

Typhoon Haiyan - Shelter Cluster Technical Guidance

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1 Overview

This document was first drafted during the week after the Typhoon Haiyan. Its purpose is to provide an overview of issues relating to specification of shelter materials for relief phases of the response. It summarises the different kits being distributed and shares common / minimum suggested specifications¹.

¹ This document is based on the technical strategy from the Pakistan shelter cluster

Local preference and suitability should be consulted with the hub coordination team and/or shelter cluster focal points. For more information, please see: www.sheltercluster.org

Further reference for specifications can also be found at <http://procurement.ifrc.org/catalogue/>

Please forward your advice and feedback regarding this guideline to tech2.phil@sheltercluster.org.

1.1 PRELIMINARY STRATEGY OVERVIEW FOR SHELTER AND NFIS

This Shelter strategy runs in two parallel phases:

- **EMERGENCY RESPONSE** – started 8th Nov estimated to continue to end of Feb 2014
- **SUPPORTING SELF RECOVERY** – started 8th Nov

This document does not discuss targeting (host families etc.), or the communications with affected populations that must accompany distributions.

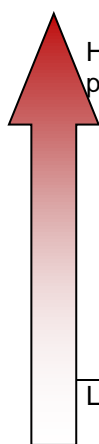
NFI programmes are subject to how well markets are functioning. At the time of drafting, markets in affected areas are weak, but recovery is expected. Due to the geographical extent of the affected areas there are some very different logistical and market capacities. Hence, the response will follow different times scales for different areas, for example:

- Small inaccessible islands compared to larger land masses with better infrastructure/market access.
- Also we expect different response/recovery profiles between parts of Samar and Leyte compared to Capiz and Aklan.
- There are also differences in the damage profile for example areas which were affected by wind only and areas affected by wind and storm surge.

As markets develop more and more commodities will be able to be procured locally and some NFI programmes may be able to operate through cash or voucher systems.

1.2 SHELTER AND NFI PRIORITISATION AS OF 12/11/2013

The following priority shelter items are illustrated below. All materials with the exception of tents and suitable quality plastic sheeting can currently be procured in bulk in the Philippines.

		EMERGENCY RESPONSE Until February 2014	SUPPORTING SELF RECOVERY Immediate start Planning to June 2014
 <p>Highest priority</p> <p>Lower priority</p>	• Tarpaulins	X	
	• Fixings / rope	X	X
	• Tent*	X	
	• Shelter Repair kits (for partial and significant damage)		X
	• Tool Kits		
	• Community clean up kits		
	• Reclaimed and local construction materials	X	X
	• Blankets / Bedding	X	
	• Kitchen sets • solar torches / chargers / radios	X	

Notes on NFIs prioritisation and distribution:

*Tents are no longer a priority for procurement; however, existing pipelines and those already in country should be distributed as soon as possible at household's level to avoid creating new tent cities. Distribution of tents should be targeted at the most vulnerable and displaced households with totally destroyed houses who are unable to initiate self-recovery process.

Hygiene kits and buckets / jerry cans are separately being tracked by the WASH cluster. Coordinate with WASH agencies at distribution sites.

Mosquito nets are not being tracked by the shelter cluster.

1.3 USE OF CASH AND VOUCHER

Cash transfer is a form of support that can be used to address basic shelter needs when beneficiaries have access to functional market. Cash transfer allow targeted beneficiaries to choose from the range of goods and services directly from local market and service providers, and can often be delivered more quickly than in-kind commodities. With the speed at which market recovery is happening on the ground, it is expected that many shelter actors will be looking to cash transfer as a vital part of the shelter response.

The basic principles in using cash are very similar to commodity-based programming and should include – consultation of the affected population, need assessment, establishing clear program objectives, design method of delivery, agree on content and value of support, clear targeting rationale, coordination with governmental and humanitarian agencies, as well as monitoring and evaluation. Different forms of cash transfer may be adopted; it can be either conditional or unconditional, one-off or repeated payments, blanket or targeted, or a mixture of methods can be used to complement each other.

It is, however, important to note that cash alone will not be sufficient for sustainable shelter recovery. It has been noted that self-recovery efforts taking place throughout the affected areas, though impressively prompt, are of worse construction quality. Any programming will need to pay close attention on technical assistance, which may include information campaign, orientation, trainings, and monitoring. This is very much so when the program is designed around cash transfer.

Further reference:

IFRC, Guidelines for cash transfer programming, 2007,
<http://www.ifrc.org/Global/Publications/disasters/finance/cash-guidelines-en.pdf>

GOAL: <https://www.sheltercluster.org/Global/Meeting%20documents/Vouchers%20Manual-GOAL.docm>

2 Shelter Interventions

2.1 EMERGENCY SHELTER

Emergency shelter support can be in the form of tents or plastic sheeting (tarpaulins) with rope and fixings. In general plastic sheeting is preferred as it allows for flexible use of material, is more waterproof and contributes towards initiating self-recovery process. Where possible, basic tools should be included to allow for effective use and installation of plastic sheeting.

See Annex 4 for sample of IEC material for fixing plastic sheets. A Tagalog version can be downloaded from http://www.sheltercluster.org/sites/default/files/docs/Fixing_plastic_sheeting_tagalog.pdf. It is recommended that a short orientation be carried out prior to distribution regarding the correct and most effective way of using plastic sheeting and tents to maximise their lifespan.

Emergency shelter		Value (PHP)
Materials distribution	Tarpaulins, 190g/m ² ± 5%, with reinforcement band - 1 per 5-people household,	1,500 to 3,000
	Fixings – rope*, nails, etc.	
	Tools – saw, claw hammer, shovel, etc.	
Technical Assistance	Orientation, technical guidance, monitoring	

* If providing Tarpaulins with eyelets, ensure compatible sizing of rope with eyelets

See section 4.2 for tent specification.

Further reference on use of plastic sheeting: <http://www.plastic-sheeting.org/>
On Tents: <http://www.plastic-sheeting.org/ref/tents.pdf>

2.2 SUPPORT TO SELF-RECOVERY

Construction material and tool packages, along with technical assistance, are used to support the on-going self-recovery process. The shelter cluster had identified durable roofing solutions to be critical to sustainable self-recovery. As such support to self-recovery should provide adequate resources for beneficiaries to achieve durable roofing solution.

SHELTER REPAIR KIT

Two main types of household roofing structures have been observed in the affected areas: timber frame and CGI sheeting; and those with bamboo and nipa shingles. The purpose of shelter repair kit is to support families towards durable roofing solution.

Shelter repair kits are considered as having 3 main components: construction material, tools and technical assistance. Final kit content and delivery method should reflect agency's own need assessment and technical expertise.

Shelter Repair Kit (CGI)		Value (PHP)
Material distribution or Cash/Voucher	CGI sheets – 0.4-0.5mm thickness (16 x 8ft sheets for 18m ² covered living space)	5,000 to 10,000
	Timber - certified timber, or salvaged, various sizes	
	Coco lumber - certified, various size, or salvaged	
	Cladding: ply wood, woven bamboo mats	

	Fixings – rope, nails, etc. (see details below)	
	Sealant* – Vulca seal or equivalent, can 1 pint (min. 500ml)	
Tools	Timber saw (450mm), claw hammer, shovel, tin snip, pliers, etc. (see tools specification below)	
Technical Assistance	Training, technical guidance, monitoring	Additional 10-20% cost.

* Commonly use in repairing salvaged CGIs and tarpaulins

Below is a list of suggested complimentary fixings – with approximate quantities per household. These may be distributed individually or in bulk to community committees where possible.

Fixings:		Quantity
Quantities to be provided by agencies. Final content should reflect agency's need assessment.	Rope, Polypropylene, black, diam. 8-12mm, twisted	30m
	Nail (Umbrella), for roof sheets, galvanised, 75mm + watertight washer	2-4kg
	Nail, iron, for wood, 75mm or 100mm	1-2 kg
	Nail, iron, for wood, 40mm	1-2 kg
	Tie wire, galvanised, diam. 1.5 mm	25m
	Hurricane strapping, galvanised, 32mm	30m

Alternative durable roofing solution such as use of bamboo and nipa palm may also be appropriate in areas where pre-typhoon constructions were predominantly with bamboo. Assessment should be made for skills and knowledge in location prior to finalising options.

Shelter Repair kit (Bamboo & Nipa)		Value (PHP)
Material distribution or Cash/Voucher	Roof thatching – made from nipa palm or coconut leaves (est. 480 pieces for 18m ² covered living space)	5,000 to 10,000
	Bamboo – various size, or locally harvested and treated, (3 bundles of 2" x 8')	
	Coconut wood - certified, various size, or salvaged - for use as footings.	
	Cladding: woven bamboo mats (amakan), 2x1.5m	
	Fixings: rope, natural - coconut husk; nails, 1.5", 2kg; wire etc.	
Tools	Timber saw, claw hammer, shovel, pliers, bolo, etc. (see tools specification below)	
Technical Assistance	Training, technical guidance, monitoring	Additional 10-20% cost.

Note: Bamboo has the tensile strength of miles steel, with flexibility that dissipates energy well and is therefore reacts well to earthquake and storms when properly tied down and with adequate bracing.

With zinc or tiles, but needs good design and construction.

Bamboo needs treating if it is expected to stay storm resistant for long

TOOL KITS

Tool Kit, provided at a household or community level, is used to assist with salvage and recovery process.

Note: If provision of tool kit is done at the community level or 5 to 10 households group, advocacy, or community reconstruction committees will be required to ensure that the community knows that tools are available.

General: repair and construction	
Claw Hammer	Local specification
Timber saw	SAW, for timber, 400mm blade/ SAW, bow type, for wood, 450mm blade
Pliers	
Sheet metal cutters	Tin snips
Builders bucket	

2.3 COMMUNITY CLEAN UP KIT

Community clean up and rubble removal kit can be used to support salvaging, recycling and removal of debris in the community.

Clean up and rubble removal	
Empty rice bags	Local specification
Wheelbarrow	Approx. 90l dry solids, strong solid wheel
Hack saw – blades	Steel bar frame, wood handle, wing nut, L. 300mm/ 24”
Bolo (knife)	Local specification
Barra	Twisted Steel Bar with a chisel on the end
Crow bar	With angled beak, 300 mm length/with angled beak, 500 mm length
Cold Chisel	Flat 20mm, for masonry, 300mm length/1”
Sledge hammer	Hardened steel, wood handle, 4800g, 900mm/hardened steel, wood handle, 1200g, 250mm
Shovel /Spade	Square faced shovel total length approx. 1m
Personnel protection	
Gloves	Protection, heavy duty soft leather, size 11, pair
Goggles	Plastic, with rubber string, eyes protection
Mask	Vapour and dust protection, FFP2 disposable half mask
Boots	Heavy duty plastic rubber, pair, size various

3 NFIs Interventions

3.1 HOUSEHOLD KIT

Household Bedding	
Blankets	2
Ground mats	1-2

Other Household Items	
Solar lights	1
Radio	1

3.2 KITCHEN SET

This is a sample household NFIs kit; there may be variations between organisations.

Household Kitchen Set	Quantity
Cooking pots with lids. (3-7 litre and one 5-9 litre)	2
Saucepan	1
Serving spoon / Ladle	2
Table spoon	6
Cups	6
Plates	6
Soup bowls	6

3.3 HOUSEHOLD CLEAN UP KIT

Material	Specification
Bucket	Heavy duty rubber, masonry type
Floor Cloth	Cotton, 50 X 50cm
Broom	Straw brush, 30cm width block, without handle - local manufacture from palm
Mop	Fringe wet mop, floor washing, with handle
Dustpan	
Scrub brush	Hand brush
Sponge	Reinforced cellulose, 5 x 10 x 15cm
Detergent	Household, general cleaning, liquid, bottle 1L
Gloves	Cleaning, rubber, large
Chlorine	1000mg (NaDCC 1670mg), multi-purpose, 1 tablet

4 Specifications

4.1 TARPAULIN / PLASTIC SHEETING²

Note: Plastic sheeting will be distributed as:

- 1 sheet per Household of up to 5 people.
- 2 sheets for households of 6 people and more.

Plastic sheeting is preferable over tents as it:

- Permits flexible use of materials,
- Is more waterproof,
- Allows people to create improved living areas. Its relative weight allows rapid distributed at volume.

Plastic sheeting should be distributed with suitable fixings such as rope or wire.

BACKGROUND

Plastic sheeting is also known as plastic tarpaulin, tarp or polythene sheet. It is a sheet of strong, flexible, waterproof material.

Although different qualities of plastic sheeting exist, those suitable for humanitarian relief are made from polyethylene to standards that were effectively agreed between major organisations in the 1990's. Some of the specifications such as UV resistance can only be found by detailed laboratory testing. As such, it may not be possible to verify all of the specifications when sheeting is procured locally.

A standard sheet has a black woven core and is laminated on both sides. All plastic sheeting must reach minimum performance standards outlined below.

Sheet sizes and number per family

SOURCE	SIZE	NUMBER REQUIRED PER FAMILY OF UPTO 5
	4m x 5m	1
	4m x 6m	1
DfID	4m x 7m	1
USAID	4m x 60	Roll cut into 10 pieces (6m lengths). One per family.

Standard specification:

Weight: 200g/m² ± 5% (ISO 3801). Add 10% for reinforcement.

Lighter versions (180g/m² ± 5%) that meet the material performance specifications below might also be considered.

Core material: woven fabric High-Density Polyethylene (HDPE). Black colour, as this provides privacy, reduces heating under the sheeting due to the sun and is the cheapest way to reduce UV degradation.

Lamination material: Low-Density Polyethylene (LDPE).

Reinforcement: eyelets (sheets only) or reinforcement bands (rolls and sheets).

- Option 1: eyelets (on edges), one strong aluminium eyelet every 1.00 m ± 5% on edges. Sealed on all sides (or 2 sides heat sealed and two sides double stitched), with nylon or HDPE ropes in hem.
- Option 2: reinforcement bands, bands of 7.5 cm width made from black woven HDPE laminated on both sides.

² See also www.plastic-sheeting.org.

text edited from "selecting NFIs for shelter", IASC shelter cluster

[http://www.sheltercentre.org/sites/default/files/Selecting NFIs for Shelter.pdf](http://www.sheltercentre.org/sites/default/files/Selecting%20NFIs%20for%20Shelter.pdf)

4.2 TENTS

Note: Tents are currently a priority, but **only if** of sufficient quality and they can be **delivered by mid-December**. Where there is an option, plastic sheeting should be procured instead to allow response at scale.

TENT QUALITY

Past experience has shown that when large quantities of tents are purchased at short notice, the quality remains unpredictable.

Many tents that are offered by suppliers will not remain waterproof for the heavy rains. Many others are simply too small.

Tents specialised for humanitarian relief have been developed over many years by major organisations. To purchase suitable tents requires establishing clear specifications and understandings with manufacturers.

As an example, in a survey of the estimated 400,000 tents distributed after the Pakistan earthquake in 2005, over 80% were found to be unsuitable for the weather. Most of the distributed tents required remedial distributions of plastic sheeting. This caused significant delays.

TENT SPECIFICATION

The procurement of tents requires solid knowledge of tent specification. A normal tent specification runs to several pages. Failure to have a detailed specification for large scale tent procurements will frequently lead to issues with quality.

Tents should provide a **minimum of 16m²** usable covered area.

Double fly is recommended as it provides:

- A ventilated air gap for enhanced thermal performance
- Improved water resistance

Fabric should meet the specifications outlined in the IFRC Emergency items catalogue³.

More on specification is available from ""A guide to the use and logistics of family tents in humanitarian relief⁴.

KEY COMPONENTS OF A TENT

A tent **must** be made of **waterproof canvas**, and must have a **strong supporting frame**. It must provide a **minimum of 16m²** covered area. Additionally, a winterised tent has the following components:

Fly sheet

- Separate fly sheet, usually made from canvas, which fits over the inner tent.

Structural supports.

- The poles, which form the vertical supports and the ridge beam, should be made of a thick gauge steel (min 1.5mm) and with an external diameter of 35-50mm. This gives suitable structural resistance to both high winds and snow loading.

Mud flaps / valences

- The tent must have rot proof mud flaps of suitable quality and length to allow the tent to be dug into the ground.

³ <http://procurement.ifrc.org/catalogue>

⁴ http://www.sheltercentre.org/sites/default/files/UNOCHA_tents.pdf

4.3 ROPE SPECIFICATION⁵

Rope is one of the most common fixings for plastic sheeting. For fixing plastic sheeting, black 8mm to 14mm diameter rope is preferred. Black rope is preferred as it resists UV degradation, although other colours (such as blue polypropylene rope) may be cheaper or more available.

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 (Based on the MSF catalogue)			
Natural fibre	Polypropylene	Nylon / polyester	
Strength	-	+	++
UV resistance	+++	-	+
Elasticity	+	++	++++
Wear resistance	+	+	++
Resistance to rot	-	++++	++++
Cost	Cheap	Average	Expensive

Specification - Rope:(natural fibre, nylon and polypropylene)	
Basic specification	
Weight	Large quantities are normally purchased by weight. Minimum lengths should be specified.
Dimensions	8-14mm diameter. (or 3-4mm if polyester hard braid)
Colour	Black for nylon and polypropylene, natural for natural fibres (subject to availability / cost)
Material	Polypropylene, Nylon, other polymers, or natural materials. Fibres should not be recycled (for quality).
Material specification	
Number of strands	3 or 4 strands for twisted rope. Twisted for polypropylene and natural fibres, braided for nylon.
Testing	ISO 9554
Printing and packing	
Printing	Bales of rope should be marked with type, material, manufacturer, length, tensile strength, inspection reference.

⁵ See also www.plasticsheeting.org.

4.4 CORRUGATED IRON SPECIFICATION⁶

Corrugated galvanised iron is also known as corrugated iron, zinc sheet or abbreviated as CGI.

There is alternative metal sheeting to galvanised iron that can also be used

Coating: CGI often has an alum-zinc carbonate coating which protects the iron from rusting. The alum-zinc coating can usually be identified by the crystalline pattern. Alternative coatings include zinc rich paints.

Painting the zinc coated iron sheet will further increase its life-span. Painting also reduces heating in sunlight. It is necessary to wait some time before painting CGI to allow the greasy protective layer applied in the factory to wash off.

On a visual inspection there should be no gaps or bubbles in the coating. It should not easily scratch or rub off. 'Coating thickness gauges' can be bought to measure the thickness of galvanised layers.

Given the marine environment that many damaged and destroyed houses are situated near it is extremely important that galvanization is specified for CGI. It is currently recommended that the following is included within specifications:

Coating: hot dip galvanization with minimum 120g/m² aluminium-zinc on each side that is 240g/m² total coating weight.

Corrugations: Once coated with zinc, the flat sheet is rolled on a press to leave a corrugated pattern. Corrugations make the sheet more rigid. They can be described by the depth (the height from the top of a crest to the bottom of a trough) the pitch (the distance between two crests). Corrugation patterns may vary between manufacturers.

Thickness: The recommendation is usually for 26 SWG, however as the Philippines standard production are made with rounded mm, the cluster is therefore recommending 0.4mm – 0.5mm thickness. Thinner gauge sheeting will not last as long and is more likely to fail in high winds. Note the lower the gauge number, the thicker the sheeting. If sourcing locally, you will need to measure the sheet with callipers because although the vendor may call it a particular specification, actual thickness will vary.

		Suggested				
SWG	24	26	28	30	32	34
Mm	0.559	0.457	0.376	0.315	0.274	0.234
Inches	0.022	0.018	0.015	0.0124	0.0108	0.0009

Note: other wire gauges are used such as the American Wire Gauge (AWG). Quoted here is British Standard (Imperial) Wire Gauge (SWG). This was detailed in BS 3737:1964, a standard that has now been withdrawn.

Dimensions: Dimensions quoted with a tolerance of ±5mm. Dimensions should be appropriate to construction. With smaller sheets there is more wastage due to overlap between sheets. Larger sheets may be harder to transport.

Corrugations: Pitch and depth should be uniform. This allows the sheets to be stacked easily and to overlap neatly when making a join.

⁶ text edited from "selecting NFIs for shelter", IASC shelter cluster
[http://www.sheltercentre.org/sites/default/files/Selecting NFIs for Shelter.pdf](http://www.sheltercentre.org/sites/default/files/Selecting_NFIs_for_Shelter.pdf)

Packing: If they are being airlifted, bundles of sheets of CGI should be packaged in a sturdy wooden box. This is especially critical if the CGI is under slinging with a helicopter or being stored on or near an airfield.

HEALTH AND SAFETY

Ensure that handling staffs are equipped with gloves and sturdy boots to prevent injury, and that a first aid package is available at loading and off-loading locations.

4.5 BLANKETS / MATS

There are three main types of blankets and quilts all are acceptable if they conform to the standards below:

Woven blankets: Made of wool, new fibres, or recycled fibres from second hand clothes;

Fleece blankets: Made of pure polyester. They are as efficient as woollen blankets, with better ability to dry, and feel more comfortable when in contact with the skin; and

Quilts: Made of synthetic material or fibres covered by a synthetic sheet (commonly polypropylene).

Quilts are very different from woven blankets and not appropriate for all cultures. Quilts are recommended for cold countries only.

Technical recommendations

Thermal resistance: Where applicable, a minimum TOG value of **2.5** is suggested. Note that local suppliers may not be able to provide TOG values.

Weight and volume: Suitable blankets should have a minimum weight of **300-850 g/m²**. This corresponds to a weight **1-2 kg** each.

Size: 2m x 1.5m is the minimum blanket size. Polar fleeces and quilts can be larger.

Organisations may deliver children's blankets, intending that their small size will ensure that only children use them.

Thickness: When specifying thickness, refer to the blanket in a packed, compressed state.

Strength: The strength of a blanket is a useful indicator of its quality and durability. A tensile strength of 25 kg in both warp and weft is suggested as a minimum.

Colour: Blankets are brown grey or dark coloured for practical reasons.

Finishing: Blankets should have either ribbon borders or have whipped stitching on the edges to prevent them from fraying.

Shrinkage: Most blankets have shrinkage tests included in their specifications. Generally, the maximum shrinkage after hand washing at 40°C is less than 8%.

Fungus and moths: Blankets should be free from fungus damp, mould or moths. Any treatments should be nontoxic and with hypo-allergenic products. (WHOPES, 2006)

Packing: Blankets should be clean, compressed into bales and marked for easy transportation and stock management. If blankets are being airlifted they should be compressed and put into packages before transport.

Technical note: thermal resistance

Thermal resistance is commonly quoted as a TOG value; a measurement of how well a material resists heat flow. The higher the TOG rating, the better the insulation.

Thermal resistance can also be quoted as an R-value, measured in (Km²)/W. The relationship between R-value and TOG value is: R-value = 10 x TOG value.

A heat transfer coefficient, known as a U-Value, may also be quoted, and is measured in W/(m²K). U-Value is related to the other parameters as follows: U-Value = 1/(R-Value) = 1/(10 x TOG value). TOG values can only be accurately tested in a laboratory.

4.6 TIMBER AND COCO LUMBER

The best and most readily available source of structural material following an emergency is to re-use salvaged timber. Social mobilisation of the community, connecting Debris removal programs to emergency shelter is the most effective way to effectively utilise this resource.

Timber: fallen tree study to be made in rural areas to see if there are opportunities to make productive use of fallen timber. If coconut trees exist in the locality – cluster to coordinate and negotiate with National Coconut authority for the free use of fallen timber for reconstruction within the province.

A general timber availability study to be carried out and strategy to be discussed.

For reference: www.humanitarian-timber.org

For technical reference regarding the use of coco lumber: ProTrade, Coconut Palm Stem Processing Technical Handbook, http://www.sheltercluster.org/sites/default/files/docs/ProTrade_Coconut-Palm-Processing.pdf

4.7 BAMBOO, NIPA PALM, AMAKAN

Lighter construction houses of lower cost are mostly built using bamboo and 'nipa palm' thatching. In some regions bamboo is locally found in and around communities and is used for both framing structure as well as woven into sheets for cladding. Bamboo and nipa roof thatching are therefore material that some household can harvest and make by themselves, though most will be buying from the local markets.

Treatment: for a sustainable use of bamboo and nipa, it is important that these materials are treated prior to use. Common treatments include smoking nipa or coconut leaves prior to use, and soaking of bamboo in running water to remove sap.

Amakan walls should be promoted wherever appropriate. It should be noted that these may be treated as "sacrificial" by structural engineers, allowing a decrease in wind loading on the house during extreme events. However, if the walls are "sacrificial" then agencies may need to consider where inhabitants are to go for safety in extreme wind events.

For procurement of bamboo and nipa, please see Humanitarian Bamboo Guidelines, <http://www.sheltercluster.org/sites/default/files/docs/Humanitarian%20bamboo%20guidelines.pdf>

5 Case Studies and Key References

Further reference on use of

Emergency Shelter:

Plastic sheeting: <http://www.plastic-sheeting.org/>

Tents: <http://www.plastic-sheeting.org/ref/tents.pdf>

Use of Cash and voucher:

IFRC, Guidelines for cash transfer programming, 2007,

<http://www.ifrc.org/Global/Publications/disasters/finance/cash-guidelines-en.pdf>

GOAL: <http://www.sheltercluster.org/sites/default/files/docs/Vouchers%20Manual-GOAL.docm>

Timber & Coco lumber:

Timber: www.humanitarian timber.org

Coco lumber: ProTrade, Coconut Palm Stem Processing Technical Handbook,

http://www.sheltercluster.org/sites/default/files/docs/ProTrade_Coconut-Palm-Processing.pdf

Case Studies:

Recent structural analyses of transitional shelters built in the Philippines

<http://sheltercasestudies.org/files/tshelter-8designs/10designs2013/2013-Postdisaster-shelter-10designs-Philippines-1.pdf>

and

<http://sheltercasestudies.org/files/tshelter-8designs/10designs2013/2013-Postdisaster-shelter-10designs-Philippines-2.pdf>

Case studies of shelter project from the Philippines:

Typhoon Megi 2010: <http://sheltercasestudies.org/shelterprojects2010/A26-Philippines-2010.pdf>

Typhoon Washi 2011: <http://sheltercasestudies.org/shelterprojects2011-2012/A25-A27-Philippines-2011.pdf>

Annex 1: Dos and Don'ts Of Distribution

DATED: 27/11/2013

The Shelter Cluster coordination team presents these Dos and Don'ts to assist agencies with their distributions.

1. Make contact with local community leaders – Organisations should identify correct community leaders and discuss distribution needs and plans and to ask for initial information on affected families.

2. Verify needs – Organisations should then verify this information during field visits, discussion with other relevant stakeholders, community consultations, and other means. Organisations should ensure that the needs of the most vulnerable have been included in these plans, that both men and women of all age group are consulted through focal group discussions, and that age and sex-disaggregated data is included in assessment⁷.

3. Agree distribution plans – Where possible, organisations should agree distribution plans with local community leaders, ensuring that this plan is communicated as widely as possible with the whole community. Communities should understand how both needs and targeted beneficiaries have been identified. Ensure groups with specific vulnerabilities (unaccompanied children, female-headed households, elderly, disabled, LGBTI, etc.) receive appropriate support in accessing aid for constructing shelters.

4. **Ensure targeted beneficiaries receive distributed items** – Where possible, organisations should distribute directly to targeted beneficiaries in order to avoid misdirection of distributed items.

5. Communicate plans with Shelter Cluster – Organisations should always report planned and completed distributions to the Shelter Cluster coordination team⁸. When reporting, provide clear information on

- location
- numbers of households targeted
- dates
- type of assistance (including items to be distributed)

Wherever possible, use the reporting template from the cluster⁹.

6. Participate in the Shelter Cluster – organisations should participate in the Shelter Cluster, to improve coordination, to reduce gaps and overlaps in the response.

7. Coordinate on transitional shelter activities – Organisations should coordinate with other Shelter Cluster members on transitional shelter activities, and specifically with other agencies operating (or coordinating) in the same Commune.

Please forward you distribution advice to tech.phil@sheltercluster.org for inclusion in future revisions of this document.

⁷ See Shelter Cluster's "Guidance on mainstreaming gender and diversity in shelter programmes" for more information

Annex 2: Technology based prefabricated shelters for family shelter

TECHNICAL GUIDANCE NOTE

DATED: 13/11/2013

Operations in the Philippines are currently based on very severe logistics constraints. Access to many construction materials is limited, and there are significant unmet needs as a result. As a result operations are focusing in the short term on the delivery of plastic sheeting, fixings, poles and household items to support self-help. In the medium term, operations will focus on traditional materials that can be re-used by affected families in the longer term as they move to more durable housing solutions (transitional shelter). For reconstruction, focus will be on durable housing solutions. More on the shelter strategy, anticipated shelter costs, and non-food item prioritisation can be found at:

<http://www.sheltercluster.org>

In terms of emergency response, the general wisdom is against the use of prefabricated shelters using high technology materials for family shelter. Instead programmes should encourage the use of appropriate materials that can be re-used or easily maintained. Key documents such as Sphere (www.sphereproject.org), "UNHCR Handbook for Emergencies (2007)", "Shelter After Disaster" (UNDRO 1982), and "Transitional Settlement and Reconstruction after Natural Disaster" (UN-OCHA, 2009) (both available from www.shelterlibrary.org) all advise against technologically based prefabricated solutions for family use.

It is not currently anticipated that this is a practice that will be reversed for this response.

Annex 3: Notes on Hurricane Straps

Taken from: “IFRC, *Post disaster shelter: 10 designs, 2013*”

Proper connections between the components of a shelter are crucial to its performance during hurricanes and earthquakes. One of the most important connections is between the roof and the supporting walls or columns. Without strong connections, the roof could blow away resulting complete failure of the shelter.

“Hurricane strap” or “coiled strap” is a simple and cost effective product to connect the roof of a wood framed shelter. A hurricane strap is a galvanized steel strap which can be cut to length with tin snips, and has regularly spaced holes to nail or screw into wood framing. Its effectiveness as a hold-down is dependent on exactly how the strap is used to make the connection.

Factors that are important to the effectiveness of a hold-down include:

- NEVER rely on nails or screws loaded in withdrawal (where the loads of a structure are effectively pulling them out of the wood). Instead rely on fasteners loaded in shear (where the loads go across them).
- Strap should be tight to the framing with no slack, and should not allow upward movement of the roof, however small.
- Hold-downs are most effective when wrapped over the top of the rafter or truss.
- Providing a strap on only one side framing should be avoided when possible, instead provide a strap on either side.
- Only bend a strap once at any location. Repeated working weakens the steel.
- When creating a hold-down detail, remember the hold-down is intended to resist upward loads.

As an alternative, there are many pre-fabricated hold-downs available from various manufacturers. These products have the advantage of being relatively easy to install for unskilled labour, and to inspect for proper installation.

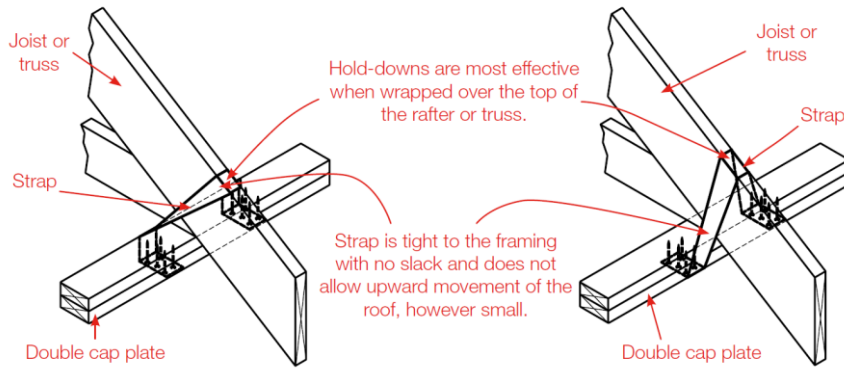
Some disadvantages are that these products are intended for standard dressed dimension lumber, which may not be available, and that they need to supply many different types according to the connection conditions.

For full specifications see: See IFRC/ICRC Emergency Items Catalogue.

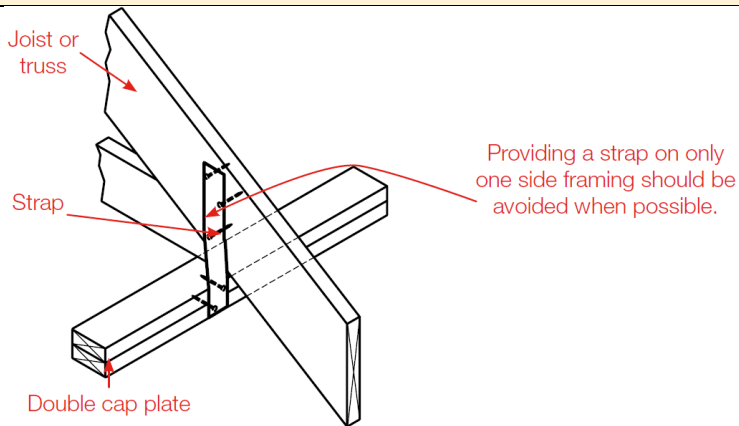
www.procurement.ifrc.org/catalogue

(EHDWSTRAHS16: Hurricane strap, galvanised, perforated, 32mm)

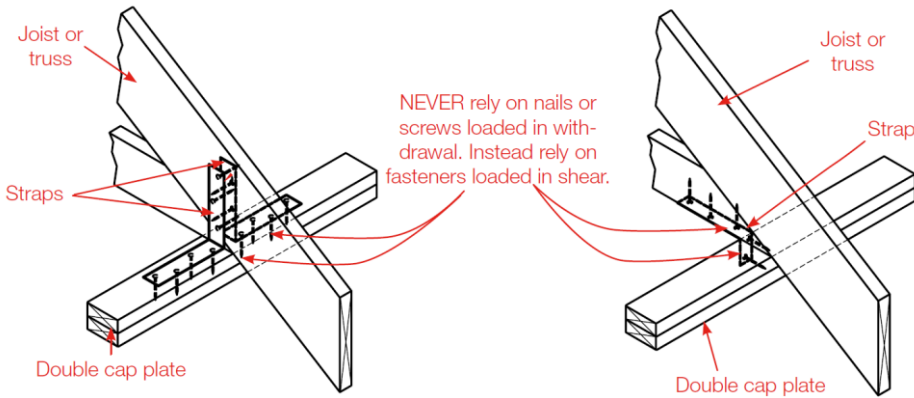
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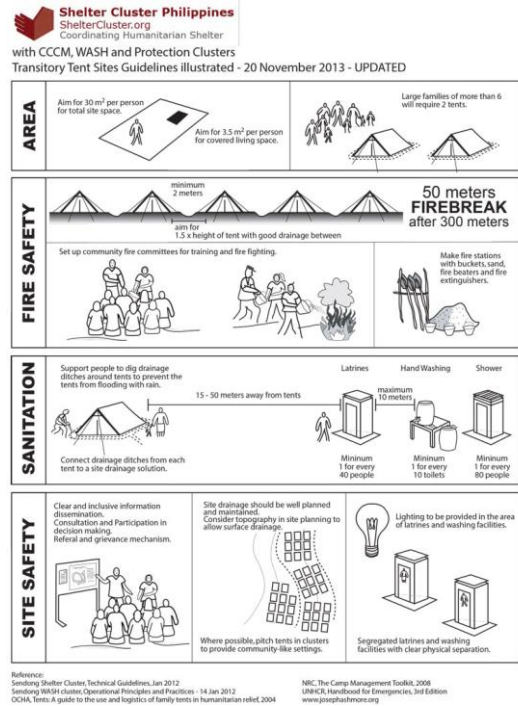
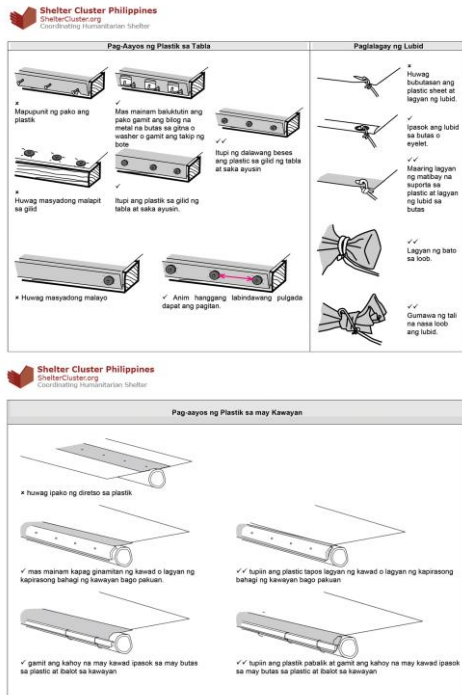


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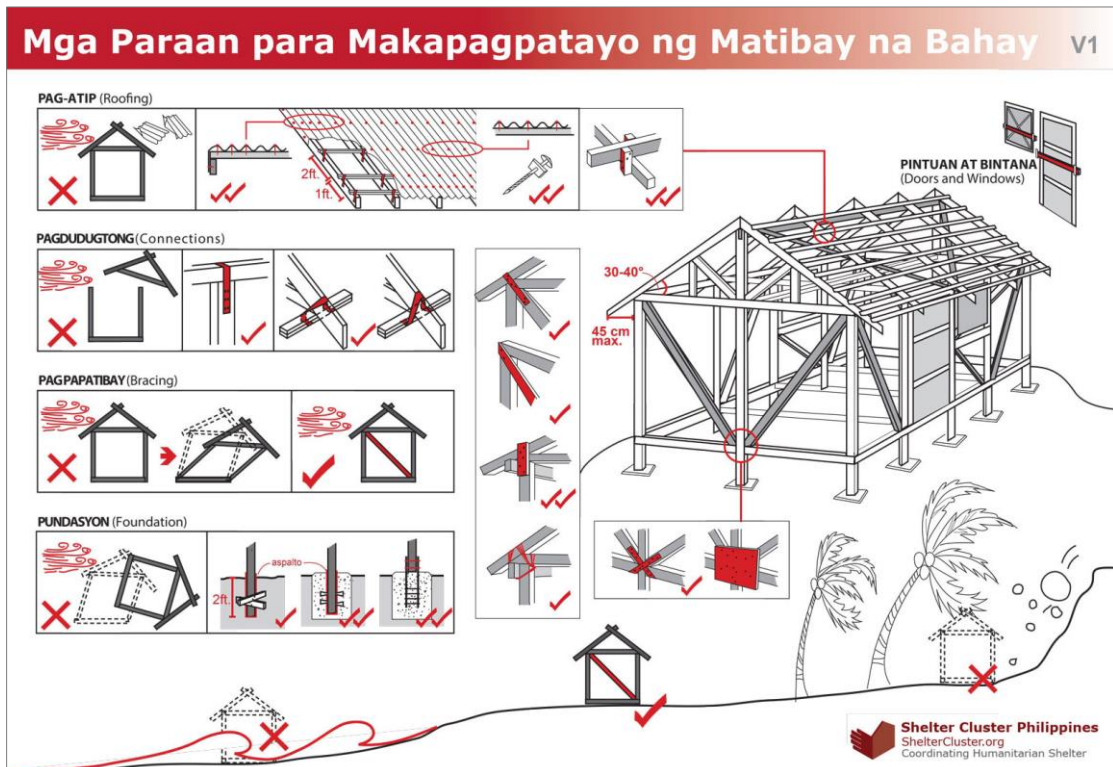


Annex 4: Information, Education and Communication Material

1. Plastic Sheet fixings guide, available in Tagalog (shown) and English.
2. Illustrated tent sites guidelines



3. Tips to Building Back Safer are available in English, Tagalog (as shown below), Waray (Samar-Leyte), Bisaya (Cebuano) and Hiligaynon (Ilonggo).



Annex 5: Additional Guidance from the regional hubs

Region 8's Supporting Self-Recovery Shelter Repair Package Guidance:

http://www.sheltercluster.org/sites/default/files/docs/TG_Annex5_RegionVIII_ShelterRepairPack_v5.pdf