



**DRAFT 4**  
**SHELTER DEFINITION AND PARAMETERS**

**TEMPORARY SHELTER AND MATERIAL SUPPLIES**  
**TECHNICAL WORKING GROUP**

Cagayan de Oro, Mindanao, co-chair by DSWD and IOM

**1. INTRODUCTION**

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This Technical Guidelines has been drafted by the Shelter Cluster's Technical Working Group on Temporary shelter and material supplies, co-chaired by DSWD and IOM, with the collaboration of several experienced agencies active in the shelter sector in Mindanao.

The Technical Guidelines are in line with the strategies recommended by the Shelter Strategic Advisory Committee. It takes into account collective experiences of shelter agencies and build on designs of shelters tested in the field. These technical recommendations aim ensure technical coherency, social and cultural appropriateness, which are in line with the requirements of humanitarian standards, beneficiaries, climate, the hazards etc. They consist of **four** parts:

- a) Shelter terms and definitions:
- b) Design Principles
- c) Kit Definitions, Technical standards and parameters  
Recommendations on design parameters as agreed by the TWIG for design and construction of shelters responding to tropical storm Sendong.
- d) General Recommendations  
Key issues to be considered to ensure a coherent programme, taking into account other aspects surrounding shelter project.

Related Document:

- 1. Mindanao Hazard mapping
- 2. Compilation of Designs and BOQs
- 3. Goal's Voucher Distribution Manual (2007)

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## 2. SHELTER TERMS AND DEFINITIONS

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### 2.1 Shelter Locations:

Type of Location	Description
Evacuation Centre (EC)	Original schools and public buildings established few days after the flooding to accommodate the displaced families. These potentially need decongestion
Transitory Evacuation Centre	Established to accommodate affected families temporarily relocated to decongest ECs. (eg. Agusan Elementary School)
In Communities	Places where community-based affected families are staying with relatives / neighbors in the affected areas
Transitory Site	Allocated sites for temporary settlement (e.g. Cala-anan 1 & 2 and Lumbia 1)
Relocation Site	Sites for permanent relocation with minimum of 10-year land tenure. (e.g. Cala-anan 3 and Sta. Elena)
Return Site	Place of origin in affected area. Return sites can only be outside of no-build zone where beneficiaries have tenure security.

### 2.2 Shelter Assistance: all shelter responses are targeted at family units

Type of Shelter	Description
Buildings	Schools and public buildings used to provide emergency sheltering solution.
Host Families / Host Communities	Temporary accommodation provided by neighbours, relatives or communities within affected areas
Tents	Portable shelters with a cover and a structure, used to provide emergency shelters.
Temporary Bunk Houses	Multi-family temporary shelter units, built on transitory sites
Temporary Shelter	Temporary shelter is shelter provided during the period between natural disaster and the achievement of a long-term shelter solution
Shelter Kit	Comprises of construction material and tools, or in the form of voucher, to provide support for return to place of origin outside no-build zone where houses were damaged.
Semi-Permanent Shelter	Built on relocation or return sites and designed with foundations, to be upgraded at a later date by the families.
Permanent House	Built on return or relocation sites. For more information and guidelines regarding permanent housing reconstruction, see Housing, Land and Property working group.

**3. DESIGN PRINCIPLES**

<b>Indicators</b>	<b>Criteria:</b>	<b>Design Principles:</b>
<b>Climate Suitability</b>	<ul style="list-style-type: none"><li>- Ventilation</li></ul>	Design of the shelter to allow adequate ventilation to reduce internal temperatures. The design should allow for climate suitability improvement (e.g. option to include further openings, to add further partitions)
<b>Social/economical Suitability</b>	<ul style="list-style-type: none"><li>- Locally available material, utilising familiar techniques</li><li>- Options for further improvement</li><li>- Accessibility</li></ul>	Local procurement, where availability permits, should be prioritised; this stimulates local economy and reduces unnecessary transportation costs. Use of well-known materials and techniques will promote the participation of the beneficiaries in construction process and its maintenance Use of familiar construction techniques will allow families to make improvements as money become available. Shelters should provide options for access of disabled people.
<b>Cultural suitability</b>	<ul style="list-style-type: none"><li>- Typology according to household activities, privacy and gender as well as options/capacities of reconstruction.</li></ul>	Design shelters to meet local household activities, as well as local cultural requirements. The design of the shelter should enable flexible use of both available interior and exterior space. Respect design and techniques adopted by beneficiaries when building their own shelter.
<b>Resource effectiveness</b>	<ul style="list-style-type: none"><li>- Use salvaged materials.</li><li>- Allow future reuse of materials.</li><li>- Minimize impact on natural resources</li></ul>	The use of salvaged materials is encouraged when in good condition (bricks, door/window-frames, roof beams etc.) Provide best practice guidance on material selection and re-use to prevent detrimental construction methods. Select quality construction materials for transitional shelters that can further permanent solutions. Consider construction techniques that enable dismantling and reuse of materials. The choice of materials should avoid increased pressure on limited locally available natural resources.
<b>Appropriate Location</b>	<ul style="list-style-type: none"><li>- Location</li><li>- Land tenure</li></ul>	Shelter should be constructed at or near the existing homestead, without inhibiting permanent housing process. Minimise exposure to hazards: avoid hazardous locations and apply DDR recommendations Take account of access to livelihoods- the ability for small business and trade in or near the location. Ensure proper land rights for minimum 10-years tenure for permanent sites.
<b>Site Risk Mitigation</b>	<ul style="list-style-type: none"><li>- Hurricane</li><li>- Earthquake</li><li>- Rains and Floods</li></ul>	Shelter design must include earthquake and hurricane resistant techniques. Shelters to be built on safe portions of land. Drainage of the area around the shelter to be examined. When necessary, construct water diverting features or rainwater containment.



#### 4. KIT DEFINITIONS, TECHNICAL STANDARDS AND PARAMETERS

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**4.1 Tents:** A guide to the use and logistics of family tents in humanitarian relief, published by UNOCHA can be downloaded from <http://www.josephashmore.org/publications/tents.pdf>, hard copies can be requested from UNOCHA's Logistics Support Unit (email: [lsu@un.org](mailto:lsu@un.org)).

**4.2 Shelter Kit:** contains construction material and tools, and target those returning to damaged or destroyed houses in place of origin. The kit should provide necessary support to ensure that minimum sphere standards can be reached.

Note: Material and tool support can also be provided in the form of voucher.

Recommended Construction Material:

No.	Description	Note	Quantity
1.	Coco lumber	Certified timber, various sizes	
2.	Ply wood	1.5" thick	
3.	Corrugated tin sheet	Gauge 26.	
4.	Common wire Nails		
5.	Roof Nails		

Recommended Construction Tools:

No.	Description	Note	Quantity
1.	Claw hammer		1
2.	Pick axe		1
3.	Hand saw		1
4.	Steel square	12"	1
5.	Pliers	About 8"	1
6.	Screw driver	Star and flat types	1 of each
7.	Tin cutter / tin snips		1

Values of Shelter Kits:

Damage	Details	Value (PHP)
Flood/Mud	For house affected by mud and flood, no structural damage	3,000
Partially (minor)	For partially damaged houses with minor structural damage	7,000-10,000
Partially (major)	For partially damaged houses with significant structural damage	15,000-20,000



**4.2 Temporary Shelter:** Transitional shelter is shelter provided during the period between a disaster and the achievement of a long-term shelter solution. It provides a habitable covered living space, a secure, healthy living environment with privacy and dignity for those living within it

Temporary Shelters are applicable for transitory sites. The shelters are designed so that material are re-useable for when families can move onto a more permanent site, contributing towards construction of semi-permanent and permanent houses.

Indicators	Standards	Foreseen Challenges
Size	18m <sup>2</sup> covered living space for family of 5	
Timeframe	12-18 months	Ability to move onto permanent site
Location	<ul style="list-style-type: none"><li>- Location on plot shall allow further incremental development of shelter</li><li>- Allow space for DRR measures</li><li>- 100 families per hectare maximum</li></ul>	Lack of access to funds or skill to build
Use of salvaged material	<ul style="list-style-type: none"><li>- Only qualified salvaged materials (e.g. avoid burnt, decayed, swollen material)</li><li>- Check amount of salvaged material available to beneficiaries.</li><li>- Design of shelters not fully to rely on availability of this type of material.</li></ul>	Ensure quality of salvaged materials
Plot preparation	<ul style="list-style-type: none"><li>- Properly clear site from physical hazards from the flood (e.g. trees likely to fall, debris, salvaged material, also from neighbouring plots)</li><li>- Properly prepare site following DRR principles (good compaction of construction site)</li><li>- Be aware of river silt deposit, not a quality base soil</li></ul>	
Construction process	<ul style="list-style-type: none"><li>- If possible apply traditional, well-know construction methods based on existing skills of available labor. Construction process to be speedy (pre-fabrication of components reduces on site cutting or drilling) and simplified to enable the participation of semi or un skilled labour.</li></ul>	
Foundation	<ul style="list-style-type: none"><li>- Excavation should be deep enough to reach stable or hard soil type.</li><li>- Ensure good compaction of earth</li><li>- When possible ensure PCC layer beneath foundation</li><li>- Raise plinth 6-9" above flood water level. See Flood risk map (attached)</li></ul>	
Floor level	<ul style="list-style-type: none"><li>- Raise floor level to prevent ingress of low surface water - height according to location, min. 10cm</li></ul>	
Structure	<ul style="list-style-type: none"><li>- Inform on simple solutions to improve the shelters resistance: e.g. braces, improved joists, ratio length: width, slope and overhang of roof etc.)</li><li>- Ensure that frame material (eg. Wood or metal) bear the load rather than fasteners/fixings.</li><li>- Current local practice to treat bamboo and wood members uses burnt engine oil or paint.</li><li>- Ensure water drainage from the roofs.</li></ul>	



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Structure (cont.)	<ul style="list-style-type: none"> <li>- <i>Transitional shelter</i>: Lightweight frame anchored to ground temporarily</li> <li>- The structures of transitional shelter should be demountable to allow the reinstallation of the shelter in a new (or original) location or the reuse of the materials.</li> </ul>	
Head height	<ul style="list-style-type: none"> <li>- Flat roofs height should be 9ft (2.75m)</li> <li>- Double pitch roofs: -60% of shelter should have min. height of 7ft (2.1m)</li> </ul>	
Hazard	Standards	Foreseen Challenges
Heavy Rains and Floods	<ul style="list-style-type: none"> <li>- Pitch Roofs: slope min 0,5% gradient.</li> <li>- Recommended extension of eaves: min. 6".</li> <li>- Raise plinth level high enough to protect the base of the wall.</li> <li>- For block construction use plaster on external walls to increase life span of wall.</li> </ul>	
Earthquake	<ul style="list-style-type: none"> <li>- Match design of shelter to local seismic risk.</li> <li>- Seismic resistance techniques to be incorporated into site selection, shelter form, the location of openings, foundations, bracing and ring beam connections</li> <li>- Openings weaken the structural integrity of walls – ensure load above the openings is transferred to other structural components.</li> <li>- Roof beam to overhang min. 6" on each side</li> <li>- Walls to integrate braced structure</li> </ul>	
Fire Hazards	<ul style="list-style-type: none"> <li>- Perform site planning and disseminate information on appropriate safe use of fire near the shelter.</li> </ul>	
Hurricane/ Strong Winds	<ul style="list-style-type: none"> <li>- Form of shelter: rectangular or square type (ratio length to width approx. 1:1 or 1:1.5)</li> <li>- Secure shelter to the ground (strong foundations, lightweight frame anchored to ground)</li> <li>- Roof structure with adequate strength for proposed roofing material</li> <li>- Apply metal strapping to reinforce roof structure to withstand hurricanes, earthquakes</li> <li>- Sufficient pitch to withstand winds: 2-pitched roof: min. 30°- 45°, 1-pitched roof: 12°-14°</li> </ul>	



## **5. GENERAL RECOMMENDATIONS**

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Water & Sanitation	Ensure adequate provisions for water and sanitation. Refer and coordinate with WASH cluster.
Vulnerability & Gender	Ensure most vulnerable are included in shelter support. Gender sensitive programming is required and women should be consulted about a range of issues. (refer to Vulnerability Criteria for Shelter Support)
Cash Grants & Voucher	Cash grants or vouchers should be considered as an option where market can support demand.
Cash for Work	Standard rate to be used, consult Cash Working Group.
Participation	Ensure participation of community throughout the implementation of programs with construction phases, events and support.
Environment	Impacts of local and non-local procurement on the environment and natural resources in the area should be considered.