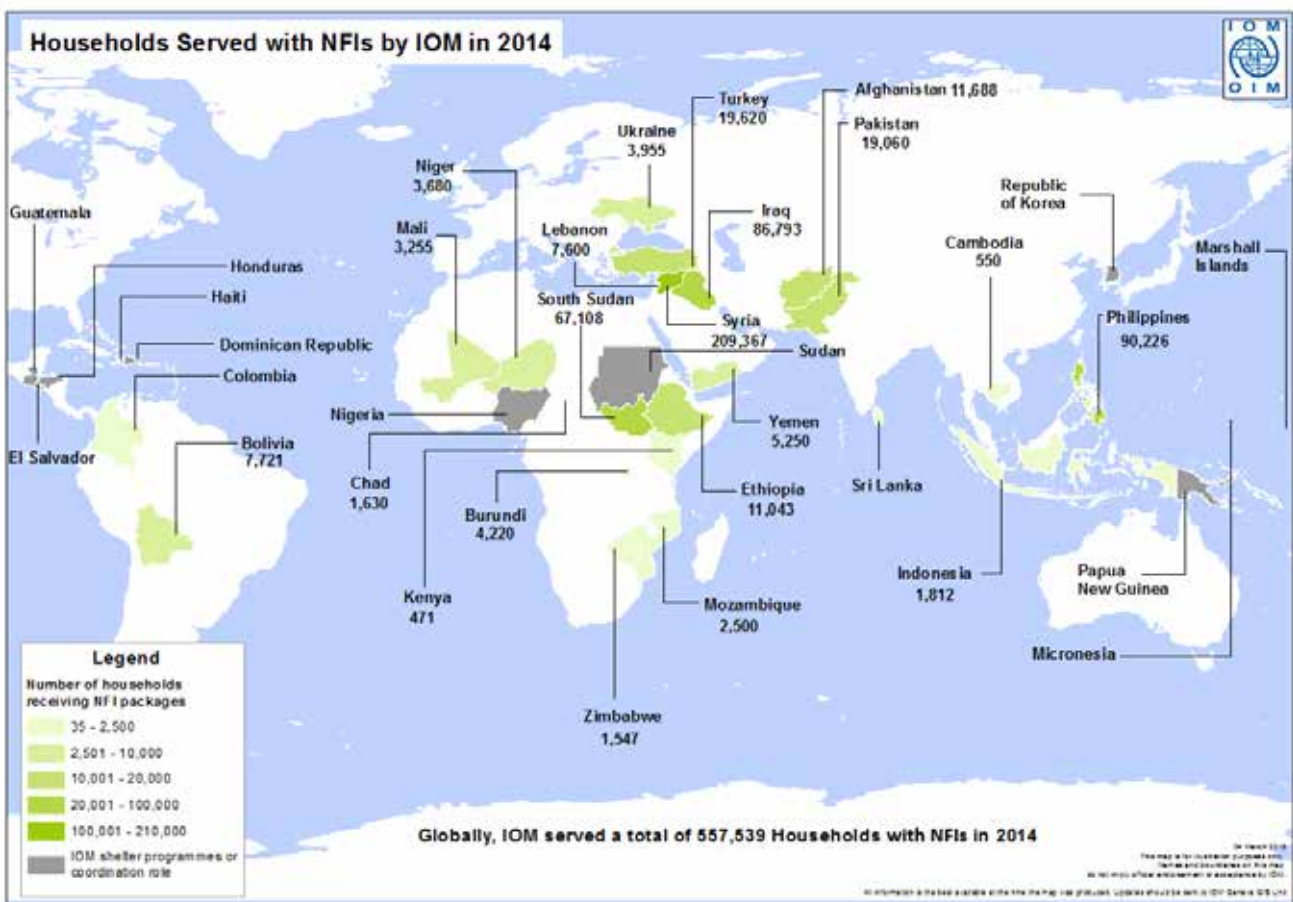
The purpose of using the same specifications is to promote harmonisation between agencies and distribution sites, as well as to ensure that agencies can push with a collective

voice for consistent quality with suppliers.

This catalogue will be regularly upgraded. Later editions of this catalogue will include guidance on national procurement and specifications development where international specifications may be difficult to monitor.

Some items such as family tents should not be procured to any other specifications unless clear justification based on appropriate national standards are identified, and clear relationships with suppliers established. Failure to do so may well result in procurements that do not meet basic humanitarian needs, significant quality issues and challenges at distribution sites.

Additional guidance on quality control will be developed, while it is currently available by contacting the Shelter Support team at IOM: [ShelterSupport@iom.int](mailto:ShelterSupport@iom.int).



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## i. Introductory note on Kits

IOM delivers many different types of kits across the world, and many kits are developed to meet assessed needs. Generally these are defined at country level.

IOM now also stocks an emergency shelter kit – primarily targeted for use in Eastern and Sub-Saharan Africa. Note this kit can be adjusted according to needs and national level agreements.

Item	Number	unit
Plastic sheet (4mx5m)	1	1
Blanket	2	2
Sleeping mat	2	2
Mosquito net	1	1
Rope – 8mm	1	30m
Kitchen set	1	15
Bag	1	2

- These kits contain basic household items.
- These kits can be complemented with additional items once they have arrived in country.
- Items are transported in bales to save on volume – and kitted at distribution sites.
- Kits are shipped in their component parts to reduce transportation volumes

In general the use of kits is intended to accelerate rather than slow down response. When using kits, ensure that the entire procurement is not delayed for want of a few minor items.

## ii. Summary of material codes

Material Description	Material
Bag 100x100cm, 50kg cap, 200 gsm tarp	1100000007
*Blanket,Type1,Woven 80% Wool, 1.5x2m H	1100000016
*Blanket,Type2,Woven50%Wool,1.5x2m,MTemp	1100000017
Blanket,Type3,Synthetic,1.5x2m,H Temp	1100000018
Blanket,Type4,Synthetic,1.5x2m,M Temp	1100000019
Bucket, plastic, 14L, Heavy duty plastic	1100000020
Jerrycan,Type 1, 10L, plastic flat bag	1100000021
Jerrycan,Type 2, 10L, plastic foldable	1100000022
Jerrycan,Type 3, 15L, plastic foldable	1100000023
Jerrycan,Type 4, 20L, plastic foldable	1100000024
Jerrycan,Type 5, plastic rigid	1100000025
Kitchen set A - cooking&servicing, 24pcs	1100000006
Kitchen set B - cooking&servicing, 36pcs	1100000026
Sleeping mat, 1.80mX090m, twill weave	1100000027
Mosquito net, 190x150x180m, LLIN, PE	1100000028
ROPE, polypropylene, black, 8mm twisted	1100000053
Sheet, plastic 4mX6m, holes 1mm+eyelets <sup>f</sup>	1100000012
Sheet, plastic 4mX6m, reinforcement bands	1100000013
*Sheet, plastic 4mx5m	1100000052
Sheet, plastic rolls 4mx60m	1100000054
Tent,Type 1, Standard Family 6.5x4x2.2m	1100000029
Tent,Type 2, Frame Family 5.2x4.15x2.4m	1100000030
Winterized liner kit for frame tent	1100000031
Tent, Multi-purpose, 7.5 x 6m, 45m <sup>2</sup>	1100000064
Tent, Warehouse Rubbhall,10x24m	1100000032
Shelter Tool Crowbar /Wrecking Bar 18"	1100000033
Shelter Tool, Handsaw for timber	1100000034
Shelter Tool, Shovel, round point, Y han	1100000035
Shelter Tool, Claw Hammer	1100000036
Shelter Tool, Hoe, long handle, large	1100000037
Shelter Tool, Shears for metal sheet	1100000038
Shelter Fixings,Nail for roof Sheets	1100000039
Shelter Fixings, Nail for wood, large	1100000040
Shelter Fixings, Nail for wood, Small	1100000041
ROPE, polypropylene, black, 10mm twisted	1100000042
Tie Wire galvanized	1100000043

\*Discontinued in this catalogue.

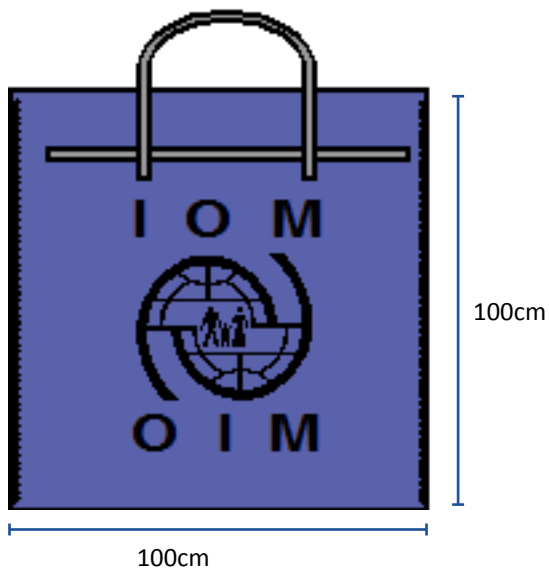


## 1. Bag

Bag 100x100cm, 50kg cap, 200 gsm tarp			
Item code:	1100000007	Unit Weight:	~ 400g
		Packed Volume:	0.019m <sup>3</sup>



<b>Description</b>	A large and sturdy bag for use at distributions. The bag is designed to carry basic kits.
<b>Colour</b>	Blue
<b>Marking:</b>	IOM logo on each side
<b>Size:</b>	100x100cm
<b>Material:</b>	190g/m <sup>2</sup> ± 20g/m <sup>2</sup> tarpaulin with handles and ropes,
<b>Finish:</b>	Sewn with interlocking stitch up the sides
<b>Strength:</b>	Strong enough to carry 50kg
<b>Packing:</b>	Compressed in bales - Each bale has 50 pcs







## 2. Blankets

### 2.1. Background

Most agencies, including IOM, are now moving to synthetic blankets, rather than woollen. Synthetic blankets are made of virgin fibres such as polyester or acrylic. Some cotton may be included in the yarns.

The insulation capacity of a blanket depends of the TOG (Thermal resistance Of Garments) and of the air permeability of the material. The TOG does not depend only on the weight or the raw material, but also on the fibre quality, the type of weaving or knitting, and fibre raising.

- High thermal type, with a TOG of 4, is appropriate for cold climates.
- Medium thermal type, with a TOG of 2.5, is the minimum for hot or temperate climates (even in hot countries, nights can be cold).

Note: TOG Value can only be tested in laboratories.

The specifications below are after IFRC/ICRC with the addition of IOM markings.

Markings:

Logo printed in white or CMYK. C = 100%, M = 82%, Y = 10%, K = 2%.

Dimensions 400 mm across in centre of blanket.



Note: Blankets must not be soaked in salt by manufacturer.

## 2.2. Synthetic fleece Blanket - high thermal resistance

Blanket,Type3,Synthetic,1.5x2m,H Temp			
Item code:	1100000018	Unit Weight:	1.5-2.4kg
		Packed Volume:	0.02m <sup>3</sup>

Test conditions	Specification under the normal textile test conditioning ISO139, 65% moisture and 20°C for 24h.
Samples for testing purpose	Samples of blankets must be from compressed bales. All criteria to be passed on the same sample. (Samples of compressed bales to be prepared with only 5 blankets folded once more than in normal bales, at 40% compression ratio, and to remain compressed for one week minimum before testing).
Make:	Knitted or woven, dry raised both sides
Content	ISO 1833 on dry weight: 100% pure polyester and/or acrylic fibres or polyester/cotton
Colours	Other than black, red, or white, dark uniform colour.
Size	150 x 200cm +3%/-1%. To be taken on flat stabilised sample, without folds.
Weight	500 to 850g/m <sup>2</sup> Weight determined by total weight/total surface.
Thickness	ISO 5084 5mm minimum (1KPa on 2000mm <sup>2</sup> )
Tensile strength	ISO13934-1 250N warp and weft minimum
Tensile strength loss after washing	ISO13934-1 and ISO 6330 Maximum 5% warp and weft after 3 consecutive machine washing at 30°C and one flat drying.
Shrinkage maximum	ISO 6330 Maximum 5% warp and weft after 3 consecutive machine washing at 30°C and one flat drying.
Weight loss after washing	Maximum 5% after 3 consecutive machine washing at 30°C and one flat drying.
Thermal resistance	ISO 5085-1 TOG 4 (or 0.4m <sup>2</sup> .K/W) minimum, rounded to the nearest 0.1, passed on samples picked from compressed bales after 3 consecutive machine washing at 30°C and 1 flat drying.
Resistance to air flow	ISO9237 under 100Pa pressure drop Maximum 1000 L/m <sup>2</sup> /s
Finish	Whipped seam at 10mm from the edge with 10 to 13 stitches/10cm or stitched ribbon or hemmed on 4 sides.
Organoleptic test	No bad smell, not irritating to the skin, no dust. 4<pH<9. Free from harmful VOC (Volatile Organic Components). Fit for human use.
Fire resistance	ISO12952-1&2 Resistance to cigarette - No ignition ISO12952-3&4 Resistance to flame - No ignition
Packing	Bales to be wrapped in a water-tight micro perforated plastic film and covered with a polypropylene or jute woven bag. - Quantity per bale: 20 pieces. - Compressed and strapped with 5 straps (2 lengthwise, 3 crosswise). - Bales dimensions: Length approx. 0.8m, width approx. 0.5m - Height of the bales to be compressed by maximum 40% from free state to final compressed and strapped state. (ex: if the bale is 1m high at free state, it should be compressed to a height of 0.6m at final and strapped state). Marking on the package BLANKET, SYNTHETIC, 1.5x2m, high thermal - 20 pieces. IOM logo Other markings as specified in contract.

2.3. Synthetic Fleece blanket medium thermal resistance

Blanket, synthetic, 1.5x2m, medium thermal resistance			
Item code:	1100000019	Unit Weight:	0.53-1.02kg
		Packed Volume:	0.02m <sup>3</sup>

Test conditions	Specification under the normal textile test conditioning ISO139, 65% moisture and 20°C for 24h.
Samples for testing purpose	Samples of blankets must be from compressed bales. All criteria to be passed on the same sample. (Samples of compressed bales to be prepared with only 5 blankets folded once more than in normal bales, at 40% compression ratio, and to remain compressed for one week minimum before testing).
Make	Knitted or woven, dry raised both sides
Content	ISO 1833 on dry weight: 100% virgin polyester and/or acrylic fibres or polyester/cotton
Colours	Other than black, red, or white, dark uniform colour.
Size	150 x 200cm +3%/-1%. To be taken on flat stabilised sample, without folds.
Weight	350 to 670g/m <sup>2</sup> Weight determined by total weight/total surface.
Thickness ISO 5084	3mm minimum (1KPa on 2000mm <sup>2</sup> )
Tensile strength	ISO13934-1 250N warp and weft minimum
Tensile strength loss after washing	ISO13934-1 and ISO 6330 Maximum 5% warp and weft after 3 consecutive machine washing at 30°C and one flat drying.
Shrinkage: maximum	ISO 6330 Maximum 5% warp and weft after 3 consecutive machine washing at 30°C and one flat drying.
Weight loss after washing	Maximum 5% after 3 consecutive machine washing at 30°C and one flat drying.
Thermal resistance ISO 5085-1	TOG 2.5 (or 0.25m <sup>2</sup> .K/W) minimum, rounded to the nearest 0.1, passed on samples picked from compressed bales after 3 consecutive machine washing at 30°C and 1 flat drying.
Resistance to air flow	ISO9237 under 100Pa pressure drop Maximum 1000 L/m <sup>2</sup> /s
Finish	Whipped seam at 10mm from the edge with 10 to 13 stitches/10cm or stitched ribbon or hemmed on 4 sides.
Organoleptic test	No bad smell, not irritating to the skin, no dust. 4<pH<9. Free from harmful VOC (Volatile Organic Components). Fit for human use.
Fire resistance	ISO12952-1&2 Resistance to cigarette - No ignition ISO12952-3&4 Resistance to flame - No ignition
Packing	- Bales to be wrapped in a water-tight micro perforated plastic film and covered with a polypropylene or jute woven bag. - Quantity per bale: 20 pieces. - Compressed and strapped with 5 straps (2 lengthwise, 3 crosswise). - Bales dimensions: Length approx. 0.8m, width approx. 0.5m - Height of the bales to be compressed by maximum 40% from free state to final compressed and strapped state. (ex: if the bale is 1m high at free state, it should be compressed to a height of 0.6m at final and strapped state). Marking on the package: LANKET, SYNTHETIC, 1.5x2m, medium thermal - 20 pieces. IOM logo Other markings as specified in contract.



### 3. Buckets and Jerry cans:

#### 3.1. Bucket, plastic

Bucket, plastic, 14L, Heavy duty plastic			
Item code:	1100000020	Unit Weight:	min 780g
		Packed Volume:	tbc.



Description	Heavy-duty plastic bucket, with handle and lid with attached clip-on cap.
Manufacturing process	injection moulding.
Material:	Virgin HDPE high density polyethylene, and virgin LDPE low density polyethylene
Dimension +/-5%:	Height: 300mm - Top diameter: 300mm - Bottom diameter: 240mm. Cover with outlet of 50mm +/- 10% and clip cap.
Capacity:	minimum 14L
Minimum weight:	bucket 600g, cover 150g, handle 30g
Design:	Reinforced bottom ridge to prevent scraping of the base. Reinforced top to prevent ovaling. Curved inside base to wall join for easy cleaning.
Colour:	Bucket: white. Cover and handle: Preferably red.
Marking:	Manufacturer identification plus manufacturing month and year molded on the bucket.
Lid test:	The bucket filled with 14L water must resist one fall on the side without opening.
Drop test:	The bucket filled with 14L water, must resist without damage to 2 consecutive vertical drops from 2m high from bucket bottom to smooth flat concrete floor. The bucket must be elevated on a remote-activated rocking platform, so that the lowest point is at 2m from the ground.
Flexibility test:	The bucket must get back its original shape without damage after applying a pressure on the two sides of top rim to make them touch one another in the middle.
Handle test:	The handle must resist folding flat on the cover, pushed on left end, and pushed on right end. The handle must also resist to 28kg traction in normal usage position.
Packing:	In strong carton boxes of 20 buckets and covers, with clipped-on handles.  Boxes of export quality with minimum 5 ply and reinforced corners. Filled boxes must resist without any damage to a weight or a pressure of 230kg applied on a strong rigid board on top of the box (equivalent weight to 6m high stacking). The board size to be at least 100mm larger than the box in width and length (e.g. plywood 20mm thickness).  The packing must guaranty that the buckets will not be pressed one in other to avoid blocking the buckets together.
Marking on the boxes:	Product name and qty, plus any other requirements as per contract.

### 3.2. Jerrycan, plastic flat bag, zip closing

Jerrycan, Type 1, 10L, plastic flat bag			
Item code:	1100000021	Unit Weight:	145g
		Packed Volume:	0.1m3 for 250pcs

Capacity:	10L
Weight:	145g
Material:	Made of Polyamide 38micron - Polyethylene 280micron UV stabilised with non-toxic coating
Fitted with:	- A built-in carrying handle - Zipper closed top opening, 140mm
Impact Resistance / Drop Test:	The collapsible jerrycan must be impact resistant on a hard smooth concrete surface when filled with maximum volume of water (10L) at ambient temperature. The complete drop test consists of 10 consecutive drops from 2m high. The jerry can must be elevated on a remote-activated rocking platform, so that the lowest point is at 2m from the ground. Test result is expressed as a product ranking according to the number of drops passed without damages or leakage. To be accepted, the jerry can must resist to minimum 3 drops.
Packaging and shipping	250 bags in a carton box, weight: 38kg, dimensions: 600 x 400 x 400mm 16 boxes stacked and strapped to a Euro pallet 800 x 1200 x 1750mm - weight 630kg

### 3.3. Jerrycan, plastic, foldable

Material Group: NFI-JCAN			
Jerrycan, Type 2, 10L, plastic foldable			
Item code:	1100000022	Unit Weight:	140g+/-5%
Jerrycan, Type 3, 15L, plastic foldable			
Item code:	1100000023		
Jerrycan, Type 4, 20L, plastic foldable			
Item code:	1100000024	Unit Weight:	270g+/-5%



Capacity:	10L - 15L - 20L according to contract specification
Weight:	140g+/-5% for the 10L type upto 270g+/-5% for the 20L type
Material:	Manufactured of food grade LDPE should not contain toxic elements according to EN 1186-3-9 standard. Must stand by itself, even when filled to 1/4 of its maximum volume.
Average thickness:	0.6mm and minimum corner thickness 0.5mm.
Fitted with:	- A built-in carrying handle with minimum 9 cm long and 3 cm high, with no sharp edges, OR - A carrying handle made of plastic, attached to the bag with two galvanized steel rings. - A screwable cap for filling and discharge that is linked to the container by polyamide string with diameter of min 1mm and 120mm length.
Inner diameter of the cap:	30 to 35mm for the 10L type, and 45 to 55mm for the 15L and 20L types.
Impact Resistance / Drop Test:	The collapsible jerrycan must be impact resistant on a hard smooth concrete surface when filled with maximum volume of water (10L or 15L or 20L) at ambient temperature. The complete drop test consists of 10 consecutive drops from 2m high. The jerry can must be elevated on a remote-activated rocking platform, so that the lowest point is at 2m from the ground. Test result is expressed as a product ranking according to the number of drops passed without damages or leakage. To be accepted, the jerry can must resist to minimum 3 drops.



### 3.4. Jerrycan, plastic, rigid

Jerrycan, Type 5, plastic rigid			
Item code:	1100000025	Unit Weight:	1Kg

Material	New HDPE plastic (high density polyethylene), blow moulded. Recycled plastic not allowed.
Suitability for drinking water	(containing no toxic elements) to be certified by approved official body.
Manufacture	Injection moulded screw cap of 50mm diameter minimum.
Approximate weight	1kg per piece.
Colour	Light colour only (white, yellow), UV treated for long-term outdoor use.
Impact resistance / drop test	Should resist 5 drop tests from 2m high, full with water.

## 4. Mats (plastic-flooring)

Sleeping mat, 1.80mX090m, twill weave			
Item code:	1100000027	Unit Weight:	730g minimum



Description	Floor mats made in a tightly woven twill weave fabric (2/1, 3/1, 2/2, 3/2) of clean and neat appearance.
Warp:	Pure virgin polypropylene (PP) multifilament 500 deniers minimum
Weft:	Pure virgin polypropylene (PP) hollow tubes not containing any filler
	Minimum 1000 tubes in weft per meter length
Finish:	The two short sides to be secured with a first stitch folded hem of the mat, plus one bias 40mm binding tape of minimum 10g/m with stitches through the fabric of the mat, OR with a double folded stitched hem. Four sides trim finished.
	The binding is secured and durable to prevent the fraying of the mat, which will result in rapid disintegration of the structure
Colour:	Assorted, with neutral design.
Finished Size:	1.80mX0.90m minimum
Weight:	450g/m <sup>2</sup> minimum
Bursting strength:	ISO13938: 700 kPa minimum
Packing:	Bales of 25 or 50 pieces, compressed to a final volume.
	Package to be wrapped in a protective outer PP woven canvas, with 4 straps. No individual packing required.



## 1. Kitchen set

Kitchen set B - cooking&servng, 36pcs			
Item code:	1100000026	Unit Weight:	5kg
		Packed Volume:	0.019m <sup>3</sup>

### 1.1. Kit contents

Item	unit	qty
Bowl, for food, 1L, stainless steel	pcs	5
Fork, table, stainless steel	pcs	5
Frying Pan, 2.5L, used as lid for the 7L cooking pot	pcs	1
Knife, kitchen, stainless steel blade 15cm, plastic handle	pcs	1
Knife, table knife, stainless steel	pcs	5
Spoon, wooden, stirring, 30cm	pcs	1
Spoon, soup, stainless steel, 15 ml	pcs	5
Cooking Pot, 5L, s.steel, diam 20 cm, with handles and lid	pcs	1
Cooking Pot, 7L, s.steel, diam 24 cm, with handles	pcs	1
Cup, stainless steel, with handle, 300ml	pcs	5
Plate, deep, stainless steel, diam. 22 cm, cap. 0.75L	pcs	5
Scouring Pad	pcs	1

Note: kits contents may be adapted to the context.

Specifications below are after [procurement.ifrc.org/catalogue](http://procurement.ifrc.org/catalogue)

### 1.2. General comments

- When ordering a kitchen set, if time allows, the composition of the set can be adapted.

All items are preferably made of stainless steel.

Only one alternative is accepted:

- Aluminium cooking pots and frying pan instead of stainless steel

The specifications below indicate the minimum quality standards for stainless steel and aluminium materials.

Alternative plastic packaging, if available, can be re-used for food or water storage.

#### 1.2.1. Material specifications

##### Stainless steel:

- For the tableware (plates, cups, bowls, forks, spoons and knives):
  - 200 series stainless steels of the appropriate grades for tableware items, or
  - ISO type 1.4016 (American grade 430), or
  - ISO type 1.4301 (American grade 304).

For the cookware (cooking pots and pan):

- 200 series stainless steels of the appropriate grades for cookware items, or
- ISO type 1.4016 (American grade 430), or
- ISO type 1.4301 (American grade 304).

- All the steel grades used for manufacturing the tableware items must be officially recommended by the steel manufacturer for such application. The kitchen set supplier will make available all the documents showing the origin of the steel, the steel manufacturer recommendations, and the appropriate control of the grade and the quality. The steel manufacturers must be ISSF members.
- Food grade to be certified in conformity with EU regulations n°1935/2004 on materials and articles intended to come into contact with food.
- Applicable standard as per publication EN 10088-1.

### Aluminium, alternative material for cooking pots and frying pan:

- Aluminium type Al99,0 or above as per publication ISO 209-1 (min 99% aluminium). Other elements as per EN 602.
- Publications with applicable standards:

ISO 209-1: Wrought aluminium and aluminium alloys - alloys - Chemical composition and forms of products - Part 1: Chemical composition.

EN 602: Aluminium and aluminium alloys - Wrought products - Chemical composition of semi products used for the fabrication of articles for use in contact with food.

### Black steel items:

Black steel, cold-hammered common mild steel.

#### 1.2.2. Design of the items:

Manufacturers and suppliers are invited to provide items with designs that improve the performance of the material, considering different types of design bends/veins on the pots, lids, bowls, plates, spoons, forks, knives and cups.

## 1.3. Kitchen set items

### 1.3.1. Cooking Pot, 7l (frying pan lid fits)

Capacity:	7 litres minimum total inner volume
Material:	Stainless steel (or aluminium where specified in contract)
Diameter:	min 25cm, max 28cm internal diameter
Thickness:	min 0.8mm in the center of the bottom and minimum 0.6mm at 20mm from the top of the wall (aluminium min1.75mm)
Handles:	2 stainless steel handles, attached with leakage-proof rivets, or welded, bent upward to allow a hanging bar to pass through (aluminium handles for aluminium pots). Handles to resist to 20kg load in the normal usage position
Lid:	refer to frying pan
Finish:	No sharp edges, food grade surface finish

### 1.3.2. Cooking pot, 5l, with lid

Capacity:	5 litres minimum total inner volume
Material:	stainless steel (or aluminium if specified in contract)
Diameter:	min 22cm max: 24cm internal diameter
Thickness:	min 0.8mm in the center of the bottom and minimum 0.6mm at 20mm from the top of the wall (aluminium minimum 1.75mm)
Handles:	2 stainless steel handles, attached with strong leakage proof rivets, or welded, bent upward to allow a hanging bar to pass through (aluminium handles acceptable for aluminium pot) Handles to resist to 16kg load in the normal usage position
Lid:	min 0.6mm (aluminium minimum 1mm) with strong durable handle /knob that resist to minimum 2kg traction
Finish:	no sharp edges , food grade surface finish

**1.3.3. Frying Pan, 2.5l, used as lid for the 7L cooking pot**

Capacity:	2.5 litres minimum total inner volume
Material:	stainless steel (or aluminium if specified in contract)
Diameter:	Adapted as a lid for the 7 litre cooking pot.
Handle:	1 detachable steel or aluminium handle. Handle to resist to 10kg vertical load measured at 15cm distance from the inside of the pan
Thickness:	min 0.8mm in the center of the bottom (aluminium min 1.75mm)
Finish:	no sharp edges, food grade surface finish

**1.3.4. Bowl, 1l, metallic**

Capacity:	1 litres minimum
Material:	stainless steel
Height:	5 to 7cm
Thickness:	min 0.5mm in the center of the bottom
Finish:	no sharp edges, food grade surface finish

**1.3.5. Plate, 0.75l, metallic**

Capacity:	0.75 litres minimum
Material:	stainless steel
Thickness:	min 0.5mm in the center of the bottom
Diameter:	24 to 25cm (must be adapted to the size of the cooking pot to be packed inside)
Finish:	no sharp edges, food grade surface finish

**1.3.6. Cup, 0.3l, metallic**

Capacity:	0.3 litres minimum
Material:	stainless steel
Handle:	Securely welded. Handle to resist to 1kg pulling
Finish:	no sharp edges, food grade surface finish

**1.3.7. Spoon, table, 10ml, stainless steel**

Capacity	10ml minimum
Material	one-piece stainless steel, solid
Length	17cm minimum
Thickness	min 1mm in the center of the scoop
Finish	no sharp edges, food grade surface finish

**1.3.8. Fork table, 17cm, stainless steel**

Material:	one-piece stainless steel, solid
Length:	17cm minimum
Thickness:	min 1.5mm at the back of the tines
Finish:	no sharp edges, food grade surface finish

**1.3.9. Knife, kitchen, 15cm stainless steel blade**

Material:	stainless steel blade, wood or plastic handle
Thickness:	Blade base min 1.5mm, measured at the middle of the blade
Length:	Blade 15cm usable length minimum
Finish:	No sharp edges apart from the cutting edge, food grade surface finish

**1.3.10. Serving spoon, 35ml, stainless steel**

Capacity	35ml minimum
Material	one-piece stainless steel, solid
Length	30cm minimum
Thickness	min 1mm in the center of the scoop
Finish	no sharp edges, food grade surface finish

**1.3.11. Wok, 7L, black steel (optional)**

Capacity:	7 litres
Material:	black steel, protected from rust for storage
Diameter:	min 37cm, max 39cm
Thickness:	min 1mm
Finish:	no sharp edges

**1.3.12. Chopstick, 25cm (optional)**

Material:	plastic or bamboo.
Length:	25cm
Thickness:	min. 4x4mm
Finish:	no sharp edges, rounded at the end

**1.4. Packing and Marking**

Type:	1 carton box, outer dimensions 0.3 x 0.3 x 0.25m
Height	dimension shall be adjusted to the parcel content.
Material:	double-corrugated, 5 plies, export-quality cardboard
Strength:	withstands 6m-high stacking for more than 48h, and 10 handlings. The final package should resist without any damage to a weight or a pressure of 120 kg applied on a strong rigid board on top of the box.
Seal:	tape plus 4 plastic 10mm straps
Markings	To be marked with IOM logo.



## 1. Mosquito Net

Mosquito net, 190x150x180m, LLIN, PE			
Item code:	1100000028	Unit Weight:	800g

Pre-treated long lasting impregnated mosquito net (LLIN), must be WHO/WHOPES approved (<http://www.who.int/whopes/en>) (full or interim).

Fabric weight:	30 gram per square meter +1 0%,
Enhanced durability:	21 + washes
Flammability test	Class 1 (16-CFR 1610 CS191-53),
Size:	190wx150Hx180L,
Suspension points:	6 point loops made
Colour:	White
Materials:	100% polyester or PE (impregnated)
Packing:	Each bale has 100 pieces

### Background:

Following WHO recommendation, only Long Lasting Insecticidal Nets (LLIN's) which require no further treatment during their expected life span (of average 3 to 5 years according the use, type and fabric origin) should be purchased. LLIN's allow a better and effective protection against mosquitoes and other insects and have to be considered as part of an overall strategy related to malaria control, as impregnated nets decrease the morbidity from between 50%-70%.

There are different types of netting material (polyester, polyethylene, and polypropylene). The most commonly used for LLIN, and for which WHO recommendations have been developed, are polyester (PES) and polyethylene (PE).

In the WHO Position statement document for Insecticide Treated Mosquito nets, the WHO recommends a move away from polyester made nets.

<http://www.who.int/entity/malaria/publications/atoz/itnspospaperfinal.pdf>

WHOPES (WHO Pesticide Evaluation Scheme) approved LLIN on:

<http://www.who.int/whopes/en>

It is important to keep in mind that "LLIN" does not mean "WHO approved". Many wholesalers propose LLINs which are not WHO approved, and should not be supplied.





<b>Summary of material requirements</b>	
Material for the plain sheet	Woven high-density polyethylene (HDPE) black fibers fabric laminated on both sides with white low density poly ethylene (LDPE) coating.
Material for the reinforced attachment points (sheets)	6 bands of 7.5cm width made of woven black HDPE fibers fabric and coated with grey LDPE on the outside.  Pre-punched 8mm holes on the 2 side bands at 0.1m +/-10% intervals, positioned in the center of the bands (only the reinforcement bands are pre-punched, not the tarpaulin itself).  Position of the 6 bands and pre-punched holes as per drawing below.
Tear strength in plain sheet at state of origin	Minimum 100N under ISO 4674-1 2003, strip of 200x200mm, in plain sheet
Tensile strength in plain sheet at state of origin	Minimum 500N and 15% to 25% elongation in warp and weft in plain sheet under ISO 1421-1.
UV resistance of the plain sheet, measured as remaining tensile strength after UV exposure	The tarpaulin tensile strength under ISO 1421-1 after 1500 hours UV under ASTM G53/94 (UVB 313 nm peak) must be:  Minimum 80% of the original value of the actual product, AND not less than 475N.  To be tested in the plain sheet.
Tensile strength in the reinforcement bands at state of origin	Minimum 700N inside the reinforcement bands as per ISO 1421-1, pulling lengthwise in a pre-punched hole of 8mm with a hook of 8mm wire diameter. To test in 2 holes in each side bands
UV resistance of the reinforcement bands measured as remaining tensile strength after UV exposure	The reinforcement bands tensile strength under ISO 1421-1 after 1500 hours UV under ASTM G53/94 (UVB 313 nm peak) must be:  Minimum 80% of the original value of the actual product, AND not less than 665N.  To be tested inside the reinforcement bands as described above.
Welding number and strength at state of origin	Only one welding allowed, in the middle of the sheet, length wise. The tarpaulin tensile strength crossways at the place of the welding under ISO 1421-1 must be:  Minimum 50% of the original value of the actual product, AND not less than 400N.  Size, weight, colour, fire resistance
Width	4 m ± 1% net width
Length	6m ± 1% net length
Weight, plain sheet only, excluding the bands weight	190g/m <sup>2</sup> ± 20g under ISO 3801  (equivalent to 170g/m <sup>2</sup> minimum to 210g/m <sup>2</sup> maximum)
Weight, complete sheet including bands weight.	Plain sheet specific weight plus 10% additional weight for the reinforcement bands under ISO 3801.  Total weight from 187g/m <sup>2</sup> minimum and 231g/m <sup>2</sup> maximum  Specific weight of the bands from 150g/ m <sup>2</sup> minimum and 200g/m <sup>2</sup> maximum
Flame retardant	Not mandatory for the time being.

## 1. Plastic Sheet / Tarpaulin

Colour	<p>White sun reflective on both sides of the sheet. Grey coating on the outside of the bands. Inner black fibres to ensure opacity.</p> <p>White Coating colour definition:</p> <p>L.a.b Coordinates under ISO 105J01</p> <p>Minimum L : 82</p> <p>“a” value between -1.7 and +1.5</p> <p>“b” value between -4.5 and 0</p>
Opacity	<p>Minimum reflection and absorption percentage, measured under ISO 13468-1, in the range of visible light and near infrareds (respectively from 350 to 750nm, and from 750 to 2500nm wavelength).</p> <p>Minimum total reflection in visible light + infrared: 35% Minimum total absorption in visible light + infrared: 60%</p> <p>All percent above 35% in reflection can be deducted from the 60% absorption in the limit of 15% to reach a maximum of 50% reflection.</p> <p>Marking, packing, and accessories</p>
Printing	Continuous indelible printing in white colour of the manufacturer name, the month and year of production (Letters of 2.5cm high +/-10%). Length indicator marks every meter. IOM logo.
Bale dimensions	Length: 600mm; Width: 400mm; Height: 180mm (+/-20%) There must be 5 tarpaulins per bale
Bale marking	As per indicated in contract.
Bale protection	<p>The bale must be wrapped with a piece of similar material as the one of the tarpaulins.</p> <p>The wrapping must be properly folded, closely tight to the bale content, making a well-shaped cubic bale.</p> <p>Inside the bales the tarpaulins are not individually wrapped.</p>
Bales strapping	The bale must be strapped with 2 heat-sealed plastic straps for the length and 2 for the cross.



## 1. Tent: Family (standard version)

Tent, Type 1, Standard Family 6.5x4x2.2m			
Item code:	1100000029	Unit Weight:	55KG

Specification available on request, but after ICRC/IFRC. This is consistent with UNHCR and IRC family frame tents.

Family tent (standard version ridge type)

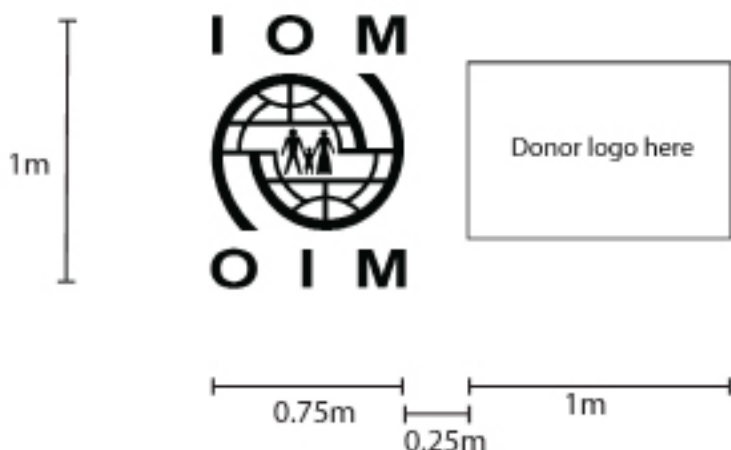
This canvas ridge tent is the current humanitarian standard as procured by IFRC/ ICRC and UNHCR. The specification has been developed over time and reflects many years of product development and testing.

given that the design detailing of tents is relatively complex, the attached specification allows for quality control and resolution of any disputes that may arise with suppliers. For more on quality control, usage and checklists, please look at ICRC/IFRC catalogue at <http://procurement.ifrc.org>, from which this specification is taken.

### 1.1. Specifics to IOM:

Logos:

IOM logo to be placed on both sides of the tent or as agreed by the mission. In colour, CMYK values: C100 M82 Y10 K2, or black.



### 1.2. Material properties - standard tent

1.2.1. Specifications for the outer-tent roof canvas	
Type and norms	Required minimum values
1. Composition ISO 1833	Polyester and cotton blended fibres yarns. cotton: 40% ( $\pm 10$ ), polyester: 60% ( $\pm 10$ ) i.e., 50 to 70% polyester, with balance in cotton
2. Specific weight (g/m <sup>2</sup> ) ISO 3801	350g/m <sup>2</sup> ( $\pm 15\%$ ) in finished state.
3. Colour	Natural white, not dyed
4. Water-vapour permeability ISO 17229	Minimum 2000g/m <sup>2</sup> /24h
5. Tensile strength (N) Apply ISO 13934-1 to 10 test pieces of plain canvas. Apply ISO 13935-1 on 5 test pieces with seams, cut from the tent perpendicular to the seam, in the roof.	Warp and weft 850N minimum. For plain canvas test: 5 test pieces in warp direction, 5 test pieces in weft. On seams, the test is applied to 50mm width on the sample, as described in ISO 13935-1 page
6. Tear resistance, started (N) –ISO 9073-4	Warp and weft 60N minimum.
7. Water-penetration resistance ISO 811 Test pieces of plain canvas.	30hPa minimum, increasing speed at 100mm per minute.



<p>8. Rain-penetration resistance ISO 5912:2003.</p> <p>The test piece is the complete tent.</p> <p>(attention: ISO 5912:2011 does not apply)</p> <p>Outer tent: There should be not more than 10 drops of water in maximum 2 places, penetrating inside the outer tent, including through wick effect. Only the 4 places at the top of the door poles may have some leakages through the eyelets.</p> <p>Inner tent: There should be no water penetrating inside the inner tent, or wetting the inner tent canvas.</p>	<p>Apply procedure as per point 4.2.11 in ISO 5912:2003 in point 5.6 plus following:</p> <p>A visual control from the inside of the tent, while the artificial rain is on, must be done after 2h and 5h, with the complete tent.</p> <p>The test operator should ensure that the set-up of the test will not create condensation inside the tent that could be interpreted as leakages.</p>
<p>9. Dimensional variation when soaked in water ISO 7771</p>	<p>Maximum 3%</p>
<p>10. Tensile strength resistance after exposure to micro-organisms under ISO 13934-1 and ISO 13935-1 after completing BS 6085 (soil burial - 28 days).</p> <p>Apply on 10 test pieces of plain canvas and 5 test pieces with seams.</p>	<p>30% maximum strength-loss on minimum required value and 50% maximum strength-loss on original value of the same product.</p> <p>For plain canvas test: 5 test pieces in warp direction, 5 test pieces in weft.</p> <p>On seams, the test is applied to 50mm width on the sample, as described in ISO 13935-1 page 7.</p>
<p>11. Efficiency of water-repellent treatments after soaking in water. Same test as point 7, on samples soaked in water under ISO7771 without wetting agent.</p>	<p>30hPa minimum, increasing speed at 100mm per minute.</p>
<p>12. Efficiency of fungicides product after soaking in water. Same test as point 10, on samples soaked in water under ISO7771 without wetting agent.</p>	<p>10% maximum additional loss as compared to the results from point 10.</p>
<p>13. Tensile strength after exposure to UV and moisturizing (climatic simulation).</p> <p>Exposure in a climatic chamber under ISO 4892-2, type A, 360 hours, followed by tensile test under ISO13934-1.</p>	<p>30% maximum strength-loss on minimum required value and 50% maximum strength-loss on original value of the same product.</p> <p>Number of test pieces: 3 test pieces in warp direction, and 3 test pieces in weft.</p>

<p><b>1.2.2. Specifications for the outer-tent wall canvas</b></p>	
<p>Type and norms</p>	<p>Required minimum values</p>
<p>1. Composition ISO</p>	<p>1833 Polyester and cotton blended fibres yarns cotton: 40% (±10), polyester: 60% (±10)</p> <p>i.e., 50 to 70% polyester with balance in cotton.</p>
<p>2. Specific weight (g/m<sup>2</sup>) ISO 3801</p>	<p>200 g/m<sup>2</sup> (±10%) in finished state.</p>
<p>3. Colour</p>	<p>Natural white, not dyed.</p>
<p>4. Water-vapour permeability ISO 17229</p>	<p>Minimum 2000g/m<sup>2</sup>/24h.</p>
<p>5. Tensile strength (N)</p> <p>Apply ISO 13934-1 on 10 test pieces of plain canvas.</p> <p>Apply ISO 13935-1 on 5 test pieces with seams, cut from the tent perpendicular to the seam.</p>	<p>Warp and weft 650N minimum.</p> <p>For plain canvas test: 5 test pieces in warp direction, 5 test pieces in weft.</p> <p>On seams, the test is applied to 50mm width on the sample, as described in ISO 13935-1</p>
<p>6. Tear resistance, started (N) ISO 9073-4</p>	<p>Warp and Weft 40N minimum.</p>
<p>7. Water-penetration resistance ISO 811</p> <p>Test pieces of plain canvas.</p>	<p>20hPa minimum, increasing speed at 100mm per minute</p>
<p>8. Dimensional variation when soaked in water ISO 7771</p>	<p>Maximum 3%</p>

<p>9. Tensile strength resistance after exposure to micro-organisms under ISO 13934-1 and ISO 13935-1 after BS6085 (soil burial - 28 days). Apply on 10 test pieces of plain canvas and 5 test pieces with seams.</p>	<p>30% maximum strength-loss on minimum required value and 50% maximum strength-loss on original value of the same product.</p> <p>For plain canvas test: 5 test pieces in warp direction, 5 test pieces in weft.</p> <p>On seams, the test is applied to 50mm width on the sample, as described in ISO 13935-1 page7</p>
<p>10. Efficiency of water-repellent treatments after soaking in water.</p> <p>Same test as point 7, on samples soaked in water under ISO7771 without wetting agent.</p>	<p>20hPa minimum, increasing speed at 100mm per minute.</p>
<p>11. Efficiency of fungicides product after soaking in water. Same test as point 9, on samples soaked in water under ISO7771 without wetting agent.</p>	<p>10% maximum additional loss as compared to the results from point 9.</p>
<p>12. Tensile strength after exposure to UV and moisturizing (climatic simulation).</p> <p>Exposure in a climatic chamber under ISO 4892-2, type A, 360 hours, followed by tensile test under ISO 13934-1.</p>	<p>30% maximum strength-loss on minimum required value and 50% maximum strength-loss on original value of the same product.</p> <p>Number of test pieces: 3 test pieces in warp direction, and 3 test pieces in weft.</p>

<b>1.2.3. Specifications for the inner tent canvas</b>	
Type and norms	Required minimum values
1. Composition ISO 1833 Polyester and cotton blended fibres yarns	cotton: 40%(±10), polyester: 60%(±10) i.e., 50 to 70% polyester with balance in cotton or cotton 100%.
2. Specific weight (g/m <sup>2</sup> ) ISO 3801	130 g/m <sup>2</sup> ±10% in finished state.
3. Colour	Dyed sand or cream colour.
4. Water-vapour permeability ISO 17229	Minimum 2000g/m <sup>2</sup> /24h.
5. Tensile strength (N) ISO 13934-1	Warp and weft 300N minimum.
6. Tear resistance, started (N) ISO 9073-4	Warp and weft 20N minimum.
7. Tensile strength resistance after exposure to micro-organisms under ISO 13934-1 after BS 6085 (soil burial - 14 days). Apply on 10 test pieces of plain canvas	30% maximum strength-loss on minimum required value and 50% maximum strength-loss on original value of the same product. 5 test pieces in warp direction, 5 test pieces in weft

<b>1.2.4. Specifications for mud flap PE fabric</b>	
<b>Specifications for standard plastic sheeting can also apply.</b>	
Type and norms	Required minimum values
1. Composition	Woven, high-density polyethylene black fibres, fabric laminated on both sides with low-density polyethylene coating.
2. Specific weight (g/m <sup>2</sup> ) ISO 3801	180gr/m <sup>2</sup> (±5%)

3. Tensile strength (N) Apply ISO 13934-1 on 10 test pieces of plain PE fabric. Apply ISO 13935-1 on 5 test pieces with seams, cut from the tent perpendicular to the seam, at the junction of PE and canvas.	Warp and weft 650N minimum. Elongation 15% to 25%. For plain PE fabric test: 5 test pieces in warp direction, 5 test pieces in weft. On seams, the test is applied to 50mm width on the sample, as described in ISO 13935-1
4. Tear resistance (N) ISO 4674-1 (method B)	Warp 100N minimum, weft 100N minimum.
5. Resistance to micro-organisms	Insensitive to micro-organisms. Not to be tested.
6. UV resistance as percentage of tensile strength-loss under ISO 1421, after 1500 hours UV under ASTM G53/94 (UVB 313nm peak)	30% maximum strength-loss on minimum required value and 50% maximum strength-loss on original value of the same product  5 test pieces in weft direction, 5 test pieces in warp.
7. Colour	White if made with standard plastic sheeting or any other colour except military green, green, brown or various kaki colours

### 1.2.5. Specifications for the groundsheet PE fabric

Specifications of standard plastic sheeting can also apply. In this case the original lab report from the PE factory will be accepted if still valid.

The same type of PE as per the one used for the mud flaps can be used for the ground sheet. In this case the criteria below do not apply.

Type and norms	Required minimum values
1. Composition	Woven polyethylene fabric, coated on both sides with low-density polyethylene.
2. Specific weight (g/m <sup>2</sup> ) ISO 3801	180gr/m <sup>2</sup> (± 5%)
3. Tensile strength (N) ISO 1421	Warp 300N minimum, weft 300N minimum.
4. Tear resistance (N) ISO 4674-1 (method B)	Warp 60N minimum, weft 60N minimum.
5. Resistance to micro-organisms	Insensitive to micro-organisms. Not to be tested.
6. UV resistance as percentage of tensile strength-loss under ISO 1421 after 300 hours UV under ASTM G53/94 (UVB 313nm peak)	30% maximum strength-loss on minimum required value and 50% maximum strength-loss on original value of the same product.  5 test pieces in weft direction, 5 test pieces in warp
7. Colour	White if made with standard plastic sheeting or any other colour except military-green. green, brown and various kaki colours.

### 1.2.6. Specifications for the mosquito net, inner-tent doors and windows - Frame Tent

Type and norms	Required minimum values
1. Material ISO 1833, colour	Polyester 100%, or PE 100%, white
2. Fabrication ISO 8388	Warp knitted
3. Denier	75/100 for the polyester 100 to 150 for the PE
4. Filament	Multi-filament 36 or higher for the polyester Monofilament for the PE
5. Mesh size	25 holes/cm <sup>2</sup> (156 holes/inch <sup>2</sup> )
6. Weight ISO 3801	Minimum 85 g/m <sup>2</sup> for polyester
7. Shrinkage ISO 5077	5% maximum
8. Bursting strength ISO 13938	250 kPa minimum for polyester  320 kPa minimum for PE

9. Bursting strength after exposure to UV and moisturizing (climatic simulation)  Exposure in a climatic chamber under ISO 4892-2, type A, 180 hours, followed by bursting test under ISO 13938  loss on original value of the same product.	30% maximum strength-loss on minimum required value and 50% maximum strength  Number of test pieces: 3 test pieces
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<b>1.2.7. Specifications for the outer- tent guy points</b>	
<b>Type and norms</b>	<b>Required minimum values</b>
1. Material composition	Polyethylene, polypropylene or polyester ropes, Polyester straps, steel rings, elastic device.
2. Tensile strength (N) ISO 13934 on the samples with a complete guy point ensemble including all of the reinforcement pieces.  Refer to note (below).	3000N minimum for the 6 side guy points (3 test pieces). 3000N minimum for the rear wall guy point (1 test piece). 1400N minimum for 2 other guy points (1 test piece). Elongation of the elastic device under 1000N: 50mm minimum, 100mm maximum.
3. UV resistance in percentage of tensile strength-loss after exposure in a climatic chamber under ISO 4892-2, type A, 360hours.	30% maximum strength-loss on minimum. required value and 50% maximum strength-loss on original value of the same product  1 test piece at 1400N, 1 test piece at 3000N.
4. Colour	Black ropes and straps, galvanized steel.
<p>Notes for point n°2:</p> <p>Sample size: width 300mm x length 500mm</p> <p>Samples to be cut at the centre guy line for the 6 side points (500mm length sample).</p> <p>Sample to be cut at the ridge back end for the back wall guy point (500mm length sample).</p> <p>Sample to be cut on the top corner of the outer doors for the 2 other points.</p> <p>Samples to be folded in order to fit in the traction apparatus so that the entire width of the canvas is submitted to the traction when clamped in the jaw of the apparatus. Samples must include: a canvas section from the tent roof, canvas reinforcements, strap, ring, elastic device, buckle, runner and a significant part of the guy rope (the ring and the runner do not need to be included in the UV test).</p> <p>Traction must be applied between the tent's roof canvas and the guy rope.</p>	

<b>1.2.8. Specifications for hammer</b>	
<b>Type:</b>	<b>Sledge hammer, 1kg head, with 30cm wooden handle.</b>
	In accordance with ISO 15601 and the specification listed below.
Handle:	No chips, rough surfaces, holes or knots. Smooth surface. Strong dry flexible wood. Handle adjusted to head in order to protrude on other side of the head, and be blocked with a metal wedge; or have a conical shape (like a hoe).  Moisture minimum 10% and maximum 15%, under ISO 3130
Pull apart test:	Clamp head in a vice jaw after two series of 25 vigorous blows from varying delivery angles. Apply traction of 500N while trying to pull out the handle; there should be no damage to the hammer's head or handle, and the handle should remain firmly attached to the head.

### **1.3. General points for finished product**

#### **1.3.1. Performance**

The final product must be able to withstand a 75km/h wind without any damage and remain securely attached to the ground without any loss of tension.

When closed, the tent must provide good protection against dust, wind, rain, snow, insects and small crawling fauna.

Minimum roof-load must be 300N/m<sup>2</sup> under ISO 8937 (snow load for camping tent). The recommended packed-tent weight is 55kg.

#### **1.3.2. Seams and stitching**

All seams that are subject to possible tension must be double lock stitched and waterproofed. Stitching produces strong, long-lasting, neat and professional looking seams.

The stitch count as well as UV and rot-proof sewing threads must be appropriate and suited to the fabric. Stitching must provide strong, waterproof seams with at least the same lifespan as the tent.

The seams must be oriented to facilitate the unimpeded runoff of rain: avoid creating water lines or water pockets.

Wherever possible, the colour of the sewing thread should be compatible with the fabric colour.

#### **1.3.3. Ropes, webbing bands, toggles, loops, reinforcement nettings and all other accessories**

All ropes and webbing bands must be heat cut. All ropes are knotted to the tent at the factory. All of the above-mentioned items must be rot-proof and UV-proof (to the same degree as the tent canvas to which they are sewn). To avoid water penetration through capillarity action, no webbing or rope can be sewn using a stitch that goes from the outside to the inside of the tent; alternatively, they must be made of waterproof materials.

Outer-tent laces and loops can be made of the same canvas as the tent roof or walls, and inner-tent loops can be made of the same canvas to which they are sewn.

#### **1.3.4. Zip fasteners**

All the zip fasteners must conform to a resistance of 700N lateral traction under ISO 5912.

#### **1.3.5. Eyelets**

All metal eyelets must be rustproof and correctly placed, reinforced with a fabric patch and have a minimum inner diameter of 10mm.

#### **1.3.6. Metal rings**

All metal rings must be rustproof, galvanized and welded closed.

### **Dimensional tolerance**

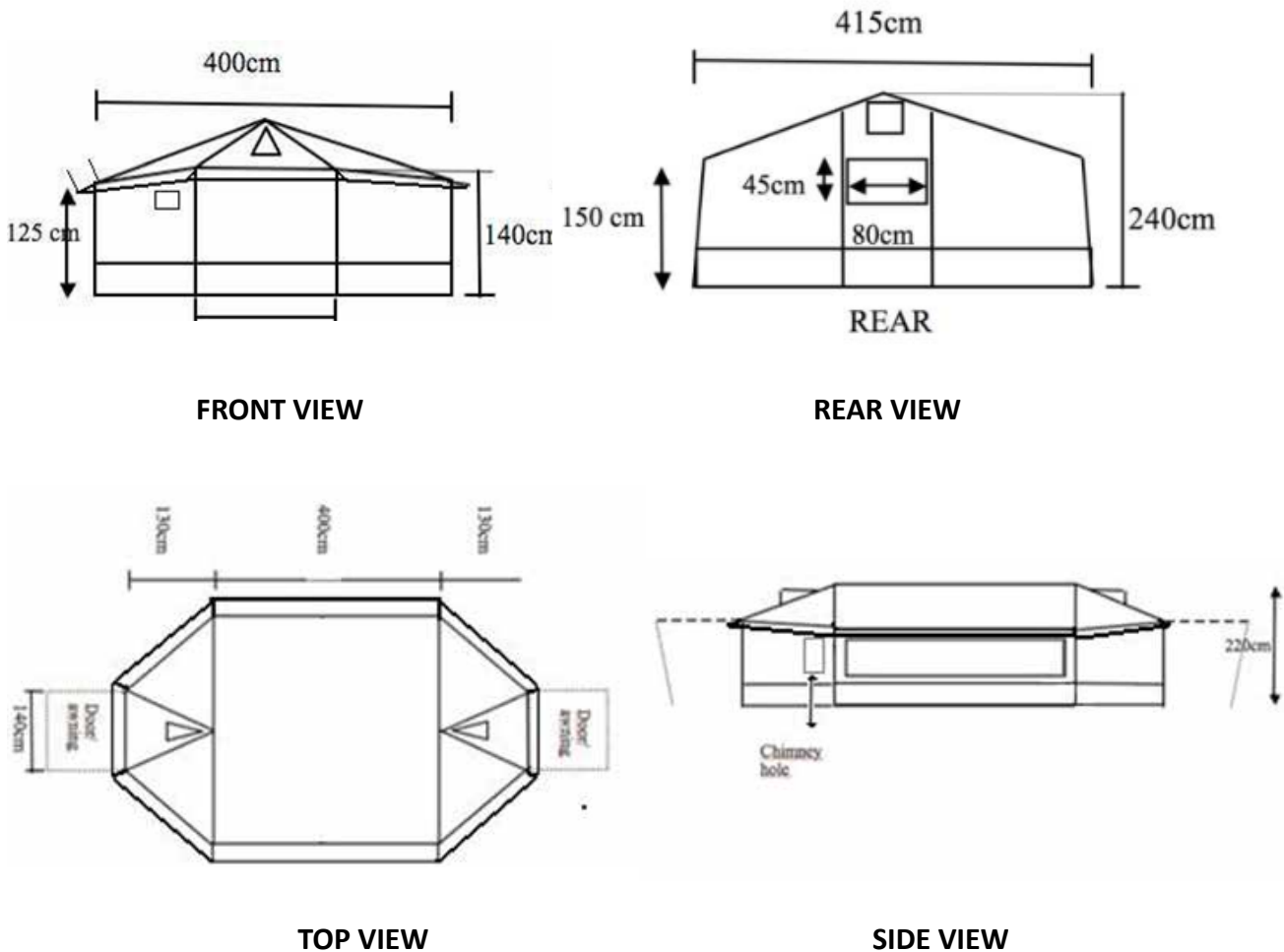
Unless otherwise specified, a maximum tolerance of +/- 3% is accepted on all dimensions.

### **Long-term storage**

The tent must be treated and packed in such a way that the tent can be stored for a 5-year minimum under proper storage conditions without any damage or reduction in performance.

The tent must be manufactured and packed in clean and appropriate conditions to avoid contamination from soil, dust and other contaminants.

## 1.4. Characteristics of the outer tent



### 1.4.1. General description of outer tent

The outer tent must be comprised of several cloth sections, forming the general shape of the tent. The seams must run from the ridge down to the edges of the roof, perpendicular to the ridge line.

The outer tent must be supported by 3 upright poles, 1 ridge pipe, 6 side poles, 4 door poles, 3 guy ropes on each side, and 2 guy ropes at each end. The attachment points for each guy rope must be reinforced

### 1.4.2. Dimensions / erecting system

Centre height: 2.2m

Width: 4m

Ridge length: 4m

Side wall height: 1.25m

Door height: 1.4m

Centre base length: 6.5m

The outer tent must rest on the ridge pipe supported by 3 upright poles, one at each end and in the middle of the ridge pipe. The outer tent must be maintained in position on the ridge pipe by 2 100mm-long canvas sleeves with a Velcro fastening running the full 100mm length; the sleeves are placed 200mm from each end of the ridge pipe.

The side walls and the vestibules must be supported by 10 poles; metal hooks on the top of the poles hook into eyelets in the webbing band (25mm wide) sewn to the top of the wall on the inside. These poles must not protrude through the outer tent. The hooks at the top of the poles must be as flat as possible.

### 1.4.3. Reinforcements

The 10 guy points on the roof must be made of 50mm-wide polyester straps, and be sewn to the eave (an extension of the roof). The eave must be made of a double fold of roof canvas, 200mm in width, and run the perimeter of the tent roof, including above the doors. The eave must be part of the roof panel, without any break (seam) in the canvas. On the 6 guy points located on the sides of the tent, an additional layer of PVC-coated canvas must be added on the inside to protect against abrasion from the top

s of the poles.

Additionally, the 6 guy points on the side must be reinforced with a second triangular piece of canvas, 300mm in length (one side), sewn to the edge of the eave with the point extending into the roof section.

The entire length of the ridge must be reinforced on the inside with a 150mm strip, in the same fabric as the roof. The attachment sleeves for the ridge pipe must be sewn to this reinforcement.

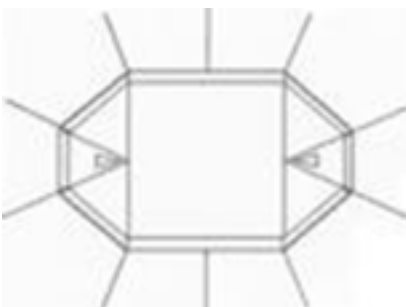


### 1.4.4. Attachment System (guy lines)

The outer tent must be anchored to the ground using 10 guy lines attached to 10 metal pegs. Each guy point, on both sides of the tent, require a loop made of 50mm-wide webbing. The webbing length allows, when folded in two, for the creation of a 30mm-long loop, at a minimum. This should be stitched to the tent with a strong Z sewing, minimum 50mm in length.

The webbings for the door pole guying points must be 250mm long, in order to cover the tops of the poles and to have the eyelet placed in the webbing.

The 2 central side webbing loops must be sewn perpendicular to the side edges of the tent, the 4 corners webbing loops must make an equal angle with the roof and vestibule edge and the 2 front and 2 rear webbing loops aligned with the vestibule's roof stitching . See drawing.



10 metal rings must be attached to the loops with an elastic device. The ropes pass through the 10 metal rings and when tension is applied, the ropes slide through the metal rings.

At the other end, the ropes must have a preformed knotted loop to place over the peg.

The attachment points must be made in such way that they comply with the resistance characteristics specified in part 1.7 of this specification.

#### 1.4.4.1. Long-term storage

The tent must be treated and packed in such a way that the tent can be stored for a 5-year minimum under proper storage conditions without any damage or reduction in performance.

The tent must be manufactured and packed in clean and appropriate conditions to avoid contamination from soil, dust and other contaminants.



### 1.4.5. Side windows

The outer tent must have 2 long windows protected with a rain flap running the length of both sides of the tent. The inside dimensions of the windows must be 3600mm wide by 600mm high; the top edge of the window must be situated 100mm below the roof of the tent. The window openings must be reinforced either with strong reinforced netting (large holes, strong plastic net) or strips of 20mm polycotton webbing, reinforcing the window horizontally (1 webbing) and vertically (7 webbings). The webbings must be sewn to the edges of the window and/or to the netting.

The window flaps are made of PE sheet similar to the mud flap material. Each window flap must be 3960mm wide x 700mm high and stitched 50mm above the top of the window edge. The flap must have a strip of 25mm-wide Velcro webbing along the length of its vertical sides and its bottom, sewn 25mm from the edge of the window.

Loops and plastic toggles or hooks must be attached to keep the flap open when rolled up .

### 1.4.6. Ventilation on top of the vestibules

The outer tent requires 2 ventilation openings, front and back, protected with a rain flap . The vents must be triangular-shaped and situated at the top of both vestibules. The inside dimensions of the vents must be full width of the roof panel by 400mm high. The vent flap must be made such that, when opened, it remains distanced from the ventilation opening with a height of 300mm +/-50mm at its centre.

To secure the flap when closed, the cone opening must have a 25mm-wide Velcro strip running its full width.

The vent openings must be reinforced either with strong reinforced netting (large holes, strong plastic net) or with two strips of 20mm cotton or polyester webbing that bisects the vent horizontally and vertically. These webbings must be sewn to the edges of the vent opening and to the netting.



### 1.4.7. Outer Tent Doors

Size: 1.3m width x 1.4m high

Door flaps 1.4m width x 1.6m high:

- Upper part 1.4m width x 0.9m high, made of canvas.
- Lower part 1.4m width x 0.7m high, made of woven PE fabric.

The vestibule doors can be used as awnings by moving the front door poles to the 2 eyelets situated at the bottom corners of the doors. Rolled up, door must be held in place by 2 loops and 2 plastic toggles or hooks.

The doors must close with a lacing system. The loops of the lacing system must be made of 4mm rope or canvas strips (7 loops and eyelets per door side). The lacing system requires a toggle or hook in order to attach the last loop .

The lacing system must be protected by a doubled 50mm-canvas flap to prevent rain and draughts.

Each door must be constructed such that one side closes from the inside and the other from the outside.



#### 1.4.8. Side walls, vestibule walls, mud flaps

Total height 1.45m; i.e., a 1.25m vertical length plus a 0.2m overlay which rests on the ground.

The upper part (top 0.75m) of the walls must be made of a polyester-cotton fabric and the lower part (0.7m) of PE fabric.

The mud flaps must be equipped with 22 eyelets (7 on each side including the corners, 2 on each vestibule side) placed on a strip of 50mm-wide webbing running the full-length of the flap (the entire perimeter of the tent); the webbing must be sewn or heat-sealed to the mud flap on the inside at floor level. The thread and stitch length must be appropriate to the materials to avoid tearing along the stitching (not applicable if heat-sealed). The 2 eyelets on the vestibule side mud flap must be placed one next to the door, and one half-way between the door and the tent corner.

The outer tent must be attached to the side poles with webbings or canvas strings; these must be stitched to the inner side of the outer tent where the PE joins the polycotton and in front of each side and door pole (10 points in total).



The vestibule walls must be made in the same way as the side walls, to complete the outer tent between the doors and the side walls. One of the vestibule walls requires a reinforced chimney hole.

#### 1.4.9. Chimney reinforcement

A chimney reinforcement (non-perforated) must be located 0.5m from a corner at either end of the tent, between the side-wall corner and its adjacent tent-door corner. It must be made of heat-resistant fabric (minimum 900°C). The type of fabric in which the fibres do not loosen and do not tear when cut.

The lower edge of the heat-resistant fabric must be 500mm above the ground, where the canvas joins the PE part (a band of canvas of 2 to 3cm is allowed between the PE and the fireproof material).

Net inner dimensions of the fireproof part: 250mm width x 600mm height.

Chimney flap dimensions: 350mm width x 700mm height. The flap must be stitched, along the bottom, at the lower edge of the chimney opening. To secure the flap, it must have a 25mm-wide Velcro webbing sewn along the entire length of its 2 vertical sides and upper end, and sewn to the tent 25mm outside the edge of the chimney opening.

The tent fabric must be cut away completely at the chimney opening. The edges of the chimney opening must be hemmed stitched to the inside.



### 1.4.10. Other accessories

Four 30mm-loops must be attached to the inside of the tent where the inner tent doors have corresponding toggles at the top of the inner tent door zips (refer to inner tent door description).

10 D-rings (25mm x 4mm thickness) must be attached inside the outer tent; the inner tent hooks to these D-rings (refer to inner tent description point 4/4): 6 D-rings must be attached to the webbings at the top of each side-pole position, the remaining 4 must be placed in intermediate positions.

6 D-rings, secured by a piece of 25mm-wide webbing, must be sewn to the mud flaps at floor level inside the tent; the inner tent attachment strings hook onto these D-rings

### 1.4.11. Plastic for document pouch

On the outside of each left-hand vestibule wall there must be a clear plastic document sleeve. The material must be made of UV-stabilized polyurethane transparent plastic with a minimum thickness of 0.15mm. The lower edge of the sleeve must be 800mm above the ground. The sleeve must have a rain proof opening on the bottom and the two vertical sides sewn to the tent. The inside dimensions of the sleeve, after sewing, must be 230mm high by 310mm wide.

### 1.4.12. Manufacturer identification

Made with a strong textile tag of 10x10cm with durable print, and stitched inside the outer tent, in the vertical seam of one tent corner. The tag should include the manufacturer's name, the batch number and the production's date.

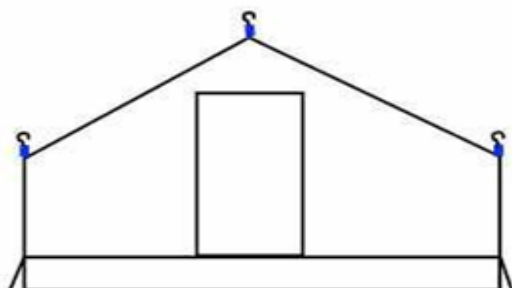
## 1.5. Inner tent with ground sheet

### 1.5.1. General description

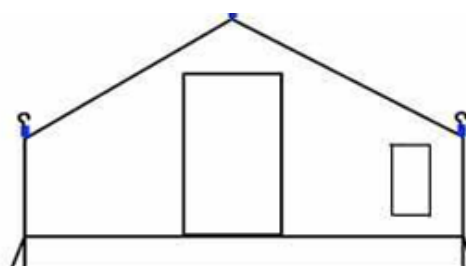
The inner tent must be square-shaped and hang inside the outer tent structure. All dimensions must be designed to ensure a 10cm air gap between the outer and inner tents.

The inner tent must have chimney reinforcement, 2 windows, 2 doors and 2 vents. The bathtub groundsheet (floor) must be made of woven PE fabric, and be sewn to the inner tent extending up the sides of the wall to ensure the inside remains waterproof. Stitching is not permitted on the lower part of the groundsheet to ensure 100% waterproofing.

#### Ridge



Inner tent front



Inner tent rear

### 1.5.2. Inner tent dimensions

The inner tent, when hooked to the outer tent, must have a centre height of 2.1m, a width of 3.8m, a wall height of 1.15m and a base length of 3.95m.

### 1.5.3. Inner doors

Each door opening must be 1m wide and 1.75m above the floor (1.55m measured from the upper edge of the groundsheet).

Door panels (1.1m wide) must be placed in the centre of the front and rear walls.

A door must be made of the same material as the tent and close with polyester n°10 coil zip fasteners on the 2 vertical sides. The zip fasteners must open from both the inside and outside. The doors must have a 200mm PE flap at the bottom, made of the same material as the groundsheet.

Black UV-stabilized ropes or canvas laces with plastic toggles or hooks must be provided to keep the door opened when rolled up .

Mosquito nets (1.1m wide) must be placed on the inside of the doors. The 2 vertical sides must close with n°10 polyester coil zip fasteners.

The bottom edge of the mosquito flap must close with one piece of 25mm-wide Velcro along the entire width.

### **To facilitate door closing:**

- Two 80mm-elastic webbing loops with an attached toggle or hook must be placed along the sides of each door, at the top, aligned with the zips. These attach to the corresponding 3cm loops inside the outer tent.
- 2 webbing loops with eyelets must be placed at the bottom of each door, aligned with the zips. These are used to attach the tent to the ground with 6mm x 230mm pegs. The 200mm long webbing loops must be stitched into the seam where the PE joins the fabric.

### **1.5.4. Inner Tent Suspension System**

The inner tent suspends between the 2 end poles, attached (knotted) by 2 strings or strips, 25mm by 200mm long at each end.

The inner tent must be suspended from the ridge pipe by 8 galvanized 4mm wire hooks mounted on 8 50mm-wide webbing loops. The total length of a loop including its metal hook must be 100mm. One hook must be placed at each end, 2 in the centre (100mm either side of the centre pole gap) and the 4 remaining hooks equally spaced on each side.

The side walls of the inner tent must hook, using strong plastic or metal hooks mounted on webbing loops, to a corresponding D-rings on the inside of the outer tent, at the top of each side pole and in the intermediate positions. The loops are made of 25mm-wide webbing bands. The complete length of the attachment including the hook must be 100mm. 5 hooks in total per side at the top of the wall. 3 hooks in total per side at the bottom of the wall. The attachment loops are elasticized for the bottom of the wall, there are non-elasticized for the top of the wall.

Elastic webbing bands for the bottom of the walls are stitched to the tent in the seam where the PE and fabric join.

The inner tent must have 28 20mm-loops, made of canvas; these can be used to attach the inner lining or the inner partition - both of which are optional features. The loops must be attached to the inside of the inner tent at every place where the inner tent attaches to the outer tent or to the frame, with an additional 2 loops at the bottom of each door (8 at the ridge, 5 at the top of each side wall, 3 at the bottom of each side wall and 2 at the base of each doors).

### **1.5.5. Inner tent ventilation system**

The inner tent has 2 triangular vents in each gable top, made of mosquito netting reinforced with 20mm webbings. The netted triangle must fill the space from the ridge to the top of each door. The ventilation system must close from inside with a flap that rolls downwards, and seal with 25mm-wide Velcro on all sides.

The inner tent has two long vents on each side of the ridge, made of mosquito netting reinforced with 20mm webbings. Dimension: Each side is 200mm wide x full length of the ridge. The ventilation system must close from inside with a flap stitched along the ridge, hanging freely when open, and closing with 25mm-wide Velcro on all sides.

### **1.5.6. Inner tent windows**

The inner tent has 2 windows of equal size (and reinforcement) that align with the outer tent windows. The window openings must be reinforced with mosquito-netting combined with strips of 20mm polycotton webbing, reinforcing the window horizontally (1 webbing) and vertically (7 webbings). The webbings must be sewn to the edges of the window and to the mosquito netting.

The flaps, made of the same material as the inner tent, must be sewn from the inside and open downwards. The flaps hang freely when open and close using a 25mm-wide Velcro strip on three sides.

### **1.5.7. Accessories inside the inner tent**

To hang light-weight items, three 20mm-hooks (mounted on 20cm webbing) and one pouch, made of netting material attached on 3 sides, of 150 x 200mm inner net dimension, must be sewn inside the inner tent at the ridge.

The pouch hangs from the ridge on the same spot as the 2nd ridge suspension hook; the 3 light weight hooks are placed at the same spots as the 3rd, 6th and 7th ridge suspension hooks.

### **1.5.8. Groundsheet**

The integrated groundsheet must be made of PE woven fabric. The seam, attaching the groundsheet to the sides of the inner tent, must be 200mm above the floor. To avoid water infiltration no stitched seams are permitted, all groundsheet seams must be welded (heat sealed) and have a 25mm overlap. A reinforced patch, 150 x 150mm, of the same material as the groundsheet must be glued or sealed to the centre of the groundsheet to prevent the centre pole from damaging the groundsheet.

The groundsheet must be hooked to the outer tent D-rings with 6 elastic webbings and plastic hooks, 20mm in width.

### 1.5.9. Chimney reinforcement

A chimney reinforcement (non-perforated) must be situated 0.5m from one of the tent corners, between the corner of one side wall and the corner of the adjacent tent door. It must be made of heat-resistant fabric (minimum 900°C).

Inside dimensions: 250mm width x 800mm height.

The lower edge of the heat-resistant fabric must be 300mm above the ground.

The tent fabric must be completely cut away from around the chimney opening and the edges hemmed stitched.

### 1.5.10. Inner partition

One partition running from either sides of the centre pole to the side walls, constructed from 2 half-partitions, that can be stitched together at the top. The partition is attached to the loops on the inner tent at the roof and wall levels with minimum 6 pairs of string or hooks/toggles with loops, and to the centre pole with 2 pair of string. The partition can be maintained open with 2 additional pair of string or Velcro.



### 1.5.11. Safety information tag

Safety information must be available inside the tent in the form of a durable print on a piece of canvas stitched inside the inner tent with the text found in annex at the end of these specification.

## 1.6. Poles and accessories

### 1.6.1. Poles

- Each section should fit together with a male and female 100mm joint, made with a 200mm long inserted pipe point-welded or crimped into one of the pipes (not to be made with press-reduced pipe diameter).

#### 1.6.1.1. Ridge pipe

- 4m long, galvanized or painted steel pipe with a 30mm-minimum outer diameter and a minimum 1.2mm wall thickness, in 2 or 4 pieces depending on the type of packaging.
- The ends of the ridge pipe must be reinforced with 2 short 100mm-long pipes with an outer diameter of 27.5mm, inserted and point welded at both ends of the ridge.
- 22.5mm-holes drilled 20mm from both ends, into which the upright poles to fit.
- The ends of the ridge pipe must be protected with a plastic cap devoid of sharp or cutting edges.

#### 1.6.1.2. Upright poles

- 2 upright poles, 2200mm each (end plug included), galvanized or painted steel pipe with a minimum outer diameter of 25mm and minimum 1.2mm wall thickness, in one or two pieces depending on the type of packaging. The top 40mm of the 2 poles must have a narrower diameter of 21.5mm (end plug included) to insert into the ridge pipe. The top end of the 2 poles must have a protruding plastic bushing to protect the tent from the edges of the pipe.
- The base of the 2 upright poles must have a metal or plastic base plate 50mm in diameter.
- One central and upright 2170mm-pole (size without U-bracket), galvanized or painted steel pipe with a minimum 30mm outer diameter and minimum 1.2mm wall thickness, comes in one or two pieces depending on the type of packaging. This pole comes with a 30mm-long U-shaped metal bracket.
- The base of the central pole must have a soft flexible plastic or rubber base plate 50mm in diameter, that will not damage the ground sheet while keeping proper stability ..

### 1.6.1.3. Side poles

- 6 1.25m-side poles of painted or galvanized steel pipe with a minimum outer diameter of 19mm and a minimum 1mm wall thickness, in one or two pieces depending on the type of packaging. The top of each pole must have a bent 20 to 30mm pin form into a flat hook.
- 4 1.4m-door poles, painted or galvanized steel pipe with a minimum outer diameter of 19mm and a minimum 1mm wall thickness, in one or two pieces depending on the type of packaging.
- The top of each door pole must have a bent 20 to 30mm pin form into a flat hook.
- Side and door pole base plates must be made from a round piece of plastic or metal, 40mm in diameter, with a 20 to 30mm pin pointing downwards.

### 1.6.2. Ropes/loops/ guy runners

- 6 ropes, black, UV treated, each 3m long, 8mm diameter, with a minimum tensile strength of 300kg.
- 4 ropes, black, UV treated, each 3m long, 6mm diameter, with a minimum tensile strength of 140kg.
- All ropes must be passed through the tent rings at the factory .
- All ropes must have a securely -knotted loop at one end, to place over the peg.
- Hard-wood or strong UV-proof plastic guy runners, red coloured, pre-mounted on the ropes.
- The grain of the wooden runners must run lengthwise in the runner.
- Size of the runners: 100 x 35 x 12mm for wood runners, 15% less if made of plastic, the holes must be the same diameter as that of the ropes and adapted to the good running and blocking of the supplied ropes.
- The ropes must be threaded through the runners in the position that represents the maximum blocking position.

### 1.6.3. Pegs and accessories

- Six 350mm-pegs, made of angled iron 25 x 25mm and 3mm thick, with a 50mm-iron rod 6mm in diameter welded on top . At one end, both wings of the angled iron must be cut at a

45° angle to form a pointed end. At the other end, both wings of the angled iron must be pressed together until they touch and the 50mm by 8mm rod welded to the top . The rod produces a 25mm prominence bent downwards slightly . The 6 pegs must have 2 notches on each wing side, but not directly opposite each other, to improve their grip in soft ground. The notches should be approximately 3mm in width with a maximum depth of 3mm.

Pegs are painted or galvanized.



- 4 300mm-pegs including bend, made of iron rebar 10mm in diameter, with a “candy cane” shaped hook on one end, painted or galvanized.
- 26 230mm-pegs, made of iron bar 6mm in diameter, painted or galvanized, with a round shaped head on one end, to avoid damaging the mud flap when pushed through the eyelets.
- 1 1kg-metal hammer with 300mm wooden handle. (refer to specifications in part 1).
- In the accessory bag, 1 set-up instruction sheet in English, showing step by step set-up information drawings and item content list and information, printed on durable laminated paper or durable fabric (see part 7/1)
- 1 repair kit including: 1 needle, 20m stitching thread, 3m polyester rope or string of 3mm used to attach the canvas spare piece around the bundle as per point 6/1 Standard package.

### 1.7. Packing

#### 1.7.1. Standard package

One tent with all its accessories must come packed in one bundle only . The inner tent and the outer tent are folded so that the groundsheet protects the tent and accessories from dirt and moisture.

Before placing it into the outer bag, the bundle must be protected with one additional layer made with a piece of polycotton canvas as per the wall canvas minimum, of 2.3m x 1m. This canvas is attached around the bundle with 3 ropes of 1m and 3mm diameter.

The outer bag is made of the same material as the one used for the mud flaps of the tent. Total length must not exceed 2250mm maximum, approximate diameter should be 400mm in order to have some extra play to facilitate re-packing.

The metal poles and pegs must be packed in 2 separate bags to avoid damaging other items inside the bundle. Both bags must be made of the same material as the outer bag. The bags must have a closure system that ensures the accessories remain in their bags during transport and handling. Particular care must be taken when packing the pegs to ensure they will not pierce the bag.

The package must be secured with 2 webbing straps on the outside; each strap must have a strong self-locking buckle that will not slide during transport. Each self-locking buckle can be made either with two rectangular buckles of 4mm wire, welded-closed, or with one rectangular buckle and one sliding middle bar, of 4mm steel rod, welded-closed.

The straps must not be sewn to the outer bag. Each strap provides 2 handles.

The buyer's markings must be printed on the outside in indelible ink.

The standard international warning sign "protect from water" must be printed on the outside of the package.

#### 1.7.2. Optional package

The poles can be divided into pieces in order to obtain a package of 1.2m in length.

The package must be a polycotton bag of 1.2m x 0.4m x 0.3m with a zip closure. The bundle must be secured with 2 webbing straps, each with a self-locking buckle that will not slide during transport. Each strap provides 2 handles. The straps must not be sewn to the bag.

All other aspects as per standard packaging instructions.

### 1.8. Specifications part 7: Annexes

#### 1.8.1. Instruction sheet

As per document available at:

<http://www.ifrc.org/PageFiles/95186/208600-Shelter%20instruction%20flyer-EN-HR.pdf>

#### 1.8.2. Safety instruction tag (refers to point 4.11 above).

The text of the instruction tag is:

- Don't use open fire in the tent, use a stove with flue pipes
- Locate the stove away from the walls, with a protection for the floor Make a cut in the fireproof fabric patch to pass the flue pipe
- Maintain always some ventilation, especially when the stove is on use
- When possible, cover the stove with heavy fire resistant material (clay or equivalent)

#### 1.8.3. Summary of all the printing requirements

The following points, already exposed in the specification above, require printing: Manufacturer ID as described in part 3/12

Safety information tag as described in part 4/11 and in part 7/2 Instruction sheet as described in part 5/3 and in part 7/1  
Buyer marking on Outer bag as described in part 6/1

Protect from water on Outer bag as described in part 6/1





## 1. Tent: Family (frame version)

Tent, Type 2, Frame Family 5.2x4.15x2.4m			
Item code:	1100000030	Unit Weight:	78KG
		Unit volume:	0.3M <sup>3</sup>



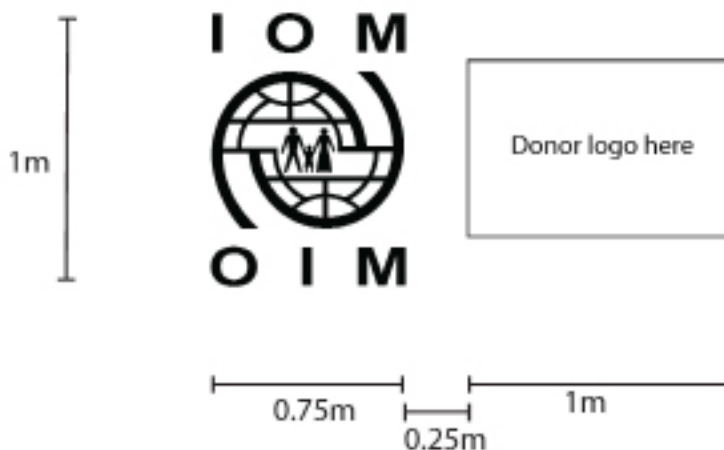
Note this version if the family tent is for cold climates / winter conditions. It is similar to the family tent apart from the fact that it has a steel frame. This frame makes it self standing, and hence more suitable for use on hard ground (or concrete).

(Nb. To date, large volumes of these tents have been procured for Iraq operations) this tent is to the specification of IFRC/ICRC (see [procurement.ifrc.org/catalogue](http://procurement.ifrc.org/catalogue)).

### 1.1. Specifics to IOM:

Logos:

IOM logo to be placed on both sides of the tent or as agreed by the mission. In colour, CMYK values: C100 M81 Y11 K1, or black.



## 1.2. Material properties - frame tent

1.2.1. Specifications for the outer-tent roof canvas	
Type and norms	Required minimum values
1. Composition ISO 1833	Polyester and cotton blended fibres yarns. cotton: 40% ( $\pm 10$ ), polyester: 60% ( $\pm 10$ ) i.e., 50 to 70% polyester, with balance in cotton
2. Specific weight (g/m <sup>2</sup> ) ISO 3801	350g/m <sup>2</sup> ( $\pm 15\%$ ) in finished state.
3. Colour	Natural white, not dyed
4. Water-vapour permeability ISO 17229	Minimum 2000g/m <sup>2</sup> /24h
5. Tensile strength (N) Apply ISO 13934-1 to 10 test pieces of plain canvas. Apply ISO 13935-1 on 5 test pieces with seams, cut from the tent perpendicular to the seam, in the roof.	Warp and weft 850N minimum. For plain canvas test: 5 test pieces in warp direction, 5 test pieces in weft. On seams, the test is applied to 50mm width on the sample, as described in ISO 13935-1 page
6. Tear resistance, started (N) –ISO 9073-4	Warp and weft 60N minimum.
7. Water-penetration resistance ISO 811 Test pieces of plain canvas.	30hPa minimum, increasing speed at 100mm per minute.
8. Rain-penetration resistance ISO 5912:2003. The test piece is the complete tent. (attention: ISO 5912:2011 does not apply) Outer tent: There should be not more than 10 drops of water in maximum 2 places, penetrating inside the outer tent, including through wick effect. Only the 4 places at the top of the door poles may have some leakages through the eyelets. Inner tent: There should be no water penetrating inside the inner tent, or wetting the inner tent canvas.	Apply procedure as per point 4.2.11 in ISO 5912:2003 in point 5.6 plus following: A visual control from the inside of the tent, while the artificial rain is on, must be done after 2h and 5h, with the complete tent. The test operator should ensure that the set-up of the test will not create condensation inside the tent that could be interpreted as leakages.
9. Dimensional variation when soaked in water ISO 7771	Maximum 3%
10. Tensile strength resistance after exposure to micro-organisms under ISO 13934-1 and ISO 13935-1 after completing BS 6085 (soil burial - 28 days). Apply on 10 test pieces of plain canvas and 5 test pieces with seams.	30% maximum strength-loss on minimum required value and 50% maximum strength-loss on original value of the same product. For plain canvas test: 5 test pieces in warp direction, 5 test pieces in weft. On seams, the test is applied to 50mm width on the sample, as described in ISO 13935-1 page 7.
11. Efficiency of water-repellent treatments after soaking in water. Same test as point 7, on samples soaked in water under ISO7771 without wetting agent.	30hPa minimum, increasing speed at 100mm per minute.
12. Efficiency of fungicides product after soaking in water. Same test as point 10, on samples soaked in water under ISO7771 without wetting agent.	10% maximum additional loss as compared to the results from point 10.
13. Tensile strength after exposure to UV and moisturizing (climatic simulation). Exposure in a climatic chamber under ISO 4892-2, type A, 360 hours, followed by tensile test under ISO13934-1.	30% maximum strength-loss on minimum required value and 50% maximum strength-loss on original value of the same product. Number of test pieces: 3 test pieces in warp direction, and 3 test pieces in weft.

<b>1.2.2. Specifications for the inner tent canvas Frame Tent</b>	
<b>Type and norms</b>	<b>Required minimum values</b>
1. Composition ISO 1833 Polyester and cotton blended fibres yarns	cotton: 40%(±10), polyester: 60%(±10) i.e., 50 to 70% polyester with balance in cotton  or cotton 100%.
2. Specific weight (g/m <sup>2</sup> ) ISO 3801	130 g/m <sup>2</sup> ±10% in finished state.
3. Colour Dyed	sand or cream colour.
4. Water-vapour permeability ISO 17229	Minimum 2000g/m <sup>2</sup> /24h.
5. Tensile strength (N) ISO 13934-1	Warp and weft 300N minimum.
6. Tear resistance, started (N) ISO 9073-4	Warp and weft 20N minimum.
7. Tensile strength resistance after exposure to micro-organisms under ISO 13934-1 after BS 6085 (soil burial - 14 days).  Apply on 10 test pieces of plain canvas	30% maximum strength-loss on minimum required value and 50% maximum strength-loss on original value of the same product. 5 test pieces in warp direction, 5 test pieces in weft

<b>1.2.3. Specifications for mud flap PE fabric and the tent packing- Frame Tent</b>	
<b>Specifications for standard plastic sheeting can also apply.</b>	
<b>Type and norms</b>	<b>Required minimum values</b>
1. Composition	Woven, high-density polyethylene black fibres, fabric laminated on both sides with low-density polyethylene coating.
2. Specific weight (g/m <sup>2</sup> ) ISO 3801	180gr/m <sup>2</sup> (±5%)
3. Tensile strength (N)  Apply ISO 13934-1 on 10 test pieces of plain PE fabric.  Apply ISO 13935-1 on 5 test pieces with seams, cut from the tent perpendicular to the seam, at the junction of PE and canvas.	Warp and weft 650N minimum.  Elongation 15% to 25%. For plain PE fabric test: 5 test pieces in warp direction, 5 test pieces in weft.  On seams, the test is applied to 50mm width on the sample, as described in ISO 13935-1
4. Tear resistance (N) ISO 4674-1 (method B)	Warp 100N minimum, weft 100N minimum.
5. Resistance to micro-organisms Insensitive to micro-organisms.	Not to be tested.
6. UV resistance as percentage of tensile strength-loss under ISO 1421, after 1500 hours UV under ASTM G53/94 (UVB 313nm peak)	30% maximum strength-loss on minimum required value and 50% maximum strength-loss on original value of the same product  5 test pieces in weft direction, 5 test pieces in warp.
7. Colour	White if made with standard plastic sheeting or any other colour except military green, green, brown or various kaki colours

<b>1.2.4. Specifications for the groundsheet PE fabric - Frame Tent</b>	
Specifications of standard IFRC/ICRC plastic sheeting can also apply. In this case the original lab report from the PE factory will be accepted if still valid.	
The same type of PE as per the one used for the mud flaps can be used for the ground sheet. In this case the criteria below do not apply.	
<b>Type and norms</b>	<b>Required minimum values</b>
1. Composition	Woven polyethylene fabric, coated on both sides with low-density polyethylene.
2. Specific weight (g/m <sup>2</sup> ) ISO 3801	180gr/m <sup>2</sup> (± 5%)
3. Tensile strength (N) ISO 1421	Warp 300N minimum, weft 300N minimum.
4. Tear resistance (N) ISO 4674-1 (method B)	Warp 60N minimum, weft 60N minimum.
5. Resistance to micro-organisms Insensitive to micro-organisms. Not to be tested.	
6. UV resistance as percentage of tensile strength-loss under ISO 1421 after 300 hours UV under ASTM G53/94 (UVB 313nm peak)	30% maximum strength-loss on minimum required value and 50% maximum strength-loss on original value of the same product. 5 test pieces in weft direction, 5 test pieces in warp
7. Colour	White if made with standard plastic sheeting or any other colour except military-green. green, brown and various kaki colours.

<b>1.2.5. Specifications for the mosquito net, inner-tent doors and windows - Frame Tent</b>	
<b>Type and norms</b>	<b>Required minimum values</b>
1. Material ISO 1833, colour	Polyester 100%, or PE 100%, white
2. Fabrication ISO 8388 Warp knitted	
3. Denier	75/100 for the polyester 100 to 150 for the PE
4. Filament	Multi-filament 36 or higher for the polyester Monofilament for the PE
5. Mesh size	25 holes/cm <sup>2</sup> (156 holes/inch <sup>2</sup> )
6. Weight ISO 3801 Minimum 40 g/m <sup>2</sup> for polyester	Minimum 47 g/m <sup>2</sup> for PE
7. Shrinkage ISO 5077	5% maximum
8. Bursting strength ISO 13938 2	50 kPa minimum for polyester 320 kPa minimum for PE
9. Bursting strength after exposure to UV and moisturizing (climatic simulation) required value and 50% maximum strength Exposure in a climatic chamber under ISO 4892-2, type A, 180 hours, followed by bursting test under ISO 13938	30% maximum strength-loss on minimum Number of test pieces: 3 test pieces

<b>1.2.6. Specifications for the outer- tent guy points - Frame Tent</b>	
<b>Type and norms</b>	<b>Required minimum values</b>
1. Material composition	Polyethylene, polypropylene or polyester ropes, Polyester straps, steel rings, elastic device.
2. Tensile strength (N) ISO 13934 on the samples with a complete guy point ensemble including all of the reinforcement pieces. Refer to note (below).	3000N minimum for the 6 side guy points (3 test pieces). 3000N minimum for the rear wall guy point (1 test piece). 1400N minimum for 2 other guy points (1 test piece). Elongation of the elastic device under 1000N: 50mm minimum, 100mm maximum.
3. UV resistance in percentage of tensile strength-loss after exposure in a climatic chamber under ISO 4892-2, type A, 360hours.	30% maximum strength-loss on minimum. required value and 50% maximum strength-loss on original value of the same product  1 test piece at 1400N, 1 test piece at 3000N.
4. Colour	Black ropes and straps, galvanized steel.
<p>Notes for point n°2:</p> <p>Sample size: width 300mm x length 500mm</p> <p>Samples to be cut at the centre guy line for the 6 side points (500mm length sample).</p> <p>Sample to be cut at the ridge back end for the back wall guy point (500mm length sample).</p> <p>Sample to be cut on the top corner of the outer doors for the 2 other points.</p> <p>Samples to be folded in order to fit in the traction apparatus so that the entire width of the canvas is submitted to the traction when clamped in the jaw of the apparatus. Samples must include: a canvas section from the tent roof, canvas reinforcements, strap, ring, elastic device, buckle, runner and a significant part of the guy rope (the ring and the runner do not need to be included in the UV test).</p> <p>Traction must be applied between the tent's roof canvas and the guy rope.</p>	

<b>1.2.7. Specifications for hammer</b>	
<b>Type:</b>	<b>Sledge hammer, 1kg head, with 30cm wooden handle.</b>
	In accordance with ISO 15601 and the specification listed below.
Handle:	No chips, rough surfaces, holes or knots. Smooth surface. Strong dry flexible wood. Handle adjusted to head in order to protrude on other side of the head, and be blocked with a metal wedge; or have a conical shape (like a hoe).  Moisture minimum 10% and maximum 15%, under ISO 3130
Pull apart test:	Clamp head in a vice jaw after two series of 25 vigorous blows from varying delivery angles. Apply traction of 500N while trying to pull out the handle; there should be no damage to the hammer's head or handle, and the handle should remain firmly attached to the head.

## 1.3. General points for finished product - frame tent

### 1.3.1. Performance

The final product must be able to withstand a 75km/h wind without any damage and remain securely attached to the ground without any loss of tension.

When closed, the tent must provide good protection against dust, wind, rain, snow, insects and small crawling fauna.

Minimum roof-load must be 300N/m<sup>2</sup> under ISO 8937 (snow load for camping tent). In combination with additional central 31 mm support pole included in optional winter package

The recommended final packed tent weight is 76kg

### Seams and stitching

All seams that are subject to possible tension must be double lock stitched and waterproofed. Stitching produces strong, long-lasting, neat and professional looking seams.

The stitch count as well as UV and rot-proof sewing threads must be appropriate and suited to the fabric. Stitching must provide strong, waterproof seams with at least the same lifespan as the tent.

The seams must be oriented to facilitate the unimpeded runoff of rain: avoid creating water lines or water pockets.

Wherever possible, the colour of the sewing thread should be compatible with the fabric colour.

### 1.3.2. Ropes, webbing bands, toggles, loops, reinforcement nettings and all other accessories

All ropes and webbing bands must be heat cut. All ropes are knotted to the tent at the factory. All of the above-mentioned items must be rot-proof and UV-proof (to the same degree as the tent canvas to which they are sewn). To avoid water penetration through capillarity action, no webbing or rope can be sewn using a stitch that goes from the outside to the inside of the tent; alternatively, they must be made of waterproof materials.

Outer-tent laces and loops can be made of the same canvas as the tent roof or walls, and inner-tent loops can be made of the same canvas to which they are sewn.

### 1.3.3. Zip fasteners

All the zip fasteners must conform to a resistance of 700N lateral traction under ISO 5912.

### 1.3.4. Eyelets

All metal eyelets must be rustproof and correctly placed, reinforced with a fabric patch and have a minimum inner diameter of 10mm.

### 1.3.5. Metal rings

All metal rings must be rustproof, galvanized and welded closed.

### Dimensional tolerance

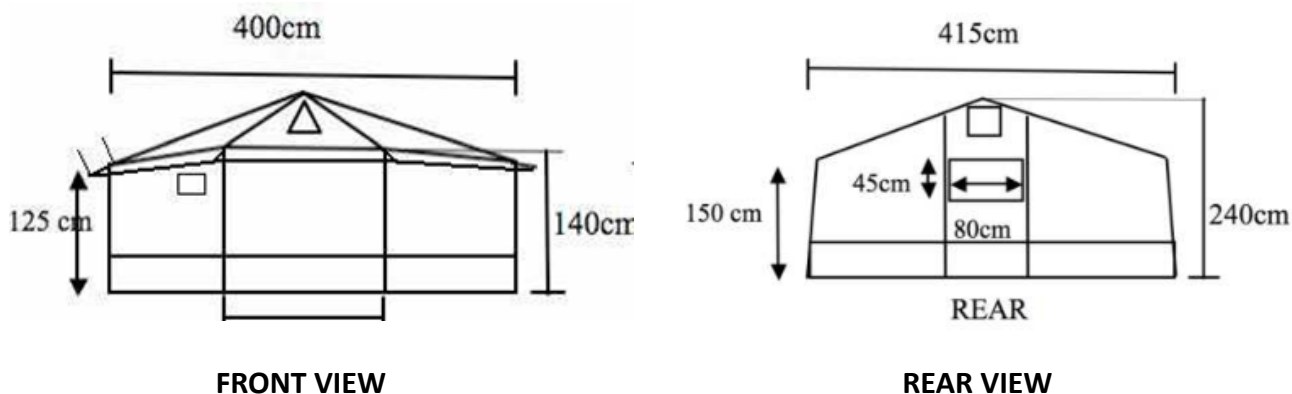
Unless otherwise specified, a maximum tolerance of +/- 3% is accepted on all dimensions.

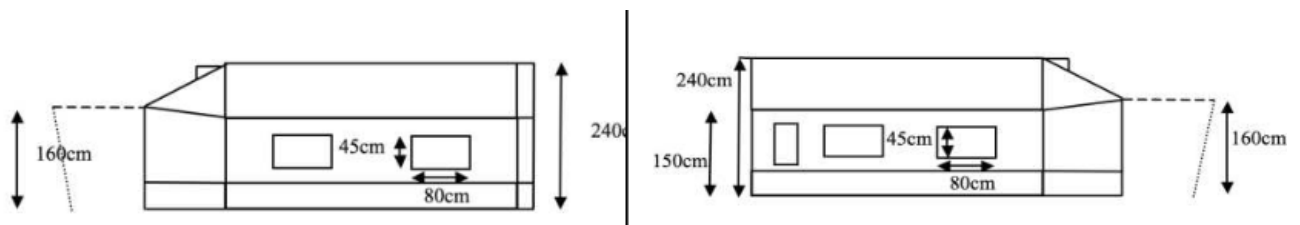
### Long-term storage

The tent must be treated and packed in such a way that the tent can be stored for a 5-year minimum under proper storage conditions without any damage or reduction in performance.

The tent must be manufactured and packed in clean and appropriate conditions to avoid contamination from soil, dust and other contaminants.

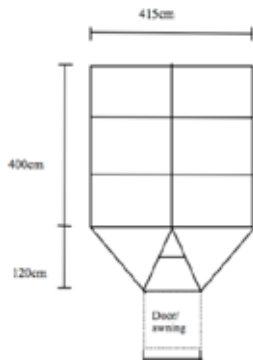
## 1.4. Characteristics of the outer tent - frame tent





**TOP VIEW**

**SIDE VIEWS**



## General description of outer tent

The outer tent is made of several cloth sections that form the general shape of the tent. The seams are running from the ridge down to the roof edges, perpendicular to the ridge line.

The outer tent is supported by a metal frame with 2 up standing poles to support the ridge of the frame, 3 guy ropes on each side, 2 guy ropes at front end and 1 guy rope at the back. The attachment points of each guy rope are reinforced.

### 1.4.1. Dimensions / erecting system

Centre height: 2.4m

Width: 4,15m

Ridge length: 4m

Side wall height: 1.50m

Door height: 1.6m

Centre base length: 5,2 m The outer tent is placed on the frame and maintained in position to the frame by using strings, Velcro straps and webbing bands with hooks ( § 3/8)

### 1.4.2. Reinforcements

The 9 roof guying points are made of 50mm wide polyester straps, sewn to the fabric in extension of the roof. On the 9 guying points an additional layer of PVC coated canvas is added on the inside

The entire length of the ridge is reinforced on the inside with a 150mm strap of same fabric as the roof.



### 1.4.3. Attachment System (guy lines)

The outer tent is anchored to the ground using 9 guy lines which are attached to 9 metal pegs.

Each guying point on both sides presents a loop made of 50mm wide webbing. The length of the webbing allows, when folded double, the creation of a loop of minimum 30mm long, to be stitched to the tent with a strong Z sewing on minimum 50mm long.

The webbing loops are placed perpendicularly to the tent edge on the sides, at 30° angle in the corners, and in the alignment of the vestibule roof shape.

9 metal rings are attached to the loops by the means of an elastic device. The ropes pass into the metal rings. When tensioning, the ropes are sliding in the metal rings.

At the other end, the ropes have a fixed knotted loop to place over the peg.

The attachment points are made in such way they comply with resistance specified in chapter 1.7.

### 1.4.4. 3/5 windows

The outer tent has 6 windows. 5 with mosquito netting and a rain flap running on both sides of the tent and one on the back side. 1 Small window with transparent PE fabric on the vestibule.

The inside dimension of the large windows are 80cm wide and 45cm high and the top edge of the window is placed  $\pm$  30cm below the roof of the tent. The 5 window openings are reinforced either with strong reinforcement netting (large holes strong plastic net) or with standard netting and strips of 20mm polycotton webbing that reinforce the window horizontally (1 webbing) and vertically (1 webbing). These webbings are sewn to the edges of the tent opening and to the mosquito netting.

The window flap is 90cm wide x 55cm high. The flap is held by 25mm Velcro webbing which is placed along the length of the vertical sides and bottom and at a 25mm distance from the window opening.

Loops and plastic toggles or hooks are used to keep the flap open when rolled up.

### 1.4.5. Ventilation on top of the vestibules

The outer tent has 2 ventilation openings in front and back with reinforcement netting and a rain flap. Front vent is triangular and is placed on the top of the vestibule. The inside dimensions of the vent is 280mm wide and 250mm high. The vent flap is made in such a way that they are distanced from the ventilation opening when open, making a  $\frac{1}{2}$  cone shape of 250mm in its middle.

The flap can be closed with a 25mm Velcro attached to the full width.

The back ventilation opening is rectangular and placed on top of the wall, Size 300 x 300 mm

The vent openings are reinforced either with strong reinforcement netting (large holes strong plastic net), or with standard netting and with two strips of 20mm cotton or polyester webbing that bisects the vent horizontally and vertically. These webbings are sewn to the edges of the vent opening and to the netting.





### 1.4.6. Outer Tent Door

#### FRONT DOOR

Size:1.5m width x 1.5m high

Door flaps are 1.5m width x 1.6m high:

- Upper part 1.5m width x 1,08m high is made of canvas.
- Lower part 1.5m width x 0.52m high is made of woven PE fabric.

#### REAR DOOR

Size:1.0m width x 2,1m high

Door flaps are 1.0m width x 2,1m high:

- Upper part 1.0m width x 1,58m high is made of canvas.
- Lower part 1.0m width x 0.52m high is made of woven PE fabric.

The vestibule doors can be used as awnings. The rolled up door is hold up by 3 loops and 3 plastic toggles or hooks.

The doors can be closed by means of lacing/loop system. The loops are made of 4mm rope or canvas strips (7 loops and eyelets per door side). For each lace/loop system, a toggle or a hook is placed in order to attach the last loop.

The lacing/loop system is protected by a double 50mm flap to prevent rain and draughts.

Each door has one side closable from inside and the other side closable from outside.

### 1.4.7. Side walls, vestibule walls, mud flaps

Total height 1.80m corresponding to 1.50m vertical plus 0.3m on the ground.

The upper part (1 m) of the walls is made of Polyester Cotton fabric, lower part (0.7m) of PE fabric.

The mud flaps are equipped with 12 eyelets (2 on each side, 4 in front and 4 rear), placed on a line reinforced with a full length 50mm webbing sewn to the mud flap at floor level, on the inside. Alternatively plastic sheeting can be used and instead of webbing bands reinforcement bands are acceptable. Stitch length and thread to be appropriate for the materials to prevent tear off of the mud flap along the stitching .

The outer tent is attached to the frame and poles, with 8 velcro straps for the roof pipes.

The mudflaps are hooked with 25 mm large adjustable webbing band with hook to the base plates.

### 1.4.8. 3/9 Chimney reinforcement

A chimney reinforcement with non perforated opening is placed at side wall, between the corner and the window. This is made of heat resistant fabric (minimum 900°C). The type of fabric that keeps the fibres not loose when cut.

The lower edge of the heat-resistant fabric must be 500mm above the ground, where the canvas joins the PE part (a band of canvas of 2 to 3cm is allowed between the PE and the fireproof material).

Inside dimensions: 250mm width x 600mm height.

The chimney flap outside is 350mm wide x 700mm high. The flap is stitched at the bottom 50mm under the lower edge of the chimney opening. The flap is held by 25mm Velcro webbing which is placed along the entire vertical sides and upper end at a 25mm distance from the chimney opening.

The tent fabric is cut away completely at the position of the chimney opening. The edges of the chimney opening are hemmed stitched to the inside.

### 1.4.9. 3/10 Connexion flap

Made of same fabric as outer tent. Symetric flap system offer the possibility to connect 2 tents together lengthwise.

## 1.5. Make up of Inner tent with ground sheet - frame tent

### 1.5.1. General description

The inner tent is square in shape and is hanging inside the outer tent structure and is hooked to the frame. All dimensions are meant to allow a 10cm air gap between the outer tent and the inner tent.

At the ground sheet level it is hooked to the frame base plates with 6 elastic webbings and plastic hooks of 20mm width.

The inner tent has one chimney reinforcement, 5 windows, 2 doors and 2 vents.

The bath tub ground sheet (floor) is made of woven PE fabric sewn to the inner tent and extends up the sides of the wall to assure the inside remains waterproof. No stitchings allowed at the lower part of the groundsheet to assure 100% waterproofing.

The ridge of the inner tent has 3 equally divided holes reinforced with PVC fabric to allow protruding of the support poles to join the frame.

### 1.5.2. Inner tent Dimensions

The inner tent, when hooked to the outer tent has a centre height of 2.3m, a width of 3,95m, a wall height of 1.45m and a base length of 3.80m.

### 1.5.3. Inner Doors

The door opening is 1m wide and at 1.70m high from the floor (1.50m measured from the upper edge of the ground sheet).

The door panel (1.0m wide) is placed in the centre of the front wall.

The doors are made of the same material as the inner tent and close with polyester n°10 coil zip fasteners at the 2 vertical sides. The zip fasteners can be opened from the inside and outside.

The doors have a 200mm PE flap at the bottom, made of same material as the ground sheet.

Black UV stabilized ropes or canvas laces with plastic toggles or hooks are used to keep the door opened when rolled up.

Mosquito nets (1.0m wide) are placed on the inside of the doors. The 2 vertical sides are closed with n°10 polyester coil zip fasteners. The bottom edge of the mosquito flap closes with one piece of 25mm Velcro along the entire width.

To facilitate the door closing:

- 2 webbing loops with eyelets are placed at the bottom of each door side aligned with the zips. They are used to attach the tent to the ground with pegs of 6mm x 270mm. The webbing loops are stitched into the seam where the PE join the fabric, and are 200mm long.

### 1.5.4. Inner Tent Suspension System

The inner tent is suspended from the frame with 24 metal galvanized 4mm wire hooks mounted on webbing loops of 50mm wide.

The total length of the loops including the metal hook is 100mm.

The hooks are positioned as per below drawing : 6 at the ridge, 5 on each side wall pipe and 4 on each gable pipe

The side walls of the inner tent are hooked with plastic hooks mounted on webbing loops to the corresponding rings of the base plates of the frame.

These elastic webbing bands are stitched to the tent in the seam where the PE and fabric are joined

The inner tent has 26 loops of 20mm, made of canvas, for the attachment of the optional inner lining or the inner partition. The loops are placed in the inside of the inner tent at every place where the inner tent is attached to the frame, plus 2 loops at the bottom of the front door where the webbings for the ground attachment are placed (6 at the ridge, 5 at the top of each side wall, 3 at the bottom of each side wall, 2 at the base of the front door).

### 1.5.5. Inner Tent Ventilation System

The inner tent has 2 triangular vents at each gable top, made of mosquito net and reinforced with 20mm webbings. The triangle is 900mm x 300mm (all space from the ridge to the top of each door). The ventilation system can be closed with a flap opening downwards, and sealed with 25mm Velcro on all sides.

### 1.5.6. Inner Tent windows

The inner tent has 2 doors, 5 windows, One on each side wall and one at the back wall and of same size and same

reinforcement, corresponding to the outer tent windows. The flap made of same material as the inner tent is placed inside and opens downwards. It closes with 25mm Velcro on all sides, and hangs freely when open.

### 1.5.7. Accessories inside the inner tent

To hang light weight properties, 2 pouches hangs above 2 windows , webbing with hooks at the ridge.

### 1.5.8. Ground Sheet

The integrated ground sheet is made of PE woven fabric. The seam that attaches the ground sheet to the sides of the inner tent is 200mm above the floor. To avoid water infiltration non-stitching seams are allowed in the groundsheet. All seams to be welded by heat sealing and have a 25mm overlap.

### 1.5.9. Chimney reinforcement

A chimney reinforcement with non-perforated opening is placed at the side wall corresponding the chimney reinforcement of the outer fold. This is made of heat resistant fabric (minimum 900°C).

Inside dimensions: 250mm width x 800height.

The lower edge of the opening is 300mm above the ground.

The tent fabric to be cut away completely at the position of the chimney opening. The edges of the opening are hemmed stitched.

### 1.5.10. Inner partitions

One inner partition made of the same material as the inner tent. The partition runs from one side wall to the opposite side wall, in order to divide the inner tent in two equal parts. It is made with 2 pieces of semi-partition. These partitions are attached to the inner lining loops at roof and wall levels, and to the centre pole.

## 1.6. Frame, poles and accessories - Frame tent

### 1.6.1. Frame and poles

Frame sections

- all frame parts are made of 25 x 1,2mm thick galvanised or painted steel pipe

The male fittings of the cross pieces are to be minimum 8 cm long

- Each section should fit together with a male and female 80mm joint, made with a 160mm long inserted pipe point-welded or crimped into one of the pipes (not to be made with press-reduced pipe diameter).

### Support poles

- 2 support central poles of 239cm each (size without U-bracket), with minimum outer diameter 25mm galvanised or painted steel pipe minimum 1.2 mm wall thickness, comes in two pieces. This pole comes with U-shape metal bracket of 30mm long.

- The base of each pole to have a metal or plastic base plate of 50mm diameter.

- The poles protrude the inner tent at PVC reinforced positions on the ridge.

### 1.6.2. Ropes/loops/ guy runners

- 6 ropes, black, UV treated, 3m long each, 8mm diameter, a min tensile strength of 300 kg.

- 2 vestibule ropes, black, UV treated, 3 m long each, 6 mm diameter, a min tensile strength of 140 kg

- 1 back gable rope, black, UV treated, 5 m long, 8mm diameter, a min tensile strength of 300kg

- All ropes to be passed in the rings of the tent from factory.

- All ropes to have a securely knotted loop at one end, to place over the peg.

- Hard wood or strong UV proof plastic guy runners, red colour, already mounted on the ropes.

- The grain of the wood runners to run lengthwise of the runner.

- Size of the runners: 90 x 30 x 12mm, holes to be the same as the diameter of the rope.

- The ropes are passed in the runners in a way that makes the maximum blocking effect on the ropes.

## 1.6.3. Pegs and accessories

- 5 pegs of 350mm long, made of angled iron 25x25mm, 3mm thick, with a iron rod of 50mm long and 6mm diameter welded on the top. On one end, both wings of the angled iron are cut at a 45° angle to form a pointed end. On the other end, both wings of the angled iron are pressed together to touch each other, and the 6mm rod is welded on top of that end. The 6mm rod produces a 25mm prominence slightly bent downwards. These 5 pegs have 2 slots on each side, not opposite, to improve grip in soft ground. The width of the slots is approximately 3mm, the depth is maximum 3mm.

Pegs are painted or galvanised.

- 6 pegs of 300mm long after bending, made of iron Re-bar 10mm diameter, with a hook bended on one end, “candy cane” shape, or a cross shape, painted or galvanised.

- 16 pegs of 270mm long, made of iron bar 6mm diameter, with a round or cross shaped head on one end, to avoid damaging the mud flap when pushed in the eyelets, painted or galvanised.

- 1 metal hammer of 1kg with 300mm wooden handle. (see specification part 1).

- 1 set up instruction sheet in English language plus step by step drawings or photos printed on durable fabric and stitched to the outside of the accessory bag or printed on pole bag.

## Packing - Frame tent

### 1.6.4. Standard package

One tent with all accessories is packed in one bundle. The inner tent and outer tent are folded in a way that assures that the ground sheet provides protection to the tent and accessories from dirt and moisture.

The bundle is made of woven PE fabric described in 1.3.

Total length is maximum 2250mm, approximate diameter is 300mm.

The metal poles and metal pegs are packed in 2 separate bags to avoid damaging other items inside the master bundle. Both of these bags are made

of the same material as the master bundle. These bags have a closure system that assures that the accessories will not come out of the bag during transport and handling. Particular care is taken when packing the pegs to assure they will not pierce the bag.

The bundle is closed with 2 webbing straps, each strap with a self-locking buckle that will not slide during transport. Each strap has 2 handles, (PE or polyester). These straps are not sewn to the bundle.
















The buyer’s markings are printed on the outside in indelible ink.

The international standard warning sign “protect from water” is printed on the outside of the package.

### 1.6.5. Palletizing

It is advisable to use stackable metal frame pallets. Such pallets avoid multiple manual handling of the bags and prevent the bags from being torn, easy and fast on and off loading of containers, trucks, etc. Assures ventilation between the tents while stored in hot and humid climates which is required for long duration storage.

# Packing list

	(A)	<b>2 X</b> CENTRALE POLE - (239 cm)
	(B)	<b>2 X</b> AWNING POLE - (156 cm)
	(C)	<b>6 X</b> FOOT POLE - (139 cm)
	(D)	<b>12 X</b> ROOF POLE - (179 cm)
	(E)	<b>1 X</b> DOOR RIDGE - (160 cm)
	(G)	<b>4 X</b> VESTIBULE POLE - (155 cm)
	(H)	<b>1 X</b> TOP FRONT CROSS PIECE V
	(I)	<b>2 X</b> SIDE FRONT CROSS PIECE IV
	(K)	<b>3 X</b> CROSS PIECE IV
	(L)	<b>3 X</b> CROSS PIECE III
	(M)	<b>2 X</b> HALF INNER SEPARATION
	(X)	<b>5 X</b> "V" PEG - (35 cm)
	(Y)	<b>6 X</b> NAIL PEG - (30 cm)
	(Z)	<b>16 X</b> NAIL PEG - (27 cm)
		<b>1 X</b> HAMMER



## 1. Tent: winterized liner kit - for frame tent

Note this is based on the UNHCR standard tent winterization kit, but with only the following components:

1. Winterized liner with Partition
3. Flooring

Packed in a bag showing the IOM logo, the manufacturer name, batch number and date.

### 1.1. Winterization liner

Winterized liner kit for frame tent			
Item code:	1100000031	Unit Weight:	n/a

#### 1.1.1. General Information

1.1.2. This inner liner for the standard Family Tent is recommended to improve the insulation against the cold. This inner liner is designed to fit together, in particular to the attachment points of the liner, and the heater flue pipe protection. This inner liner includes an inner partition.

#### 1.1.3. Material

Material weight: 130 g/m<sup>2</sup> ±10% in finished state except fire retardant weight.

Tensile strength: ISO 13934-1, warp and weft 300N minimum.

- Tear strength: ISO 9073-4, warp and weft 20N minimum.
- Colour: yellow, beige, cream or sand.
- Fire retardant: pass the CPAI84 chapter 6.
- User's health safety: The materials and additives used in the kit should be non-toxic for human use, free from asbestos and other toxic products, according to the EC regulations.

#### 1.1.4. Design

- The inner liner must be made from one fold of breathable, rotproof and fire retardant canvas in order to hang inside the inner tent, to cover the roof and the four walls down to ground level, plus 40cm on the ground if used with the Standard Family Tent.

#### 1.1.5. Dimensions / Size

- All dimensions to fit the inner dimensions of the standard Family Tent. Centre height: 2.5m, width: 3.8m, wall height: 1.65m, base length: 3.8m.

#### 1.1.6. Packaging

- If supplied individually, packed in a strong waterproof plastic bag.
- Indicate product name on the outer package with indelible marking.
- If supplied within the winterisation kit, no individual package is required.

#### 1.1.7. Features

- The inner liner has 24 pairs of canvas strings to attach to the original loops of the inner tent.
- Both ends are made in a curtain shape that opens in the middle with a 600mm-overlap.
- Inside the inner liner, in the center, five loops allow attaching the inner partition.
- One inner partition is supplied with the inner liner, made with the same fire retardant canvas as the inner liner. This partition is of the same design as the original partition of the tent.
- At the ridge, four openings of 150mm closing with Velcro allow accessing to the three hooks and to the pocket of the tent. These are positioned at the level of the 2nd, 3rd, 6th and 7th ridge attachment points.
- The inner liner has 4 windows, of reduced size compared to the long windows of the tent, and closing with zipper. These windows are 300mmx800mm, horizontally oriented, with 2 round corners at the top, the flaps opening downwards (one zipper per window runs on left, top and right sides). These windows allow accessing the original windows of the tent, thus are placed in the centre of each section of the tent sides, in front of the actual inner tent windows.

- There are four pockets of 400mmx300mm, one under each window, for storage of goods.
- At one end, the inner liner has a patch made of fire proof material of 450mmx800mm, vertically oriented, lower edge positioned at 300mm above the ground.

## 1.2. Insulating floor mat

### General Information

- Insulating mat for use as a protection against the cold from the ground in the standard Family Tent, or in any other floor in cold situation.
- This insulating mat is open at one end to allow filling with local material that may form a basic mattress.
- Normally 5 per tent. Note this item can be bulky for transport.

### 1.2.1. Material

#### First layer, plastic mat

- Plastic floor mat made in a tightly woven twill structure, double thickness (2/1, 3/1, 2/2, 3/2) Virgin polypropylene (PP) multi-filament 500 deniers in warp and virgin polypropylene (PP) hollow tube in weft, not containing any filler.
- Fire retardant to pass CPAI84/5
- Tight woven, with minimum 1000 tubes per meter length
- Weight: 500g/m<sup>2</sup> minimum
- Colour: any colour
- No. of mats: 5 pieces per one unit of Family Tent

#### Second layer, aluminized canvas

- Strong synthetic canvas with durable aluminium coating, soft and noiseless, fire retardant to pass CPAI84/5

#### Third layer fleece blanket

- Refer to our standard synthetic blanket specification, medium
- Thermal, PLUS fire retardant to pass CPAI84/5

### 1.2.2. User's health safety:

- The materials and additives used in the kit should be non-toxic for human use, free from asbestos and other toxic products, according to the EC regulations.

### 1.2.3. Design

The insulating mat is an assembling of three layers:

- First layer, on the ground-side, a plastic mat, double weave.
- Second layer, an aluminized canvas, aluminium face upward.
- Third layer, on upper-side, a fleece blanket.

The assembling is done with a heavy-duty ribbon strongly stitched all around the mat. The second and third layer are also stitched together, lengthwise in the center, and crosswise in 3 lines equally spaced.

At one end, the mat is open on the whole width, to allow accessing in between the plastic mat and the aluminized canvas.

This opening closes with a fold like a pillowcase closing system.

A pair of strong laces is sewn to the mat at one end in the center, to secure the mat when rolled up for transport or storage.

### 1.2.4. Dimensions / Size

- Dimensions: 1.8m x 0.9m

### 1.2.5. Packaging

- If supplied individually, the mat is rolled and wrapped in a protective outer sheet, such as PP woven canvas, and strapped. Indicate product name on the outer package with indelible marking. If supplied within the Winterization kit, no individual packing is required.



### 1. Tent: Warehouse (Rubb hall)

Tent, Warehouse Rubb hall, 10x24m			
Item code:	1100000032	Unit Weight:	n/a
		Unit volume:	n/a

These tents (commonly referred to as Rubb halls) are made by several differing suppliers.

They are specified in broad terms as follows:

**Width x length:**

Approximately 10m x 24m

**Height:**

Approximately from 3m on side to 6m at ridge

**Materials:**

Steel structure and UV proof PVC coated canvas cover

**Logo / branding:**

Available as banners that can be attached or printed directly onto the tent fabric



## 1. Shelter Tools - specifications of individual items

Shelter Tool Crowbar /Wrecking Bar 18"			
Item code:	1100000033	Unit Weight:	n/a
		Unit volume:	n/a



Type & dimensions: crowbar for general site work , 18" (45cm)

Description:	Hexagonal or octagonal section with 1/2" diameter (shortest section) (1.27cm). hooked on one end with a claw, and flat with a chisel end at the other end.
Thickness:	Protected against oxidation
Material:	High carbon steel
Quality of make:	The bar shall be manufactured from one piece of steel. Cutting ends of the bars may be rounded off and finished ground. Overall Good finish without any imperfections like Cracks, Burrs, Pits, Scales e.t.c. and such other physical defects.
Strength testing:	When set up in a leveraging position to remove a fixed bolt it is not possible to deform the bar with human strength.

### 1.1. Handsaw, for timber

Shelter Tool, Handsaw for timber			
Item code:	1100000034	Unit Weight:	
		Unit volume:	

Type & dimensions:	carpenter handsaw, 400-450mm blade, lacquered, overall length 550mm +/-50mm
Blade thickness:	1mm +/- 0.05mm, protected against oxidation
Blade protection:	Protective cardboard, teeth protection with hard, plastic cover.
Seal type:	laminated carbon steel, hardened and tempered
Number of teeth:	7-teeth per inch
Quality of make:	Soft edges but no dents, cracks or broken teeth
Hardness Rockwell C:	45 to 50 HRC for the whole blade, 48 to 52 HRC at teeth level
Carbon content:	0.47% to 0.55%
Manganese content:	0.5% to 0.8%
Handle:	Wooden dismountable handle, minimum 3 fixations, polished varnish hardwood, large 85x35mm opening for hand comfort when wearing gloves. Optional 45/90° square. Moisture minimum 10%, maximum 15%.
Strength testing:	With the blade inserted into a 10mm-wide slot to a depth equal to 1/3 the blade's length, but not exceeding 150 mm, a deflection of 90° is applied 25 times in each direction without breakage or permanent set to the blade.

## 1.2. Shovel, round point with Y handle

Shelter Tool, Shovel, round point, Y handle			
Item code:	1100000035	Unit Weight:	n/a
		Unit volume:	n/a

Material:	Pressed carbon-steel, hardened and tempered
Corrosion protection:	black paint
Quality of make:	no excess metal in the eye, no dents, no cracks, soft edges
Hardness Rockwell C:	35 minimum to 48 maximum HRC
Carbon content:	0.4% to 0.6%
Manganese content:	0.5% to 1%
Silicone:	0.37% maximum
Phosphorus & Sulphur:	0.06% maximum
Dimensions, full piece:	295 x 225mm +/-15mm
Hole diameter:	front side 36mm, back side 40mm, +/-5%
Weight:	1kg +/- 50g, without handle
Strength testing:	<p>- Using a fitted, standard hardwood handle, clamp the blade of the shovel near the handle in a horizontal position. Gradually apply a load of 45kg and maintain it for 2 minutes. This should not result in any damage to the blade or a loosening of the handle, and no permanent set in excess of 25mm.</p> <p>- With one centimetre of the end of the blade secured in a clamp, move the handle back and forth 30 degrees. There should be no permanent set greater than 25mm.</p> <p>With the shovel held in a digging position, a 37mm in diameter piece of wood is hit hard against it. The blade should not buckle or break.</p>
Handle:	<p>No chips, rough surfaces, cracks, holes or knots. Smooth, polished varnish surface. Dry, strong and flexible wood. Moisture minimum 10%, maximum 15%. Handle adapted to head so that it can be blocked and secured with a nail.</p> <p>Total length 1070mm +/- 50mm (head included).</p> <p>The other end of the handle is made in a Y-shape with same quality of wood. The branches of the Y handle must be made of good-quality iron, securely fitted to the handle.</p>

### 1.3. Claw hammer

Shelter Tool, Claw Hammer			
Item code:	1100000036	Unit Weight:	n/a

Type:	Carpenter hammer, head and handle, hammer head with flat and claw side, as per ISO15601, except for the pull-apart test force.
Material:	high-carbon steel head, treated to achieve a martensitic structure, with dressed striking faces
Quality of make:	smooth surface and edges with no dents or cracks; no excess metal in the eye
Weight of the hammer:	Total weight 750g +/- 50g (equivalent to 700g minimum, 800g maximum)
Hardness Rockwell C:	50 minimum to 58 maximum HRC on striking faces
Hardness Rockwell C:	35 maximum HRC closed to the eye
Handle:	No chips, rough surfaces, cracks, holes or knots. Smooth, polished varnish surface. Dry, strong, and flexible wood. Handle adapted to head so that it protrudes and can be blocked on other side with a metal wedge on the other side of the head. Moisture minimum 10%, maximum 15%.
Pull-apart test:	ISO15601. After two series of 25 vigorous blows with varying delivery angle, secure head in a clamp, apply a minimum traction of 50kg trying to pull the handle out. This should not damage the hammer head or the handle, and the handle should remain firmly attached to the head.
Bending test:	ISO15601. For the claw hammer only, apply a load perpendicularly to the axis of the handle and close to the end, so as to obtain a 125Nm torque, irrespective of the size of the hammer. Start the load at zero and increase gradually, without jerking. Hold the test load for at least 10s. This should not create any damage to the hammer head or handle.

### 1.4. Hoe, with long handle, large type

Shelter Tool, Hoe, long handle, large			
Item code:	1100000037	Unit Weight:	n/a

Material:	hot forged carbon steel, hardened and tempered, at a maximum the hardened zone should reach halfway up the back of the blade
Corrosion protection:	black paint
Quality of make:	no excess metal in the eye, no dent on the cutting edge, reinforced head with a rib from the eye to the middle of the blade length
Hardness Rockwell C:	35 minimum to 48 maximum HRC in hardened zone of the blade
Carbon content:	0.5% to 0.8%
Manganese content:	0.6% to 1.2%
Silicone:	0.37% maximum
Phosphorus & Sulphur:	0.06% maximum
Dimensions, full piece:	180 x 310 mm +/-10mm including the eye
Hole diameter:	high raised neck, front side 43 mm, back side 48 mm +/-2mm
Weight:	1.250kg +/- 150g, without handle, depending on the type of hoe
Strength testing:	<p>- Using a fitted, standard hardwood handle, clamp the blade of the hoe near the handle in a horizontal position. Gradually apply a load of 45kg and maintain it for 2 minutes. This should not result in any damage to the blade or a loosening of the handle, and no permanent set in excess of 25mm.</p> <p>- With one centimetre of the end of the blade secured in a clamp, move the handle back and forth 30 degrees. There should be no permanent set greater than 25mm.</p> <p>With the hoe held in a digging position, a 37mm in diameter piece of wood is hit hard against it. The blade should not buckle or break</p>
Handle:	No chips, rough surfaces, cracks, holes or knots. Smooth, polished varnish surface. Dry, strong, and flexible wood. Moisture min 10%, max 15%. Handle adapted to head so that it protrudes from and blocks on the other side of the head. Total length 1100mm to 1150mm.

**1.5. Shears, straight, for metal sheet, semi-hard 0.8mm max, 260mm**

Shelter Tool, Shears for metal sheet			
Item code:	1100000038	Unit Weight:	n/a
		Unit volume:	n/a

Type:	tin snips for intensive use and easy maintenance
Make:	each blade and handle forged as one piece, symmetrical blades
Capacity:	up to 0.8mm semi-hard iron sheet
Material:	hot forged carbon steel, hardened and tempered, special treatment applied to the blade edge
Rustproof:	protected against corrosion with special paint
Dimensions:	overall length: 250 to 260mm
Maintenance:	dismountable in 2 parts only, with bolt and self locking nut

## 1. Shelter Fixings - specifications of individual items

### 1.1. Nail, for roof sheets, galvanized with watertight rubber washer, umbrella type

Shelter Fixings, Nail for roof Sheets			
Material Group:	NFI-TOI	Unit Weight:	n/a
Item code:	1100000039	Unit volume:	n/a

Type:	Iron nails, made of polished low-carbon steel, cold processed, not heat treated except for galvanization.
Shape:	Spiral rolled or twisted shank, sealed umbrella-type spring-head.
Corrosion treatment:	hot-dip galvanized at 300g/m <sup>2</sup> +/-10%
Tensile strength:	minimum 650N/mm <sup>2</sup>
Accessories:	attached rubber washer with each nail
Dimensions (+/-5%):	shank: 75x3.6mm, head diameter: 20mm minimum
Rubber washer:	diameter 26mm x thickness 2mm
Packing:	packed in a strong, thick PE 130g/m <sup>2</sup> plastic bag, which can be zipped or locked
Quantity:	net weight: 0.5kg

### 1.2. Nail, iron, for wood, large

Shelter Fixings, Nail for wood, large			
Material Group:	NFI-TOI	Unit Weight:	n/a
Item code:	1100000040	Unit volume:	n/a

Type:	iron nails, made of polished low-carbon steel, cold processed, not heat treated except for galvanization
Rustproof:	hot dip galvanized at 300g/m <sup>2</sup> +/-10%
Tensile strength:	minimum 650N/mm <sup>2</sup>
Shape:	flat, smooth, circular head; plain, round shank and diamond point
Dimensions (+/-5%):	ll length x diameter: 75x3.6mm, head diameter: 7.7mm
Packing:	packed in strong, thick PE 130g/m <sup>2</sup> plastic bag, which can be zipped or locked
Quantity:	net weight: 0.5kg per type

### 1.3. Nail, iron, for wood, small

Shelter Fixings, Nail for wood, Small			
Material Group:	NFI-TOI	Unit Weight:	n/a
Item code:	1100000041	Unit volume:	n/a

Type:	iron nails, made of polished low carbon steel, cold processed, not heat treated except for galvanisation.
Rustproof:	hot dip galvanised at 300g/m <sup>2</sup> +/-10%
Tensile strength:	minimum 650N/mm <sup>2</sup>
Shape:	ll flat smooth circular head, plain round shank and diamond point.
Dimensions (+/-5%):	ll length x diameter: 40x2.2mm, head diameter: 5mm to 5.5mm
Packing:	packed in strong thick PE 130g/m <sup>2</sup> plastic bag, which can be zipped or locked
Quantity:	net weight: 0.5kg per type

## 1.4. Rope

ROPE, polypropylene, black, 10mm twisted			
Item code:	1100000042	Unit Weight:	n/a
		Unit volume:	n/a

Ropes can be made from various types of material, properties of some of the most common materials are summarised below.

Properties of the most common types of rope (Reprinted (after MSF) on p44 of Plastic sheeting: A guide to the specification and use of plastic sheeting in humanitarian relief" [http://plastic-sheeting.org/ref/Plastic\\_Sheeting\\_2007.pdf](http://plastic-sheeting.org/ref/Plastic_Sheeting_2007.pdf))

	Natural fibre	Polypropylene	Nylon / polyester
Strength	-	+	++
UV resistance	+++	-	+
Elasticity	+	++	++++
Wear resistance	+	+	++
Resistance to rot	-	++++	++++
Cost	Cheap	Average	Expensive

### 1.4.1. Rope: Polypropylene, black, 8mm diam., twisted

ROPE, polypropylene, black, 8mm twisted			
Item code:	1100000053	Unit Weight:	n/a
		Unit volume:	n/a

Below is the specification of rope used with plastic sheet as part of IOM prepositioned kits.

Diameter:	8mm +/- 0.5mm
Length:	30m
Weight:	n/a
Number of strand:	3 minimum
Type:	twisted
Material:	polypropylene, no recycled fibres, UV stabilized
Colour:	Black
Tensile strength:	250kg

## 1.5. Tie wire, galvanised, diam. 1.5 mm, 25m, roll

Tie Wire galvanized			
Item code:	1100000043	Unit Weight:	n/a
		Unit volume:	n/a

Material	II low carbon steel, hot dip galvanized with minimum 40g/m2, binding /tie wire.
Quantity	roll of 25m.
Dimension	diameter 1.5mm +/-5%
Tensile strength	minimum 340 N/mm <sup>2</sup> to Maximum 500N/mm



## 14. Tent: Multi-purpose

Tent, Multi-purpose, 45m <sup>2</sup>			
Item code:	1100000064	Unit Weight:	194kg
		Unit volume:	0.68m <sup>3</sup>

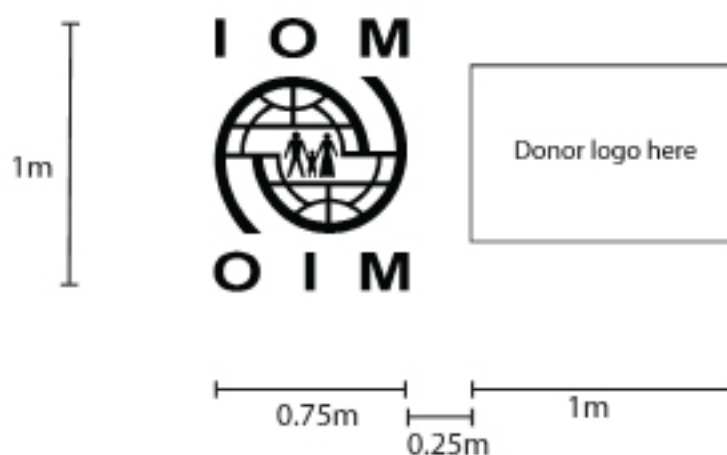


This tent is to the specification of IFRC/ICRC (see [procurement.ifrc.org/catalogue](http://procurement.ifrc.org/catalogue)).

### 14.1. Specifics to IOM

Logos:

IOM logo to be placed on both sides of the tent or as agreed by the mission. In colour, CMYK values: C100 M82 Y10 K2, or black.



## 14.2. General Information

Standard tent for emergency field hospital, health center, storage, etc.

Can be attached one to another to make a longer structure.

The tent can be delivered without options or with the following:

- A bathtub ground sheet to cover the complete surface of the tent.
- An inner tent, with its own bathtub ground sheet, to increase the protection from heat, cold, wind, dust, insects, etc.
- A set of 5 partitions to create separate areas and closed cabins inside the inner tent.
- A shade net for hot climate to place over the tent (includes a specific frame), for an increased protection from heat.

This type of tent is especially designed for its resistance to wind, rain, micro-organisms. The polyester/cotton canvas combines strength, durability, waterproof, and breathing capacities.

Expected life span is 1 year in a tropical environment.

Disinfection: Chlorine will damage the canvas (0.2% concentration is a maximum advisable).

Setting up requires 8 persons, and take 2 hours (instructions included). Avoid setting it up under trees as this will lead to canvas rotting. Use all ground fixings to ensure the maximum wind resistance.

Selection of types and manufacturers is to be handled by HQ technical and purchasing departments. Full specifications can be obtained at your HQ. The specifications below defines the minimum quality for the main material of the tent. Adherence to these specifications is a good indication for pre-selecting interested manufacturers.

## 14.3. Specifications

### 14.3.1. Make up

- Ridge frame tent with sloped sides.
- Outer tent dimension: 7,5 m long by 6 m width. Ridge height 3m. Side height 2.1m
- Inner tent dimension: 7,1 m long by 5,8 m width. Ridge height 2.9m. Side height 2,0 m
- Four doors: 1 on each end with fast opening/closing system, and 1 on each side.
- Full width opening possible on both ends.
- 3 high ventilation windows on each side, with sun-visors/shutters, grill, and mosquito netting.
- 1 high ventilation window on each gable with shutter, canopy/sun-visor, and mosquito netting.
- Velcro strips on both sides for logo attachment. 2 Electric cable passage at each gable (top of side wall).
- 58 elastic tighteners and 10 storm guy ropes.
- Aluminium frame with 40x2mm pipes (same length) and steel connectors (same angle).
- Packed in 1 bundle with 8 carrying handles, detachable in two parts, frame bag with 6 carrying handles.
- Special stackable pallets for 3 tents

<b>14.3.2. Specifications for the outer tent canvas</b>	
<b>Denominations and norms</b>	<b>Required minimum values</b>
1. Composition ISO 1833	Polyester/Cotton blended fibres yarns. Cotton: 40%(±10), polyester: 60%(±10) Polyester: 50% to 70%, balance cotton
2. Specific weight (g/m <sup>2</sup> ) ISO 3801	440 g/m <sup>2</sup> ±10% in finished state for the roof 320 g/m <sup>2</sup> ±10% in finished state for the walls
3. Colour	Natural white, not dyed
4. Breatheability	Minimum 2000g/m <sup>2</sup> /24h
5. Tensile strength (N) - ISO 13934-1	Warp and weft 1200N minimum.
6. Tear resistance, started (N) – ISO 9073-4	Warp and weft 60N minimum.
7. Water-penetration resistance ISO 811 Test pieces of plain canvas.	45hPa minimum for the roof, with increasing speed at 100mm per minute. 30hPa minimum for the walls, with increasing speed at 100mm per minute.
8. Water penetration resistance ISO 811 Test pieces with seams.	12hPa minimum, with increasing speed at 100mm per minute. Pieces of canvas with seam in the middle, to be immerse in water for 12h before testing.
9. Dimensional variation when soaked in water ISO 7771	Maximum 2%
10. Resistance to micro-organisms on tensile strength under ISO 13934-1 after BS6085 (soil burial - 28 days). To apply on 10 test pieces of plain canvas and 10 test pieces with seams.	Maximum 30% of strength loss on minimum required value and maximum 50% strength loss on original value of the same product. For each type of test: 5 test pieces in warp 5 test pieces in weft.
11. Efficiency of water-repellent treatments after soaking in water. Same test as point 7 on samples soaked in water in point 9.	45hPa minimum, with increasing speed at 100mm per minute.
12. Efficiency of fungicides product after soaking in water. Same test as point 10 on samples soaked in water in point 9.	Maximum 30% of strength loss on minimum required value and maximum 50% strength loss on original value of the same product. For each type of test: 5 test pieces in warp 5 test pieces in weft

13. Tensile strength after exposure to UV and moisturizing (climatic simulation).	Maximum 30% of strength loss on minimum required value and maximum 50% strength loss on original value of the same product.
Exposure in a climatic chamber under ISO4892-2, type A, 360hours, followed by tensile test under ISO13934-1.	For each type of test: 5 test pieces in warp and 5 test pieces in weft

<b>14.3.3. Specifications for the PVC coated fabric for the mud flaps</b>	
<b>Denomination and norms</b>	<b>Required minimum values</b>
1. Composition Number of yarns per cm	Polyester 1100 dtex, PVC coated 2 sides. chain and weft: 7 x 7 min.
2. Specific weight (g/m <sup>2</sup> ) ISO 3801	540 g/m <sup>2</sup> ±10%.
3. Tensile strength ISO 1421	Warp 2000N minimum  Weft 2000N minimum  Elongation 15% to 30%
4. Bursting strength ISO 3303-B (10cm <sup>2</sup> )	2500Kpa
5. Tear resistance - ISO 4674-1 (method B)	Warp 300N minimum  Weft 100N minimum

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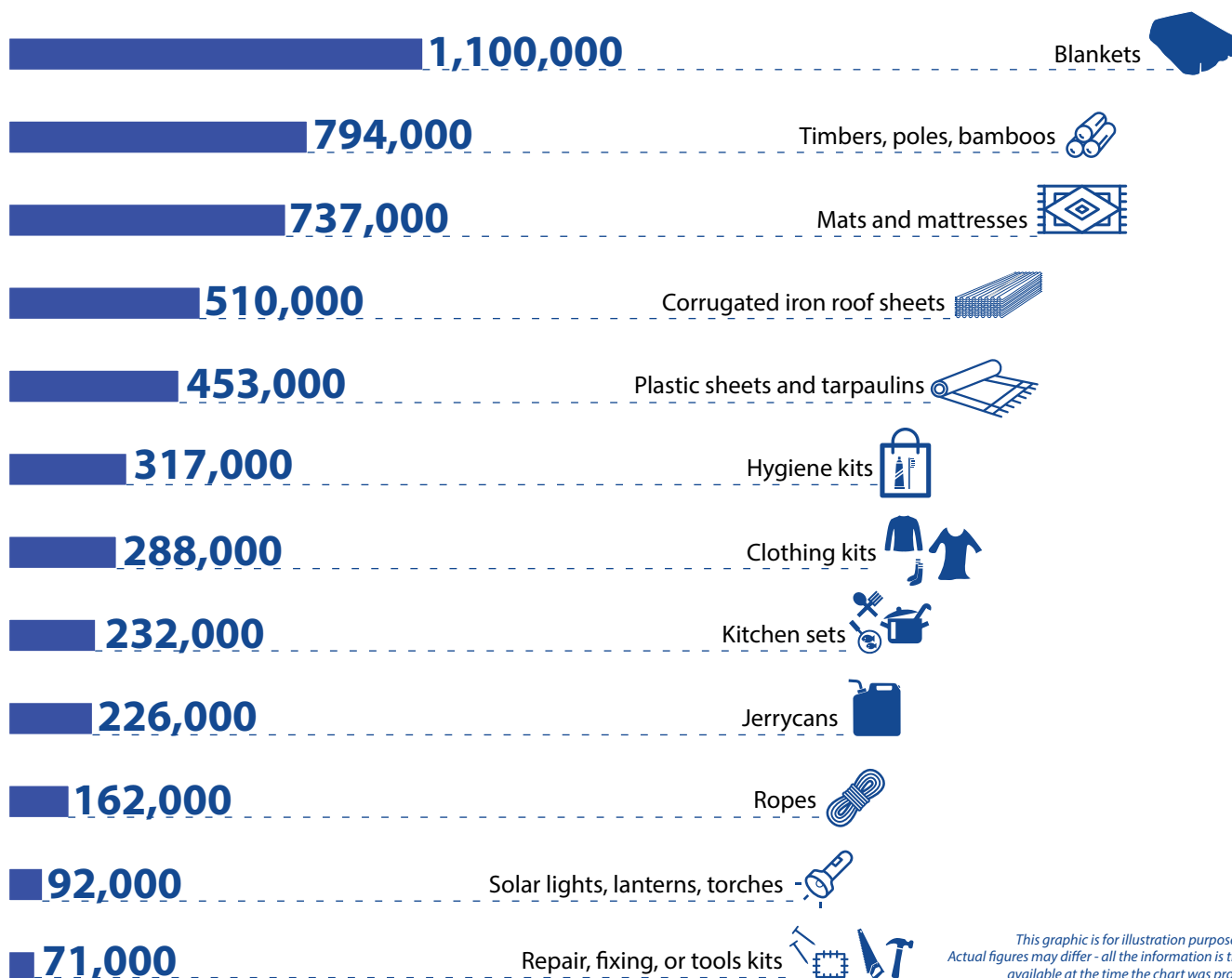


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# IOM Logistics Emergency Catalogue

## Breakdown of the NFIs delivered in 2015

Overall in 2015, IOM distributed a variety of non-food items (including kits) to affected populations.



*Note:  
This graphic is for illustration purposes only.  
Actual figures may differ - all the information is the best  
available at the time the chart was produced.*



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