UNHCR
United Nations High Commissioner for Refugees
Haut Commissariat des Nations Unies pour les réfugiés

FAMILY TENT

UNHCR Item No 05353

Item application sample

General Description

The Family Tent has 16 m2 main floor area, plus two 3.5m2 vestibules, for a total area of 23 m2, double-fold with ground sheet.

It is the standard tent used by UNHCR/ICRC/IFRC and suitable for a family of 5 persons, following the recommended minimum living area in hot and temperate climates (3.5 m2 per person), and providing additional space for cold climates.

The technical specifications of this tent were developed by shelter specialists, with close technical cooperation between UNHCR, IFRC and ICRC, to guarantee a product fit for human use in all climates, with appropriate outdoor life span, at a minimum cost.

The technical specifications of this tent are generic, ensuring that the product can be manufactured by different suppliers in various countries, with the common technical know-how and standard equipment from the tent industry.

UNHCR purchases Family tents through international tender processes and establishes Frame Agreements (Long Term Agreements) with manufacturers that have completed validation / qualification of Family Tent samples in one of the UNHCR approved laboratories. Family Tents are subject to random and continuous quality control throughout the Frame Agreement duration period.

For the validation / qualification of Family Tent samples, it is advisable to first ensure the adherence to the main material specifications. Information about approved technical laboratories can be obtained from UNHCR Supply Management Service in Budapest.

According to its design, Family Tents should comply with all the technical requirements, criteria and parameters described in this document and as detailed in the technical specifications section.

Information for laboratory testing:

To complete validation / qualification of Family Tent samples, two (02) complete samples are to be sent to one of the UNHCR approved laboratories for testing and make up checking. One sample will be used for material testing and the second for a rain test. A product is acceptable only if all criteria are passed on the same sample.

Weight and Volume

Gross weight per unit: approx. 55.0 kg

Gross volume per unit: approx. 0.20 cbm

Estimated Shipping / Container information

150 units per 20' DC without pallets.

340 units per 40' DC without pallets.

Expected Life Span

Family Tents are designed as a short term shelter solution, particularly in support to emergency situations and is not a substitute for a more permanent shelter. It is expected that **Family tents should have a life span of 1 year, minimum, maintaining its sheltering and waterproofing capacities in all types of climates.**

Shelf-life: the tent has a shelf-life of 5 years, minimum, under normal warehousing conditions, in dry, clean, and ventilated warehouses. It should be elevated from the ground, not piled, stored on pallets and pallet racks, not in containers or in tented warehouses. Tents are sensitive to rain and moisture when packed.

Other types of tents or materials may have a shorter life span, or other faults that are impossible to identify without going through a complete quality validation process.

Packing

One tent with all accessories can be packed into a master bundle. The outer shell and the inner tent are folded in a way to ensure that the ground sheet protects the tent and accessories from dirt and moisture. The master bundle is made of woven polyethylene (PE) fabric of 180 gm identical to the one used on the mud flaps. The maximum total length must not exceed 2250mm, approximate diameter is 400mm in order to have extra space to facilitate re-packing.

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 ensures that the accessories will not fall out of the bag during transport and handling. Particular care should be taken when packing the pegs to assure they will not pierce the bag.

The master bundle is closed with 2 webbing straps on the outside, and each strap has a 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. Each strap has 2 handles, (PE or polyester). These straps are not sewn to the bundle.

Before placing the Family Tent into the master bundle, the tent 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.

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The international standard warning sign "**protect from water**" should be printed on the outside of the package. The buyer's markings are printed on the outside in indelible ink.

Note: last updated, 28 March 2011

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Optional Packing

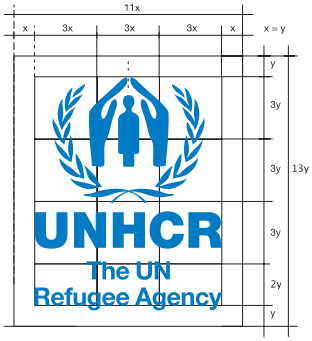
To facilitate loading of Family Tents into pallets, size 120 cm x 80 cm x 15 cm, an optional package is required / accepted where poles are divided into pieces in order to obtain a package of 1.2 m in length.

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. The palletized goods must not exceed the length and width of the pallet.

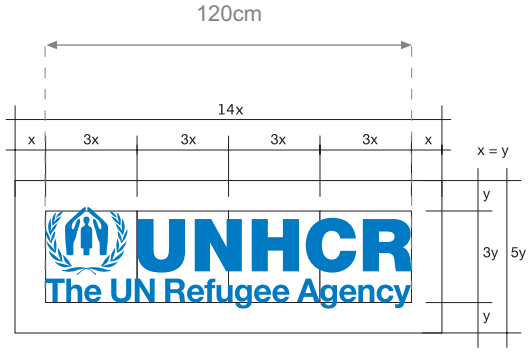
Printing of UNHCR Logo

UNHCR vertical visibility logo on the roof of the tent: vertical visibility logo should be printed in blue indelible ink on **both sides of the roof** and in **the middle** for maximum visibility as showed on the graphic reference in the next page, when using 150 cm material and two seams on the canvas roof (L= 1.35 m and H= 1.65 m), following the "X" and "Y" proportionality rule to avoid distortion on the logo and letterings. RULE: Length, **L** = (1 X = 15 cm), so (9 X = 1.35 m). Height, **H** = (1 Y = 15 cm), so (11 Y = 1.65 m)

Alternatively, the vertical visibility logos could be placed diagonally on opposite sides of the roof, when using 200 cm material and a central seam.



UNHCR horizontal visibility logo on both sides next to the tent's doors: UNHCR horizontal visibility logo should be printed in blue indelible ink on both sides of the outer tent on both ends (2) of the tent next to the doors (L= 1.2 m and H = 0.35m). The width of marking must be 120 cm and the height proportionate to the width without any distortion of the logo and letterings (approximately 35 cm).



Typeface (Font) Helvetica Bold. Color specifications for printing: Pantone Blue 300 or quadrichrome (CMYK). C = 100 %, M= 45 %, Y=0 %, K=0%.

Pallet Details

Wooden EURO pallet (EUR 1). Fumigated as per ISPM 15 standard. Dimensions (W x L x H): 800 x 1200 x 144 mm. Maximum height of the packed pallet: 115 cm. Pallets should be shrink-wrapped and strapped. The palletized goods must not exceed the length and width of the pallet.

Manufacturer Marking

Every tent should include a tag, stitched inside the tent in one corner seam of one side wall, on the outer tent, 10 cm from the end of the wall, and 10 cm above the line where the canvas joins the PE flap, with the manufacturer identification (letters not higher than 2.5 cm). The tag should include the manufacture's name, a unique reference batch number and the date of manufacturing. No company logo should be included with the manufacturer's marking.

Assembling Instruction and content list

Enclosed in the accessory bag, a content list and 1 set-up / assembling instructions sheet in English, printed on durable laminated A4 paper or durable fabric, showing step by step set-up information drawings / photos and tent set up instructions in color.

Repair kit

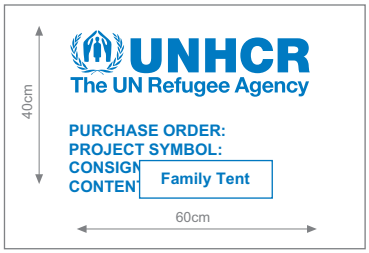
Should include 1 needle, 20m stitching thread, 3m polyester rope or string of 3mm used to attach the canvas spare piece around the bundle as per point 6/1 Standard package.

Markings on the Single Bag

Marking of UNHCR logo (50 cm x 15 cm) should be printed in blue indelible ink in color Pantone N° PMS 300C on one side of the single bag.

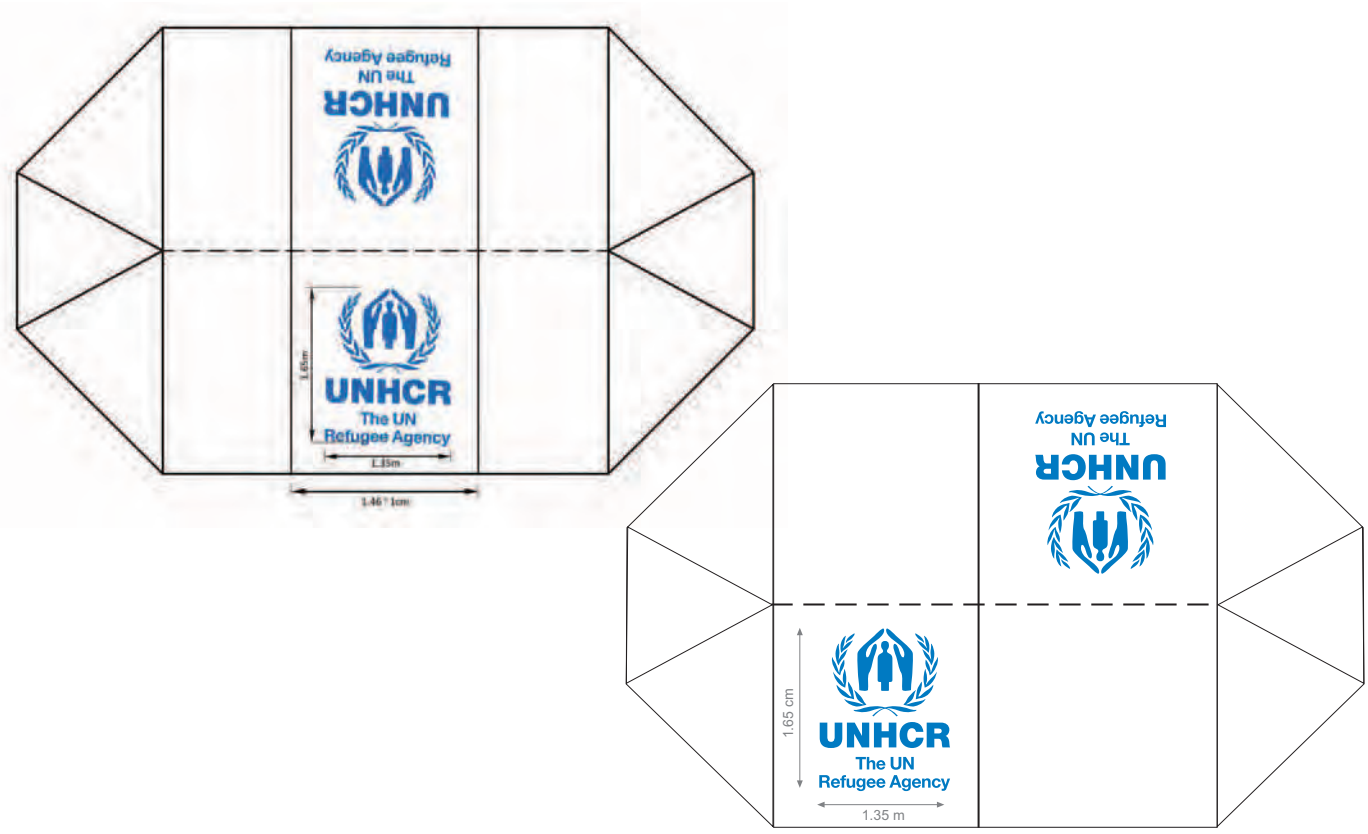
Shipping Marks

Marking of UNHCR logo should be printed in blue indelible ink in color Pantone N° PMS 300C including the Purchase Order number, Project symbol, Consignee and Content (60 cm x 40 cm) on one side of the polyethylene bag.

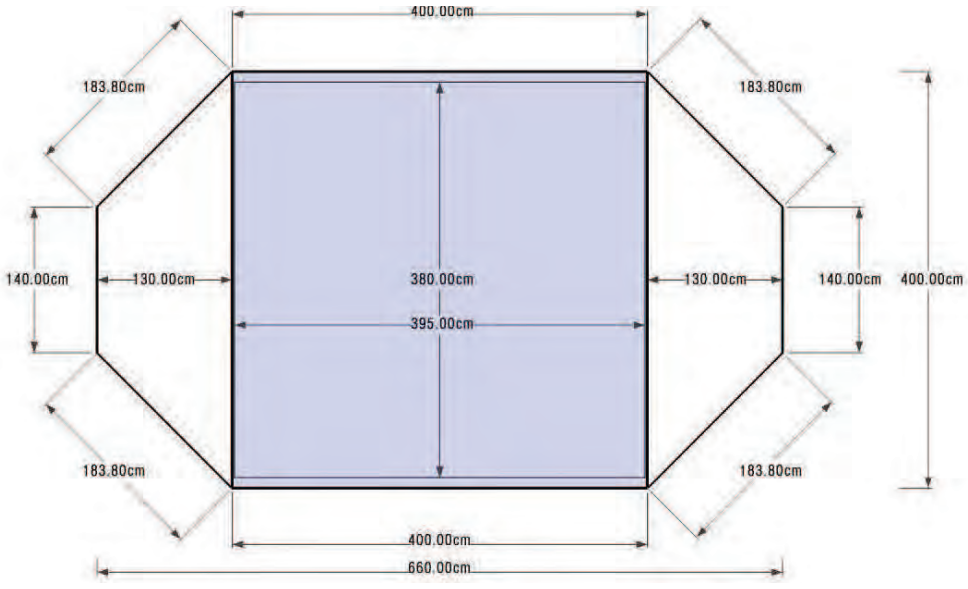


Graphic Reference

UNHCR vertical Logo on the roof of the Family Tent



FAMILY TENT GENERAL VIEW



PLANE VIEW

FAMILY TENT

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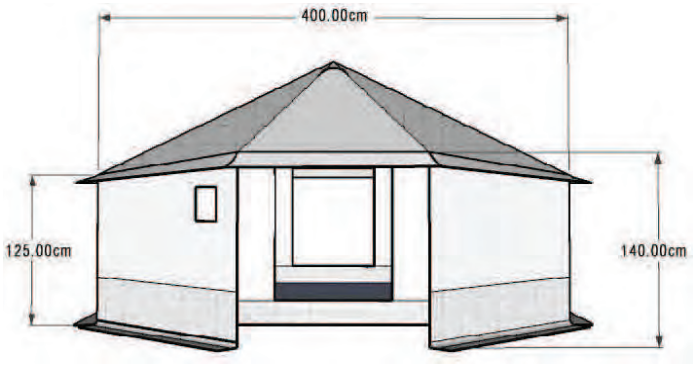
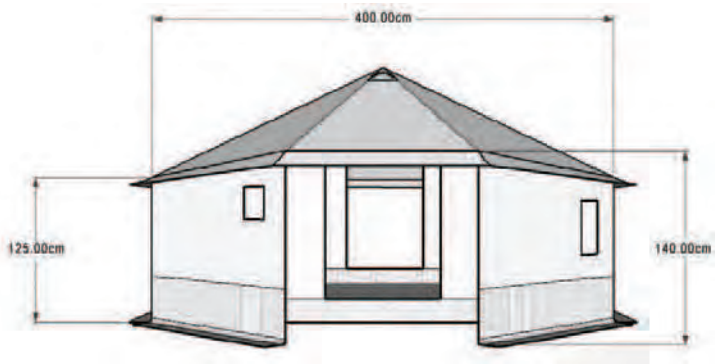
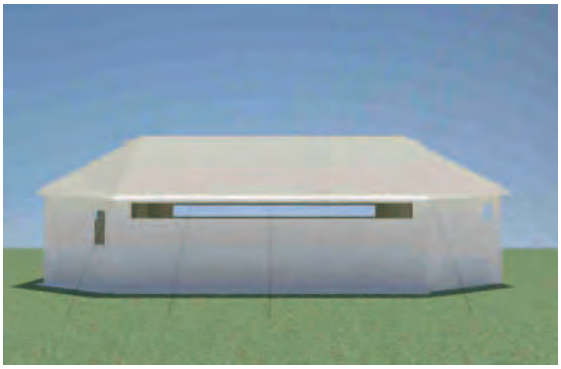
Graphic Reference

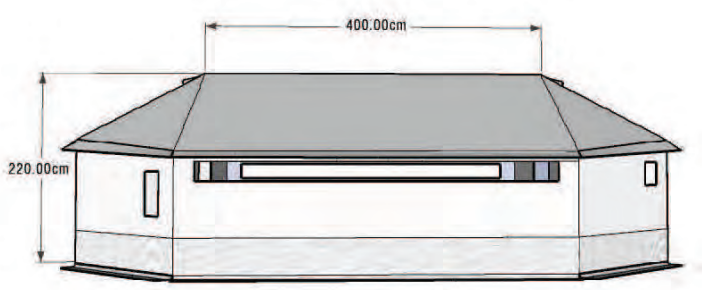


FRONT VIEW



REAR VIEW





SIDE VIEW

Technical Specifications

The specifications of the Family Tent are described below according to technical and performance requirements in five parts as follows:

1. Materials
2. General points for the finished product
3. Make-up of the outer tent
4. Make-up of the inner tent with ground sheet
5. Poles and accessories

TECHNICAL SPECIFICATIONS - PART 1: MATERIALS

All canvas materials for the tent must be in accordance with the specified characteristics and with ISO 10966, if not specified otherwise hereunder.

1.1 SPECIFICATIONS FOR THE OUTER TENT ROOF CANVAS	
Denomination and norms	**Required minimum values**
1. Composition, ISO1833	Poly-Cotton: (Polyester/Cotton blended fibers yarns). Cotton: 40% (±10), polyester: 60% (±10) = Polyester: 50% to 70%, with balance in cotton.
2. Specific weight (g/m2), ISO 3801	350 g/m2 ±15% in finished state.
3. Color	Natural white, not dyed.
4. Water vapor permeability, ISO17229	Minimum 2000g/m2/24h.
5. Tensile strength (N), ISO 13934-1 To apply on 10 test pieces of plain canvas. To apply on 5 test pieces with seams, cut from the tent, perpendicular to the seam.	Warp and Weft 850 N minimum. For plain canvas test: 5 test pieces in warp 5 test pieces in weft. On seams, the grab test is applied on 25mm width in the 50 mm sample.
6. Tear resistance (N) - Started, ISO 9073-4	Warp and Weft 60 N minimum.
7. Water penetration resistance, ISO 811 Test pieces of plain canvas.	30 hPa minimum, with increasing speed at 100mm per minute.
8. Rain penetration resistance, ISO5912 Test piece is the complete outer tent only.	Resistance to rain as per point 4.2.11 applying procedure as point 5.6 during 2h on one end and 3h on one side.
9. Dimensional variation when soaking in water, ISO 7771	Maximum 3%.
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.

Technical Specifications

1.1 SPECIFICATIONS FOR THE OUTER TENT ROOF CANVAS	
Denomination and norms	**Required minimum values**
11. Efficiency of water-repellent treatments after soaking in water. Same test as point 7 on samples soaked in water in point 9.	30 hPa 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 10% of additional loss as compared with the result from point 10. 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). Exposure in a climatic chamber under ISO4892-2, type A, 360 hours, followed by tensile test under ISO13934-1.	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: 3 test pieces in warp and 3 test pieces in weft
14. Fire resistance/retardancy	CPAI-84, 1980, Section 7 (should pass the test)

1.2 SPECIFICATIONS FOR THE OUTER TENT WALL CANVAS	
Denomination and norms	**Required minimum values**
1. Composition, ISO1833	Polyester/Cotton blended fibers yarns. Cotton: 40%(±10), polyester: 60%(±10) = Polyester: 50% to 70%, balance cotton.
2. Specific weight (g/m2) ISO 3801	200 g/m2 ±10% in finished state.
3. Color	Natural white, not dyed.
4. Water vapor permeability ISO 17229	Minimum 2000g/m2/24h.
5.a. Tensile strength (N) ISO 13934-1 To apply on 10 test pieces of plain canvas. To apply on 5 test pieces with seams, cut from the tent, perpendicular to the seam.	Warp and Weft 650N minimum. For plain canvas test: 5 test pieces in warp 5 test pieces in weft. On seams, the grab test is applied on 25mm width in the 50mm sample.
5.b. Tensile strength (N) ISO 13934-1 To apply on 10 test pieces of plain canvas and 10 test pieces with seams.	Warp and Weft 650N minimum. For each type of test: 5 test pieces in warp 5 test pieces in weft.
6. Tear resistance (N) - Started ISO 9073-4	Warp and Weft 40N minimum.
7. Water penetration resistance ISO 811 Test pieces of plain canvas.	20hPa minimum, with increasing speed at 100mm per minute.

Technical Specifications

1.2 SPECIFICATIONS FOR THE OUTER TENT WALL CANVAS	
Denomination and norms	**Required minimum values**
8. Dimensional variation when soaking in water ISO 7771	Maximum 3%.
9. 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.
10. Efficiency of water-repellent treatments after soaking in water. Same test as point 7 on samples soaked in water in point 8.	20hPa minimum, with increasing speed at 100mm per minute.
11. Efficiency of fungicides product after soaking in water. Same test as point 9 on samples soaked in water in point 8.	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.
12. Tensile strength after exposure to UV and moisturizing (climatic simulation). Exposure in a climatic chamber under ISO4892-2, type A, 360hours, followed by tensile test under ISO13934-1.	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: 3 test pieces in warp and 3 test pieces in weft.
13. Fire resistance/retardancy	CPAI-84, 1980, Section 7 (should pass the test).

1.3 SPECIFICATIONS FOR THE INNER TENT CANVAS	
Denomination and norms	**Required minimum values**
1. Composition, ISO1833	Polyester/Cotton blended fibers yarns. Cotton: 40%(±10), polyester: 60%(±10) = Polyester: 50% to 70%, balance cotton or Cotton 100%.
2. Specific weight (g/m2) ISO 3801	130 g/m2 ±10% in finished state.
3. Color	Dyed cream or beige color.
4. Water vapor permeability ISO 17229	Minimum 2000 g/m2/24h.
5. Tensile strength (N) ISO 13934-1	Warp and Weft 300 N minimum.
6. Tear resistance (N) - Started ISO 9073-4	Warp and Weft 20 N minimum.
7. Resistance to micro-organisms on tensile strength under ISO 13934-1 after BS6085 (soil burial - 14 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. 5 test pieces in warp, 5 test pieces in weft.
8. Fire resistance/retardancy	CPAI-84, 1980, Section 7 (should pass the test).

Technical Specifications

1.4 SPECIFICATIONS FOR THE PE FABRIC FOR THE MUD FLAPS	
The specification of the standard UNHCR plastic sheeting can also apply with the fire retardancy as mentioned below.	
Denomination and norms	**Required minimum values**
1.Composition	Woven high-density polyethylene black fibers fabric laminated on both sides with low density polyethylene coating.
2. Specific weight (g/m2) ISO 3801	180gr/m2±5%
3.a. Tensile strength (N) ISO 13934-1 To apply on 10 test pieces of plain PE fabric. To apply on 5 test pieces with seams, cut from the tent, perpendicularly to the seam, at the junction of PE and canvas.	Warp and Weft 650 N minimum. Elongation 15% to 25%. For plain PE fabric test: 5 test pieces in warp 5 test pieces in weft. On seams, the grab test is applied on 25mm width in the 50mm sample.
3.b.Tensile strength (N) ISO 1421 To apply on 10 test pieces of plain canvas and 10 test pieces with seams of one side wall canvas, one side PE mud flap.	Warp 650N minimum Weft 650N minimum for each type of test: 5 test pieces in warp 5 test pieces in weft.
4.Tear resistance (N) - ISO 4674 (A2)	Warp 100N minimum Weft 100N minimum.
5. Resistance to micro-organisms	Insensitive to micro-organisms. Not to be tested.
6. Resistance to UV in percentage of tensile strength loss under ISO1421 after 1500 hours UV under ASTM G53/94 (UVB 313 nm peak)	Maximum 30% of strength loss on minimum required value and maximum 50% strength loss on original value of the same product. 5 test pieces in weft 5 test pieces in warp
7. Color	White if made with IFRC/ICRC/UNHCR standard plastic sheeting. Or other colors except green/military green/brown and various khaki colors.
8. Fire resistance/retardancy	CPAI-84, 1980, Section 6 (should pass the test).

1.5 SPECIFICATIONS FOR THE PE FABRIC FOR THE GROUND SHEET	
The specification of the standard UNHCR plastic sheeting can also apply with the fire retardancy as mentioned below.	
Denomination and norms	**Required minimum values**
1. Composition	Woven polyethylene fabric coated on both sides with low density polyethylene.
2. Specific weight (g/m2) ISO 3801	180gr/m2±5%.
3. Tensile strength (N) ISO 1421	Warp 300 N minimum Weft 300N minimum.
4. Tear resistance (N) - ISO 4674 (A2)	Warp 60 N minimum Weft 60N minimum.
5. Resistance to micro-organisms	Insensitive to micro-organisms. Not to be tested.

Technical Specifications

1.5 SPECIFICATIONS FOR THE PE FABRIC FOR THE GROUND SHEET	
The specification of the standard UNHCR plastic sheeting can also apply with the fire retardancy mentioned below.	
Denomination and norms	**Required minimum values**
6. Water penetration resistance ISO 811 Test pieces of plain canvas.	20 hPa minimum.
7. Resistance to UV in percentage of tensile strength loss under ISO1421 after 300 hours UV under ASTM G53/94 (UVB 313 nm peak)	Maximum 30% of strength loss on minimum required value and maximum 50% strength loss on original value of the same product. 5 test pieces in weft 5 test pieces in warp.
8. Color	White if made with UNHCR standard plastic sheeting. Or other colors except green/military green/brown and various kaki colors.
9. Fire resistance/retardancy	CPAI-84, 1980, Section 6 (should pass the test).

1.6 SPECIFICATIONS FOR THE MOSQUITO NET FOR DOORS, WINDOWS, VENTILATION OPENINGS, INNER AND OUTER TENTS	
All mosquito nets must be treated with long lasting insecticide in accordance to WHO standards and purchased from / manufactured by a fully qualified WHOPES approved mosquito net manufacturer.	
Denomination and norms	**Required minimum values**
1. Material ISO1833	Polyester 100%, or PE 100%
2. Fabric ISO8388	Warp knitted.
3. Denier	75/100 for the polyester and 100 to 150 for the PE
4. Filament	Multi-filament 36 or higher for the polyester and Monofilament for the PE
5. Mesh size	25 holes/cm2 (156 holes/inch2)
6. Weight ISO3801	30 to 40 g/m2 for polyester and Min 38 g/m2 for PE depending of denier.
7. Shrinkage ISO5077	5% maximum.
8. Bursting strength ISO 1393 8	250 kPa minimum for polyester and 320 kPa minimum for PE
9. Bursting strength after exposure to UV and moisturizing (climatic simulation) ISO 1393 8 Exposure in a climatic chamber under ISO 4892-2, type A, 360 hours, followed by bursting test under ISO 13938	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
10. Treatment	Long lasting insecticide: WHOPES recommended
11. Concentration of insecticide	WHOPES recommended
12. Target level of concentration	WHOPES approved
13. Color	White

Technical Specifications

1.7 SPECIFICATIONS FOR THE GUYING POINTS OF THE OUTER TENT	
Denomination and norms	**Required minimum values**
1 .Material composition	Polyethylene/Polypropylene/Polyester ropes. Polyester straps. Steel rings. Elastic device.
2. Tensile strength (N) ISO 13934 on samples taking the complete guying point assembly including the entire reinforcement pieces. See note here under.	3000N minimum for the 6 side points (3 test pieces). 1400N minimum for the 4 other points (2 test pieces). Elongation of the elastic device under 1000N: minimum 50mm, maximum 100mm.
3. Resistance to UV in percentage of tensile strength loss after exposure in a climatic chamber under ISO4892-2, type A, 360 hours.	Maximum 30% of strength loss on minimum required value and maximum 50% strength loss on original value of the same product. 1 test piece at 1400N 1 test piece at 3000N.
4.Color	Black ropes and straps. Galvanized steel.

Note for point N°2: Sample size: width 300mm x length 500mm. Sample to be cut at the centre guy line for the side point (500mm length is with eave included). Samples to be cut on the top corner of the outer doors for the other points.

Samples to be folded in order to fit into the traction apparatus with the entire width of the canvas being submitted to the traction when clamped in the apparatus jaw. The sample must include: the tent roof canvas, the reinforcement of the canvas, the strap, the ring, the elastic device, the buckle, the runner and a sufficient part of the guy rope (the ring and the runner do not need to be included in the UV test).

The traction must be applied between the tent roof canvas and the guy rope.

1.8 SPECIFICATIONS FOR THE HAMMER	
Denomination and norms	**Required minimum values**
Type:	Sledge hammer, 1 kg head, with 30 cm wooden handle. In accordance with ISO15601 and below specification.
Handle:	No chip, rough surface, holes, knots. Smooth surface. Dry and strong flexible wood. Handle adjusted to head in order to protrude on other side of the head, and be blocked with a metal wedge or be a conical shape (like hoes). Moisture minimum 10%, maximum 15%, under ISO3130.
Pull apart test:	After two series of 25 vigorous blows with varying delivery angle, apply traction of 500N trying to pull out the handle, head being fixed in a jaw, this should not create any damage to the hammer head and the handle, and the handle should remain firmly attached to the head.

TECHNICAL SPECIFICATIONS - PART 2: GENERAL POINTS FOR THE FINISHED PRODUCT

2.1 Performances:
The final product must be able to withstand 75 km/h wind, to be strongly attached to the ground and tensioned without any damages.

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

Minimum roof load to be 300N/m2 under ISO8937 (snow load for camping tent).

The recommended final packed tent weight is approximately 55kg.

2.2 Seams and stitching:
All seams subject to possible tension are double-lock stitched and water-proofed. Stitching should produce strong, long lasting, neat and professional looking seams.

The stitch count as well as UV and rot-proof sewing threads are appropriate and adapted to each fabric. It allows for strong waterproof seams with at least the same life span as the tent.

The seams are always oriented in order to let the rain run freely, to avoid retaining water lines or water pockets. Wherever possible, the color of the sewing thread is adapted to the fabric color.

2.3 Ropes, webbing bands, toggles, loops, reinforcement nettings, and all other accessories:
All ropes and webbing bands are heat cut. All ropes are knotted to the tent from the factory. All above mentioned items are rot-proof and UV-proof at least as much as the tent canvas which they are sewn to. No webbing or rope is sewn through a stitch going from outside the tent to inside the tent to avoid water penetration by capillarity, or are made of waterproof materials. Laces or loops can also be made of the same canvas as the tent roof/wall for the outer tent loops, and of the same canvas they are sewn to for the inner tent loops.

2.4 Zipper fasteners:
All the zipper fasteners should conform to a resistance of 700N lateral traction under ISO5912.

2.5 Eyelets:
All metal eyelets should be rustproof and correctly placed, reinforced with a fabric patch and of a minimum 10mm inner diameter.

2.6 Metal rings:
All metal rings should be rustproof galvanized and closed by welding.

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

2.8 Long storage (Shelf life):
The tent is treated and packed in such a way that it can be stored up to minimum of 5 years in proper storage conditions without any damage or performance reduction. The tent should be stored elevated from the ground (on pallets and pallet racks) in a dry, clean and ventilated warehouse.

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

TECHNICAL SPECIFICATIONS - PART 3: MAKE-UP OF OUTER TENT

3.1 General Description of Outer tent:

The outer tent is made of several cloth sections which form the general shape of the tent. The seams run from the ridge down to the roof edges, perpendicular to the ridge line. The outer tent is supported by 3 upright poles + 1 ridge beam, 6 side poles and 4 door poles, 3 guy ropes on each side and 2 guy ropes at each end. The attachment points of each guy rope are reinforced.

3.2 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

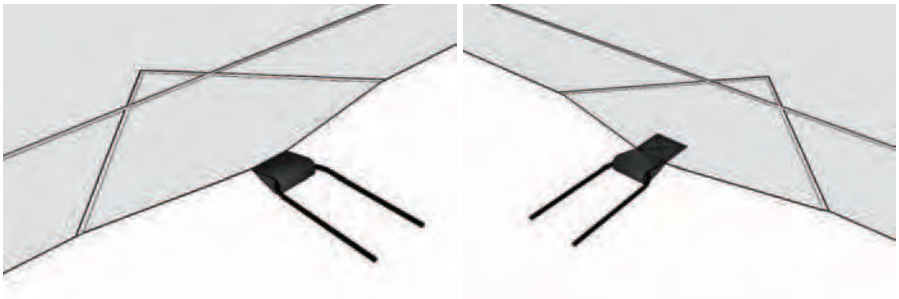
The outer tent is placed over the ridge beam which is held by 3 upright poles, one at each end of ridge beam, and one at the centre of the ridge beam. The outer tent is maintained in position on the ridge pipe with 2 canvas sleeves of 100mm long, closed by Velcro on full 100mm length, one sleeve at each end of the ridge, at 200mm from the end.

The side walls are held by 6 side poles with a metal hook on top to hook into the eyelet of the webbing band (25 mm wide) placed on the inside of the wall top. Side wall poles do not protrude through the outer tent. The hook at the top of the side poles to be as flat as possible. The front and back vestibules are held by 2 poles placed at the top corners of the doors, with pins going into the corresponding eyelets on the roof edge, through the guying point webbing.

3.3 Reinforcements:

The 10 roof guying points are made of 50mm wide polyester straps, sewn to the eave in extension of the roof. The eave is made with a double fold of the roof canvas, of 200mm width, running all around the tent roof, including above the doors. The eave is part of the roof panel, without interruption of the canvas. On the 6 side guying points an additional layer of PVC coated canvas is added on the inside to protect against abrasion from the top of the pole.

In addition, the 6 side guy points have a second triangular piece of canvas of 300mm side length sewn to the roof, from the edge of the eave.



The entire length of the ridge is reinforced on the inside with a 150mm strap of same fabric as the roof. The attachment sleeves for the ridge pipe are sewn to this reinforcement.

TECHNICAL SPECIFICATIONS - PART 3: MAKE-UP OUTER TENT

3.4 Attachment System (guy lines):

The outer tent is anchored to the ground using 10 guy lines which are attached to 10 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 webbings for the guying points at the door poles are longer, in order to cover the pole top and to have the eyelet in the webbing.

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

10 metal rings are attached to the loops with an elastic device. The ropes pass into the 10 metal rings. When tensioning, the ropes slide 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 a way that they comply with resistance specified in chapter 1.7.

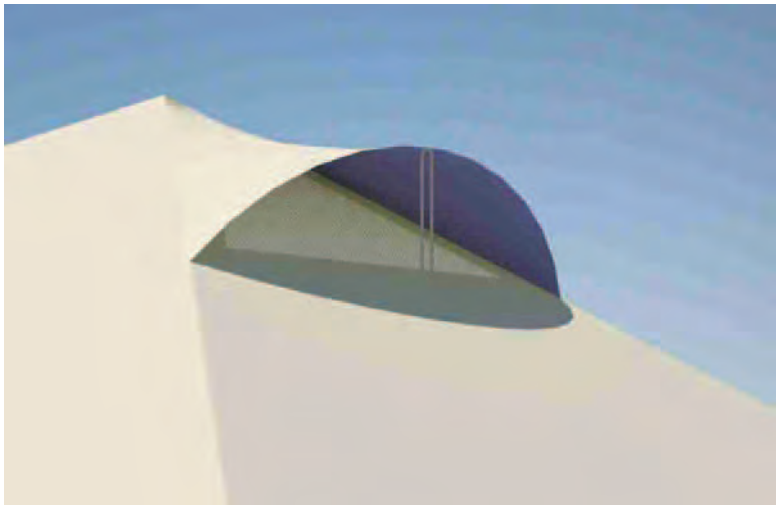
3.5 Side windows

The outer tent has 2 long windows with mosquito netting and a rain flap running on both sides of the tent. The inside dimensions of the windows are 3600mm wide and 300mm high and the top edge of the window is placed 100mm below the roof of the tent. The window openings are reinforced either with strong reinforcement netting (large holes strong plastic net) or with standard netting and strips of 20mm poly-cotton webbing that reinforce the window horizontally (1 webbing) and vertically (7 webbings). These webbings are sewn to the edges of the tent opening and to the mosquito netting. The window flap is 3960mm wide x 400mm high. The flap is stitched 50mm above the top of the window. The flap is held by 25 mm 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 it is rolled up.

3.6 Ventilation 1/2 cones on top of the vestibules:

The outer tent has 2 ventilation openings in front and back with reinforcement netting and a rain flap. These vents are triangular and are placed at the top of both vestibules. The inside dimensions of the vents are 250mm wide and 300mm high. The vent flaps are made in such a way that they are distanced from the ventilation opening when open, making a V2 cone shape of 250mm in its middle. The flap can be closed with a 25mm Velcro attached to the full width.

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.



TECHNICAL SPECIFICATIONS - PART 3: MAKE-UP OUTER TENT

3.7 Outer Tent Doors:

Size: 1.3m width x 1.4m high.

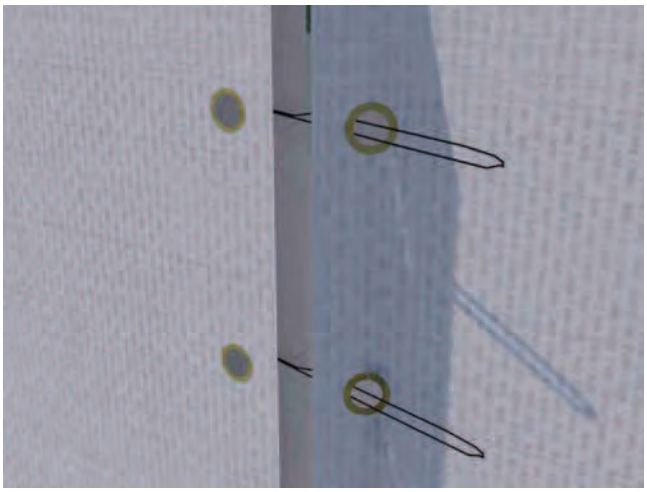
Door flaps are 1.4m width x 1.6m high:

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

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

The doors can be closed by means of a 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 drafs. Each door has one side closable from inside and the other side closable from outside.



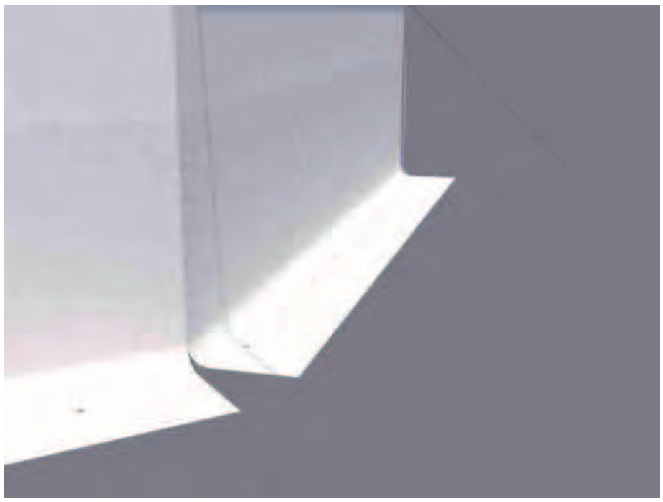
3.8 Side walls, vestibule walls, mud flaps:

Total height 1.45 m corresponding to 1.25 m vertical plus 0.2 m on the ground.

The upper part (0.75m) of the walls is made of Polyester Cotton fabric, lower part (0.7m) of PE fabric. The mud flaps are equipped with 22 eyelets (7 on each side including corners, 2 on each vestibule side), placed on a line reinforced with a full length 50mm webbing sewn or heat-sealed to the mud flap at floor level, on the inside. Stitch length and thread to be appropriate for the materials to prevent tearing of the mud flap along the stitching (not applicable if heat-sealed).

The outer tent is attached to the side poles, with webbings or canvas strings stitched on the inner side of the outer tent, where the PE joins the poly-cotton, in front of each side pole and door pole (10 points at total).

TECHNICAL SPECIFICATIONS - PART 3: MAKE-UP OUTER TENT



The vestibule walls are made in the same way, to complete the outer tent between the doors and the side walls. One of the vestibule walls carries the chimney hole.

3.9 Chimney reinforcement:

A chimney reinforcement with a non-perforated opening is placed at 0.5m from one corner, on one end of the tent, between the corner of one side wall and the corner of one tent door. This is made of heat resistant fabric (minimum 900°C). It is the type of fabric that keeps the fibers tight when cut.

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

Inside dimensions:250mm width with a height up to 5 cm from the top of the side wall.

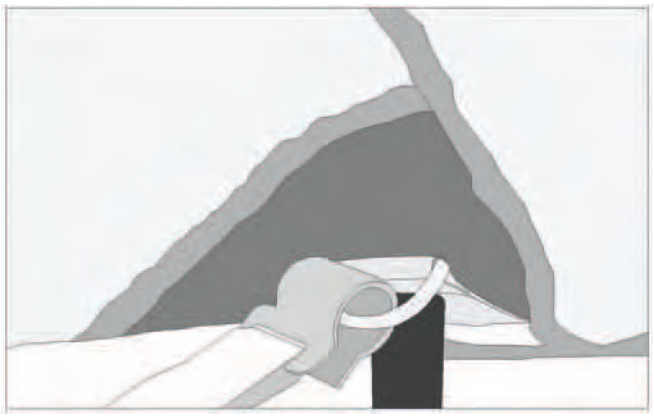
The chimney flap is 350mm wide x 850mm high. The flap is stitched at the bottom at the lower edge of the chimney opening. The flap is held by 25 mm Velcro webbing which is placed along the entire vertical sides and upper end at a 25mm distance from the chimney opening.

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.

TECHNICAL SPECIFICATIONS - PART 3: MAKE-UP OF OUTER TENT

3.10 other accessories:

4 loops of 30mm each are placed on the inside of the tent in places where inner tent doors have corresponding toggles, at the top of the inner tent door zips (see inner tent door description). 10 D-rings (25mm x 4mm thickness), inside the outer tent, to allow the inner tent to be hooked to these D-rings (see inner tent description point 4/4): 6 are placed in the webbings at the top of each side-pole's position, 4 are placed in intermediate position.



6 D-rings placed on 25mm webbing are sewn at floor level to the mud flap, inside, to hook the inner tent attachment strings.

3.11 Plastic for document pouch:

On the outside of each left hand vestibule wall there will be a clear plastic document sleeve. The material will be UV stabilized polyurethane transparent plastic with a minimum thickness of 0.15mm. The lower edge of the sleeve will be 800mm above the ground. The sleeve will have an opening on the left side with the other three sides sewn with two rows of stitching to the tent. The inside dimensions of the sleeve after sewing will be 230mm high and 310mm wide.

TECHNICAL SPECIFICATIONS PART - 4: MAKE-UP OF INNER TENT WITH GROUND SHEET

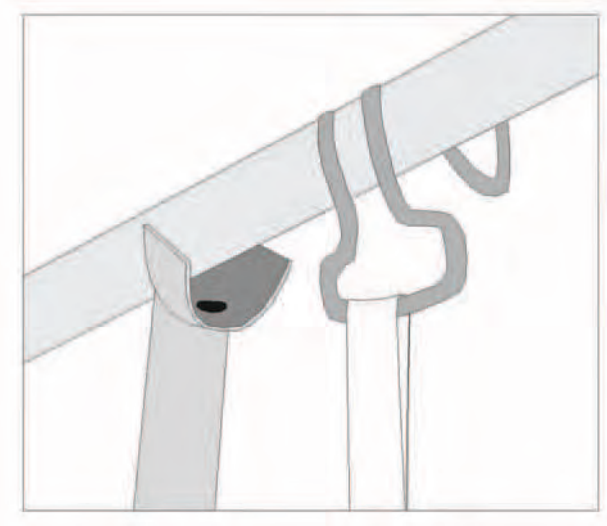
4.1 General description:

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

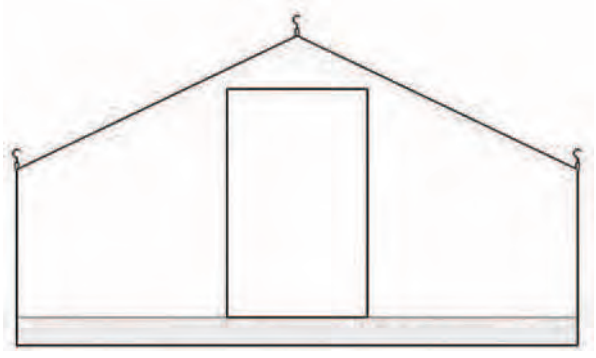
At the ground sheet level it is hooked to the outer tent D-rings with 6 elastic webbings and plastic hooks of 20mm width.

The inner tent shall be partitioned with the same material in the middle dividing the tent into two equal segments in shorter transverse direction.

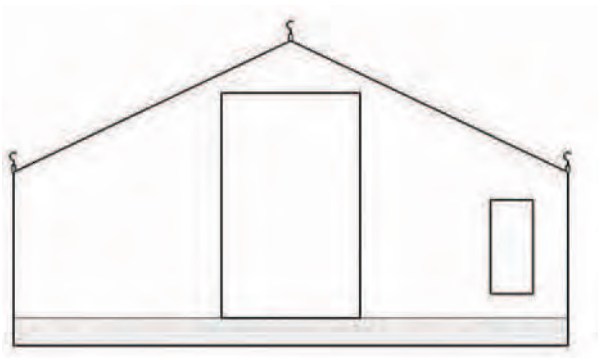
The inner tent has a chimney reinforcement, 2 windows, 2 doors and 2 vents. The bath tub ground sheet (floor) is made of woven PE fabric sewn to the inner tent and extends up the sides of the wall to assure that the inside remains waterproof. No stitching is allowed at the lower part of the groundsheet to assure 100% waterproofing.



RIDGE



INNER TENT FRONT



INNER TENT REAR

TECHNICAL SPECIFICATIONS PART - 4: MAKE-UP OF INNER TENT WITH GROUND SHEET

4.2 Inner Tent Dimensions:

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

4.3 Inner Doors:

Each door opening is 1m wide and at 1.75m high from the floor (1.55m measured from the upper edge of the ground sheet).

The door panels (1.1m wide) are placed in the center of the front and rear walls.

The doors are made of the same material as the tent and close with polyester n°10 coil zipper fasteners at the 2 vertical sides. The zipper 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 (1.1m wide) are placed on the inside of the doors. The 2 vertical sides are closed with n°10 polyester coil zipper 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 elastic webbing loops of 80mm with toggles or hooks are placed at the top of each door side aligned with the zippers. They attach to the corresponding 3cm loops available inside the outer tent.

- 2 webbing loops with eyelets are placed at the bottom of each door side aligned with the zippers. They are used to attach the tent to the ground with pegs of 6mm x 230mm. The webbing loops are stitched into the seam where the PE joins the fabric, and are 200mm long.

TECHNICAL SPECIFICATIONS PART - 4: MAKE-UP OF INNER TENT WITH GROUND SHEET

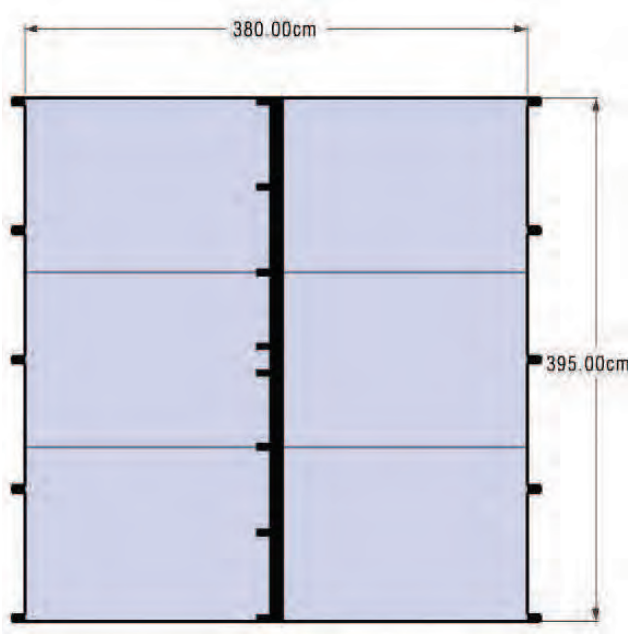
4.4 Inner Tent Suspension System:

The inner tent is placed between the 2 end upright poles. It is attached (knotted) to these poles by 2 strings or strips of 25mm by 200mm long at each end.

The inner tent is suspended from the ridge pipe with 8 galvanized 4mm wire hooks mounted on 8 webbing loops of 50mm wide. The total length of the loops including the metal hook is 100mm. One at each end, two in the centre at 100mm from the centre pole gap, and the 4 others equally spaced each side. The side walls of the inner tent are hooked with strong plastic or metal hooks mounted on webbing loops to the corresponding D-rings of the outer tent inside, at the top of each side pole and in the intermediate positions. The loops are made of non elastic 25mm wide webbing bands and the finished length including the hook is 100mm. 5 hooks in total per side.

The elastic webbing bands for the bottom of the walls are stitched to the tent in the seam where the PE and fabric are joined.

The inner tent has 28 loops of 20mm, made of canvas, for the attachment of the optional inner lining or the optional inner partition. The loops are placed in the inside of the inner tent at every place where the inner tent is attached to the outer tent or to the frame, plus 2 loops at the bottom of each door where the webbings for the ground attachment are placed (8 at the ridge, 5 at the top of each side wall, 3 at the bottom of each side wall, 2 at the base of each door).



4.5 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 750mm 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.

4.6 Inner Tent Windows:

The inner tent has 2 windows, 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.

4.7 Accessories Inside the Inner Tent:

To hang light weight properties, 3 hooks of 20mm mounted on webbing and 1 pouch of 150 x 200mm made of netting material sewn on 3 sides are sewn inside the inner tent at the ridge. The pouch hangs from the ridge at the place of the 2nd ridge hook; the 3 hooks are placed at the level of the 3rd, 6th and 7th ridge hooks.

TECHNICAL SPECIFICATIONS PART - 4: MAKE-UP OF INNER TENT WITH GROUND SHEET

4.8 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, no stitching seams are allowed in the groundsheet. All seams to be welded by heat sealing and have a 25mm overlap. A reinforcement patch of 150 x 150mm of the same material in the centre of the groundsheet to be glued or sealed, to avoid the centre pole damaging the groundsheet.

4.9 Chimney Reinforcement:

A chimney reinforcement with non-perforated opening is placed at 0.5m from one corner, on one end of the tent, between the corner of one side wall and the corner of one tent door. This is made of heat resistant fabric (minimum 900°C).

Inside dimensions: 250mm width x 800 height.

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

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

4.10 Inner partition:

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

TECHNICAL SPECIFICATIONS PART - 5: POLES AND ACCESSORIES

5.1 Poles:

Each section should be fitted together by a male / female joint of 100mm made with an inserted pipe point-welded or crimped into one of the pipes (not to be made with press-reduced pipe diameter).

Ridge beam:

4m long, with minimum outer diameter 30mm galvanized or painted steel pipe, minimum 1.2mm wall thickness, in 2 pieces or 4 pieces depending on type of packaging.

The ends of the ridge beam to be reinforced with 2 short pipes of 27.5mm outer diameter and 100mm long, inserted and point welded at both ends of the ridge.

22.5 mm holes drilled at 20mm from both ends for upright poles to fit in.

The ends of the ridge beam to be protected with a non-sharp, non-cutting plastic cap.

Upright Poles:

2 upright poles of 2200mm each (end plug included), with minimum outer diameter 25mm galvanized or painted steel pipe minimum 1.2mm wall thickness, comes in one piece or in two pieces depending of the type of packaging. These 2 poles have a narrowed diameter of 21.5 mm by 40mm long at the top end (end plug included), to insert into the ridge. The top end of these 2 poles to have a plastic bushing protruding in order to protect from the edges of the pipe.

1 central upright poles of 2170m each (size without U-bracket), with minimum outer diameter 30mm galvanized or painted steel pipe minimum 1.2mm wall thickness, comes in one piece or in two pieces depending of the type of packaging. This pole comes with a U-shaped metal bracket of 30mm long.

The base of the 2 upright poles must have a round metal or plastic base-plate of 50mm diameter.

The base of the central pole must have a soft flexible plastic or rubber base plate a minimum 50mm in diameter that will protect and avoid damage to the ground sheet while keeping proper stability.

Side poles:

6 side poles of 1.25m with minimum outer diameter 19mm painted or galvanized steel pipes minimum 1mm wall thickness, in one piece or in two pieces depending of the type of packaging. Each pole comes with a bended 20 to 30mm pin on top in form of a flat hook.

4 door poles of 1.4m with minimum outer diameter 19mm painted or galvanized steel pipes minimum 1mm wall thickness, in one piece or in two pieces depending of the type of packaging.

The 4 door poles come with a 50mm pin at the top.

Side poles and door poles base plates are made with a round piece of plastic of 40mm diameter, with a pin of 20 to 30mm long pointing downward.

5.2 Ropes/loops/ guy runners:

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

4 ropes, black, UV treated, 3m long each, 6mm diameter, with a minimum tensile strength of 140 kg.

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 color, already mounted on the ropes.

TECHNICAL SPECIFICATIONS PART - 5: POLES AND ACCESSORIES

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

Size of the runners: 100x35x12mm, 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.

5.3 Pegs and accessories:

6 pegs of 350mm long made of angled iron 25x25mm, 3mm thick, with an 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 bended downwards. These 6 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 galvanized.

4 pegs of 300mm long after bending, made of iron rebar 10mm diameter, with a hook bended on one end, "candy cane" shape, or a cross shape, painted or galvanized.

26 pegs of 230mm 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 galvanized.

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