SHELTER REPORT 2015
PHILIPPINES: TYPHOON HAIYAN RESPONSE

PHILIPPINE RED CROSS

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EXECUTIVE SUMMARY

Following the destruction brought by Typhoon Haiyan in November 2013, the ICRC launched a large-scale humanitarian response including a shelter program for the reconstruction of thousands of permanent houses for the most vulnerable among the affected population.

The shelter program, implemented together with the Philippine Red Cross (PRC), focused on Samar region and was part of a larger response of the Red Cross Red Crescent (RCRC) Movement over the entire Visayas region. Several components of the RCRC Movement participated in the ICRC-PRC response by providing expert human resources and contributing to cover costs.

The program lasted 18 months, divided in two main parts – the construction of 4,462 houses from January to December 2014 and the implementation of related sanitation component.

The model of the house, developed from the previous shelter response to Typhoon Bopha in 2013, was adapted to incorporate all required criteria of typhoon resistance and appropriateness to the specific context. It proved to be a simple but robust model, well adapted to rural Philippine environment. Beneficiaries and hundreds of carpenters were trained on safe construction practices for maintenance and extension of the core house.

The ICRC-PRC design was acquired as a reference model within the RCRC Movement for permanent wood core houses and adopted by several National Societies with minor improvements according to specific needs and context.

For the ICRC, the Samar shelter response represents to date the largest program in re-construction of permanent houses. This report documents the experience and offers technical guidance, reflections, lessons learned and recommendations to facilitate similar recovery responses in the future.

LIST OF ACRONYMS

CH	Core House
DENR	Department of Environment and Natural Resources
DOH	Department of Health
DSWD	Department of Social Welfare and Development
EcoSec	Economic Security
EHI	Essential Household Items
ICRC	International Committee of the Red Cross
IFRC	International Federation of the Red Cross and Red Crescent Societies
NHQ	National Headquarters
NorCross	Norwegian Red Cross
NS	National Society
PRC	Philippine Red Cross
RCRC	Red Cross and Red Crescent
RFL	Reestablishment of family links
SRU	Shelter Research Unit
TWG	Technical Working Group
WASH	Water and Sanitation and Hygiene
WatHab	Water and Habitat

Table of Contents

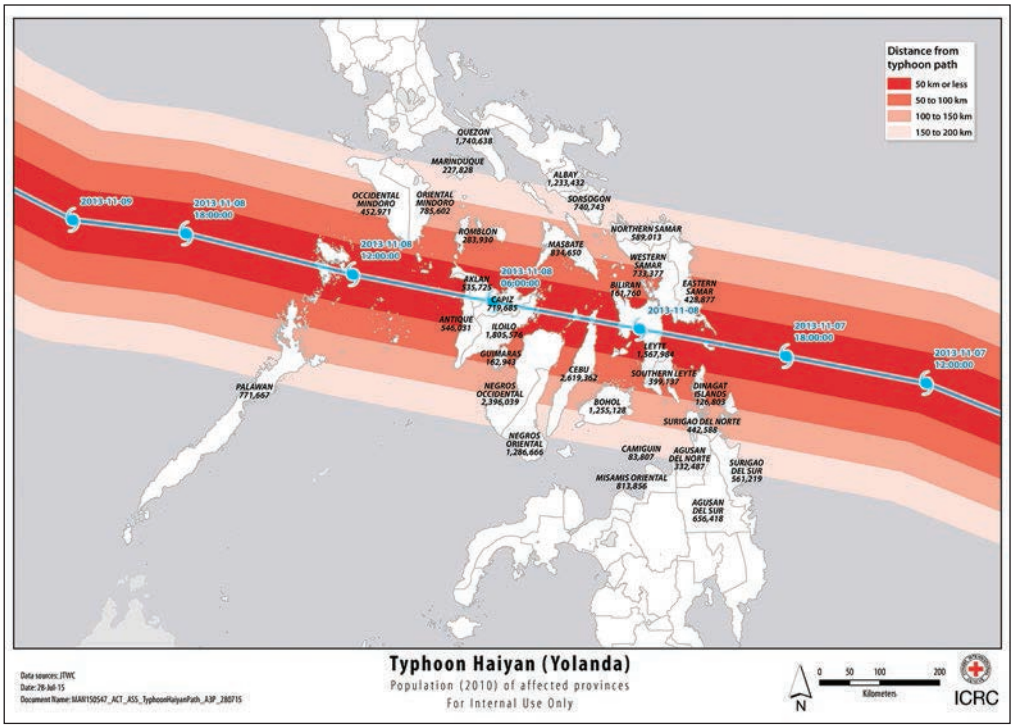
SHELTER REPORT 2015

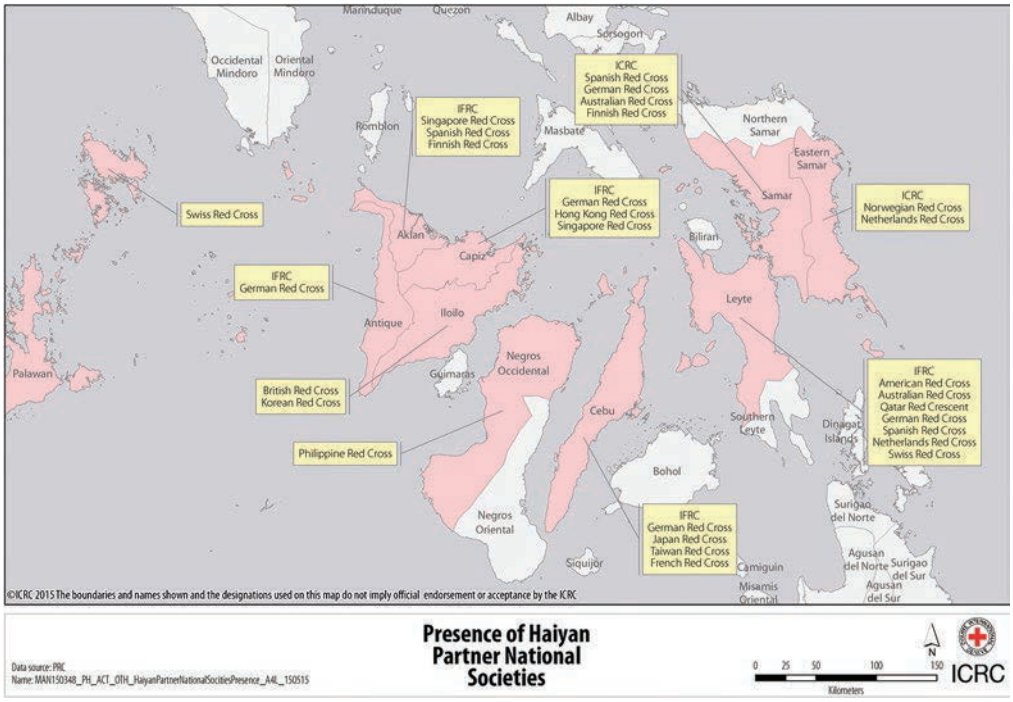
PART 1:
TYPHOON HAIYAN AND ICRC-PRC RESPONSE IN SAMAR

1.1 TYPHOON HAIYAN

On 8 November 2013, category 5 Typhoon Haiyan (local name "Yolanda") hit the Visayas area in central Philippines. The typhoon made its first landfall in the municipality of Guiuan at four in the morning and continued its path across the Eastern Visayas region. After four hours, the typhoon had passed over six main island groups across central Philippines and continued to weaken before leaving the Philippines in the afternoon of the same day. The typhoon caused big waves and storm surges, with winds reaching one-minute sustained speed of 315 kmh. More than four million people were internally displaced and over 6,000 were killed. More than one million houses were reported damaged, more than half of which destroyed.

While destruction was widespread across the region, most of the deaths occurred in Tacloban City and surrounding areas in Leyte and Samar islands.





1.2 AREA COVERED BY ICRC-PRC HAIYAN RESPONSE

In the immediate aftermath of the disaster, the International Red Cross and Red Crescent Movement[1] launched a massive response to provide life-saving assistance in the most affected communities of Leyte, Samar, Palawan, Panay and Cebu.

Among the different areas hit by the typhoon, the ICRC, together with the PRC, focused on Samar, one of the poorest provinces in the Philippines, where it has been present for years supporting conflict-affected communities. In addition to its office in Tacloban City, established in 2008, the ICRC opened a sub-delegation in Guiuan and an office in Barangay Legaspi (Marabut) in November 2013 for its Haiyan response operations.

Eastern Visayas is also one of the poorest regions in the country, with most part of society living out of agriculture and fisheries. Among the three provinces in this region, Eastern Samar was ranked third poorest province in the country, with a poverty incidence of 59.4% among families in the first semester of 2012. Fishermen, farmers and children remain the poorest basic sectors in the Philippines, with poverty incidences of over 35%. [2, 3, 4]

Responding to such widespread level of destruction required the ICRC to intervene in different fields of its expertise and to consider an approach on two phases: an immediate emergency response then followed by support for early recovery.

1 *Philippine Red Cross (PRC) together with International Committee of the Red Cross (ICRC), International Federation of the Red Cross and Red Crescent (IFRC), and several National Societies (NS)*

2 *http://www.rappler.com/business/27276-poorest-provinces-philippines*

3 *http://www.nscb.gov.ph/pressreleases/2014/PSA-%20PR-20140704-SS2-01_poorestsector.asp*

4 *http://reliefweb.int/map/philippines/philippines-typhoon-yolanda-haiyan-distance-typhoon-path-and-poverty-rate-09-0*

Emergency Response (November 13 to March 14)	• Primary health-care and psychosocial support • Food and EHI distribution • RFL and dead body management • Water supply
Early Recovery (April 14 to December 14	• Repair of water systems • Reconstruction of health facilities • Construction of shelters and core houses • Support to livelihood recovery
Recovery (January to June 15)	• Sanitation for shelter

Table 1 : Stages of the ICRC-PRC response in Samar 2013-2015

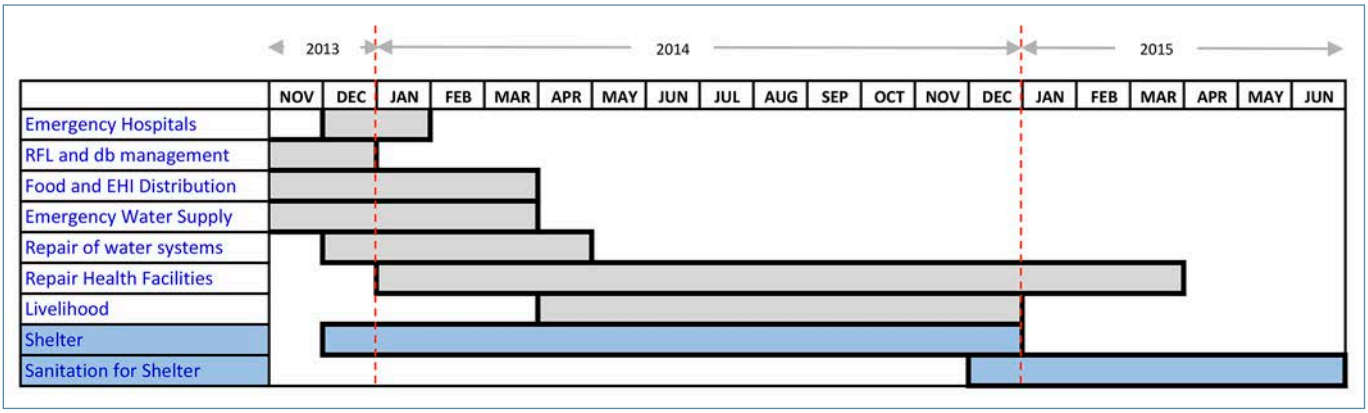


Table 2 : Timeline of the shelter program within the general ICRC-PRC response

The entire response over the different phases lasted 20 months the end of which:

- Survivors restored contact with relatives via Red Cross messages, phone calls and the ICRC's family links website (familylinks.icrc.org);

- Over 72,500 individuals benefited from consultations, surgeries and deliveries in field hospitals; basic healthcare units and mobile clinics were set up in Basey and Balangiga during the emergency response; and 79 health facilities received medical supplies/ equipment. A total of 500 people were also given mental-health/psychosocial support;

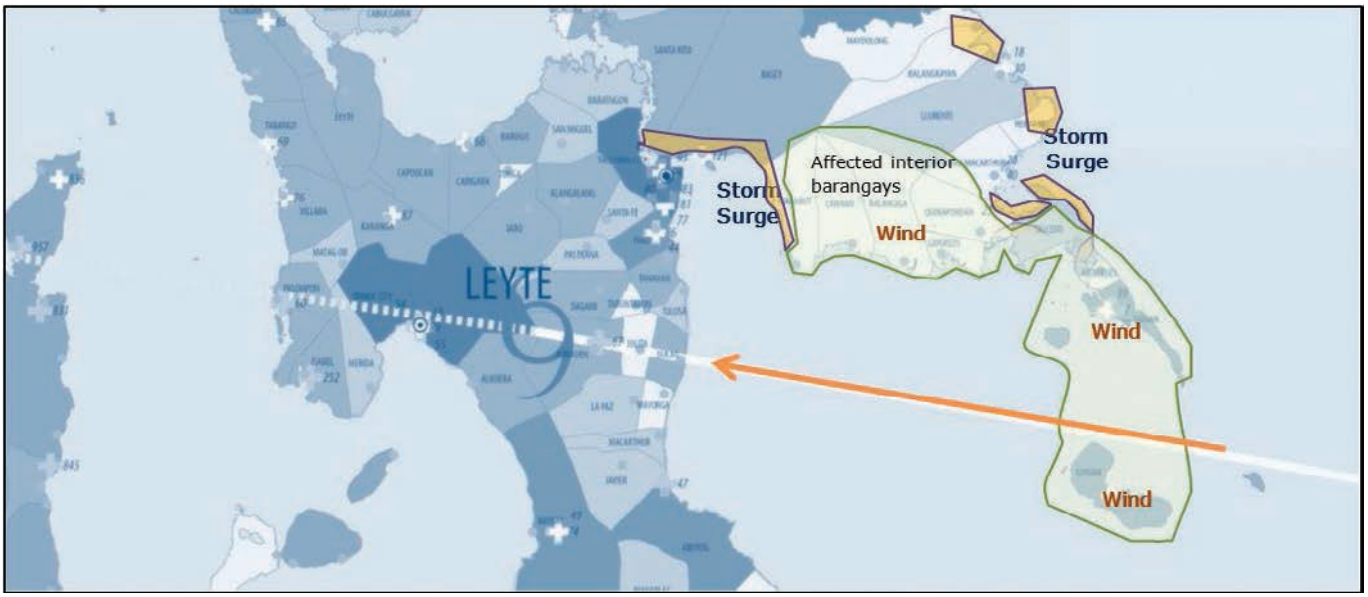
- 75,000 people – including 33,000 in Guiuan – regained access to water through rehabilitated water-supply systems and the installation of hand pumps and slow sand filters;

- **4,462 families in eight municipalities were given new storm-resilient houses and sanitation facilities** built with the help of community members, including more than 1,000 carpenters who received training on good construction principles;

- Two district hospitals, six rural health units and seven barangay health centers were rehabilitated, and about 2,600 children under five years old received various vaccines;

- Almost 236,500 people sustained themselves through distributions of food rations or food-for-work projects, over 227,000 of them started vegetable gardens using ICRC-donated seeds, and around 147,500 received unconditional cash grants to cover basic expenditures;

- Over 71,000 people received cash grants with which they pursued fishing, agricultural, livestock and other business ventures



1.3 IMPACT OF TYPHOON HAIYAN ON HOUSES IN SAMAR

For survivors of Typhoon Haiyan, the reconstruction of their shelter represented the most pressing priority after food, water and healthcare needs.

Seven weeks after the passage of the typhoon, when ICRC started its first shelter assessment, thousands of families had lived in extremely poor conditions, mainly in improvised shelters made up of salvaged materials.

According to official figures, in the 10 municipalities included in the ICRC–PRC operational area, some 47,520 houses were damaged. Of them, 56% were totally destroyed and 44% partially damaged.

PROVINCE	MUNICIPALITY	Partially Damaged	Totally Damaged	Poverty Incidence
EASTERN SAMAR	BALANGIGA	237	1,174	44.2%
EASTERN SAMAR	GENERAL MACARTHUR	1,485	1,529	48.8%
EASTERN SAMAR	GIPORLOS	2,378	866	44.9%
EASTERN SAMAR	GUIUAN	1,601	10,008	42.0%
EASTERN SAMAR	LAWAAN	2,044	901	45.7%
EASTERN SAMAR	MERCEDES	1,142	183	39.6%
EASTERN SAMAR	QUINAPONDAN	2,403	858	51.9%
EASTERN SAMAR	SALCEDO	2,155	2,655	45.8%
SAMAR (WESTERN SAMAR)	BASEY	6,702	6,069	39.1%
SAMAR (WESTERN SAMAR)	MARABUT	858	2,272	44.4%
		21,005	26,515	

Table 3 : Damaged houses in ICR-PRC operational areas (Data: LGU, MSWD and DROMIC, Jan 2014)

At the start of the assessment, the situation immediately appeared to be marked by unprecedented levels of destruction widespread over a very large area. Further analysis helped in discerning differences according to main factors:

Poverty incidence: The houses that sustained severe damage were those built with poorer materials. An immediate link was established between poverty and damage mapping.

Simple houses, built with traditional materials often in risky areas such as on the seashore, were mostly blown away or washed out. On the other hand, houses of better off families, or those with concrete components and thus could withstand the impact of strong winds, required only partial repairs.

Remoteness: Families living in remote areas, like in the uplands and on islands, had less access to income opportunities and were generally poorer. Population living along main highway had better access to materials for reconstruction.

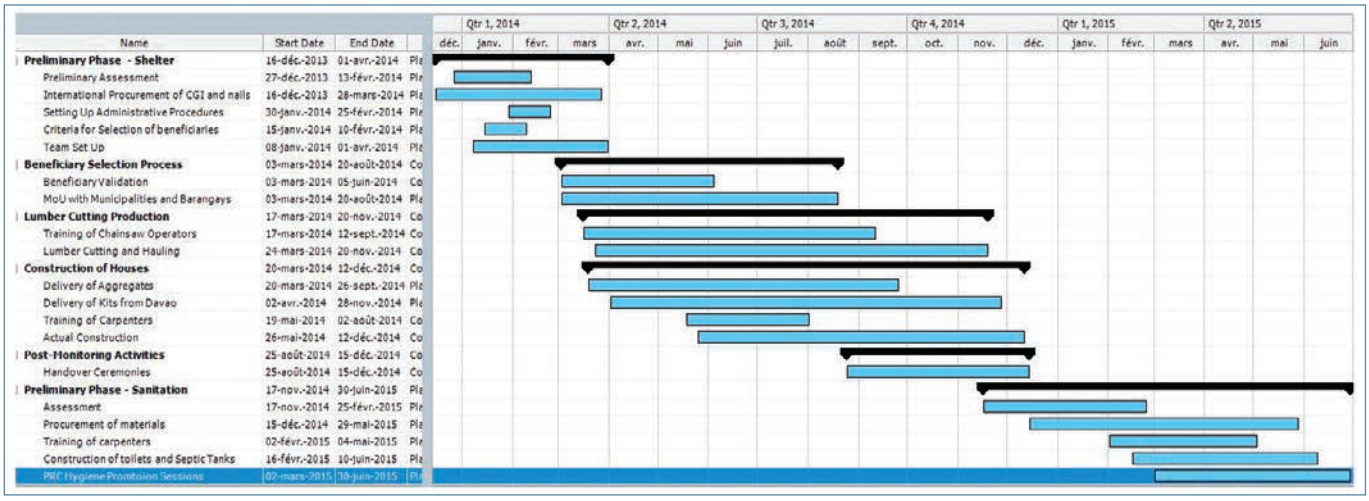
Impact of wind and waves: While strong winds brought destruction in low to higher lands and intensity of damage depended mainly on distance from the typhoon's path, parts of coastal areas were also impacted by strong waves and storm surges. This was particularly intense along the Tacloban bay, where the most deadly effects of destruction were recorded.

1.4 THE ICRC-PRC SHELTER RESPONSE

With the concluded Bopha shelter experience in mind, the initial target for reconstruction of houses was set at 6,000 units by the end of 2014 for the most vulnerable families in 10 municipalities. Even if this figure represented almost twice the previous Bopha target of 3,138[5], several favorable conditions allowed raising the target.

First, the decision of engaging in a shelter program in the most affected municipalities of Samar region was considered early in the course of the response, just a few weeks after the start of the emergency operations. This early reaction allowed precious time for the effective start of the field program by anticipating the preparatory tasks, including the determination preliminary house design and international procurement of materials.

Second, most of project components, from the existing house design to the procurement model from the previous project, were ready and only needed to be adjusted to the new context and size of the operation.



Name	Start Date	End Date
Preliminary Phase - Shelter	16-déc.-2013	01-avr.-2014
Preliminary Assessment	27-déc.-2013	13-févr.-2014
International Procurement of CGI and nails	16-déc.-2013	28-mars-2014
Setting Up Administrative Procedures	30-janv.-2014	25-févr.-2014
Criteria for Selection of beneficiaries	15-janv.-2014	10-févr.-2014
Team Set Up	08-janv.-2014	01-avr.-2014
Beneficiary Selection Process	03-mars-2014	20-août-2014
Beneficiary Validation	03-mars-2014	05-juin-2014
MoU with Municipalities and Barangays	03-mars-2014	20-août-2014
Lumber Cutting Production	17-mars-2014	20-nov.-2014
Training of Chainsaw Operators	17-mars-2014	12-sept.-2014
Lumber Cutting and Hauling	24-mars-2014	20-nov.-2014
Construction of Houses	20-mars-2014	12-déc.-2014
Delivery of Aggregates	20-mars-2014	26-sept.-2014
Delivery of Kits from Davao	02-avr.-2014	28-nov.-2014
Training of Carpenters	19-mai-2014	02-août-2014
Actual Construction	26-mai-2014	12-déc.-2014
Post-Monitoring Activities	25-août-2014	15-déc.-2014
Handover Ceremonies	25-août-2014	15-déc.-2014
Preliminary Phase - Sanitation	17-nov.-2014	30-juin-2015
Assessment	17-nov.-2014	25-févr.-2015
Procurement of materials	15-déc.-2014	29-mai-2015
Training of carpenters	02-févr.-2015	04-mai-2015
Construction of toilets and Septic Tanks	16-févr.-2015	10-juin-2015
PRC Hygiene Promtoion Sessions	02-mars-2015	30-juin-2015

Table 4 : Timeline of the shelter program

Later in the year, after the arrival in Samar of other movement partners (consortium of Spanish, German and Finnish Red Cross in Western Samar and NorCross in Eastern Samar), the same target was partially shared and reduced for the ICRC-PRC part to 4,500 shelter units in eight municipalities.

Even if the first part of the program did not include a sanitation component, and upon consultation with RCRC Movement partners in September 2014, it was decided to add latrines to all the houses as part of the second phase of the program in 2015.

5 *To be noted, for reference, that while in Bopha response only 10% of houses were built as "complete" and 90% as "skeleton" (missing walls, floors and windows to be completed by beneficiaries trained on safe construction practices), in Haiyan response 100% of houses were proposed as complete.*

1.5 RCRC MEMBERS INVOLVED IN THE HAIYAN SHELTER RESPONSE

The ICRC-PRC reconstruction program must be considered as part of a much wider shelter response all over the Visayas region, to which several National Societies participated. Some RCRC Movement partners engaged directly in reconstruction process, while others contributed by providing funds and human resources.

The table below summarizes figures for construction of permanent houses (total 21,121 houses):

		Construction Permanent Houses
ICRC	East and West Samar	4,462
IFRC	Aklan, Antique, Capiz, Cebu and Leyte	5,960
Spanish RC	Aklan and Leyte	1,847
German RC	Antique, Capiz, Cebu and Leyte	3,083
Consortium of Spanish, German and Finnish RC	Western Samar	2,000
Japanese RC	Cebu	144
British RC	Iloilo	1,966
Norwegian RC	Eastern Samar	798
Swiss RC	Leyte and Palawan	681
Hong Kong RC	Capiz	160
French RC	Cebu	20
TOTAL		21,121

Table 5: Summary of figures on the construction of core houses by RCRC Movement members

The PRC set up its own response targets while also being partner in the responses of NS, IFRC and ICRC. To cope with the sudden need of expert resources for an unprecedented level of response in shelter, the PRC set up an ad hoc structure for Haiyan response within its NHQ. In this structure, one staff worked as shelter focal point and as general facilitator of the technical coordination among various RCRC Movement partners. The coordination mechanism allowed following up on achievements, common challenges and best practices.

At field level, the simultaneous engagement in the large-scale shelter reconstruction activities in different parts of the country required the PRC to augment the operational capacity of its chapters in affected areas in terms of personnel and equipment.

Despite its relatively limited experience in large-scale shelter response, the PRC managed to effectively engage in a response of unprecedented dimensions with significant results. In this sense, the Typhoon Haiyan experience allowed the PRC to broaden its fields of expertise in assistance response.

Specifically for the ICRC-PRC operations in Samar, the PRC set up a field operational structure to complement ICRC organigram and ensure effective coordination. Two field offices were set up in Basey for Western Samar and in Guiuan for Eastern Samar, in which the PRC based its field operations head for the team leaders and project officers for livelihood and shelter activities for Typhoon Haiyan operations. In addition to PRC's permanent staff, hundreds of volunteers also worked for the ICRC-PRC programs in Samar. At its peak, 170 volunteers were deployed at the same time (130 in Eastern Samar and 40 in Western Samar).

Together with ICRC staff, PRC volunteers covered the following field operational tasks:

- participated in direct "house-to-house" verification of eligibility criteria of beneficiaries
- oriented beneficiaries through following steps of reconstruction of their house
- acted as focal point for the community and barangay officials
- supervised distribution of construction materials
- monitored activities of lumber cutting
- followed up turnover of houses to beneficiaries with proper documentation
- collected and encoded field data into databases
- filed and archived project documents
- managed the "hotline" for beneficiaries, answering questions and receiving suggestions

As the operational area of the shelter program was far from the existing PRC chapters in Catbalogan City for Western Samar and Borongan City for Eastern Samar, most of the volunteers were newly recruited by PRC directly in the areas selected for project implementation. This required continuous attention to train, orient and coach new volunteers during their assignments. In this regard, the deployment as team leaders of experienced volunteers from Compostela Valley chapter, where ICRC and PRC completed the Typhoon Bopha shelter response in 2013, helped significantly.

PART 2:
SHELTER RESPONSE, DESIGN AND IMPLEMENTATION

2.1 THE DSWD AND SHELTER CLUSTER WORKING FRAMEWORK

To support coordination among the many agencies involved in the shelter response and to standardize levels of response, the Shelter Cluster led by the DSWD and coordinated by the IFRC[6] issued Recovery Shelter Guidelines[7]. This document, together with guidelines on Technical Shelter Options[8], Vulnerability Criteria[9] and Key Messages on Building Back Better[10], set the reference framework for any agency working in shelter response.

Most relevant references from the DSWD-Shelter Cluster documents are reported below:

a) Classification of nine options for shelter assistance:

	Name	Description	Duration
1	Emergency Shelter Upgrade/ Replacement (ESR)	Improvement of conditions in tents and makeshift	EMERGENCY ASSISTANCE (6 months to 1 year)
2	Temporary Shelter (TS)	Temporary houses (tarpaulins, wood, local materials)	TEMPORARY ASSISTANCE (Maximum 2 years)
3	Sharing Program (SF)	Material and financial support to existing or new sharing arrangements	
4	Rental Support (RS)	Support and promote rental as alternative	
5	Bunkhouse Program (BH)	Temporary collective solutions	
6	Repair and Retrofit	Repair houses and improve resilience	PERMANENT ASSISTANCE (Minimum 9 years)
7	Core House (CH)	Provide households with the core of their future house. One room to be extended	
8	Permanent House	Provide households with a complete house	
9	Settlement Planning & Development (SPD)	Design and development of new or existing permanent settlements	

Table 6 : Categories of Emergency, Temporary or Permanent Shelter Assistance

b) Beneficiaries in high-risk areas

Immediately after the disaster, a "No Build Policy" was announced for all areas at a distance of 40 meters from the immediate shoreline. This position later evolved into a more accurate distinction between areas of high or low hydrogeological risk. Communities in high-risk areas could choose to stay but solutions offered should be temporary and relocatable, while communities in low-risk areas should always be considered on a path to permanent solution and so were offered permanent houses.

6 *To be noted, for reference, that while in Bopha response only 10% of houses were built as "complete" and 90% as "skeleton" (missing walls, floors and windows to be completed by beneficiaries trained on safe construction practices), in Haiyan response 100% of houses were proposed as complete.*

7 *https://www.sheltercluster.org/sites/default/files/docs/Recovery%20Shelter%20Guidelines.pdf*

8 *https://www.sheltercluster.org/sites/default/files/docs/Recovery%20Shelter%20Options.pdf*

9 *https://www.sheltercluster.org/sites/default/files/docs/Vulnerability%20Criteria.pdf*

10 *English (A3 format)*

c) Land tenure and inclusion of beneficiaries
In a complex system of land tenure arrangements, most of the affected families did not own the land where they resided before losing their house to the typhoon.

At the same time, those owning land were likely to be among better-off categories and so likely to have a stronger house with less reported damage.

Therefore, in setting up a shelter response, it was recommended that ownership should not be a strict requirement for eligibility to the program, and that alternative solutions like renting and sharing of land should also be considered.

d) DSWD-identified groups requiring special attention:

- People living in "no build" zone or high-risk area
- Indigenous groups
- People living in areas geographically isolated and socio-economically disadvantaged (including communities affected by conflicts)
- People classified by DSWD as below the poverty threshold
- Disadvantaged categories: parents of child laborers, landless farm workers, fishery workers, small transport workers, overseas workers returning to affected areas

Other people requiring special attention:
- Elderly (>60 years) headed household
- Pregnant women, lactating mothers, child-mother (<18 years)
- Female solo parent / female-headed household
- Child-headed household and out-of-school children
- People with physical, mental or intellectual disabilities
- People marginalized because of sexual identity

e) Adequacy, appropriateness and access:

ADEQUATE	APPROPRIATE TO	WITH ACCESS TO
1. Space (min 3.5m^2/person) 2. Durability 3. Drainage 4. Ventilation (min 2 openings of 1m^2 on 2 walls) 5. Ceiling Height (min 2.1 m at lowest point) 6. Privacy (allow at least one internal partition) 7. Security 8. Accessibility	1. Culture 2. Local context 3. Environment 4. Climate	1. Cooking facilities 2. WASH facilities 3. Livelihoods 4. Community facilities (schools, hospitals, etc)

Table 7 : Key messages on adequacy, appropriateness and access

f) Principles of safe shelter and storm resilience

SAFE	
 **FOUNDATION** that holds the building up, down and from toppling over, resistant against pests and rot	 **ROOFING** Wind-resistant shape, of adequate strength and fastenings
 **TIE-DOWN** from the bottom up ensuring continuous tie-down through all elements of the construction	 **SITE** Built in a location or manner that is site specific for the risks
 **BRACING** in both directions in each plane of the building, from strong point to strong point, to act in both tension and compression	 **SHAPE** Simple strong geometrical shapes will better resist earthquakes and typhoons
 **STRONG JOINTS** that resist being pulled apart or crushed under tension or compression	 **PREPAREDNESS** That communities and families are prepared for future hazards

Table 8: The Eight Key Messages on Safety promoted by DSWD

2.2 HOW SHELTER GUIDELINES WERE REFLECTED IN ICRC-PRC APPROACH AND DESIGN

Even if the ICRC is not part of the cluster mechanism, it fully coordinated with other agencies and included shared principles and technical standards set by the DSWD in the design of its own response, as explained in the next paragraphs.

a) The choice of constructing permanent core houses
Among the nine options for shelter intervention classified by DSWD and Shelter Cluster, the design proposed for the ICRC-PRC response corresponded to permanent core house (item 7 in table 5). The core house is a simple shape construction engineered to resist extreme weather events. The future house is developed around the core through extensions and additional structures.

In this specific case, the core house and the toilet were provided to beneficiaries who added extensions for kitchen, additional room, veranda, etc.

It is important to mention that before the final proposal, other shelter options were considered but eventually discarded as inappropriate to the specific circumstances:

☒ Emergency distribution of construction materials: This would have mainly targeted partially destroyed houses without the possibility to realistically follow up on the proper use of materials for "building back better" or for reconstructing in safer areas.

A few weeks after Haiyan and following the blanket distribution of materials in the first weeks, beneficiaries started rebuilding quickly, using both salvaged and new components, resulting in houses that were weaker than the previous ones and still located in the same high-risk locations.

Distribution of materials also helped in bigger settlements in semi-urban areas, where most of the houses were made from concrete. Naturally, these houses were only partially damaged, and did not belong in the categories of most vulnerable beneficiaries targeted by the ICRC-PRC.

☒ Cash grants for shelter: This would have been an interesting option, as it would have allowed money to easily reach beneficiaries, especially those with limited logistics in hand. Unfortunately, after the typhoon, commercial supply lines to Samar were interrupted for a long period of time. Even when they were restored, they could not supply construction materials in the quantities and with the quality requested by the program.

b) No permanent construction in high-risk areas
As the program aimed at constructing permanent houses, beneficiaries choosing to remain in high-risk areas could not be included on the lists. At the same time, they were prioritized in other components of the ICRC response, mainly for cash grants distribution and support to livelihood activities.

c) Land ownership or authorized use:
Security of land tenure was considered a prerequisite to prevent people with criteria for eligibility from getting listed on behalf of others. Shelter beneficiaries were owners of their land or had to present a written authorization to remain on the plot for at least five years. In case they would have to move after, they would still remain owner of the house, which means they could dismantle it and rebuild it elsewhere.

GEOGRAPHICAL SELECTION OF MOST AFFECTED AND REMOTE AREAS → **CREATION OF LIST OF ELIGIBLE BENEFICIARIES BY THE AUTHORITIES** → **VALIDATION OF ELIGIBILITY AND SELECTION BY CRITERIA OF PRIORITY**

d) Criteria for eligibility to the program and prioritization:
In order to select the "most vulnerable" families, the selection and validation of beneficiaries necessitated accurate analysis of data and several levels of verification. It can be summarized in three main steps.

First, a geographical selection of areas according to remoteness and degree of sustained damage. In selecting barangays for project implementation, the ICRC-PRC included as much as possible all the remote areas, as uplands and islands, where smaller organizations could not reach due to the heavy logistics required. Remote areas were also the places where communities live at lower income levels and consequently the ones with traditional vernacular houses and the highest percentage of totally damaged houses.

Second, creation of list of eligible beneficiaries within a certain selected area according to the following conditions:

- having a house that was totally destroyed but not rebuilt safely
- not enrolled in a different house-construction program
- owns land for house construction or allowed to stay in the land for at least five years
- place for reconstruction of a permanent house should not be in a high-risk area and having minimum size of 5x8 m (ideal 10x8 m)
- agreeable to the proposed standard design of the house
- could provide wood as contribution to the construction (this was requested but not a reason for exclusion. In all cases where beneficiaries would have no access, wood was provided by ICRC)

Third, among all eligible beneficiaries, priorities were established according to the following criteria:

- large households (more than five people)
- single-headed households
- households with elders (above 60 years old)
- households with physical, mental or intellectual disabilities
- households with pregnant women or with children below 5 years old
- households with low monthly income
- households registered in 4Ps (the DSWD's cash support program for indigent families)
- households living in a tent, bunkhouse or with relatives (homeless)

e) Shelter adequacy, appropriateness and access
All DSWD requirements for adequacy were respected in terms of dimensions, ventilation, durability, privacy, etc.

The design of the ICRC-PRC house took into consideration all factors related to appropriateness to culture and local context by replicating inputs from standard design of rural houses in the same area, and engineering them with high-quality carpentry works and principles of safe construction.

Because local materials like coconut lumber and amacan (split woven bamboo) were used, the house's walls visually fit in the local environment and among the other houses. The size of openings, the walls in amacan and the distance from the ground allow for continuous natural ventilation and cooling of the house.

In terms of access to facilities, after the completion of the core house, all beneficiaries were able to construct a small kitchen as house extension. All houses were provided with individual toilets with septic tank. Furthermore, the combination of the shelter program with other components of the ICRC-PRC response had improved access to safe water supply and health services in the same areas where houses were reconstructed.

f) Constructing a safe shelter
The design of the ICRC-PRC house incorporated all the key principles promoted by DSWD and shelter cluster, with great care on construction of foundations, tie-up of all main components, bracing, joints, roofing and shape, and on the choice of high- quality and long-lasting construction materials.

The program also included promotion of the same principles among beneficiaries through training of carpenters and orientation of all beneficiary communities.

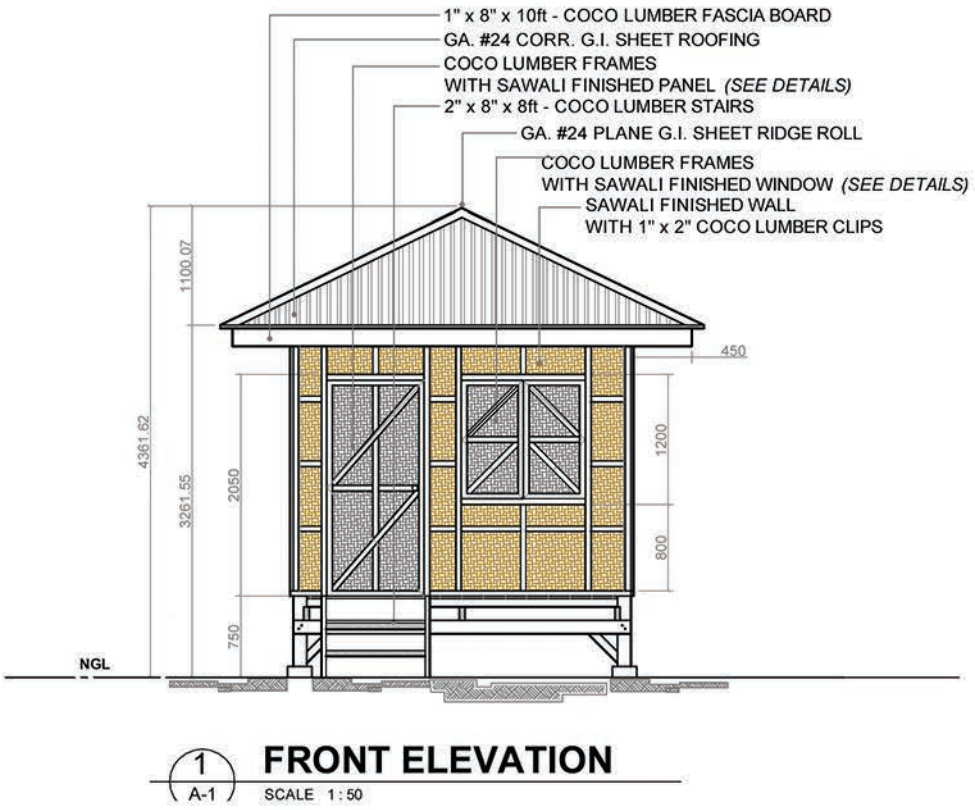
2.3 THE ICRC-PRC MODEL OF CORE HOUSE

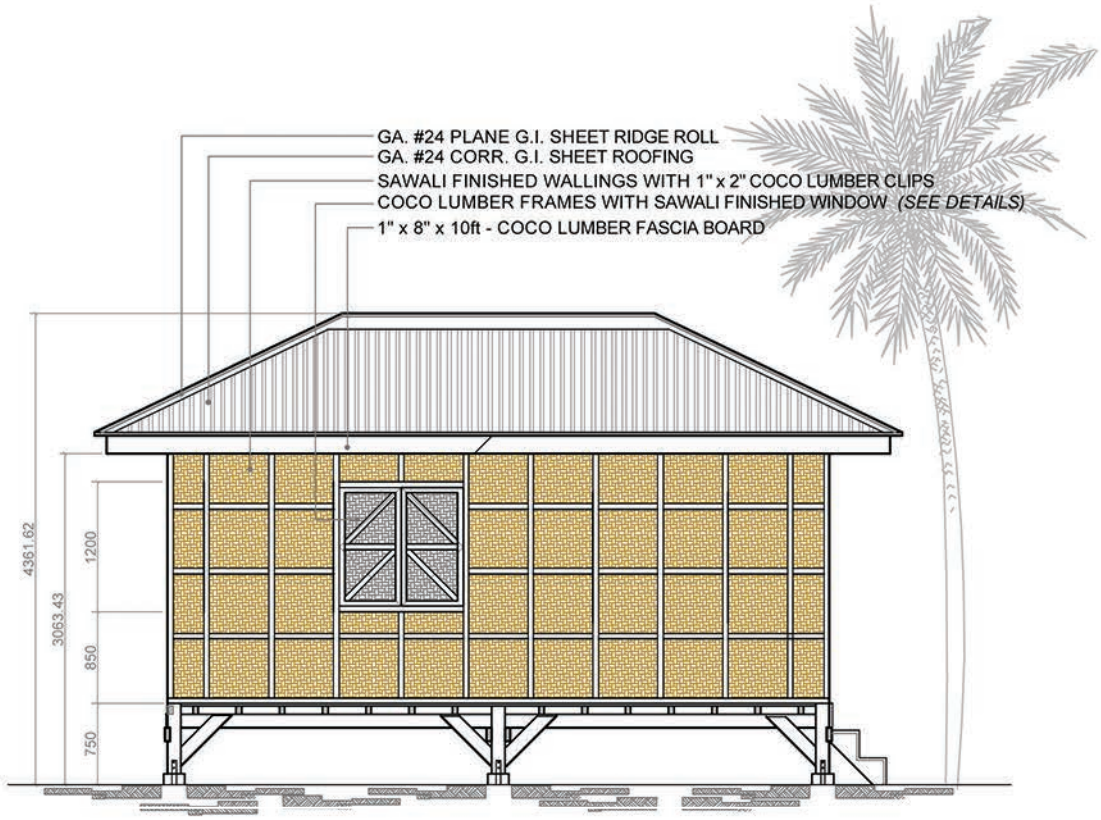
2.3.1 Traditional rural houses in Samar island

The core houses are designed to emulate timber vernacular houses made from locally sourced materials and ideally suited to rural traditions and cultures.

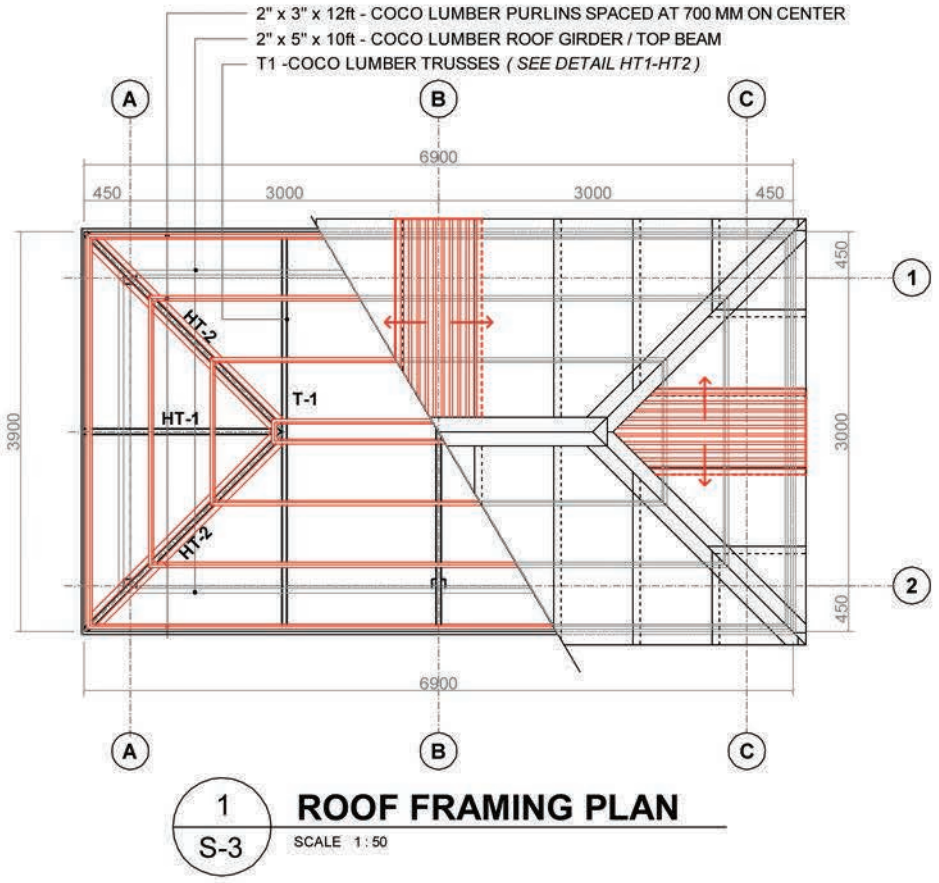
In the project area in Samar, houses are of different types and mostly divided in two groups depending on their location in rural or semi-urban settings. In the first case, houses are made from local materials (wood, bamboo, nipa) and, when possible, mixed with components of plywood or CGI. In small towns, houses often have parts that are made of concrete and extensions that are made of wood.

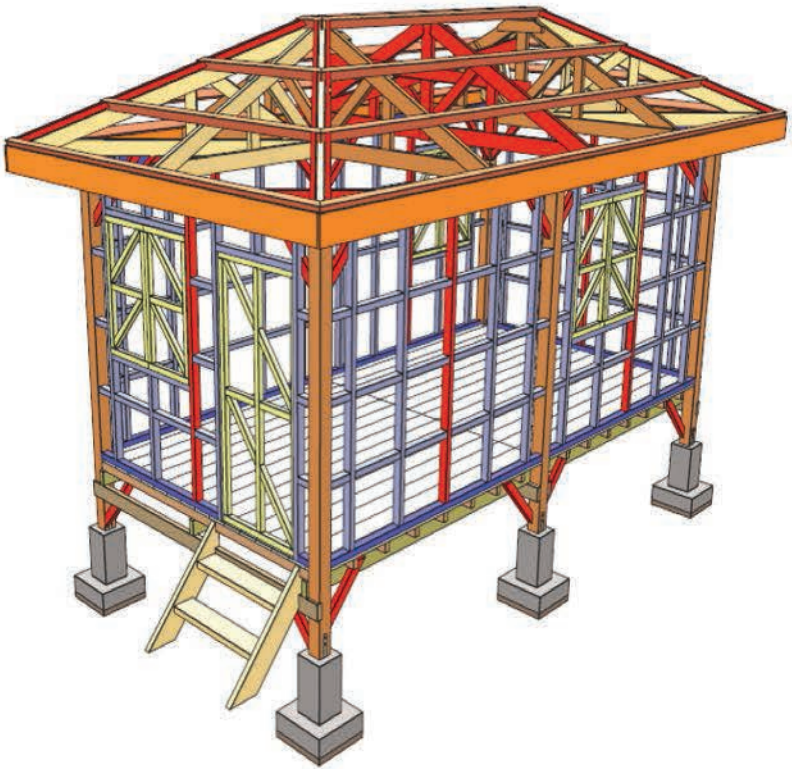
At the start of Haiyan response, the shelter program for Typhoon Bopha in the eastern part of Mindanao, which included the reconstruction of 3,138 houses, had just been concluded. It was, therefore, evident that the Bopha model house, mostly suited for all rural settings in the country, would be the initial reference in the design of the Haiyan model (Annex 1).





Its acceptability was confirmed during the initial Haiyan shelter assessment, when consultations with several communities received unanimous positive response even in semi-urban environment in proximity of small towns along the main coastal highway. The Bopha model was therefore proposed with some improvements to the roofing, tie-ups and bracings to improve its storm resilience character.





The house is expected to last for 10 years, the only limitation being the quality of coconut lumber. Where wood of better quality is used instead, the life span can be considerably longer.

The shelter is built on stumps to protect the dwellers from flooding, vermin and other elements. Having a shelter off the ground with elevated floor gives excellent ventilation to the interior, and the space below can be utilized as a storage area or granary.

The design utilizes a hipped roof for improved strength, reducing the vertical surface area that is exposed to horizontal winds during storms.

Once all materials are delivered on site, the shelter can be constructed in around seven days with two carpenters and two helpers.

2.3.3 The choice of materials

The choice of the right materials was an essential step in the process of designing the model house, as this would determine its appropriateness to the local context. Materials used in the construction can be divided in three groups according to their origin:

- Local procurement from project area: wood and aggregates
- National procurement: cement, iron bars, tie wire, hinges, post straps, amacan walling
- International procurement: CGI, flat iron sheet, hurricane straps, galvanized nails

In terms of sustainability, materials should have all been sourced locally to facilitate the replication of the construction of the same model or its maintenance in the future. However, market conditions at the time did not allow this option. To guarantee requested quantities and quality, sourcing was then extended to the rest of the country and even internationally for metal components.

Coconut lumber

Using coconut lumber in construction of houses was not an ideal option not only because of several limitations on its strength, but also on the poor condition of downed trees. Locations of the trees were also a challenge, as the ones easily found on roads and easy-access points were immediately exploited.

However, considering that many of the areas hit by the typhoon were coconut plantations, and that the availability of downed trees was almost unlimited, the choice of using this wood was unquestioned despite challenges and technical limitations. The same removal of trees from farming land was an urgent requirement to free land and restart planting.

To go around the technical challenges, the procurement of trees was advanced as much as possible into the sequence of tasks and requested directly from the beneficiaries as contribution. This worked in most of the cases. In some barangays where trees were not available, the wood was provided directly as part of the construction kit. Wood from areas with difficult access was processed in lumber locally and then transported by beneficiaries of a parallel cash for work program. In terms of improving longevity of coconut, the training of beneficiaries included tips on remedies to avoid insect infestation.

In some cases, especially in mountainous areas, quality fallen trees such as mahogany and lawaan were used instead of coconut.

All the cutting of lumber was done by chainsaw. This technique, even if it is not the most accurate and efficient, had the advantage of not requiring transport of logs. Operators would just move to a location with the chainsaw and cut trees on the spot. Moving the timber was easier than moving the entire log.

The option of using portable sawmills was also considered at the beginning of the activities, but this was not popular enough and thus was not implemented.

Bamboo walls

Walls could be built with different materials. Locally, common solutions are natural materials like nipa and bamboo or wood planks. A more expensive alternative is cement fiber or marine plywood panels.

For this project, it was decided to use amacan panels made of woven split bamboo. Selection was based on price and appropriateness of the materials to the local context. An additional advantage of amacan was the capacity of letting air and shadowed light circulate inside the structure, improving indoor conditions and temperature.

Amacan's durability is said to last up to five years at an average, although this could be improved by varnishing the panels. On the long term, panels will have to be replaced but their low cost makes them affordable for beneficiaries.

Flooring

The floor was constructed with 1x8" timber boards instead of the traditional bamboo strips. The building envelope is 3x6m to allow an 18m^2 internal living space, in line with the DSWD's recommended standard of 3.5 m^2 per person for a family of five (see table 6) and possibility of at least one partition.

CGI sheets and roof

Traditionally, local amakan houses have roofs made with natural thatching from leaves of nipa palms. In the specific case, however, the traditional roof would have not contributed to the targeted improvement of the storm-resilient character of the house. For this, the roof's shape and slope were specifically designed and coupled with the choice of high quality corrugated iron (CGI) sheet.

In order to find suppliers that could produce and deliver CGI with chosen technical specifications in requested quantities and timeframe (more than 150,000 units in four months), an international purchase procedure was activated.

The CGI sheets were eventually produced in China and transported to the Davao international port in two batches in February and April 2014.

2.3.4 The cost of the house

The design of core house adopted in the response takes into consideration all main technical principles of storm resilience through careful carpentry works and use of high quality materials. At the same time, it aims to remain a simple design adapted to the local rural environment and relatively affordable for the ones who could replicate it in the future.

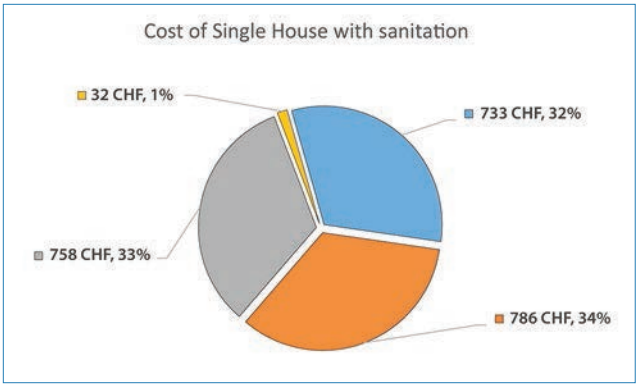
The value of the core house, including only construction materials and labor, is 1,034 CHF. In cases where trees had to be purchased, as beneficiaries could not provide them as contribution, the value must be increased by about 10%. If the core house has toilet with septic tank, the value in materials and labor is 1,518 CHF per unit.

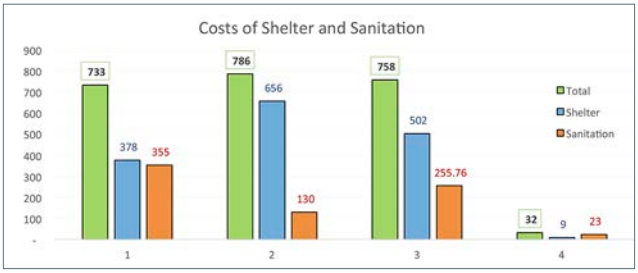
To this, it is necessary to add the cost of the heavy logistics of the program requiring timely deliveries of different components and procurement of high quality materials even on international markets. This additional cost is 758 CHF for both shelter and sanitation components.

Including also transport and other minor costs (office supplies, printing, hygiene promotion, etc.), the final cost for construction of an individual core house with toilet and septic tank is 2,308 CHF. The three main components of the program have an almost equivalent value: construction materials (32%), labor (34%) and transport (33%).

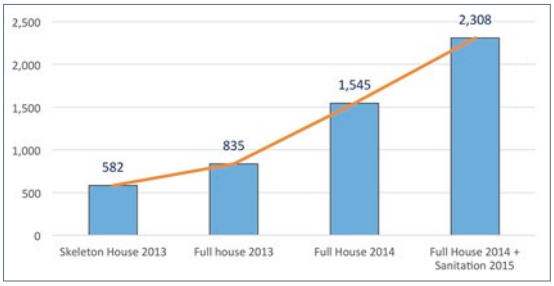
	SHELTER	SANITATION	TOTAL
Construction materials	378	355	733
Manpower	656	130	786
Transport	502	256	758
Other costs (office supplies, hygiene, promotion, etc.)	9	23	32
	1,545	763	2,308

Table 9: Breakdown of costs of a house with toilet and septic tank





Comparing the shelter responses between Bopha in 2013 and Haiyan in 2014-15, there has been a significant improvement in the quality of the final product delivered to the beneficiaries. Accordingly, the cost of a single house increased from 582 CHF (skeleton) and 853 CHF (full house) in Bopha response to 1,545 CHF (improved core house) and 2,308 CHF (core house with sanitation component) in Haiyan response.



2.4 IMPROVEMENTS TO THE CORE HOUSE

The idea behind a "core house" is the delivery of a solid shelter that can be gradually developed by the beneficiaries later on. Improvements are made inside the house with additional internal partitions and outside with extensions and annexed structures.

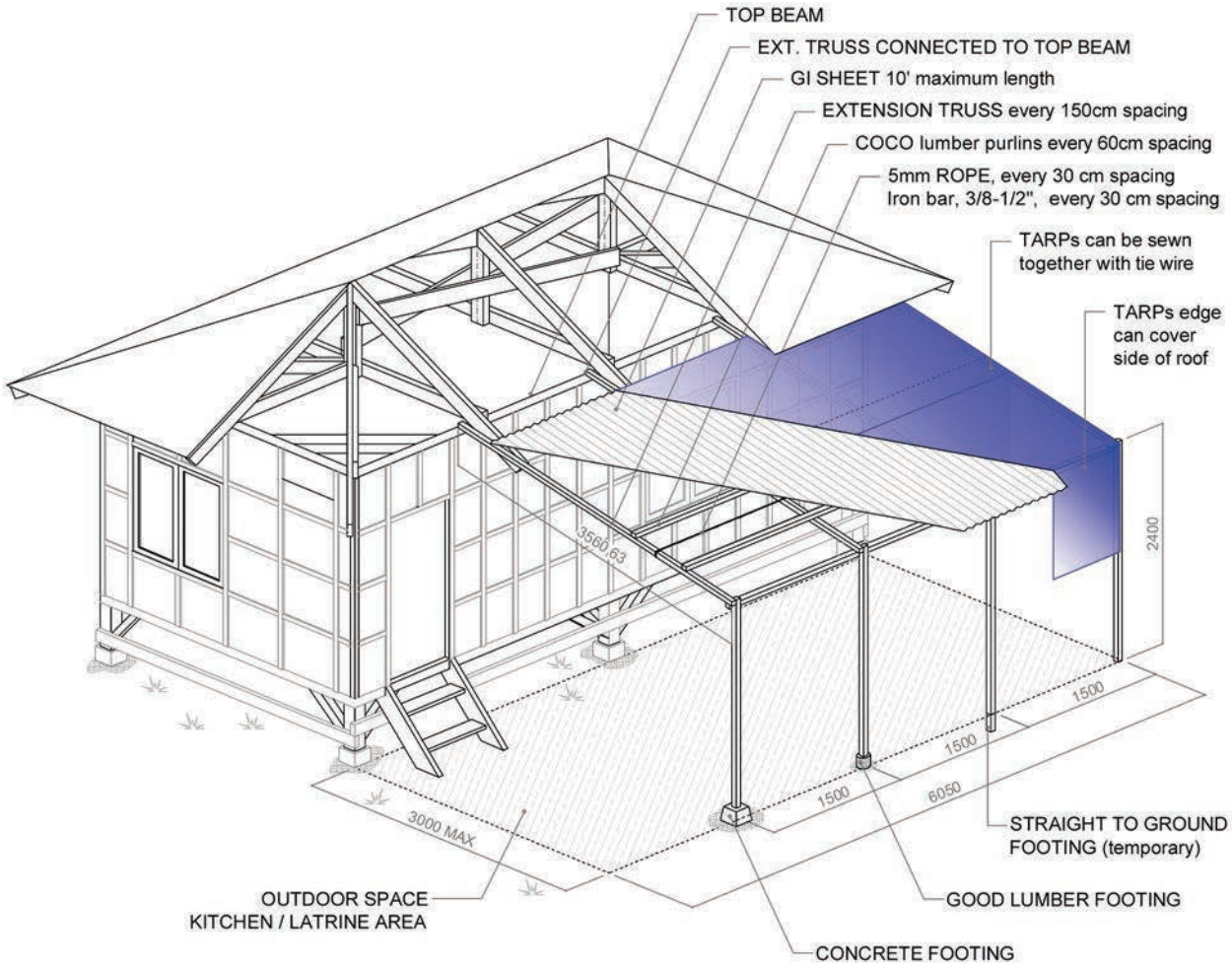
2.4.1 Partition

In line with standards set for "Adequacy" of the model (ref. par. 2.1-e), the core house could be partitioned internally. The most common separation was in two areas, one for sleeping and another for all other daily activities. Separation was commonly made with amacan panels or with the use of tarpaulins.

2.4.2 Extension

The possibility of extending the house was considered in the original design. The high roof, in fact, offers sufficient space to accommodate extension of the house with an additional room or a veranda.

In most cases, the first immediate extension was made with tarpaulin or other materials previously used in the temporary accommodation or salvaged from the destroyed house. Often, the first additional structure to be added outside under a veranda was the kitchen. In other cases, a proper extension was built with wood or even concrete blocks. In some cases, the extension was used to accommodate a new "sari-sari" store or a small restaurant.


TOP BEAM
EXT. TRUSS CONNECTED TO TOP BEAM
GI SHEET 10' maximum length
EXTENSION TRUSS every 150cm spacing
COCO lumber purlins every 60cm spacing
5mm ROPE, every 30 cm spacing
Iron bar, 3/8-1/2", every 30 cm spacing
TARPs can be sewn together with tie wire
TARPs edge can cover side of roof
3560.63
2400
1500
1500
1500
6050
3000 MAX
STRAIGHT TO GROUND FOOTING (temporary)
GOOD LUMBER FOOTING
CONCRETE FOOTING
OUTDOOR SPACE
KITCHEN / LATRINE AREA

Expecting beneficiaries to immediately work on this option to increase the available space, technical recommendations on extension of the core house were included in the ICRC-PRC Shelter Manual (Annex 2) and in the training of beneficiaries.

2.5 STRENGTH OF THE ICRC-PRC CORE HOUSE AND STORM RESILIENCE

According to shelter guidelines, houses should be able to withstand winds up to 220 kmh and earthquake up to magnitude 4 on the Richter scale. In line with the recommendation, the ICRC-PRC model incorporated all technical recommendations to improve the houses' storm resilience. In this sense, the original model used in Bopha response was upgraded with additional elements.

2.5.1 Technical devices to improve storm resilience

Incorporating recommendations on typhoon resistance and following learnings from the previous shelter experiences, particular care was given in the design and construction of the following:

	**Foundations**. Six concrete foundations are used to support each of the six individual columns. With 1:2(cat) mix of concrete and steel reinforcement, the foundation is strong enough to support the structure above the expected load, even if using heavier good-lumber in the construction. Foundation is also shaped in STEP (reverse T) type to increase uplift resistance.
	**Truss**. The trusses for the roof are designed to create a hipped roof shape, with two original full trusses and six half trusses covering the roof ends. An additional middle truss was added to the roof structure.
	**Floor**. The floor is made from coco-lumber boards, providing better and steady floor, supported by three long and 14 short floor joists.
	**Wall**. Made from the amakan sheet, clipped with wall studs from the inside and wall clips from the outside, in 600mm grid, creating a grid-like finish on the outside.

	**Opening**. The shelter design provides three windows and one door for opening and access. Supported by double hinges at 2mm thickness, the durability of the opening is guaranteed to last.
	**Bracing**. In structure reinforcement, diagonal bracing was placed in wall to ensure rigidity and external force resistance. One bracing is also placed in the roof structure connecting all the trusses into single structure. Although it is advised to use longer bracing in full wall, short diagonal bracing was used to allow full modification of the opening across the wall and flexibility of further extensions.

Table 10: Summary of main elements for storm resilience

NEW ADDITIONAL ELEMENTS:

Hurricane straps
Strapping of the connections between main structural frame and the roof provides better resistance against strong winds. In Samar island, resistance against wind load of 150kmh is required due to the presence of open fields, slim vegetation and thin forests. Strapping could be replaced by tie wire to support local methods.

To speed up the installation, the straps were received on field in the shape of coils of 25-meter length already pre-pierced. One coil was used for the construction of each house.

Additional truss
The middle span between two trusses in The Bopha design was considered too wide and susceptible for structural failure under heavy wind loads, resulting in the installation of an intermediate truss that cut the span in half and significantly increased the wind resistance of the roof.

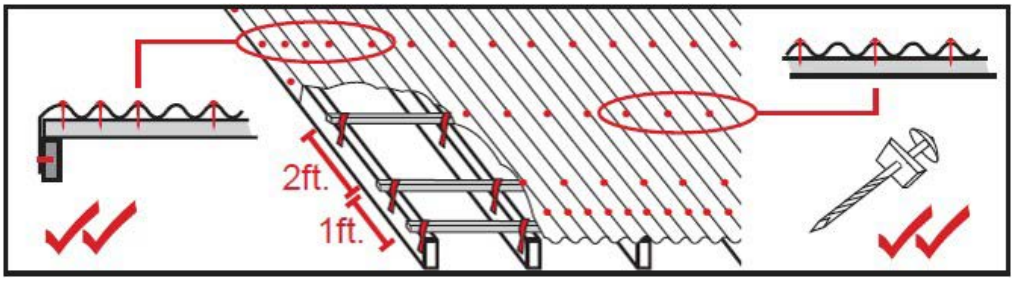
Realignment of windows
Windows are removed from center position. This is done in a way to ensure proper and straight load transfer from roof all the way to the foundation.

Use of galvanized nails
Coco lumber in itself is acidic, causing the corrosion of common wire nails (iron) and reducing the durability of the shelter.

Roof
Compared to the previous Bopha shelter response, technical specifications of CGI were increased for Haiyan response. CGI sheets were purchased from abroad to guarantee quality. At gauge 26 and thickness of 0.5mm, the CGI used in the shelter could not be ripped away by strong winds.

Technical Specification for CGI	
Gauge	26 (0.018 inches or 0.457 mm) +/- 0.1%
Length	8 ft or 2.44 m +/- 0.1 %
Width	2 ft 9 inches or 84 cm (after corrugation) +/- 0.25%
Tensile strength	300 N/mm2
Hardness	85 HRB minimum
Wave distance	76 mm
Wave height	18 mm
No. of waves/sheet	12 waves
Hot dip galvanization with minimum 120 g/m2 zinc or aluminum-zinc on each side, equivalent to 240 g/m2 total coating weight	

Table 11: Required specifications for CGI ordered for the project



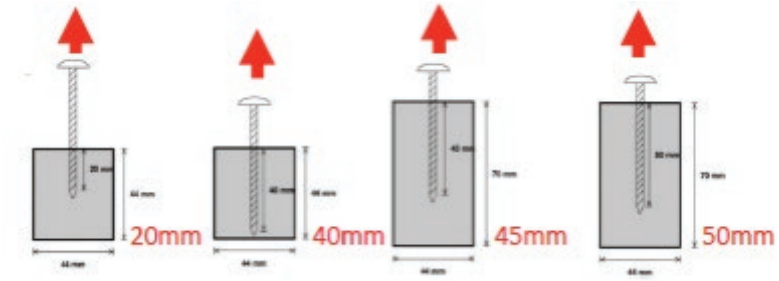
2.5.2 Testing of roofing fixings

As part of the agreement between Luxembourg Red Cross and ICRC, a testing process was done by the Shelter Research Unit of the IFRC with the aim to:

- test roofing sections as main part of the structure to be exposed to typhoons in the area, such as roofing sheet, nails, and coco lumber
- compare the quality of the material used in the program to the quality available in the local market, looking for sustainability aspect in terms of economic and durability of the approach

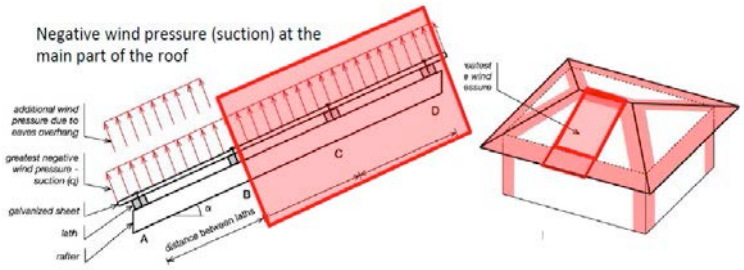
Their main findings are listed below:

Pull off resistance / Anchorage length of roof fixing. Smooth nails perform 10% less resistance compared to the twisted nail used in the shelter program. Screws perform best in good-lumber scenario, yet as coco lumber fixing, there is ~25% in average difference.

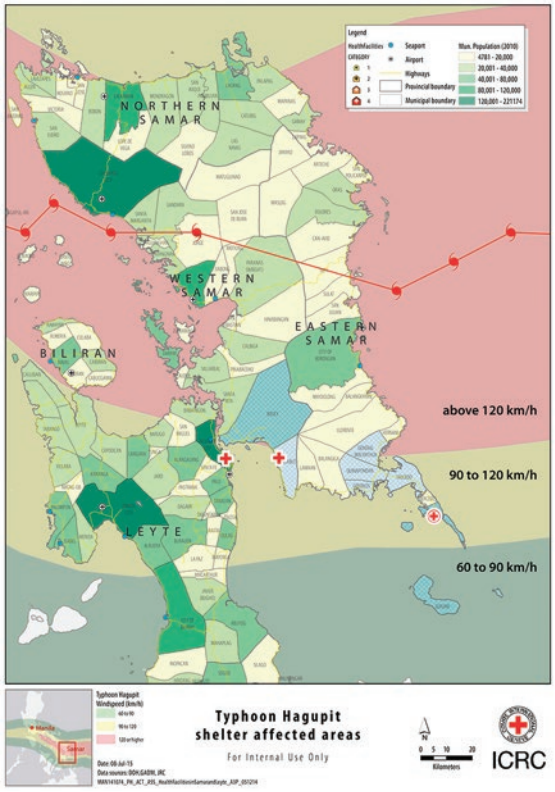


Tearing and shearing resistance of CGI (roof metal sheet). The performance of the locally available "paper CGI" (0.15mm) is much lower compared with the CGI used in the shelter program (~0.5mm), which have higher shearing strength at 20% and tearing strength at 4%.

Uplift simulated resistance. *Main roof*: "paper CGI" do not reach the expected suction for a 300kmh peak wind speed, but the CGI 0.5mm exceed the expected suction in all the models. Eaves roof: "paper CGI" only exceed the expected suction in the model with lath/purlins at every 30cm and nails every corrugation, but the CGI 0.5mm exceed the expected suction in all the models.



Coco lumber has no uniform quality. The bigger the section the more the variation. The fixings in white coco lumber provide only 30% of pull resistance in comparison with the red coconut lumber.



2.5.3 Testing of the houses during Typhoon Hagupit

On 7 December 2014, or 13 months after Haiyan and at the end of shelter program, Typhoon Hagupit (local name Ruby) hit Samar island. Even if landfall happened in Eastern Samar, the shelter project area was affected by 90-120 kmh sustained winds, heavy rains and landslides. This event gave an additional opportunity to test the recently built shelters.

Main observations are reported below:

- Out of 4,462 houses built in the project, only four were damaged (0.1%)
- Out of the four, two were damaged by landslides, thus not by factors linked to wind resistance
- For the two houses damaged by the wind, the reasons are in the weakness of the coco lumber used in the two constructions

The four damaged houses were all repaired in the following month.

In this occasion, it was also possible to observe different techniques spontaneously used by the beneficiaries to protect their house ahead of the arrival of the typhoon:

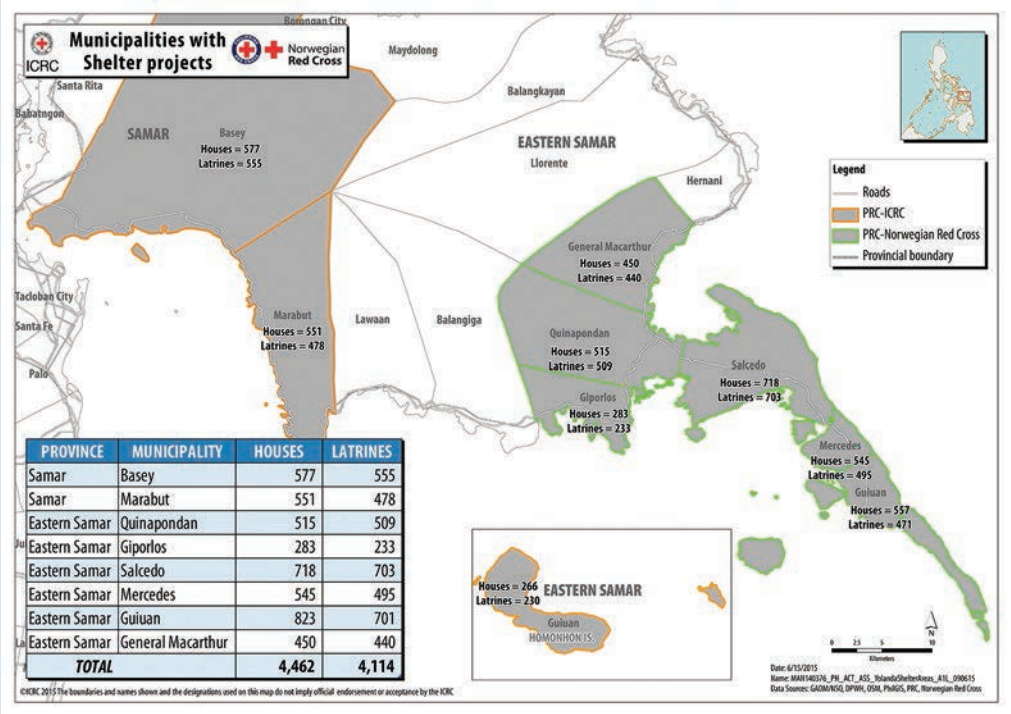
(1) temporary dismantling of windows and doors,
(2) additional bracing at the bottom and
(3) supporting columns or tension cables

2.6 THE SANITATION COMPONENT OF THE SHELTER RESPONSE

As soon the shelter construction component of the program reached its cruising speed and started to deliver its expected outcome, a contextualized sanitation response addressing the households needs while adapting on a case by case the technical requirement according to the specificity of the location was designed. An hygiene promotion program for all beneficiaries was complementing this component.

Continuing its support to the ICRC-PRC program, the Norwegian Red Cross offered to cover all the sanitation needs in Eastern Samar as part of their own response.

Eventually, 1,263 latrines and septic tanks were built by ICRC-PRC in the first semester of 2015 and the rest by Norwegian Red Cross as represented in the map below:



PROVINCE	MUNICIPALITY	HOUSES	LATRINES
Samar	Basey	577	555
Samar	Marabut	551	478
Eastern Samar	Quinapondan	515	509
Eastern Samar	Giporlos	283	233
Eastern Samar	Salcedo	718	703
Eastern Samar	Mercedes	545	495
Eastern Samar	Guiuan	823	701
Eastern Samar	General Macarthur	450	440
TOTAL		4,462	4,114

The latrine construction represents the core of the sanitation response. The design is strictly related to the design of the core house for choice of materials, quality and durability. In terms of technology, it follows recommendations set by the WASH Cluster Technical Working Group reported.

2.6.1 Guidelines from WASH Cluster TWG:

In June 2014, the Philippines WASH Cluster Sanitation Technical Working Group (TWG) provided guidelines to the cluster member to clarify the basic requirements on national standards for early recovery sanitation in areas hit by Typhoon Haiyan.

The guidelines aim to provide technical standard for the construction of sanitation systems to prevent open defecation, reduce the risk of groundwater contamination, and to minimize the spread of water borne diseases.

There are eight different options proposed to control the outflow from pour flush toilet:

Low Density area	Description
In the area prone to flooding	Raised sealed single chamber septic tank with leachate system(1)
More than 1.5m separation distance between leachate system and groundwater be achieved	Mounded sealed single chamber septic tank with leachate system (2)
Less than 1.5m separation distance between leachate system and groundwater be achieved	Above ground dry system or sealed wet system (3)
Soil with high permeability/structurally unsound	Lined single chamber leaching pit (4)
Soil without high permeability/structurally sound	Unlined, unsealed pit (5)
High Density area	**Description**
In the area prone to flooding	Raised double chamber sealed septic tank with leachate system (6)
Groundwater level less than 1.5m below the base of the planned substructure	Mounded double chamber sealed septic tank with leachate system (7)
Groundwater more than 1.5m below the base of the planned substructure	Double chamber sealed septic tank with leachate system (8)

Table 12: The proposed eight options for sanitation system for shelter. In red, the two used in ICRC-PRC program

The Red Cross Movement, in line with WASH Cluster Sanitation Technical Working Group, also defined two types of system to be used to control the outflow from pour flush toilet: latrine with septic tank and twin-pit latrine. The two types in this case are not connected to the density of the area, but only by the level of groundwater table and presence of other water sources. "Sub-surface" assessment is proposed for identifying the most appropriate design to be used in the different project areas.

The proposed guidelines were considered in the definition of the ICRC-PRC latrine types, but were adapted to the available resources, location and targets of the program.

2.6.2 Requirements for eligibility to the program

Other information verified as precondition for the construction of latrines are:

– The beneficiary doesn't have an individual comfort room next to his shelter and beneficiary agrees to build the latrine where the shelter is located

– The beneficiary could provide a minimum flat land of 4X3 m, with the following requirements:

  Not in a landslide prone area, at a minimum distance of 25 meters from the water source (spring, well), at least 40 meters from coastline; at least 20 meters from riverbank and from a creek.

– In case the beneficiary is not the owner of land, he has to provide an authorization from the owner to build and use the latrine for a minimum period of 5 consecutive years.

– The beneficiary does not benefit of another sanitation program by another organization

– The beneficiary commits to transport construction material and to dig a hole (2.3 mx1.2 mx1 m).

2.6.3 The design of the latrines: type A and type B

Referring to the WASH guidelines, two options were selected for the program:

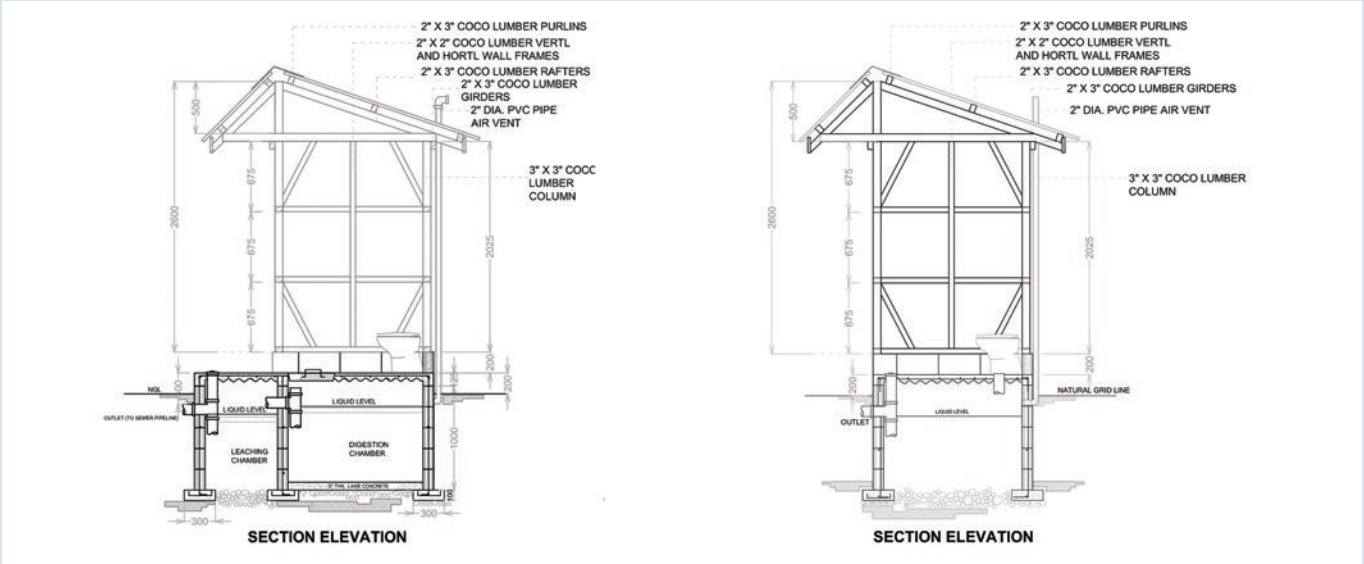
- Type A: Double chamber sealed septic tank with leachate system (type 8 in WASH TWG) – 965/1,263 units
- Type B: Sealed single chamber septic tank with leachate system (type 2 in WASH TWG) – 298/1,263 units

Type A latrine (ANNEX 3) (double chamber sealed septic tank with leachate system) is used in places where dislodging services are practicable and construction sites are easily accessible (965/1,263 latrines).

Septic tanks are considered also in areas where the level of groundwater is considerably high. In case the water table is more than 1.5 meter lower than the planned substructure, the second chamber of septic tank, containing the fluid, is constructed unsealed and filled with a gravel layer to facilitate the dispersion under soil.

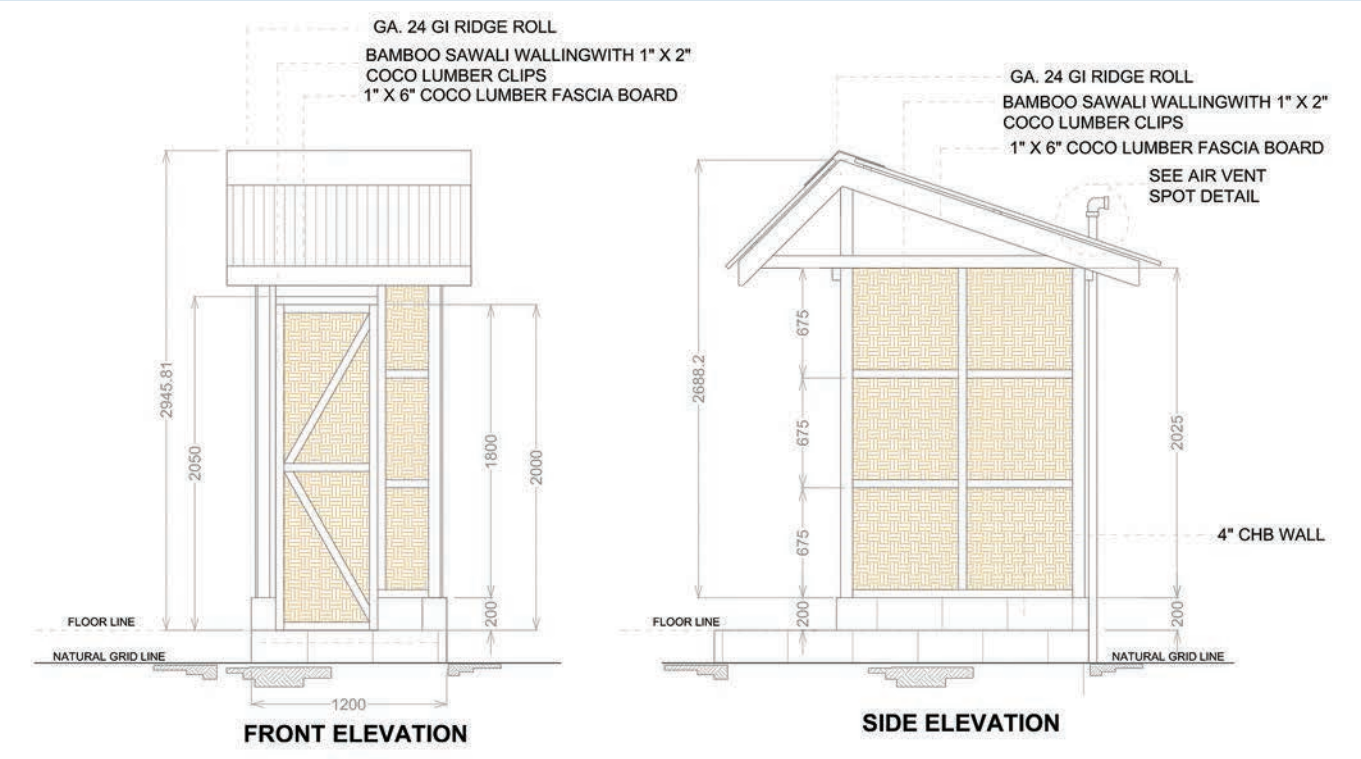
The dimension of tank is 2 cubic meters, and it is designed to be used for a period of 5 years by five persons, before it is dislodged. In areas where dislodging system is not available, the beneficiary has enough time to consider an alternative solution.

Type B latrine (sealed single chamber septic tank with leachate system) is adopted in hard to reach areas (almost 300), and upland barangays in Basey and in Hommonhon Island. Septic tank latrines (type A) are constructed, however, in areas with high water table level to avoid contamination of the groundwater.

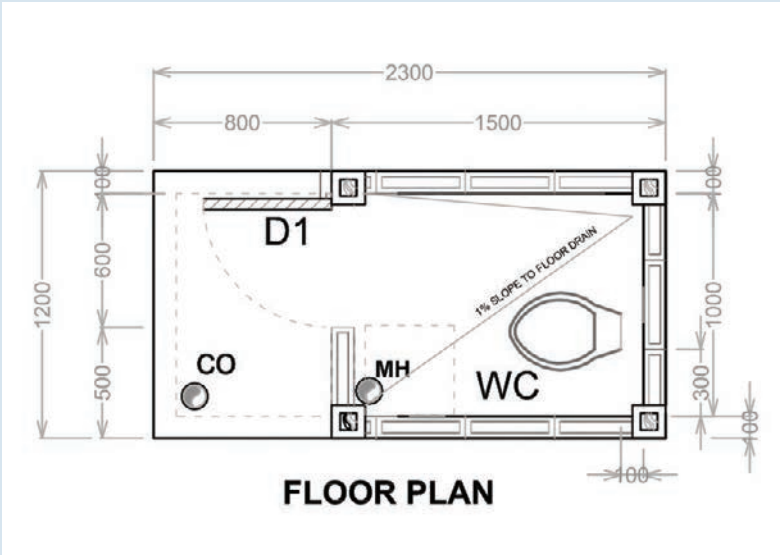


The use of Type B latrine facilitates the transportation of materials. For the construction of a Type A latrine, the following are needed: 1.7 cubic meter of sand and gravel, 10 bags of cement (40 kg) and 110 cement blocks. In case of Type B latrine, the needed materials are: 1.2 cubic meter of sand and gravel, 8 bags of cement (40 kg) and 80 cement blocks.

Due to the limited availability of land in high density barangays, and to provide a protected basement elevated from the soil, the over structure in both cases is erected on top of the chamber. Same construction guidelines used in the shelter design are used in the design of over structure.



Materials for the superstructure are also the same used for shelter (reinforced concrete foundation, coco lumber for the structure, amakan wall and corrugated GI sheet for the roof), except for the basement that is made up of one layer of cement hollow block. The structure is simple but well adapted to the local environment and easy to maintain.



The toilets are equipped with pour-flush ceramic toilet bowls as what is common in the country and in this area.

The area in front of the entrance (septic tank slab) is in concrete and can easily be kept clean. It is also possible to wash clothes or shower on it.

To improve privacy and resistance to rainwater, beneficiaries often add plastic sheeting on the inside of the amacan panels.

The size of the septic tank is computed considering a family of five discharging 32 l/person/day of water for cleaning and bathing into the septic tank for 5 years. The total cumulate volume of sludge and scum and the daily retention time is 1,160 liter for 5 years (compare effective volume of Type A = 1170 l).

Number of Users	P	5	p
Liquid into septic tank /day/ person	V	32	l/p.day
Sludge accumulation/year/ person	S	40	l/p.year
Years between de-sludging	n	5	years
Sizing factor at T> 20°C	F	1	
Daily retention volume	P x V	160	l
Volume for sludge and scum	P x n x S x F	1000	l
Total Volume		1,160	l

Table 13: Calculation volume of septic tank

Other relevant elements in the design:

- Strong foundation in mix concrete and steel reinforcement, with post strap connected to the main column (coco lumber 3"x3")
- Wind resistant roof shape, with 24 gauge CGI sheet (0.5mm), internationally purchased to guarantee quality above of what is locally available
- Elevated cement flooring to avoid rainwater from entering the toilets and as protection from animals intrusion
- Wall, made of amakan sheet, clipped with wall studs from inside and wall clips from the outside. The amakan also guarantees ventilation and easy drying of concrete flooring.
- Opening, reinforced by bracing on diagonal direction and supported by double hinges
- Diagonal short bracing, to ensure rigidity and oppose the wind force

2.6.4 The construction process

To rationalize the supervision of implementation among the ICRC technicians, the 30 barangays are grouped into 7 homogeneous areas. A resident engineer is responsible for 1 or 2 areas, supported by 1 field technician and 2 senior carpenters. The latrine construction order is given to a carpenter team leader, selected during the training and responsible for composing his team of two carpenters and two helpers. The time to construct one Type A latrine is between 4 to 5 days, and 3 to 4 days for Type B latrine.

2.6.5. The hygiene promotion component

Hygiene promotion activities are implemented directly by PRC, selecting as beneficiaries of the program the entire population of shelter targeted communities. Scope of the program is to improve hygiene behavior, prevent diarrheal diseases, and encourage community management of water and sanitation facilities through Participatory Hygiene and Sanitation Transformation approach (PHAST).

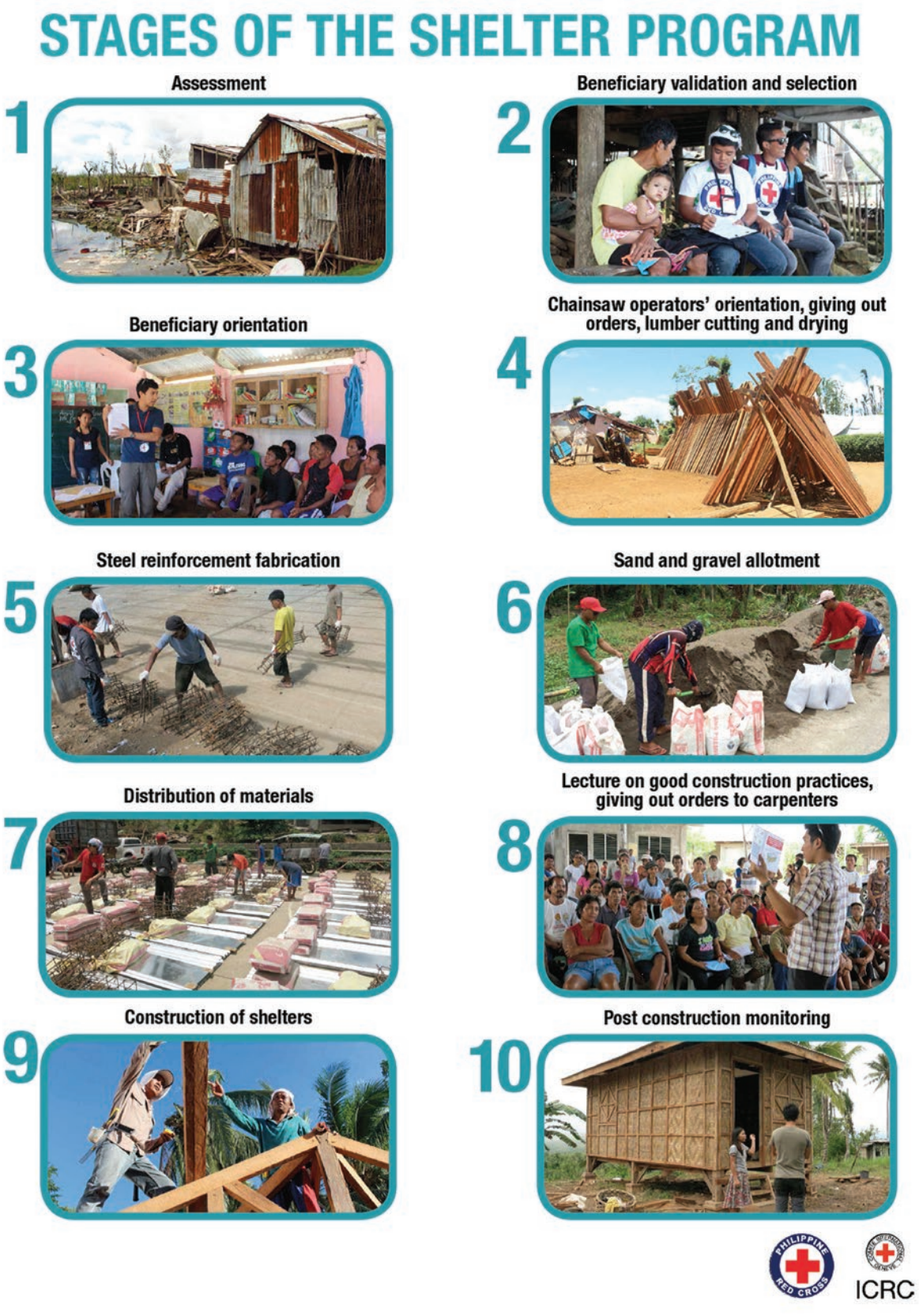
The use of PHAST has been established before Typhoon Haiyan operation. The system is composed of a set of standardized tools, adapted to be used for the shelter sanitation component. This approach allows the community and the RC 143 volunteers to explore and investigate the common health problems that the community is facing. Community Health Volunteers (100 CHVs in 30 barangays) selected within the barangay are responsible to implement PHAST steps, integrating five key messages in the hygiene promotion session through a participatory approach.

As a result, the communities developed plans in improving the WASH situation including ending of open defecation practices. Moreover, community members are directly participating in the evaluation of PHAST activities.

PART 3: PROCESS AND RESOURCES

3.1 THE SHELTER PROGRAM IN 10 STEPS

The entire project cycle linked to the construction of houses from assessment to post-monitoring can be summarized in a 10-step process. The same description was used for communication with beneficiaries and internal tracking of construction in each barangay.



3.1.1 ASSESMENT

	PROCESS	CHALLENGES
1 Assessment 	• Collect lists of totally damaged houses released by the barangays and municipalities after the typhoon • Visit individual barangays to confirm shelter needs and to cross-check lists • Collect information about availability of lumber, chainsaw operators and carpenters on barangay and municipal levels	• Discrepancies between lists from barangay captain and municipal sources • Confirmation of lists with local authorities to avoid incorrect information due to bias or preference

Lessons learned:

- Start assessment and define program areas as soon as possible after the disaster. To do so, put the required resources in place from the very beginning such as vehicles, staff and volunteers to cover the affected areas.
- Assess all barangays in the municipality, even if they have reported less damage as information might be inaccurate.
- Closely coordinate with authorities but do not rely solely on municipal lists. Direct cross-checking is needed.
- In very remote areas where access is difficult, combine assessment with beneficiary validation process to save time.
- Always provide feedback to the barangay visited, even if no intervention will take place.
- For the selection of barangays in remote and low-populated areas, consider covering all barangays even if the number of beneficiaries is small.
- Sign MOUs with municipalities early in the process to facilitate the next steps in full transparency.

3.1.2 BENEFICIARIES SELECTION

	PROCESS	CHALLENGES
2 Beneficiary validation and selection 	• Based on the confirmed list of totally damaged houses (LGU and BLGU), directly validate all households (Annex 4) on this list • Input all data in databases, per beneficiary and per barangay • Generate lists of eligible and non-eligible households based on agreed criteria	• Validity of questionnaires and data collected during the validation process • Required skilled resources for structural assessment • Deal with additional beneficiaries during the process

	• **Generate list of cases to be re-confirmed due to absence of or incomplete data, and implement a second verification** • **A structural analysis of the house might be needed to determine if it is partially or totally damaged** • **Organize a community meeting with all validated households to explain to them the reason for (non-) selection. In case of disagreement or doubt, discuss cases and revisit when necessary** • **Generate final beneficiary lists and let barangay officials sign it** • **Share final lists with municipality and generate barangay MOU (Annex 5) to confirm commitments and mutual responsibilities.**	• **Finalize beneficiary lists and communicate accordingly** • **Collection and management of numerous field data and format at (1) barangay level: damage list, shelter beneficiary lists, barangay MOU, and at (2) beneficiary level: beneficiary declaration, land agreement, material/ lumber receipt and shelter handover document**

Lessons learned - Validation

- Train PRC volunteers tasked to do the validation and orient them on how to assess households, including understanding of basic technical information on house structure
- Do a pre-test of the questionnaire to make sure all questions are well understood by the volunteers and answers are useful. Adjust format if necessary.
- Make sure the validator checks inside the houses. Tents are often empty or used for storage even if people say they live in it.
- Register a beneficiary during validation even if absent: mention the reason and expected return date so this can be documented and followed up.
- For questions about income: this vary seasonally for most of the occupations. It is better to record the difference of income before and after the typhoon to evaluate the loss.
- Make sure the full name is used, including middle name. Duplications on lists happen often due to confusion among full name, nickname and middle name.
- Pictures of houses are most useful tool for decision making. Make sure a system is in place to reference pictures to the beneficiary entry in the database.
- Check completion of documents after finalizing validation to avoid incomplete data. Put team leader in charge of this to avoid revalidations.
- Documents should properly comply with standard formats to ease the work of the encoding team.
- Standardize the process as much as possible in terms of documents and procedures. This speeds up the process and allows proper tracking and documentation.

Lessons learned - Selection

- Refer non-eligible households to other organizations working in the same area.

- In remote locations such as uplands or islands, try to extend as much as possible the coverage, relaxing a bit the selection criteria as other smaller organizations might not have the logistical capacity to reach these places.
- For cases with partial information on eligibility criteria, complete the information with direct structural evaluation of situation of the house.
- For cases of particular vulnerability and disabilities, involve barangay health worker and Municipal Social Welfare and Development (MSWD) officers in the selection.
- Community meetings are the best way to confirm eligibility of beneficiaries and final lists. Within a certain community, cases of particular vulnerabilities and poverty are well known. It is in the interest of all to make corrections where required in line with ICRC/PRC criteria.

Lessons learned - Barangay MOU

- Obtain agreements and sign MOUs on barangay level early in the process and prior to implementation, as it will facilitate all the next steps of the program.
- Clearly explain the responsibilities of the barangay as part of the program to avoid local politics impacting on its implementation.

3.1.3 BENEFICIARIES ORIENTATION

	PROCESS	CHALLENGES
3 Beneficiary orientation 	• Community meeting with all beneficiaries to explain shelter process and beneficiary rules and responsibilities • Explain and collect beneficiary declarations • Explain and collect land agreements (Annex 6)	• Households living in the No Build Zone (NBZ)

- During orientations, barangay officials should be present to back up the process.
- Communication in local language is essential; agreements with beneficiaries should always be translated in local language.
- Let the local authorities resolve issues in the community related to land ownership. In most of the cases, landowners allowed beneficiaries to build a house on their land and to stay for at least five years for free or for a small renting fee. In other cases, the barangay captain intervened and found a relocation site. It was useful to insert a sentence in the donation certificate stating that the beneficiary remains the owner of the materials even after they have left the land.
- Check safety of selected construction site in terms of landslide, floods, respect of No Build Zone.
- Make sure all land agreements are signed before issuing orders for lumber cutting or delivering construction materials.

3.1.4 LUMBER CUTTING

	PROCESS	CHALLENGES
Chainsaw operators' orientation, giving out orders, lumber cutting and drying 4 	• Orientation of chainsaw operators on safety measures, rules and regulations of engagement in the shelter program • Issuance of Purchase Order (PO) to chainsaw operator for the cutting of fallen trees provided by beneficiary • Signing of rental agreement for chainsaw unit when applicable • Scaling of lumber at the cutting site and/or beneficiary plot • Hauling of lumber by beneficiary with or without support of CFW/ Cash packages • Signing of handover documents to confirm that the lumber is well-received by the beneficiary and allowing the release of payment for chainsaw operator • Verification by PRC volunteer • Payment of chainsaw operators through PhilPost	• Check on use of safety equipment by chainsaw operators • Management of huge number of orders per week • Dealing with middle managers controlling the lumber market • Cutting of good lumber in upland areas to follow all rules set by DENR • Provide lumber to beneficiaries in all specific cases when they could not do so by themselves (vulnerabilities or no lumber in the specific location)

Lessons learned:

- Wood was requested from the beneficiaries as contribution. This worked for 82% of the cases. For the rest this is mainly due to specific vulnerabilities (1%) or physical unavailability of trees in areas far from coconut plantations (17%). Overall, the idea of requesting for a contribution worked well as it slightly helped reduce the overall cost of the program.
- Train and use local labor as much as possible. Chainsaw operators from other regions might be involved only as temporary solution in the early stage of the program.
- Avoid subcontracting as middlemen might not fairly re-distribute profits.
- Scaling of lumber can be done at the exact location of the downed tree or in a central agreed spot. The first case is advantageous for chainsaw operators as they don't need to wait for the hauling of the lumber and can be paid as soon as the job is done. It is also the best option in very remote locations as the hauling of lumber already cut in smaller chunks is easier. In the second option, when trees are all cut on the same spot, monitoring on quality and exact sizes of the finished product is easier.
- When trees in a certain area are transported and cut in the same place, the option of using a sawmill should be considered to speed up work and guarantee more standard quality of cuts.
- Upon acceptance of the whole lumber for one house, by signing a specific document, the beneficiary is responsible for the safety of materials until construction and should replace any missing component.
- A Purchase Order (PO) should be given out to the same chainsaw operator only if the previous one has already been completed.

- When moving to new areas, retain the best chainsaw operators to train the new ones.
- Train PRC volunteers on exact measurement and technical evaluation of quality of scaling of lumber so they could reject wrong cuts.
- Chainsaw operators using ICRC-owned chainsaws should accept them in the presence of local authorities as witnesses.
- Ensure proper stacking of coco lumber (air-drying) as it tends to rot easily.
- Consider increasing prices for cutting coco lumber in far-reaching areas or island to encourage chainsaw operators to reach the most remote locations.
- All chainsaw operators should be insured.
- The existence of middle managers in the program created more challenges than convenience. Chainsaw operators and carpenters had a tendency to form groups in order to survive financially, yet working through a middle manager bypassed the purpose of the program in which local skilled laborers were directly contracted and accountable for their work. The one who receives PO should effectively do the work.

3.1.5 PRE-FABRICATION OF METAL COMPONENTS

	PROCESS	CHALLENGES
5 Steel reinforcement fabrication 	• Receive all metal components (from China and other parts of the country) in Davao port • Pre-work part (cutting, bending, piercing) of the metal components in workshops to speed up construction on field • Move ready materials in kits (Annex 7) to project area from Davao	• Immediate availability of good quality CGI in large quantities in the country • Availability of hot galvanized nails in the country • 3 months for international purchase

Lessons learned:

- Pre-cutting and bending of roof ridge caps in Davao workshops helped speed up the construction and resulted in neat finishing of roof corners.
- Pre-cutting and bending of footing bars in Davao to be later assembled on field reduced transport volume and improved precision in dimensions of footings.
- Pre-ordering of twisted umbrella nails including its rubber seal increased construction efficiency and neater finishing compared to the application of seal paste on every roof nail.

3.1.6 PROCUREMENTS OF AGGREGATES

	PROCESS	CHALLENGES
Sand and gravel allotment 6 	• Planning and organizing of deliveries of shelter kit, sand and gravel • Managing deliveries at collection point • Signing of material handover document by beneficiary • Hauling of shelter materials	• Locations that were difficult to access • Delays in deliveries and missing materials after they were received by the beneficiary

Lessons learned:

- Consider local purchase of sand and gravel in upland barangays and sitios where there is difficult access. The negotiated price could include both material and hauling.
- Maintain limited delay between delivery of aggregates and construction.

3.1.7 DELIVERY OF KITS

	PROCESS	CHALLENGES
Distribution of materials 7 	• Planning and organizing of deliveries of shelter kit (Annex 8), sand and gravel • Managing deliveries at collection point • Signing of material handover document by beneficiary • Hauling of shelter materials	• Locations that were difficult to access • Delays in deliveries and missing materials after they were received by the beneficiary

Lessons learned:

- For easily accessible areas, start small and plan for continuous supply.
- For areas difficult to access, deliver in bulk and plan for storage. In instances like island or far upland, delivery needs to be direct and in almost full quantity.
- Consider a buffer stock of shelter kits in each barangay to allow adjustments on list of beneficiaries during final validation.
- Before moving with construction teams to upland areas, allow sufficient time for hauling of materials from delivery at the last reachable point.
- Make sure materials are properly stored in the barangay as bamboo sawali mats become molded and cement hardens after some time.
- Involve barangay council in material distributions for community mobilization and security reasons.
- The delivery plan for sand, gravel and shelter kits should reflect the speed of lumber cutting to make sure drying periods are respected, yet not too long especially during the rainy season to avoid mold.

- A program in a massive area with complicated delivery needs continuous interdepartmental communication to be efficient.
- In all cases, first and final deliveries are most challenging, thus bell-curve delivery approach is ideal.
- Deliveries in upland areas require Saddam trucks.
- For delivery points far from the barangay, cash support can be considered to haul the 500kg shelter kits from the delivery point to the construction site.
- In case lumber is purchased, the scheduling of deliveries should be part of the contract and penalties should apply accordingly.
- The capacity of suppliers should be assessed prior to selection in terms of lumber availability, his fleet and also other parallel commitments.
- Create some buffer stock in the warehouse to anticipate bad weather conditions.
- Assessments of routes, accesses and delivery points are necessary prior to deliveries. During rainy season, roads drastically deteriorate. Trucks loaded with lumber kits are heavy and can cause a lot of damage to roads. This should be made clear to the communities prior to deliveries.
- While waiting to complete international purchases and for the set-up of the main pipeline for deliveries, a small number of kits should be purchased locally to test the model house and the procedures in place. Ideally, a certain number of kits (30-50 units) should be kept as emergency stock before typhoon season.

3.1.8 TRAINING OF CARPENTERS AND COMMUNITIES

	PROCESS	CHALLENGES
Lecture on good construction practices, giving out orders to carpenters 8 	• First orientation of carpenters (Annex 9) on model house and on administrative rules for short contracts (PO) • Practical construction of first houses in groups of carpenters learning from each other • At the end of the training, retain only the capable ones • For communities, gather the beneficiaries in sessions for orientation on house design and principles of good practices incorporated in the model	• Capacity of carpenters to read technical plans • Need of special drawings (not AutoCAD) • Distinction of experienced carpenters from beginners with “entrance tests” on basic skills • At the top weekly rate of implementation, almost 400 teams of carpenters worked simultaneously

Lessons learned:

- Some of the carpenters cannot read technical or 3D drawings and are using the printouts from the orientation presentation. Step-by-step photo booklet on construction of shelter could be useful.
- Adapt to local use of units of measures (sometimes metric, sometimes in inches).
- Issue construction orders only for carpenters who have attended all the training sessions as this is also sign of their commitment.

- Implementing a shelter program on such a large scale brings the opportunity to build local capacities and skills that will remain in the community to improve construction techniques, especially in terms of storm resilience. During the program, a total of 1,071 carpenters were trained -- 340 in Eastern Samar and 731 in Western Samar. At the same time, the community learned about good construction practices.
- In the training of communities, do not include only the beneficiaries of the program but as many people as possible as good practices might spread and continue on the long term.
- Retain during the process the strongest carpenters and engage them for supervision of other groups – on-site senior carpenter recruitment.

3.1.9 CONSTRUCTION OF THE HOUSE

	PROCESS	CHALLENGES
9 Construction of shelters 	• Training PRC volunteers on follow up of progress of construction • Construction of model/training house(s) in the barangay as part of the carpenters training. • Issuance of Purchase Order (PO) to carpenter for construction of shelter • Follow up ICRC engineers on construction key steps to assure the necessary quality • Confirmation of completion for preparation of payment through PhilPost	• Identification and correction of common construction mistakes • Simultaneous monitoring on a widespread area • Preferences of the beneficiaries in choosing the carpenters working on their house

Lessons learned:

- The construction of a house takes about 4-5 days. Better to distribute orders to carpenters at the beginning of the week, to avoid work during weekends when ICRC-PRC teams are not present for monitoring.
- Preparatory steps (selection of beneficiaries, delivery of materials, cutting of wood, local aggregates, training of carpenters) take much longer than the effective house construction. When everything is ready on field, a team of carpenters could finish the house in just 4 days.
- Make the site supervisors aware of safety around the site, taking into consideration the remaining CGI, nails, and other harmful construction debris.
- When beneficiaries want to build outside his/her barangay there must be proper coordination with both barangay officials. Transfer documents must be signed.
- Senior carpenters must fill in construction-monitoring sheet, in a way to control and to make them accountable for their work.
- During construction, the assignment of one PRC volunteer per barangay is sufficient in support to senior carpenter and technicians.
- Don't let beneficiaries choose their carpenter team. Carpenters are assigned by ICRC based on availability. All teams should be well trained and can guarantee the required quality output.

- First aid training should be organized for PRC volunteers and technicians.
- Insurance of contracted carpenters should be always considered, the procedures in case of accident well established.
- The administrative task related to lumber cutting and construction is as important as the actual construction of houses, and requires dedicated personnel to overlook the value and issue of transparency.
- Criteria for payment clearance should be properly communicated and understood by carpenters, chainsaw operators, ICRC staff and PRC volunteers, especially regarding identification and necessary supporting documents.
- Proper recording and a systemized database of chainsaw operators and carpenters data are required for tracing. Keep record of contact details and other relevant information.
- Strive for a well-established system of PO issuance, limiting the involvement of middle managers and contract-swapping among carpenters and chainsaw operators.

3.1.10 HANDOVER AND POST-MONITORING

	PROCESS	CHALLENGES
10 Post construction monitoring 	• Signature of hand over documents (annex 10) with each beneficiary • Distribution of Shelter Manuals to all beneficiaries with advises for house maintenance and extension • Post-Monitoring of project after one year	• Back to project area one year after for post-monitoring

Lessons learned:

- Most barangays organized small ceremonies at the end of the project to celebrate the achievement. Dedicate proper attention to these events as they are very important to the communities.
- The idea of handing over the new house with an "operation manual" was very important, as mostly everyone put up an extension and made small improvements in the house.
- The post-monitoring to be done after one year will identify the most common practices among beneficiaries for house extension and maintenance. The impact of having received a new house on their livelihood recovery should be verified

3.2 INVOLVEMENT OF OTHER ICRC DEPARTMENTS IN THE SHELTER RESPONSE

Even if WatHab led the project, at least six ICRC departments were actively involved in the shelter program. The impressive outcome achieved in terms of number of houses and coverage of most remote areas in a relatively short timeline was the result of the perfect synchronization of all these components.

In planning an operation of this scale, all concerned departments have to plan proper dedicated resources on field and main office.

3.2.1 ADMINISTRATION: FINANCE AND HUMAN RESOURCES

Admin/finance played a significant role in ensuring that the complex system of payments – implemented through PhilPost – could work smoothly and always on time. Due to its reputation for quick and regular payment of salaries to contracted teams, despite other agencies offering higher pay, ICRC had no real problems in attracting and retaining carpenters and lumber cutting teams, which had been a major contributing factor to the regular high outputs of the program.

Initially, for the first few weeks, payments were done directly on field. As the program scaled up, with more barangays to visit and much more cash to be moved, this became logistically impossible. The introduction of payments through the Philippines Postal Corporation (PhilPost) in May 2014 had multiple advantages in terms of security, paperwork and workload for both preparation and actual payments. Payments could run up to almost PHP9 million (CHF 192,000) per week, paid across multiple locations. They were planned ahead according to progress on field, validated by supervisors and eventually consolidated by all teams to request for the following week's payments (reporting accurate figures for each location). As not all workers would show up on the day of payment, the real follow up of expenses was then based on post distribution records from PhilPost and certified by ICRC teams.

Regarding human resources, the following were the key categories involved:

6 SHELTER DELEGATES: six qualified engineers with international experience in the shelter sector were provided by the ICRC and by Australian, The Netherland and Luxembourg Red Cross Societies. Each delegate covered an average of 850 houses.

10 SHELTER ENGINEERS: all engineers who previously worked in Bopha shelter response were moved to Samar at the beginning of the response. Their previous experience was key for an immediate start of the program. Other engineers were recruited locally but with great difficulty in identifying the right profiles due to limited resources available in the affected area.

20 SHELTER TECHNICIANS: junior engineers or highly qualified senior carpenters worked under the supervision of engineers for field monitoring. Many were contracted as consultants to ease recruitment procedures in emergency setting.

3 SPECIALIZED PROFILERS: database managers and administrative assistants who consolidated the flow of information from field teams to managers, compiled summaries for overall progress report and payment follow up, and also archived all paperwork related to documents for land clearance, handover, MOU, etc.

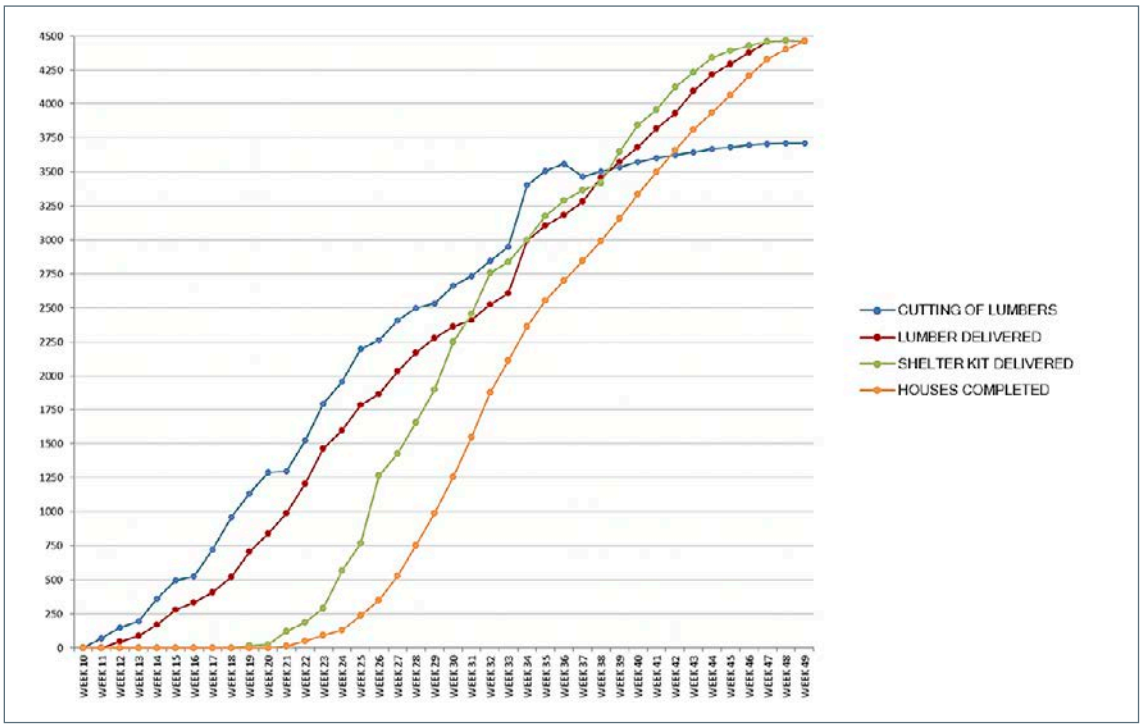
MORE THAN 1,000 CHAINSAW OPERATORS AND CARPENTERS: contracted, based on skills and availability in the area. The best were retained and moved to other locations to train new ones. The construction orders were in the form of a short direct contract agreement.

MORE THAN 50 LABORERS: hired as daily workers in Davao warehouse for the preparation of all materials to be sent to field.

5 PRC STAFF AND 450 VOLUNTEERS: they were the key field resources with capacity of reaching out over a huge area and professionally carrying out many of the monitoring and data collection tasks.

3.2.2 LOGISTICS

The logistics procurement and financial systems put in place in setting up the shelter response were crucial to the outcome of the program. In this operation, locally, regionally and internationally procured materials were ordered in bulk, and a major supply pipeline had to be put in place. All materials, except for local purchases of aggregates, were pre-worked and assembled in Davao then shipped directly to specific barangays according to accurate delivery plans. The delivery of kits, local materials and wood lumber had to be perfectly synchronized with the movement of construction teams arriving on the site of construction as soon as all deliveries were complete. This long preparatory work for procurement and transport of materials required an important mobilization of resources but did not immediately produce visible output.



Looking at the progress of the different component, it can be noted that until week 23 (June 2014), a very small number of houses had been completed (yellow line) while on the same period, the blue and red lines for deliveries of kits and lumber moved much faster to eventually allow the construction rate to pick up and progress at an exponential rate. Over the one-year timeline, the construction of houses is eventually limited to only 6 months. This path in the progress of construction must be anticipated and explained to all parties involved, with the beneficiaries first as expectations in the first six months will not be met by visible achievements.

3.2.3 COOPERATION

The Cooperation Department acted as a bridge between PRC and ICRC concerning needs for the shelter programming, help in the selection of volunteers and the retention of the best ones. Cooperation also supported WatHab in PRC administrative requirements, including the provision of volunteer allowance. The engagement of team leaders and volunteers was an important benefit for the joint program, but required continuous guidance in the fulfilment of their assigned responsibilities. For this, one cooperation field officer was permanently based on field for the entire duration of the shelter response.

3.2.4 ECONOMIC SECURITY

The Economic Security Department ran several activities for livelihood recovery in the same areas where shelter was implemented. One of the objectives was the injection of cash in

the affected communities. Whenever possible, "cash for work" was integrated in the shelter program for unskilled activities like:

- Hauling of lumber from the cutting site to the beneficiary plot
- Land clearing and site preparation
- Sand and gravel bagging on site or in warehouse
- Steel footings assembly

In order to support typhoon victims not eligible for shelter reconstruction, receivers of cash benefit were not the direct shelter beneficiaries but the rest of the community.

In this sense, the Cash for Work (CFW) component was not an essential part of the shelter program (as same tasks would have been achieved by communities without cash injection), but it greatly helped make things happen faster, particularly in far reach areas were most of the materials had to be transported manually.

In terms of responsibilities, the CFW activities remained under planning, implementation and monitoring of the EcoSec Department. It represented an additional value to the program but mainly responded to the objective of cash support.

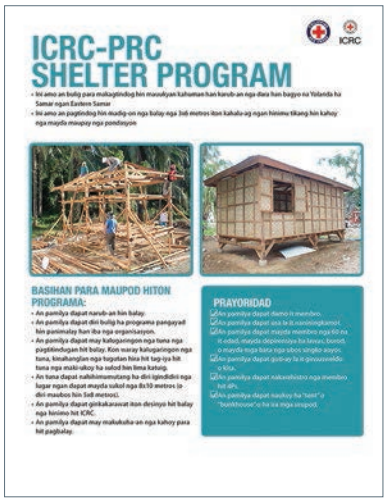
For future similar operations, in case where a CFW component would be part of a joint WatHab/EcoSec shelter response (cash for shelter or cash grants for reconstruction/repair, etc), the two departments should integrate more to create- a sort of merged shelter unit between the two.

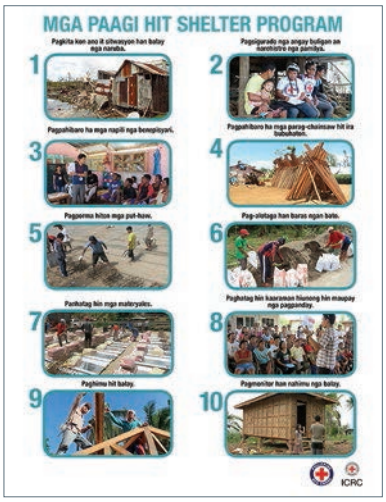
3.2.5 COMMUNICATION

During the entire course of the response, great importance had been given to building an open and transparent communication with beneficiaries. From the initial sharing of criteria for eligibility to orientation on good construction practices, the ICRC Communication Department supported the development of specific tools like flipcharts, booklets and posters prepared in different languages.

It also promoted stories of beneficiaries as well as updates on progress and milestones of the program externally on the ICRC website and with international media.

Some of the main products are reported in annex (flipchart, shelter manual in two languages, operational updates, links to web stories, etc).





CONCLUSION

The shelter response in Typhoon Haiyan represents the most relevant experience for the ICRC in the reconstruction of permanent houses as part of a recovery response. Despite limited previous experiences, the ICRC, together with the PRC, managed to set up a very relevant and timely response.

The early decision to engage in permanent shelter allowed to mobilize both materials and human resources in a very effective manner, reaching beneficiaries at the right time. The contribution of National Societies in this was essential, not only in finances but also in providing managers with highly qualified profiles. The role of PRC was to coordinate all components in technical working groups at national level and, at the same time, mobilize and train hundreds of volunteers in the field.

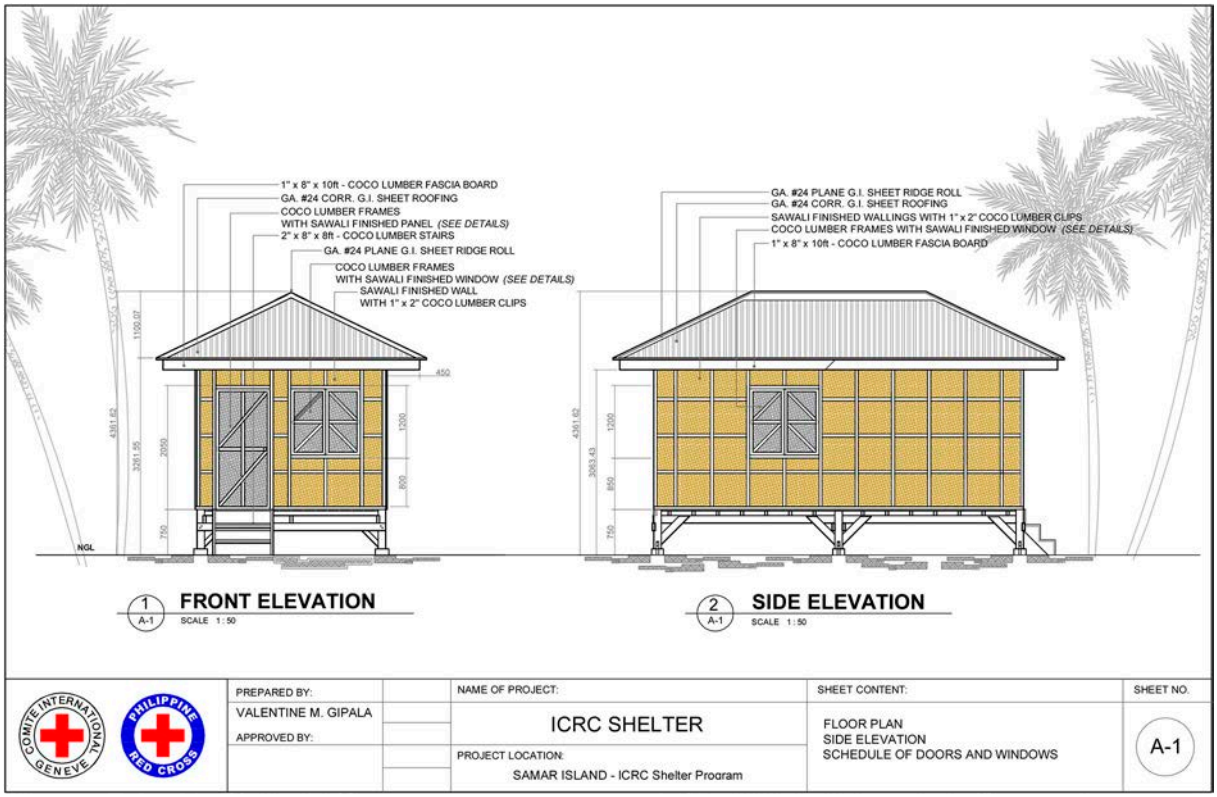
The program also considered the framework set by DSWD and shelter cluster in terms of technical requirements, sustainability of the intervention and criteria for prioritization of beneficiaries. All most in need categories were included as well as beneficiaries living in remote areas, such as interior mountainous areas and islands. In this sense, the logistics capacity of the ICRC in the country and the knowledge of the area prior to the typhoon were key factors in the success of the program.

After 18 months of operations, the targets for reconstruction of permanent core houses equipped with sanitation facilities, including training of beneficiaries on maintenance and extension of the houses, were entirely met. The models of house and latrine used proved to be well adapted to the context and widely appreciated by the beneficiaries. As such, they have been adopted within the Movement as references. The present report compiles technical design and procedures of project management for future reference in similar operations in the Philippines or similar contexts.

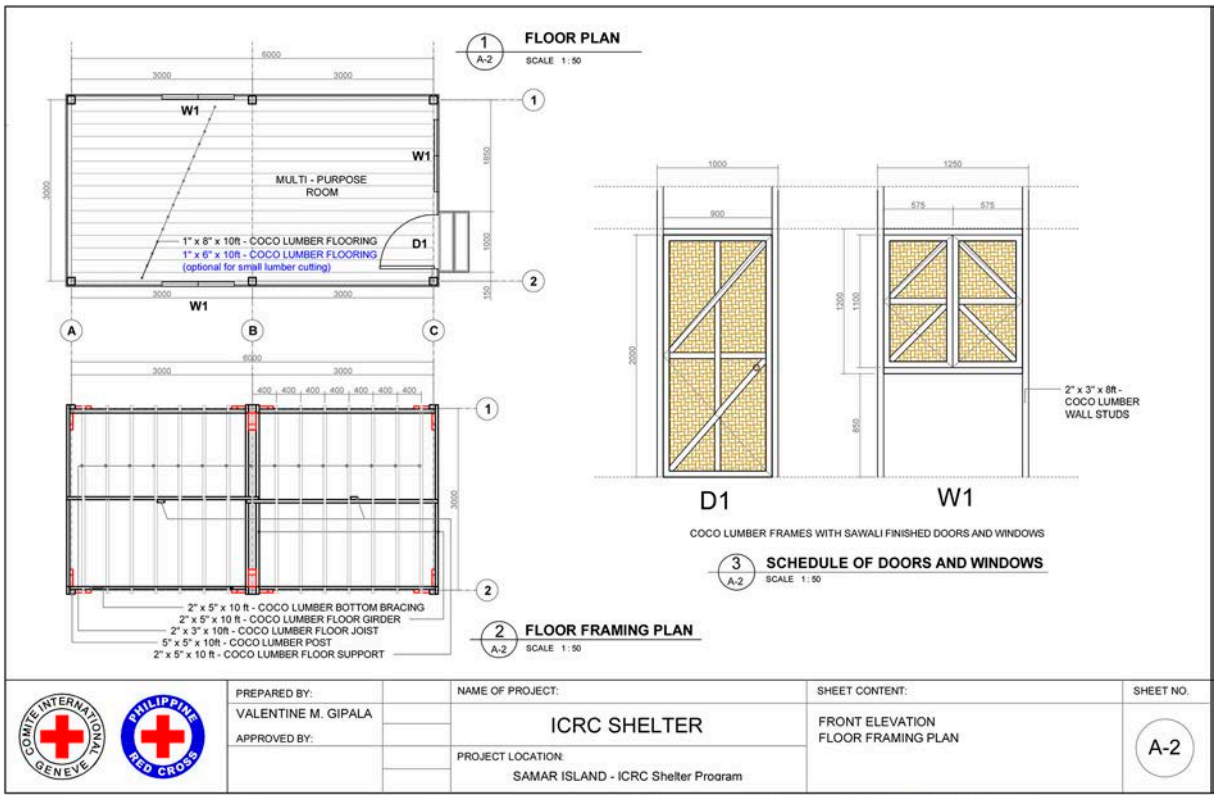
ANNEXES

Annex 1. Plans and BOQ - Core House

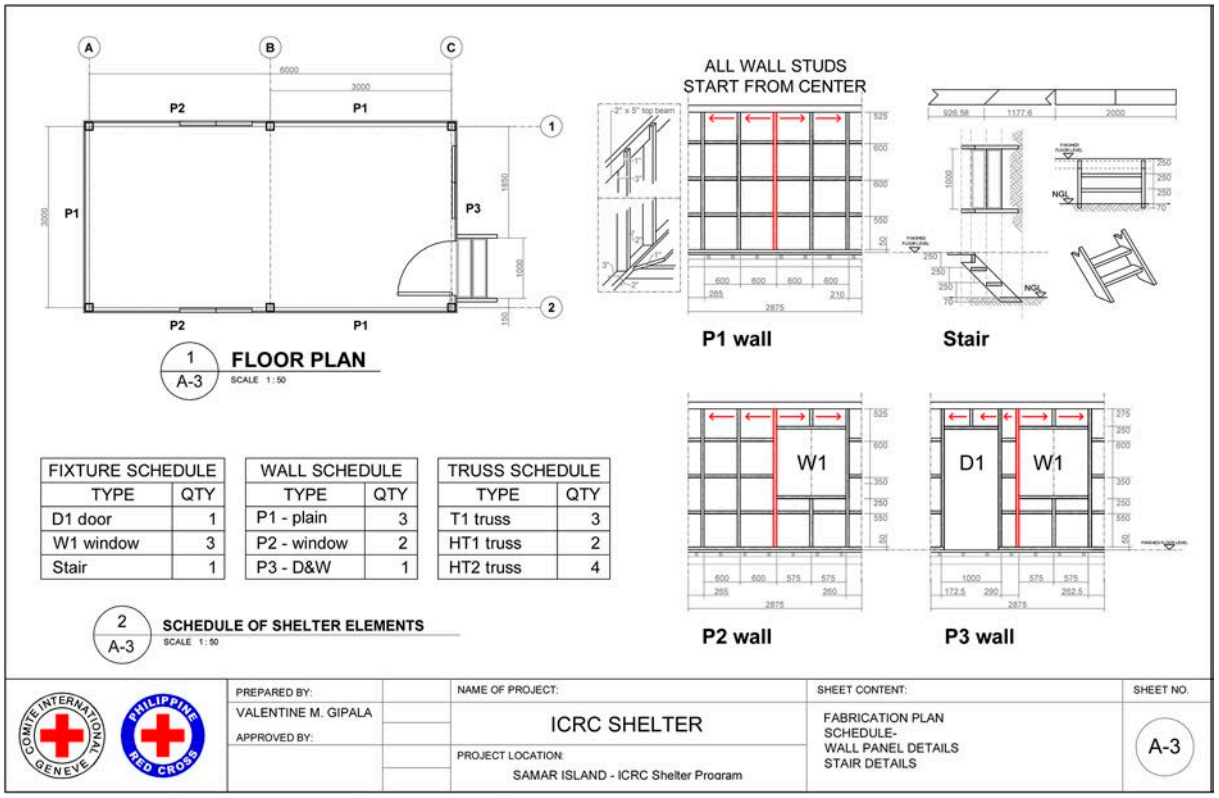
1.1 SHELTER DRAWINGS - ELEVATIONS



1.2 SHELTER DRAWINGS - PLANS



1.3 SHELTER DRAWINGS - WALL FRAMING

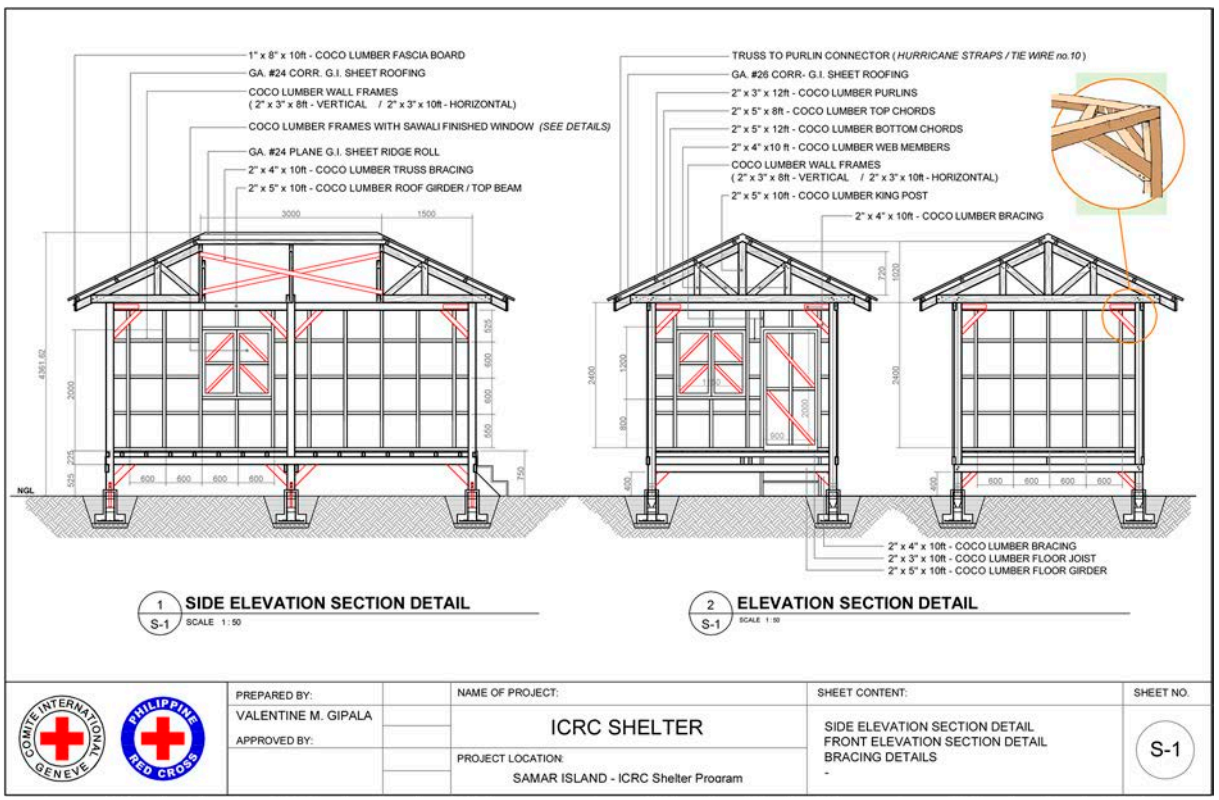


FIXTURE SCHEDULE	
TYPE	QTY
D1 door	1
W1 window	3
Stair	1

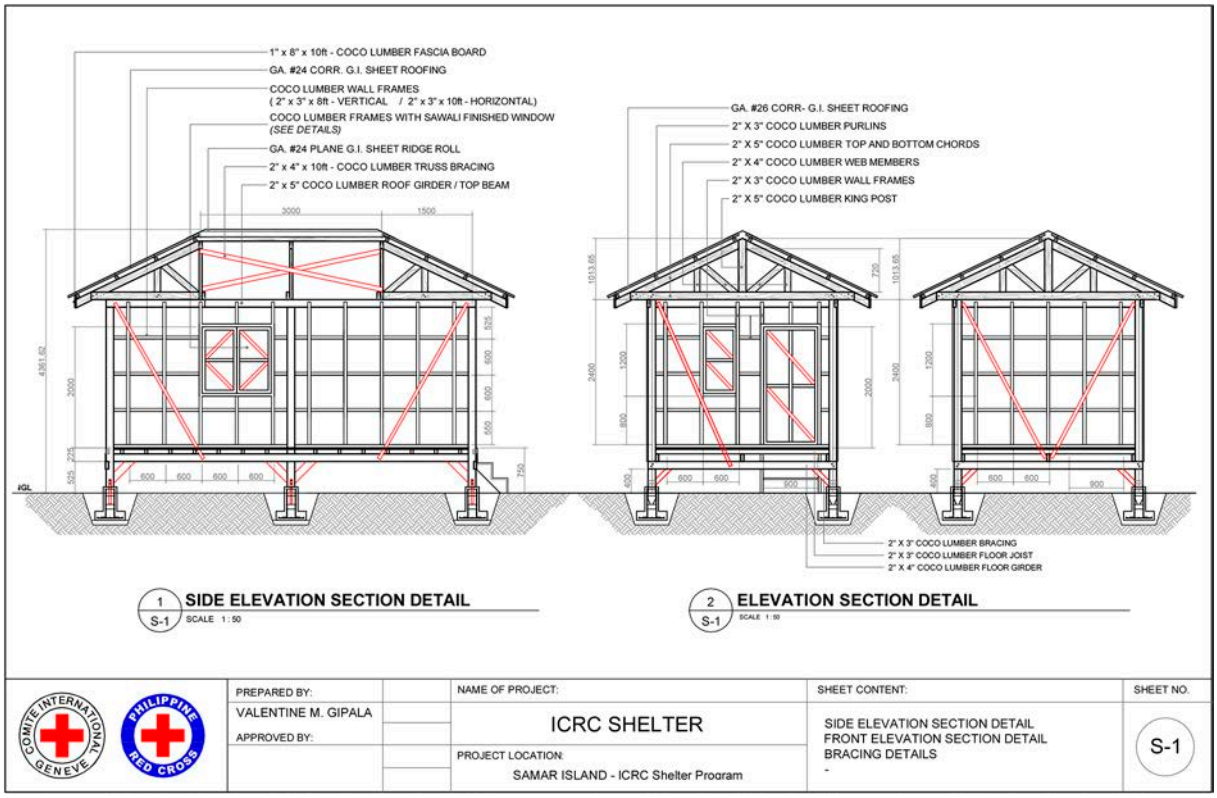
WALL SCHEDULE	
TYPE	QTY
P1 - plain	3
P2 - window	2
P3 - D&W	1

TRUSS SCHEDULE	
TYPE	QTY
T1 truss	3
HT1 truss	2
HT2 truss	4

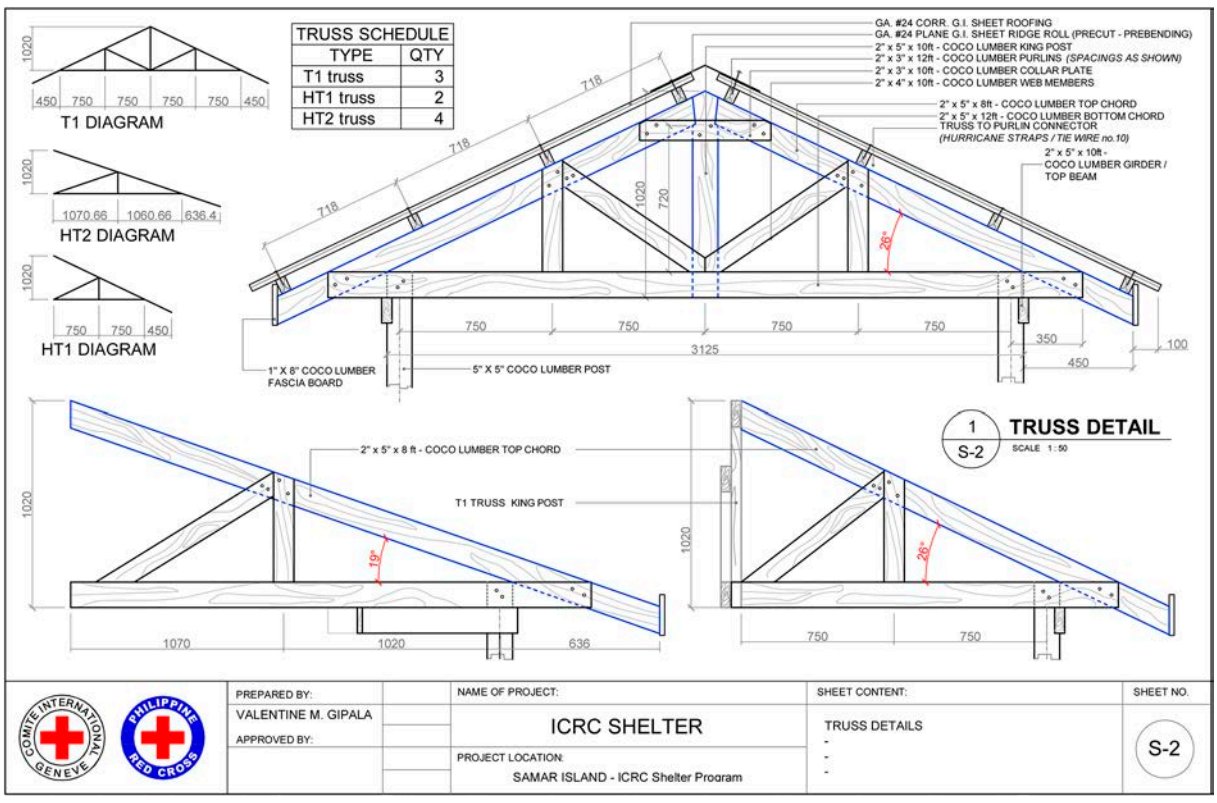
1.4 SHELTER DRAWINGS - SHORT BRACING



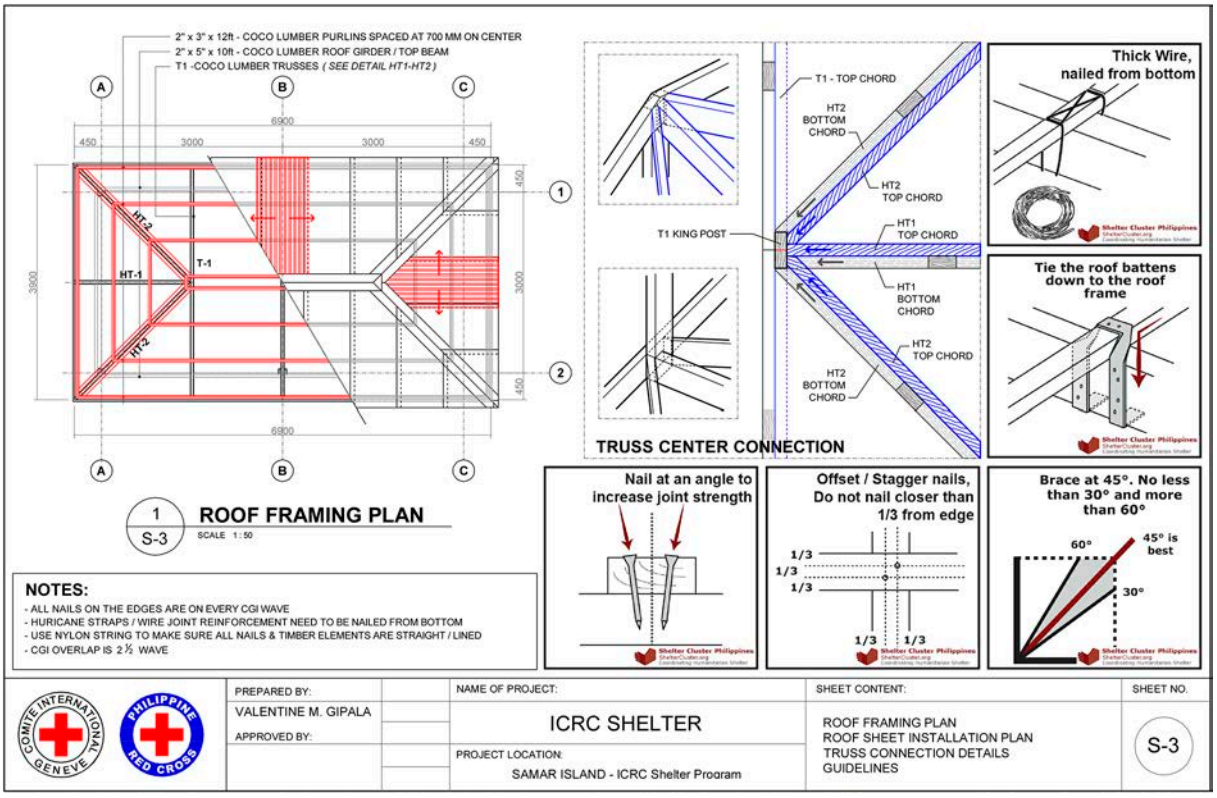
1.5 SHELTER DRAWINGS - LONG BRACING



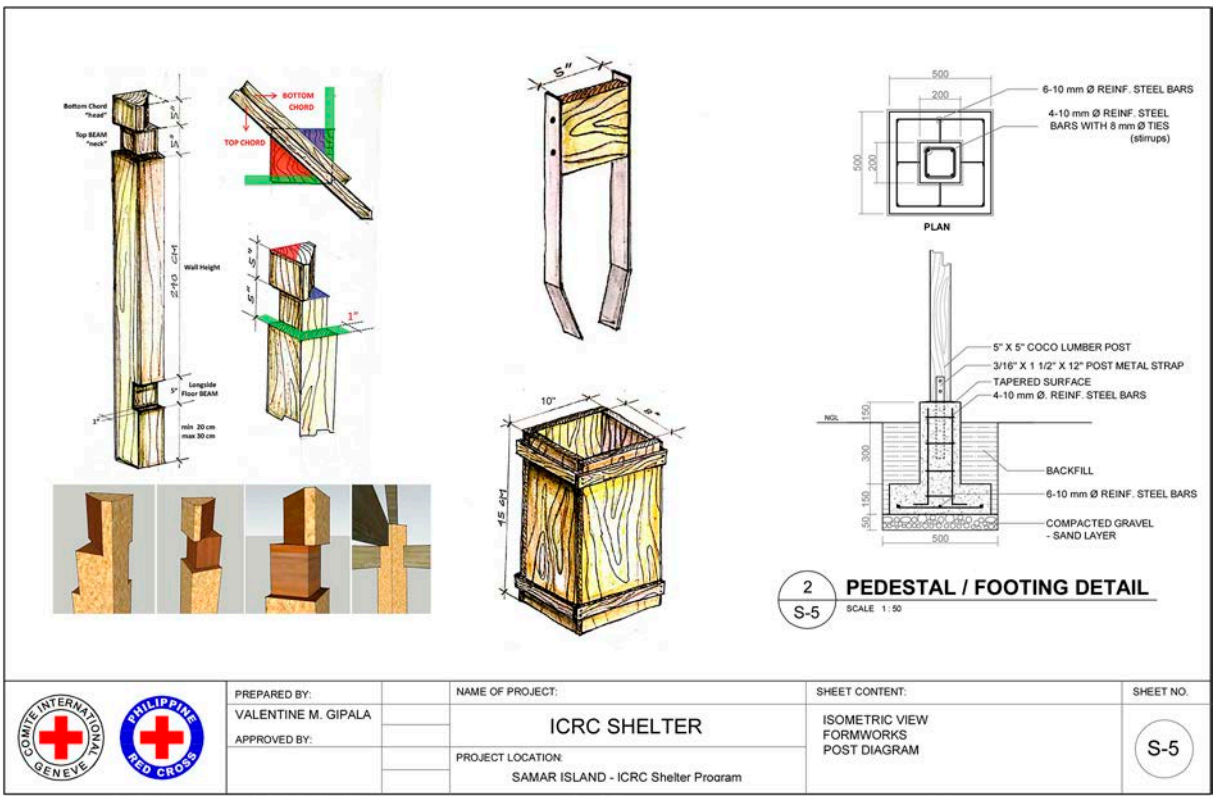
1.6 SHELTER DRAWINGS - TRUSSES



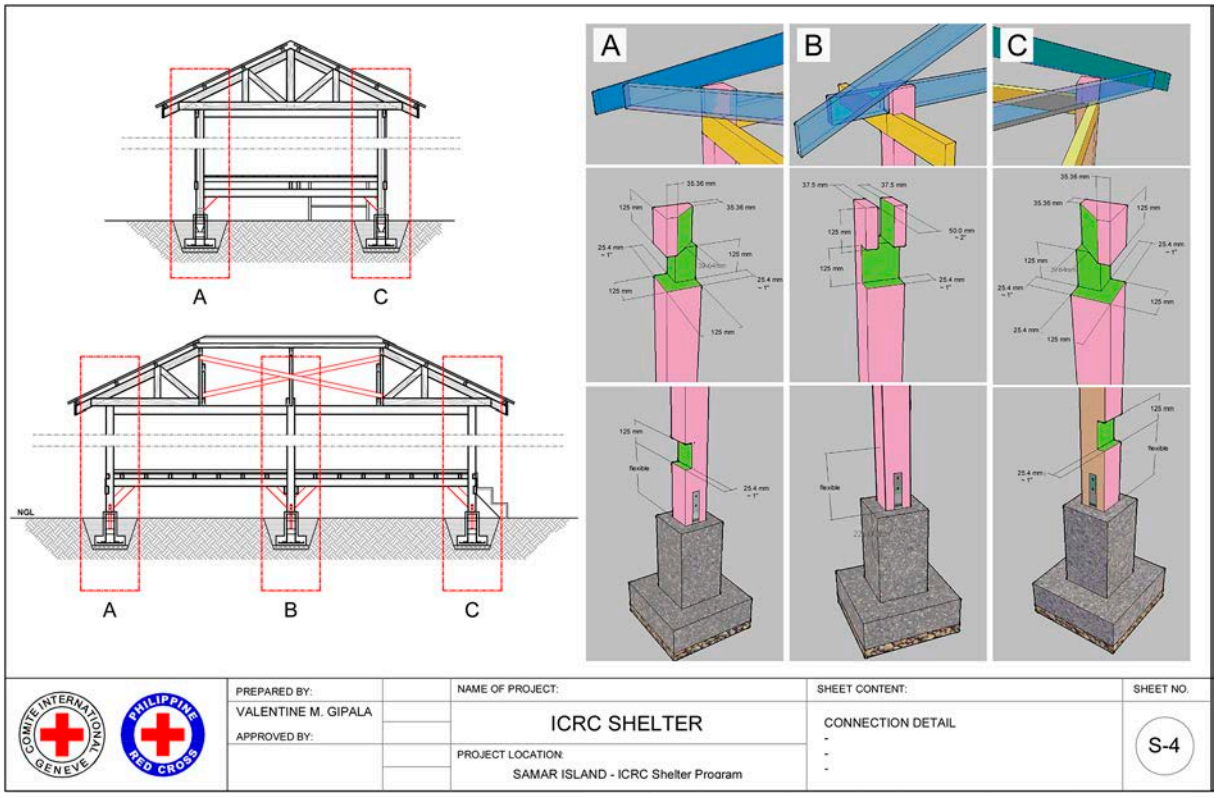
1.7 SHELTER DRAWINGS - ROOF FRAMING



1.8 SHELTER DRAWINGS - POST AND FOUNDATION



1.9 SHELTER DRAWINGS - MAIN CONNECTIONS

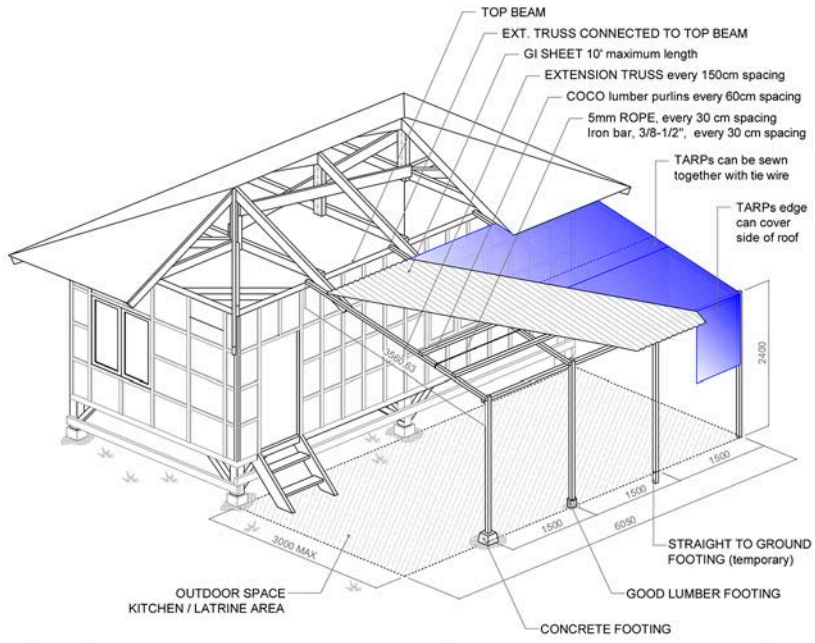


PREPARED BY: VALENTINE M. GIPALA APPROVED BY:	NAME OF PROJECT: ICRC SHELTER PROJECT LOCATION: SAMAR ISLAND - ICRC Shelter Program	SHEET CONTENT: CONNECTION DETAIL	SHEET NO. S-4

1.10 SHELTER DRAWINGS - EXTENSION OPTIONS

MATERIAL REQUIRED:

1. FOOTINGS
   - concrete
   - good lumber post
   - plant straight to ground
2. TIMBER POST
   - coco lumber
3. EXTENSION TRUSS
   - coco lumber
4. PURLINS
   - coco lumber
   - iron bar
   - 5mm rope
5. SHEET COVER
   - concrete
   - good lumber post



PREPARED BY: VALENTINE M. GIPALA APPROVED BY:	NAME OF PROJECT: ICRC SHELTER PROJECT LOCATION: SAMAR ISLAND - ICRC Shelter Program	SHEET CONTENT: ISOMETRIC VIEW EXTENSION PLAN	SHEET NO. A-4

1.11 ICRC SHELTER BOQ

WATHAB SAMAR

Name of Project: PROPOSED ICRC SHELTER
Location of Project: SAMAR and EASTERN SAMAR PROVINCE
Target Date of Implementation:MARCH 2014

DETAILED ESTIMATES

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
1,00	**Layout /Excavation**	**1,00**	**lot**		
	footing/pedestal	*1,2960*	*m3*		
A.	Materials:				
	Nylon String 1.5 - 2mm	50	m		
8	2" x 2" x 12 ft coco lumber (formworks)	32	bd.ft		
2	1" x 8" x 12 ft coco lumber (formworks)	16	bd.ft		
2	1" x 10" x 12 ft coco lumber (formworks)	20	bd.ft		
	Galvanized / Zinc Coated Nails 2"	0,5	kg		
	Galvanized / Zinc Coated Nails 4"	1	kg		
B.	Labor:				
1	Working Leadman	1	day		
1	Carpenter/Mason	1	day		
2	Laborers/helpers	1	day		
		Total Direct Cost			-
		O.C.M...			-
		Total Item Cost			-
		Unit Cost			-
2,00	**Concrete Works** *(class B mixture)*	**0,74**	**m3**		
	(include formworks and reinforcing bars)				
	footing	*0,3240*	*m3*		
	pedestal	*0,4125*	*m3*		
A.	Materials:				
	Portland cement	3	bags		
	Sand	0,3	m3		
	Gravel	0,3	m3		
	Galvanized / Zinc Coated nails 2"	1	kg		
	Galvanized / Zinc Coated nails 4"	1	kg		
	10 mm dia. x 6m Reinf. steel bars (RSB)	5	pcs		
	8 mm dia. x 8m Reinf. steel bars (RSB)	2	pcs		
	No.16 GI tie wire	1	kg		
	3/16" x 1 1/2" x 12" Post strap	12	pcs		
B.	Labor:				
1	Working Leadman	3	days		
1	Carpenter/Mason	3	days		
2	Laborers/helpers	3	days		
		Total Direct Cost			-
		O.C.M...			-
		Total Item Cost			-
		Unit Cost			-

Page 1 of 2

3,00	**Carpentry Works** (structures, roofing, doors and windows)	1,00	lot		
A.	Materials:				
6	5" x 5" x 10 ft, Coco lumber (main post)	125	bd.ft		
21	2" x 5" x 10 ft, Coco lumber (floor girder+HT2 topchord+kingpost)	175	bd.ft		
15	2" x 3" x 10 ft, Coco lumber (floor joist)	75	bd.ft		
11	2" x 5" x 8 ft, Coco lumber (top chord)	74	bd.ft		
5	2" x 5" x 12 ft, Coco lumber (bottom chord)	50	bd.ft		
9	2" x 4" x 10 ft, Coco lumber (web members and bracing)	60	bd.ft		
20	2" x 2" x 12 ft, Coco lumber (connector)	80	bd.ft		
22	2" x 3" x 12 ft, Coco lumber (purlins)	132	bd.ft		
30	2" x 3" x 8 ft, Coco lumber (vertl wall frame)	120	bd.ft		
30	2" x 3" x 10 ft, Coco lumber (horizontal wall frame)	150	bd.ft		
30	1" x 2" x 8 ft, Coco lumber (wallings clips)	40	bd.ft		
53	1" x 2" x 10 ft, Coco lumber (wallings clips)	89	bd.ft		
40	1" x 8" x 10 ft, Coco lumber (flooring/fascia board)	267	bd.ft		
2	2" x 8" x 8 ft, Coco lumber (stairs)	22	bd.ft		
	4 x 8 Bamboo sawali walling	16	shts		
	4 x 4 Loose pin hinges (doors and windows)	7	pairs		
	Ga. 24 x 8 feet Corrugated GI sheet (roofing)	22	shts		
	Ga. 24 Plain GI sheet (ridge roll)	2,3	shts		
	Galvanized / Zinc Coated nails 4"	6	kg		
	Galvanized / Zinc Coated nails 3"	6	kg		
	Galvanized / Zinc Coated nails 2"	4	kg		
	(Umbrella) Roofing nails	4	kg		
	Vulcasel (elastomeric sealant)	0,5	liter		
	Hurricane Straps, 3mm x 40mm x 30m	30	m		
B.	Labor:				
1	Working Leadman	5	days		
1	Carpenter/Mason	5	days		
2	Laborers/helpers	5	days		
		Total Direct Cost			-
		O.C.M...			-
		Total Item Cost			-
		Unit Cost			-

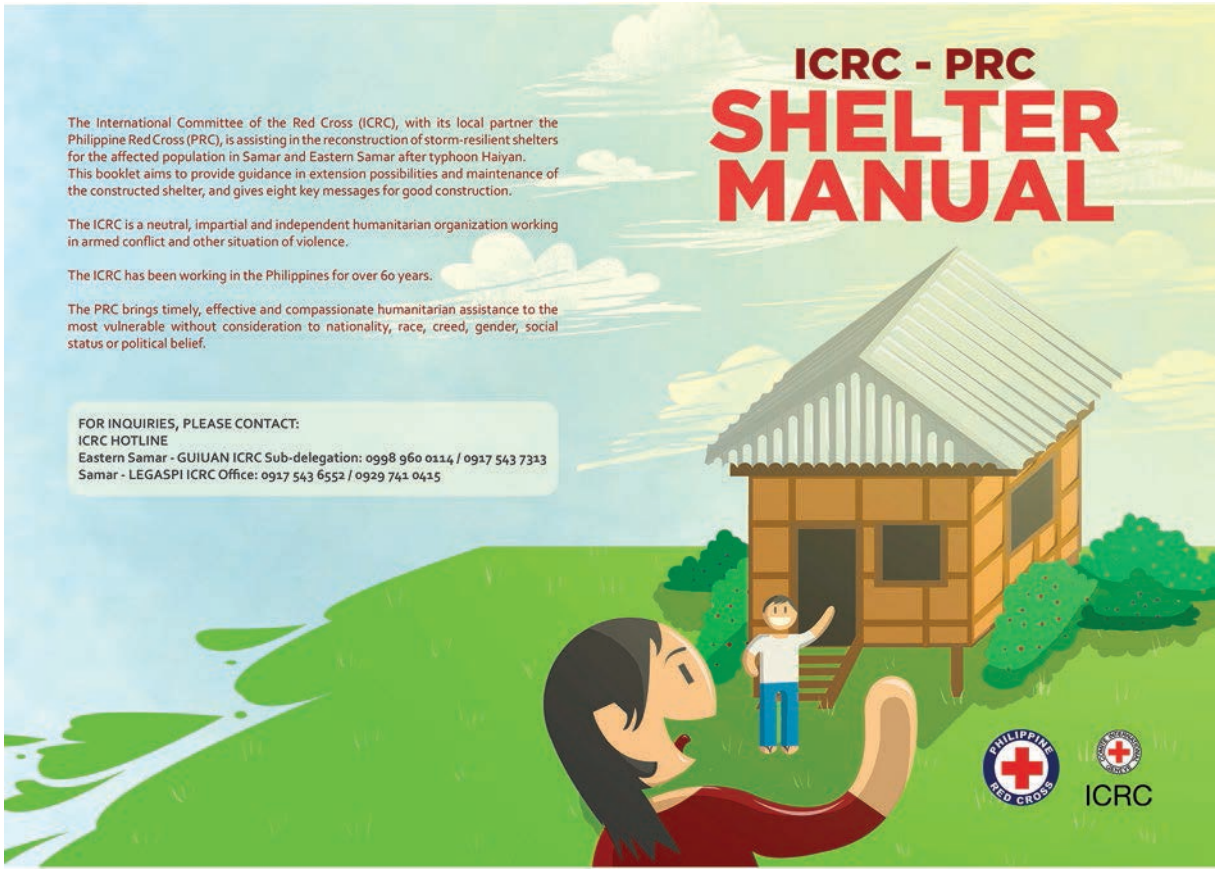
SUMMARY:

I) DIRECT COST	-	PHP
A) Materials	-	
B) Labor	-	
C) Equipment	-	
II) INDIRECT COST	-	PHP
A) O.C.M.	-	
TOTAL SHELTER UNIT COST	-	PHP

PEPARED BY: APPROVED BY:

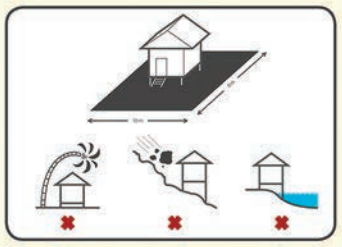
Page 2 of 2

Annex 2. Shelter Manual



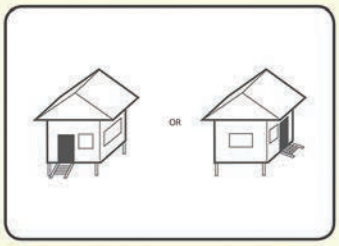
ICRC CORE SHELTER
OWNER'S DESIGN CHOICES

TABLE OF CONTENTS



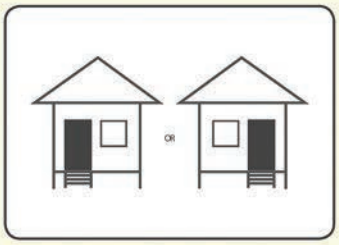
Where should the shelter be located?

It must be on safe land (minimum 10m x 8m) and should be situated so as to allow for upgrades and extensions to the core shelter.

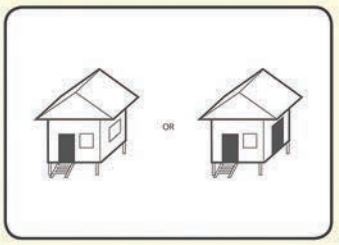


Would the household prefer a door in the front or at the side of the house?

1

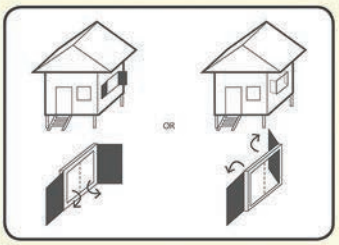


Would the household prefer the door on the left or right side?



Would the household like an additional door on the side instead of one of the side windows and if so, should this be on the right or the left of the house?

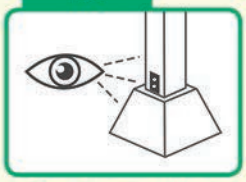
This will make it easier to build an additional space on this side.



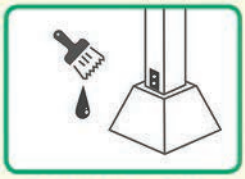
Would the household prefer the windows to open outward or inward?

ICRC CORE SHELTER MAINTENANCE

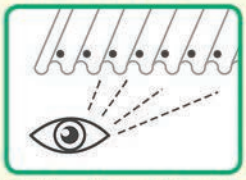
DOs



Inspect integrity of footings –for rust or splitting of foundations and for rot or failure of timber posts – every 6 months and after large storms.

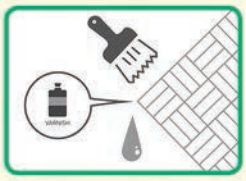


Add diesel or sump oil to columns or posts, clean under house – to prevent pests and moisture entering the house – every 6 months

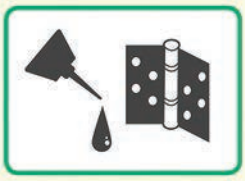


Inspect nails on roof, bracing and timber members – replace nails with appropriate types – every 6 months and after large storms.

Mop floor or walls with chlorine or bleach – to prevent moisture and mold – every month.

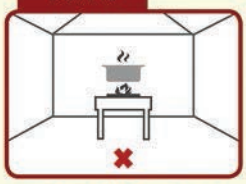


Varnish / paint arnakan – to increase life span and prevent mold – every few years.



Oil hinges – to keep them working nicely and prevent rust – every 6 months

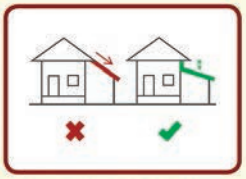
DON'Ts



Don't cook inside – fire and health hazard.

Don't bring pets inside – health hazard.

Don't plant large trees near the house – can fall on the house.



Don't connect new additions to the existing core shelter roof – keep them separate so they don't weaken each other.

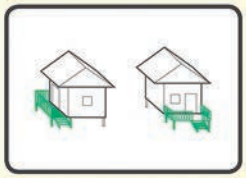
ICRC CORE SHELTER UPGRADES / EXTENSIONS

The CORE PROGRESSIVE SHELTER is not intended to be a solution that meets all of the immediate needs of the household, rather it provides a good quality core structure for the household in the short term and allows upgrades and extensions in the longer term.

Some suggestions for upgrading the shelter include:

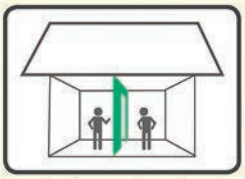
Additional rooms - for more space and privacy.

Kitchen on the side - for improved livability and safer cooking.

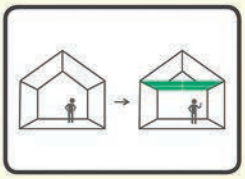


Verandas, open space, or decking

Handrails for the steps - to make it easier and safer for family members.

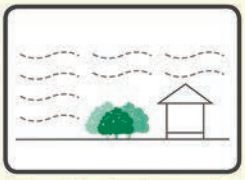


Internal partitions using plywood or tarpulins - to create more privacy.

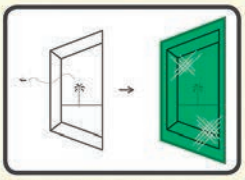


Plywood or tarpaulin ceiling - will increase the thermal performance and reduce noise from the rain. For additional performance, sisalation can be added under the CGI sheets.

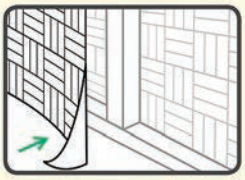
Varnishing the amakan walls - to improve the longevity of the material.



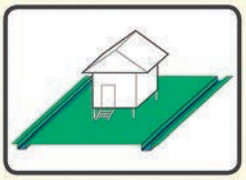
Shrubs and bushes planted to act as wind breaks for the house - be careful not to plant trees to close so they could fall on the house.



Fly screens or mosquito netting on the windows - to guard against pests.



Double walls, for example using amakan, tarpaulin, or plywood on the inside of walls. This will provide better thermal and acoustic attenuation and increase privacy.



Drainage around the shelter to prevent water ponding - this will reduce the amount of mosquitos.

Latrine or toilet.

Pathways to the house - to make access easier and safer, especially when its wet.

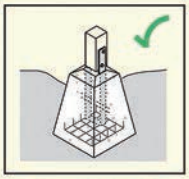
Guttering with a water tank - the water can be used for washing.

6

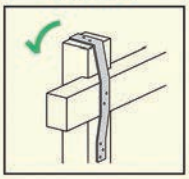
7

8 BUILD BACK SAFER KEY MESSAGES

1 BUILD ON STRONG FOUNDATIONS

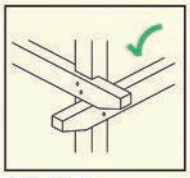


2 TIE-DOWN FROM BOTTOM UP

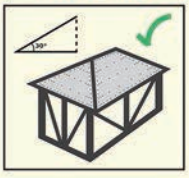


3 BRACE AGAINST THE STORM

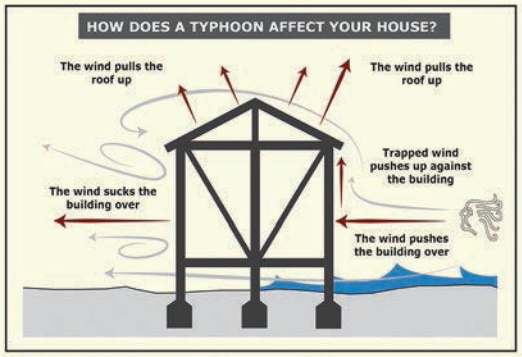
4 USE STRONG JOINTS



5 A GOOD HOUSE NEEDS A GOOD ROOF

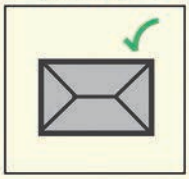


Yolanda showed us that the way we build houses needs to be stronger. These are 8 key messages on how to repair your house and build back safer.



6 SITE YOUR HOUSE SAFELY

7 A SIMPLE SHAPE WILL KEEP YOU SAFE



8 BE PREPARED

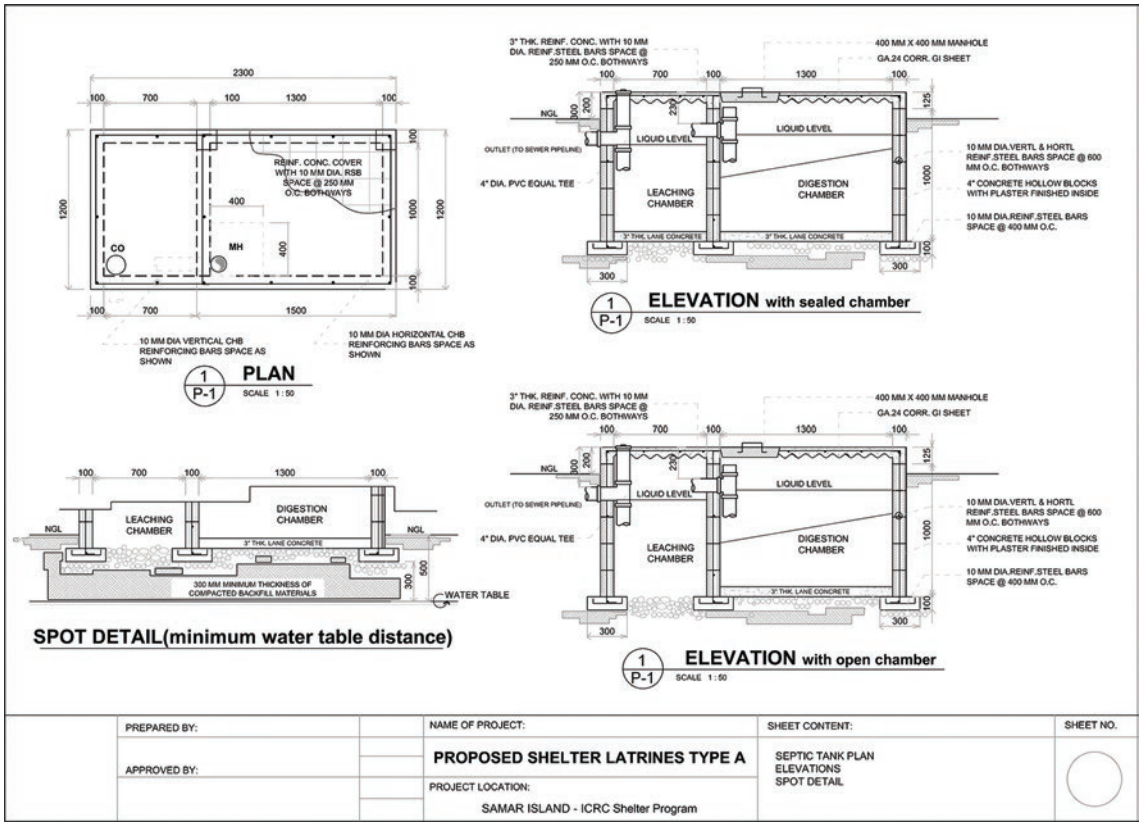
Shelter Cluster Philippines
ShelterCluster.org
Coordinating Humanitarian Shelter

DSWD

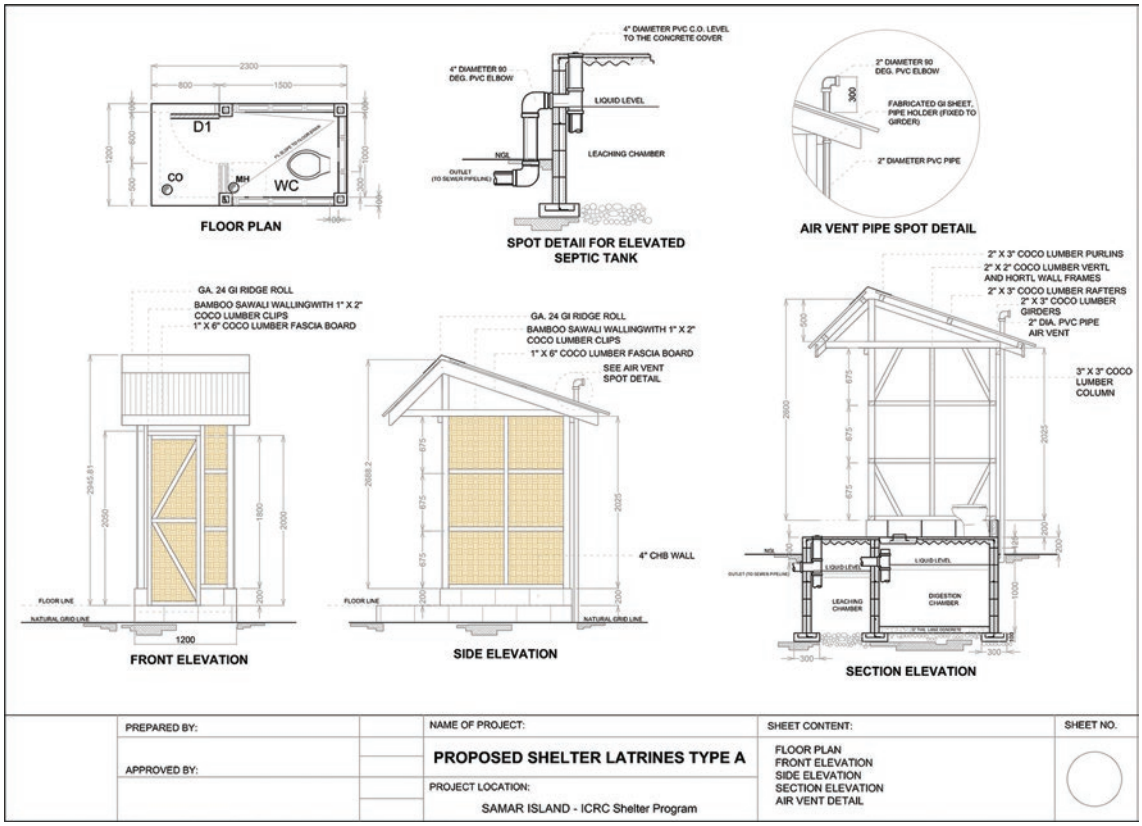
8

Annex 3. Plans and BoQ - Latrine

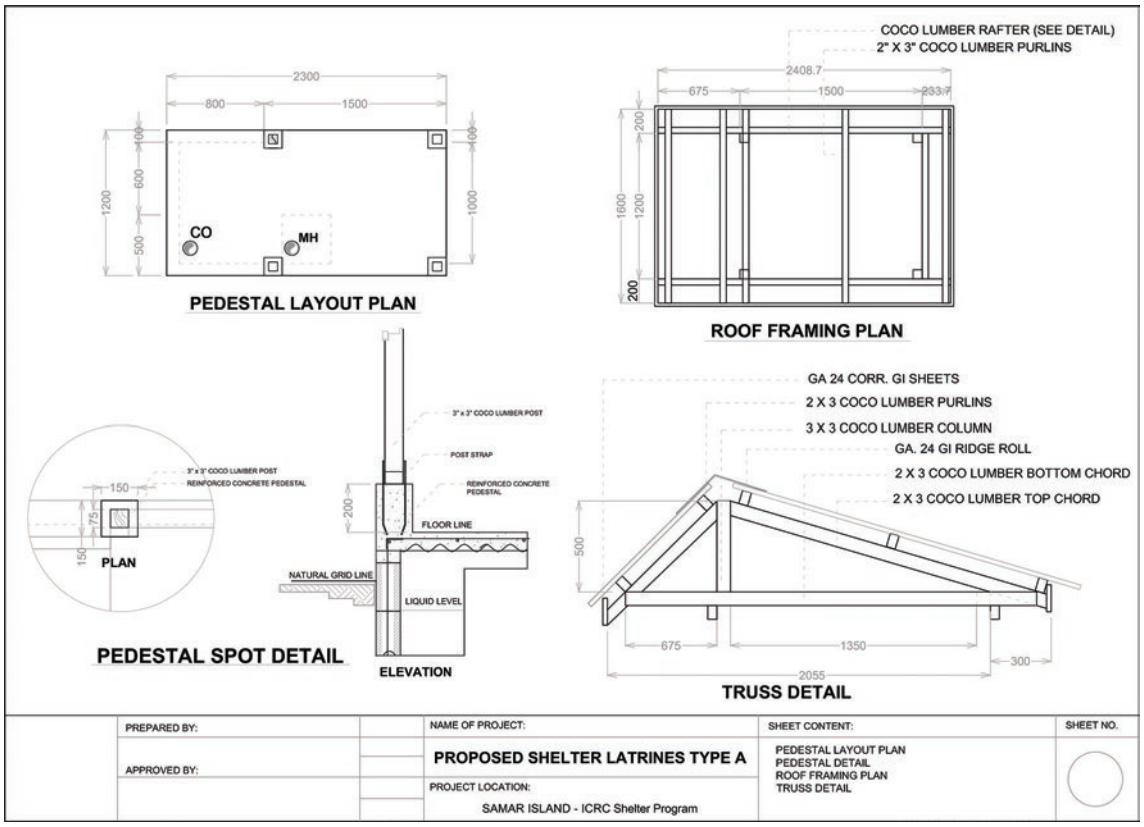
3.1 LATRINES TYPE A 1



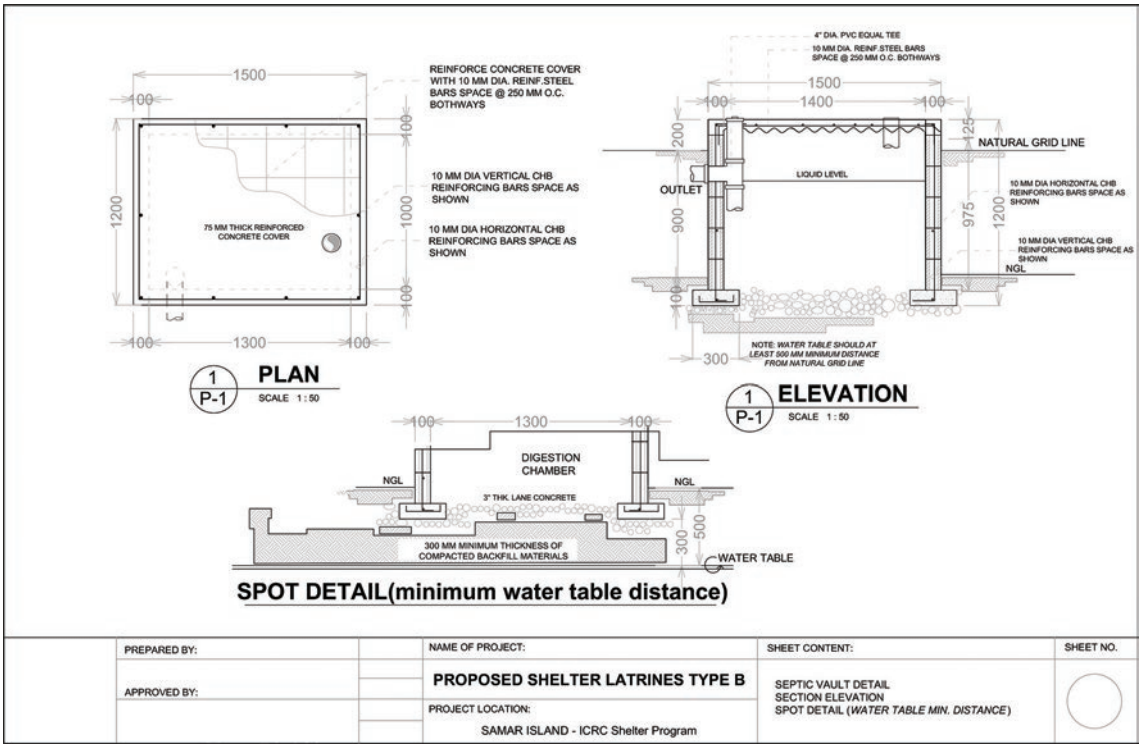
3.2 LATRINES TYPE A 2



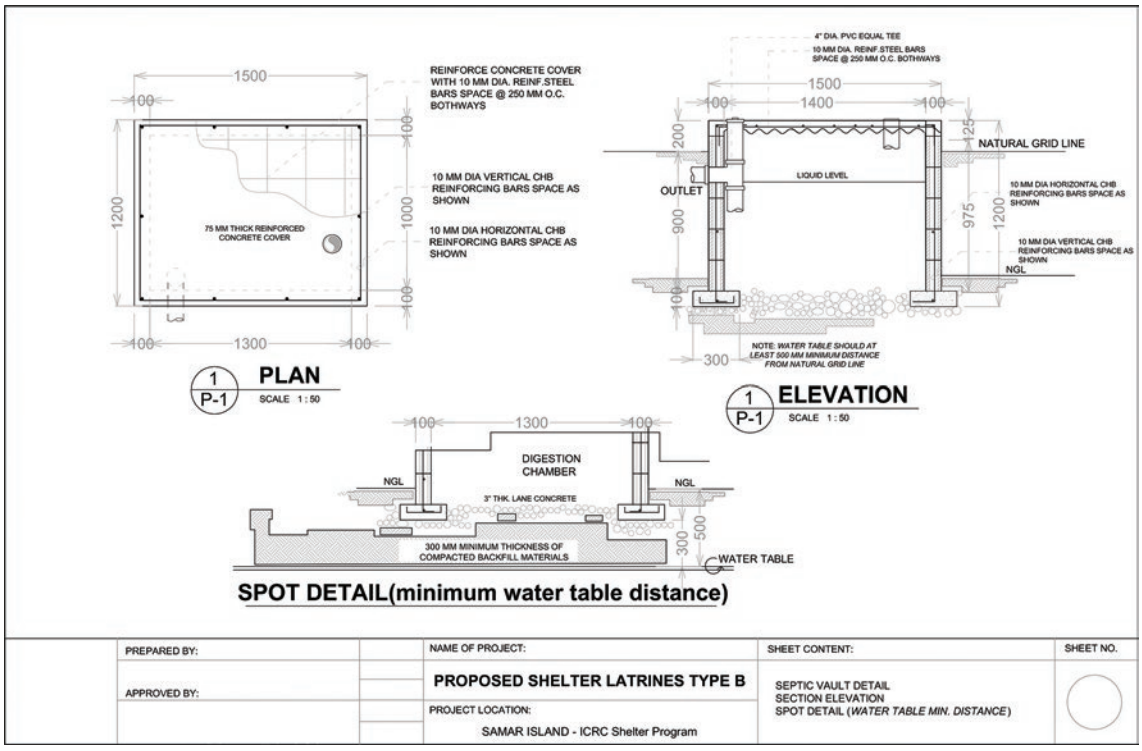
3.3 LATRINES TYPE A 3



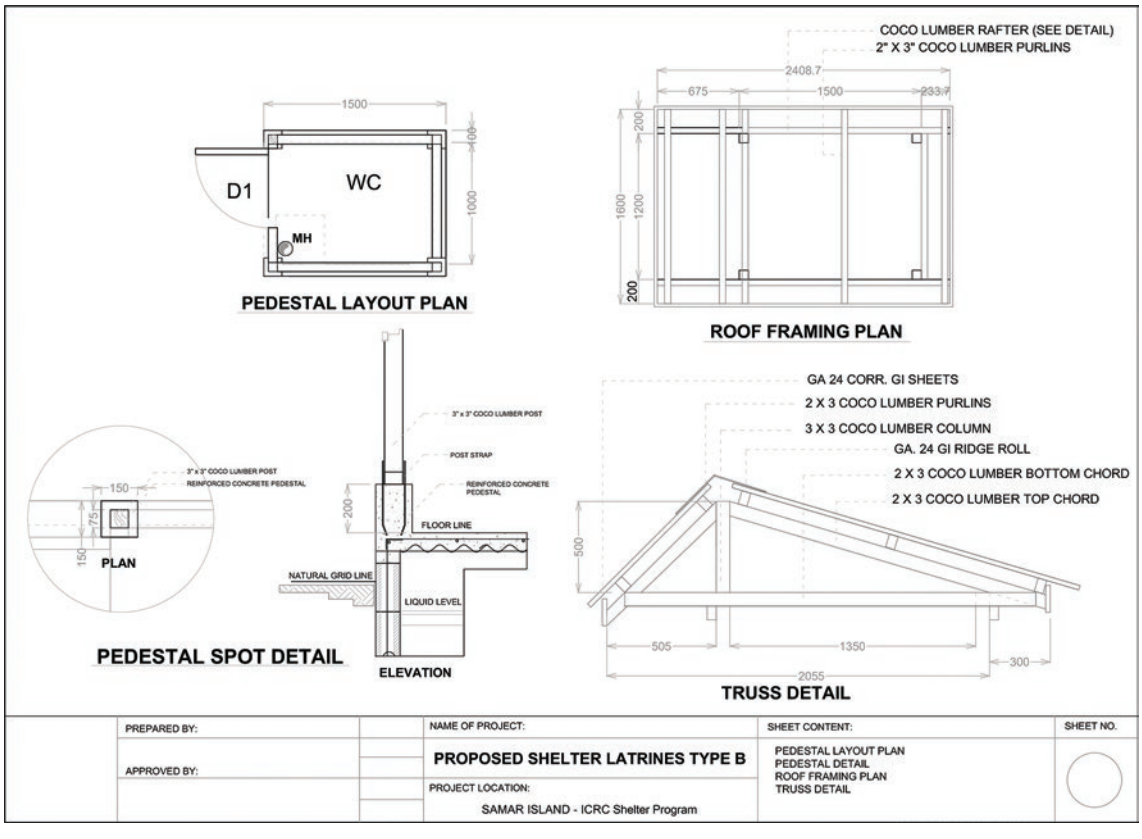
3.4 LATRINES TYPE B 1



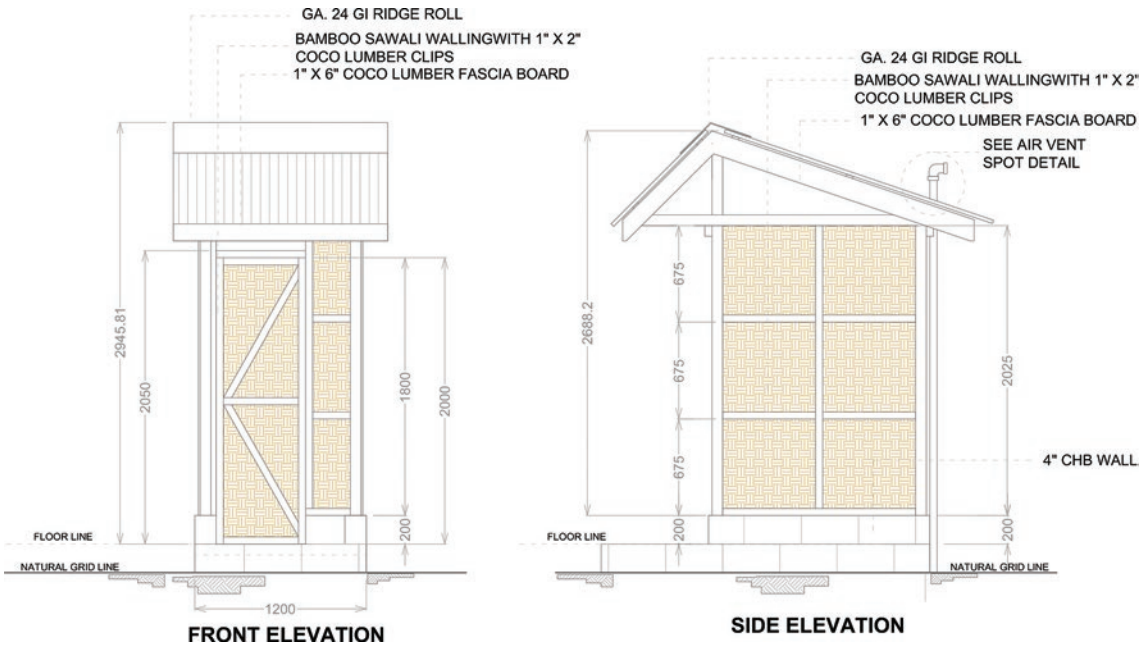
3.5 LATRINES TYPE B 2



3.6 LATRINES TYPE B 3



3.7 TYPE A & B ELEVATION



3.8 LATRINES PERS

3.9 BOQ LATRINES

ICRC - PRC

WATAHAB SAMAR

Name of Project: PROPOSED ICRC SHELTER LATRINES
Location of Project:SAMAR
Project Description: Type A Latrines
Target Date of Implementation:JANUARY 2015

DETAILED ESTIMATES

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
1,00	**Layout and Excavation**	**4,76**	**cu.m.**		
	septic vault	*4,76*	*cu.m.*		
a)	Materials:				
2	2" X 2" X 12 ft coco lumber (formworks)	16	bd,ft		
	CW nails 3"	0,3	kgs.		
b)	Labor:				
1	Working Leadman	1	day		
1	Carpenter	1	day		
2	Laborers/helpers	1	day		
			Total Direct Cost ..		-
			O.C.M.		-
			Total Item Cost		-
			Unit Cost		-
2,00	**Concrete & Masonry Works**	**1,00**	**lot**		
a)	Materials:				
	Ga. 24 X 8 ft.Corr. GI Sheet	1,0	sht.		
	9 mm dia. x 6m Reinf. steel bars (RSB)	14	pcs		
	No.16 GI tie wire	1	kgs.		
	4" CHB	110	pcs		
	Portland cement	10	bags		
	Sand	1,2	cu,m		
	Gravel	0,5	cu.m.		
b)	Labor:				
1	Working Leadman	2	days		
1	Carpenter/Mason	2	days		
2	Laborers/helpers	2	days		
			Total Direct Cost ..		-
			O.C.M.		-
			Total Item Cost		-
			Unit Cost		-

3,00	Carpentry and Plumbing Works	1	lot		
	structures, roofing, doors				
a)	Materials:				
4	3 X 3 X 10 Coco lumber (post)	27	bd,ft		
8	2 X 3 X 12 Coco lumber (purlins/ chord,girder)	48	bd,ft		
10	2 X 2 X 12 Coco lumber (wallframes, connector)	40	bd,ft		
15	1 X 2 X 12 Coco lumber (wallings clips)	30	bd,ft		
4	1 X 6 X 10 Coco lumber (fascia board)	20	bd,ft		
	4x 8 Bamboo sawali walling	6	shts.		
	4 x 4 Loose pin hinges (doors and windows)	2	pairs		
	Ga. 24 x 8 feet corr. GI sheet roofing	4	shts		
	Ga. 24 x 400 mm x 8 feet pre fabricated GI ridge roll	1	pc.		
	3/4" X 8" X 1.5 mm thk Post strap	8	pcs.		
	CW nails 4"	2	kgs.		
	CW nails 3"	1	kgs.		
	CW nails 2"	1	kgs.		
	(Umbrella) Roofing nails	1	kgs.		
	PVC Solent cement (100 ml)	1	pack		
	4" dia. PVC Tee	2	pcs.		
	4" dia. PVC Clean out	1	pcs.		
	4" dia. x 3 m PVC Pipe	1	pcs.		
	2" dia. x 3 m PVC Pipe	1	pcs.		
	2" dia. 90 deg.PVC Elbow	1	pcs.		
	Water Closet (pale flash)	1	set		
b)	Labor:				
1	Working Leadman	2	days		
1	Carpenter/Plumber	2	days		
2	Laborers/helpers	2	days		
			Total Direct Cost ..		-
			O.C.M.		-
			Total Item Cost		-
			Unit Cost		-

SUMMARY:

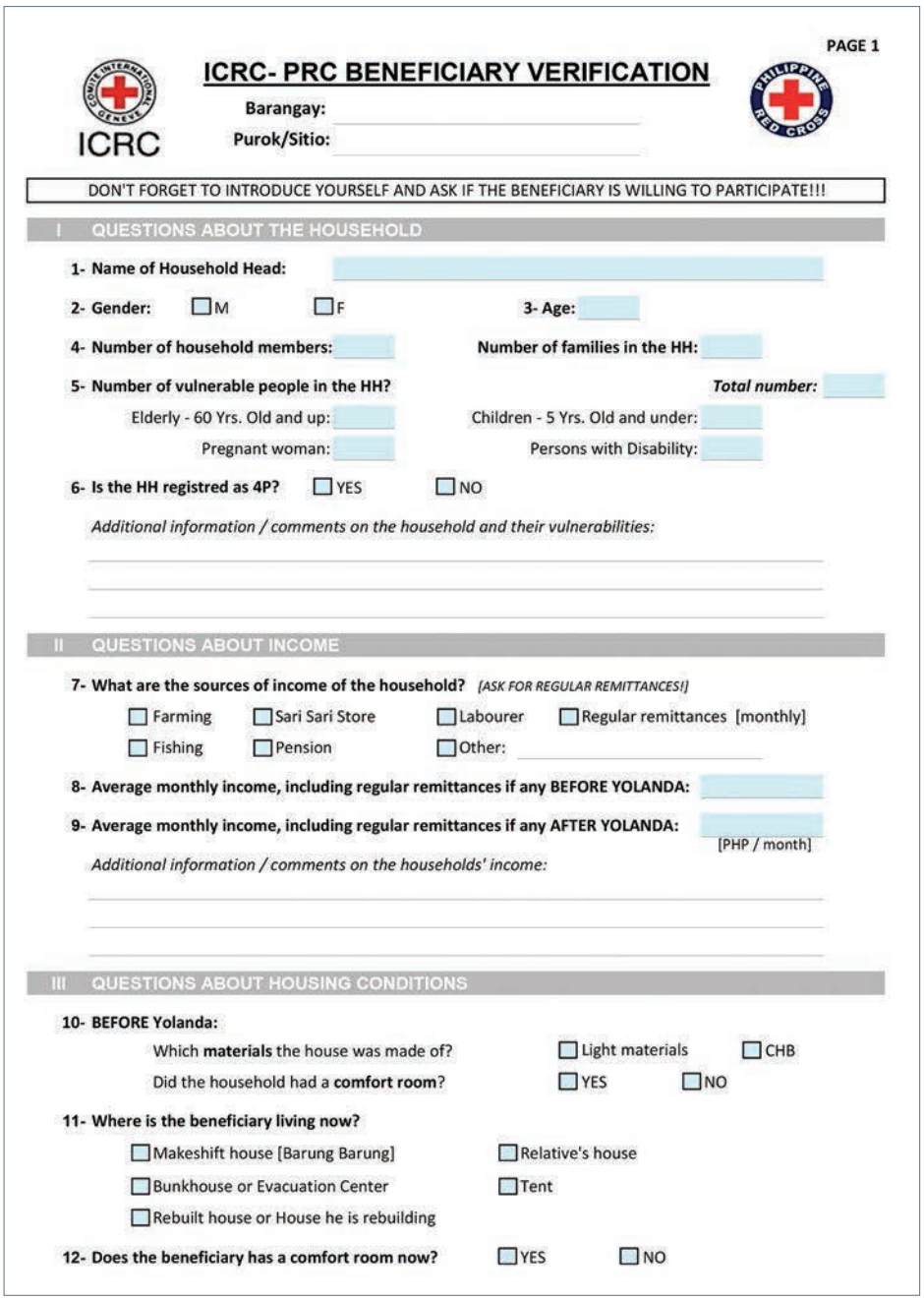
I) DIRECT COST	-
A) Materials	-
B) Labor	-
C) Equipment	
II) INDIRECT COST	-
A) O.C.M.	-
TOTAL PROJECT COST	-

PEPARED BY:

APPROVED BY:

WATHAB ENGINEER

Annex 4. Format Assesment



PAGE 1

ICRC

ICRC- PRC BENEFICIARY VERIFICATION

PHILIPPINE RED CROSS

Barangay: _____

Purok/Sitio: _____

DON'T FORGET TO INTRODUCE YOURSELF AND ASK IF THE BENEFICIARY IS WILLING TO PARTICIPATE!!!

I QUESTIONS ABOUT THE HOUSEHOLD

1- Name of Household Head:

2- Gender: ☐ M ☐ F **3- Age:**

4- Number of household members: **Number of families in the HH:**

5- Number of vulnerable people in the HH? ***Total number:***

Elderly - 60 Yrs. Old and up: Children - 5 Yrs. Old and under:

Pregnant woman: Persons with Disability:

6- Is the HH registred as 4P? ☐ YES ☐ NO

Additional information / comments on the household and their vulnerabilities:

II QUESTIONS ABOUT INCOME

7- What are the sources of income of the household? *(ASK FOR REGULAR REMITTANCES!)*

☐ Farming ☐ Sari Sari Store ☐ Labourer ☐ Regular remittances [monthly]

☐ Fishing ☐ Pension ☐ Other: _____

8- Average monthly income, including regular remittances if any BEFORE YOLANDA:

9- Average monthly income, including regular remittances if any AFTER YOLANDA:

[PHP / month]

Additional information / comments on the households' income:

III QUESTIONS ABOUT HOUSING CONDITIONS

10- BEFORE Yolanda:

Which **materials** the house was made of? ☐ Light materials ☐ CHB

Did the household had a **comfort room**? ☐ YES ☐ NO

11- Where is the beneficiary living now?

☐ Makeshift house [Barung Barung] ☐ Relative's house

☐ Bunkhouse or Evacuation Center ☐ Tent

☐ Rebuilt house or House he is rebuilding

12- Does the beneficiary has a comfort room now? ☐ YES ☐ NO

PAGE 2

13- What is the size of the bunkhouse/tent/barong2/rebuilt house they live in now? x [in meter]

14- Does the household owns more than one house? ☐ YES ☐ NO

15- Please take a picture of the house. Nr/Ref of picture: /

16- Please describe the conditions of the current house (wall, roof, floor):

IV QUESTIONS ABOUT THE SHELTER PROGRAMME

A- After Yolanda, the house was? ☐ Totally damaged ☐ Partially damaged

B- Where does the beneficiary plan to build the shelter in case he will be selected for the project?
☐ Where he is living now ☐ Elsewhere
☐ Where he was living before Yolanda

C- Who is the owner of the lot?
☐ Beneficiary ☐ Timberland / Barangay land ☐ Relocation Site
☐ Relative ☐ Private Owner

D- Can the beneficiary provide an authorization from the owner/authority to build the shelter in the lot and to stay there at least for five years?
☐ YES ☐ NO

E- Is the size of the lot where the beneficiary plans to build the shelter at least 5x8m?
☐ YES ☐ NO

F- Is the lot where the beneficiary plans to build the shelter safe (flat, more than 20 m from riverbank and 40 m from coastline, at least 5m from a creek, not in a landslide prone or flood prone area)?
☐ YES ☐ NO

G- Can the beneficiary provide at least 15 trees needed for the construction of the shelter?
☐ YES ☐ NO

H- Is the household included in another shelter reconstruction programme by other organisation?
☐ YES ☐ NO IF YES, which organisation and what?

I- Does the household accepts the ICRC shelter house and design (3x6 m and timber structure)
☐ YES ☐ NO *[SHOW PICTURE!]*

Additional information / comments to take into consideration for shelter programme:

PLEASE CHECK IF ALL QUESTIONS ARE ANSWERED AND DON'T FORGET TO THANK THE BENEFICIARY FOR THEIR PARTICIPATION AND TIME!!!

Questionnaire done by: *[NAME PRC VOLUNTEER]*

Annex 5. MoU Format

5.1 MUNICIPALITY MOU - TEMPLATE 2014

GUJ14/00006

Memorandum Of Understanding (MoU)

Between

The International Committee of the Red Cross (ICRC)

And

Municipal Local Government Unit of SALCEDO

1. Introduction:

The International Committee of the Red Cross (ICRC) and the Municipal Local Government Unit of Salcedo (MLGU) agree on the following:

1.1 This MoU documents the agreement between the above-mentioned parties regarding the interventions planned for permanent individual shelter for the most vulnerable sections of the population affected by Typhoon Yollanda in in Eastern Samar.

1.2 Within the framework of the internationally recognized mandate of the ICRC and as part of its commitment to assist the people of Samar who have been affected by Typhoon Yolanda, the ICRC has been supporting affected communities with provision of clean drinking water as well as support to water districts in repair of damaged water supply systems, access to medical services through provision of emergency field hospitals and support to health authorities through repair and rehabilitation of health structures, as well as direct support to affected populations through food and NFI distributions and livelihood programmes. In line with this, and in order also to support the recovery process for typhoon affected families, ICRC is now planning to implement a shelter programme within the affected areas.

1.3

1.4 The following agreement aims at providing support to the Municipal Local Government Unit of Salcedo with the objective to construct permanent shelter for the most vulnerable sections of the typhoon affected populace in the Barangays listed below.

Barangay Alog	**Barangay Burak (Sitio Liag)**	**Barangay Cagaut**
Barangay Carapdapan	**Barangay Casili-on**	**Barangay Matarinao**
Barangay Maliwaliw	**Barangay Naparaan**	**Barangay Seguinon**
Barangay San Roque (Bugay)	**Barangay Santa Cruz**	**Barangay Tacla-on**
Barangay Tagbacan	**Barangay Talangdawan**	

2. Scope and limitations of the project:

The ICRC, with the support of Municipal and Barangay authorities will build standard design, core-progressive houses in locations identified as suitable for rehousing of families. Houses constructed will have a minimum expected lifespan of up to 10 years.
Housing will be distributed according to the principal of one house per targeted beneficiary household which will be identified in the initial stages. This will be done through ICRC working directly with Municipal & Barangay level authorities, and through direct verification by ICRC of beneficiary lists submitted by these
Final identification of beneficiaries selected will be done through ICRC criteria. Criteria will be available for all & any concerned authorities to inspect as required.
A sanitation component will also be included as an integral part of the project.

4. Responsibilities of the parties:

4.1 ICRC Responsibilities

ICRC to provide necessary resources, material, transport and expertise required to complete the works. Specifically, the ICRC intends:

09. Municipal MoU - Salcedo Template 2014.doc Page 1 of 3

- To supply all materials needed for completion of the project, apart from unprocessed lumber
- To provide necessary transportation of materials to construction sites
- To provide all tools, equipment skilled and unskilled labour required for the implementation of the works, including cutting of lumber, construction, etc..
- Work with Barangay & Municipal authorities to ensure smooth implantation and completion of the planned constructions

On completion of construction, completed houses to be handed over to identified beneficiary families

4.2 Municipal and Barangay Authority Responsibilities

To allow construction works to proceed, Barangay & Municipal authorities will:

- With signing of this MoU, Municipality accepts and confirms Barangays named in clause **1.4**, in which ICRC construction of houses will be implemented and ICRC access to these Barangays..
- Provide provisional beneficiary lists according to ICRC selection criteria for final verification by ICRC staff.
- In conjunction with beneficiaries, identify suitable sites for construction, including in cases of relocation, and in line with appropriate laws and regulations, in which beneficiaries have either ownership of land or written agreement with owner of land giving them right of residency on the land for a minimum of 5 years.
- Provide lists of chainsaw operators, skilled carpenters and helpers who can work on the projects.
- Identify sources of sand and gravel for use in construction if available within municipal boundaries.
- Support ICRC / PRC during the programme with community mobilisation and during any materials distribution
- Support as required to ensure access for ICRC/PRC staff and volunteers working in the barangays.
- Support beneficiaries in sourcing of lumber in event that they, themselves are unable to do this.

After the completion of the works, the representative of the MLGU will:

- Confirm the completion of the works to a suitable standard by signing the "handover document";
- affirm to provide normal support to beneficiary families in terms of access to services, etc., enjoyed by other residents of the municipality.

4.2 Beneficiary Responsibilities

- Each family to identify and supply sufficient, suitable coco lumber or other timber to allow complete construction of one house.
- Clearing construction site for their house
- Hauling lumber from saw mills and materials such as sand, &gravel, from central delivery points,
- Securing materials provided by ICRC

5. Final clauses

5.1 Duration

This agreement enters into force on the day of signature of the parties and remains in effect until the total completion of the works.

A separate MoA will be signed between ICRC, Municipal Authorities and identified Barangay authorities in which detailed numbers of houses, and any other relevant details will be identified

On completion of constructions, and handover to beneficiaries, ICRC will have no further responsibilities, either financially, materially or in terms of additional manpower. Acceptance of any further responsibilities with regards these will be the subject of a new agreement between ICRC & the Municipal and Barangay authorities.

5.2 Termination

Each party is entitled to terminate this MoU at any time by giving **two-week** notice in writing to the other party in case the other party to the agreement does not fulfil its obligations as laid out above. Prior consultations should however take place between the parties to discuss the causes of such cancellation.

The ICRC reserves the right to cancel this agreement by giving notice in case it would have to leave the Philippines or reduce its activities in the country. In such a case, the ICRC will decide which purchased and unused materials paid by the ICRC directly or through the construction company, will remain the property of the ICRC.

5.3 Additional Clauses

Beneficiary families will not be charged in any way, or asked to provide any kind of incentives in order for appearing on initial lists or for any works to be carried out.

The ICRC will not assume any responsibility regarding:

- The consequences of climate hazards on constructions, e.g. landslides, earthquakes, etc.;
- The loss or the misuse of the equipment or tools;
- Any claim, action, compensation due to injury or damage to individuals or their property occurring during or after the works;
- Any compensation ensuing from the death or disability of anyone associated with the works;
- Any payment related with the insurance, accident, disease, medical expenses, taxes, pension, etc. of anyone with the works

5.4 Waiver of responsibility

The ICRC is not responsible for any security incidents taking place before, during or as a result of any construction work or relating to any material provided or funded by the ICRC.

This agreement is made in three originals in English, all being identical and authentic. The ICRC will receive two originals, with the Authorities to receive one original.

Place: **Salcedo**..... & Date: .....

For the ICRC: **For the Authorities:**

....

5.2 BARANGAY MOU - TEMPLATE 2014

GUJ 14/00213

MEMORANDUM OF UNDERSTANDING

Between

The International Committee of the Red Cross (ICRC)

And

The Philippine Red Cross (PRC)

And

The Municipality of _____

And

The Barangay of _____

In line with the MoU agreed between the ICRC and the Municipality of _____, and signed on the _____, ICRC and the Philippine Red Cross (PRC) have identified a project to assist the population of Barangay Santa Fe in the reconstruction of houses destroyed by super-typhoon Yolanda.

Under this Memorandum of Understanding, the above-mentioned parties have agreed to implement the project, as described in the Scope of Works below, in accordance with the following conditions.

1. Scope of Works:

- Construction of **12** storm-resilient, core-progressive houses of 18m^2 size according to standard ICRC design (see attached picture)
- Training of local carpenters in good, storm-resilient, construction practices
- Advising the population on good, storm-resilient, construction practices for housing

2. Responsibilities of MacArthur Municipality:

2.1 These are outlined in the above mentioned MoU previously agreed & signed between ICRC and the Municipal authorities.

3. Responsibilities of the Authorities of Barangay Santa Fe:

3.1 Barangay authorities shall compile the primary beneficiary selection list applying the criteria defined by the ICRC/PRC.

3.2 Barangay authorities guarantee that information contained in the list in 3.1 (above) is correct.

3.3 Barangay authorities shall support landless beneficiaries in negotiations with landowners to obtain written permission guaranteeing right of occupancy on the plot of land on which ICRC/PRC will construct a house for a minimum of five consecutive years.

3.4 Barangay authorities will support ICRC/PRC in ensuring, where possible, minimum plot size for construction of one (1) shelter is 80 m^2.

3.5 Barangay authorities will facilitate the signature of a declaration (engagement document) between each individual beneficiary household and the ICRC/PRC.

3.6 Barangay authorities shall provide to ICRC lists of local carpenters, chainsaw operators and, where necessary unskilled labour.

3.7 Barangay authorities, in consultation with the community, shall help identify and supply free of charge the trees that are to be cut into lumber by the ICRC-selected chainsaw operators.

3.8 Barangay authorities support ICRC/PRC in monitoring that any logging done in association with this project is in line with national law.

3.9 Barangay authorities shall guarantee that the beneficiaries in their respective villages transport the cut lumber and distributed construction material to the identified construction sites and, when required, support vulnerable beneficiaries who have difficulties in doing so.

3.10 Barangay authorities shall guarantee that the beneficiary household in their respective villages clear and prepare the identified construction sites before the construction commences.

3.11 Barangay authorities shall, as required, identify local labourers for production of the sand and gravel needed for the construction of foundations.

24/08/2015 1 of 3

3.12 Barangay authorities shall guarantee that beneficiaries receiving an ICRC/PRC house shall assist the carpenter team to the best of their ability.
3.13 Barangay authorities will attend, and mobilize their respective communities to attend, the information sessions on good construction practices that ICRC/PRC organizes together with the municipality of General MacArthur.
3.14 Barangay authorities will support the full-time availability of carpenters and helpers selected by the ICRC, in order to finalize the construction works within the timeframe for a complete house – 7 days.
3.15 Barangay authorities guarantee to do all in their capacity to support the ICRC/PRC shelter project.
3.16 The Barangay authorities will support the programme in terms of community mobilisation and presence during material distributions
3.17 The Barangay authorities will ensure that the beneficiaries do not make any payments for any works done, or for any materials delivered by ICRC/PRC.

4. Responsibilities of the ICRC/PRC:

4.1 ICRC/PRC will check and validate the beneficiary selection list compiled by Barangay authorities and confirm the final selection.
4.2 ICRC/PRC retains the right to modify the selection of beneficiaries if it considers it necessary.
4.3 ICRC/PRC shall train selected carpenters in the correct construction of an ICRC design house and in good (storm-resilient) construction practices.
4.4 ICRC/PRC shall organize, in collaboration with Municipal & Barangay authorities, information sessions and supply pamphlets with illustrated directions on good (storm-resilient) construction practices for the community.
4.5 ICRC/PRC shall supply pamphlets with illustrated directions on good (storm-resilient) construction practices.
4.6 ICRC will pay the selected chainsaw operators for production of the lumber required for the construction of the houses.
4.7 ICRC shall provide the design and the technical guidance for the construction of the houses.
4.8 ICRC shall pay selected carpenter teams for the construction of the houses
4.9 ICRC undertakes to provide all materials other than lumber, (as identified in 3.6 above) to allow complete construction of a model house

5. Special terms:

5.1 In case of failure to comply with one or more provisions stipulated in this MoU, ICRC/PRC reserves the right to terminate it without prior notice.
5.2 ICRC/PRC shall not take any responsibility for the following:

- Any costs related to the operation and maintenance of the structures after completion of the work.
- Any civil claims, lawsuits, compensation for damages inflicted upon individuals as well as their properties, in the process of, or after the works are completed.
- Land propriety issues in the project area.
- Compensation for death, injuries or disablement of any person that may be involved in the work.
- The payment of insurance of any kind, accident, illness, medical care, taxes, pensions and other fees for any person involved in the work.
- The ICRC/PRC accepts no responsibility in case of accidents related to the chainsaw utilization and/or management.

This agreement is made in **four** (**4**) originals in English, all being identical and authentic. The ICRC, PRC and the Municipal & Barangay Authorities will receive one original copy each.

All signatories understand and agree on the project implementation strategy, and their respective roles and responsibilities for the activities as described above. This Memorandum of Understanding is valid from the date of signature until the completion of all project activities.

Place..... & Date: .....

For the ICRC: **For the Authorities:**

....

For the PRC:

.....

.....

Annex 6. Land Agreement

ICRC

ICRC-PRC Shelter Programme

BENEFICIARY DECLARATION

I, _____ (head of household),
living in Purok/Sitio _____, Barangay _____,
Municipality _____, Province _____.

declare the following:

1. I am not a beneficiary of any other shelter reconstruction program
2. I have a 5x8 m lot that is suited for shelter construction which is far from hazardous areas or I have an agreement with the lot owner to remain in the place for 5 years
3. I am accepting the ICRC-PRC standard shelter design
4. I should be responsible for the tools/materials received from ICRC-PRC.
5. I guarantee for those materials that will be used for the construction of the ICRC-PRC standard shelter
6. I am going to monitor the work of the workers and help them in case they might need some help
7. I am going to do site preparation for the ICRC-PRC standard shelter provided within the period of time given
8. I am responsible for the hauling of the materials such as wood, gravel and sand that will be used, up to the construction site where my house will be built
9. I am going to provide the wood to be used in the ICRC-PRC standard shelter without payment to the chainsaw operators
10. I am aware that no payment is due for all the assistance and help that I receive.
11. I am going to promptly report any problem regarding the house construction to the ICRC-PRC teams

Date: _____

Signature of the beneficiary: _____

If the beneficiary does not agree with these conditions, he will be removed from the list of shelter beneficiaries

ICRC

ICRC-PRC Shelter Programme

PHILIPPINE RED CROSS

LAND AGREEMENT

I, _____ (head of household),
living in Purok/Sitio _____, Barangay _____,
Municipality _____, Province _____.

Agree to the following:

He/she_____ (head of household) is allowed to stay and build shelter on a parcel of land and remain for up to five (5) consecutive years. The agreement will start after the implementation of the shelter,

After 5 years, if the land owner is going to use the lot all the materials of the shelter will be retained by the beneficiary.

Date: _____

Signature of the beneficiary: _____

Witnessed by

Date: _____

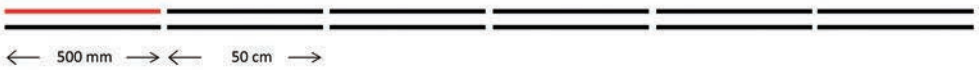
Signature of the beneficiary: _____

Annex 7. Preworked Elements

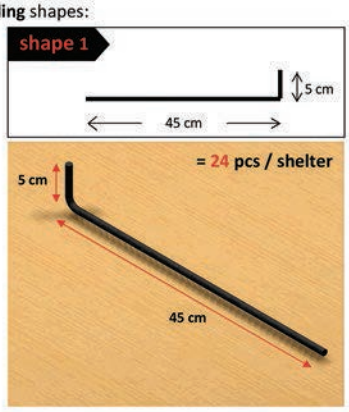
FOUNDATION ELEMENT – 10mm RSB

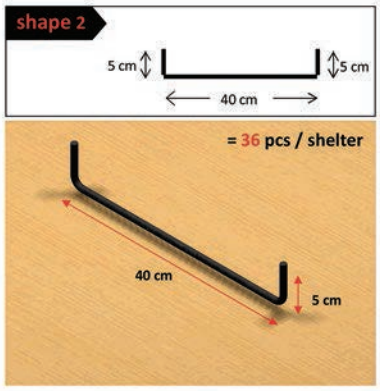
Length: 6 m OR 3 m | **Ø Diameter: 10 mm**

ALL bars to be CUT into **500 mm** or **50 cm** length = **12 pcs** per **6m bars / 6 pcs** per **3m bars.**



Bending shapes:





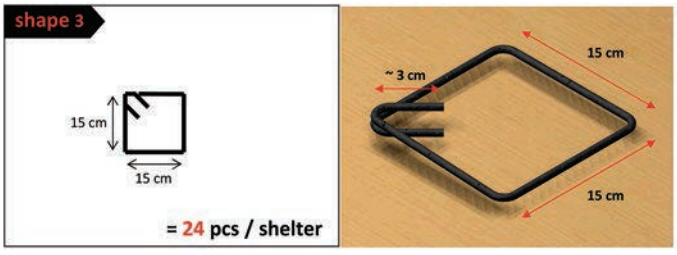
FOUNDATION ELEMENT – 8mm RSB

Length: 6 m | **Ø Diameter: 8 mm**

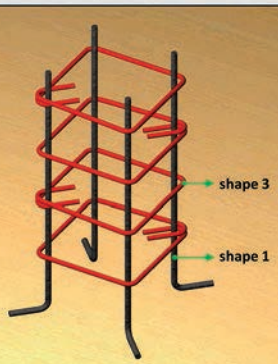
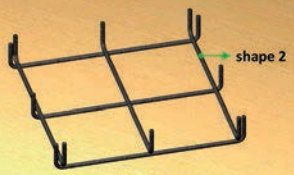
ALL bars to be CUT into **2000 mm** or **200 cm** length = **3 pcs** per **6m bars**

Then **divide by 3** to get **approximately 66.7 cm**

Bending shapes:



FOUNDATION ELEMENT – footing fabrication

FORM 1 = 4 x shape 1 + 4 x shape 3	FORM 2 = 6 x shape 2
	

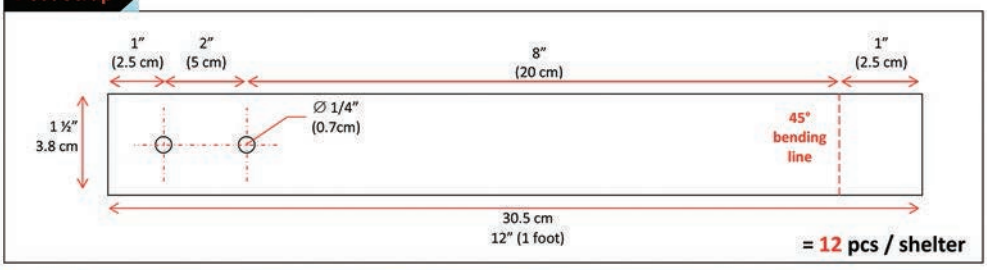
Note:

- Placement of **Shape 3** should be **staggered / zigzag.**
- Tie wire must be **secured** tight, to keep the shape of the form.

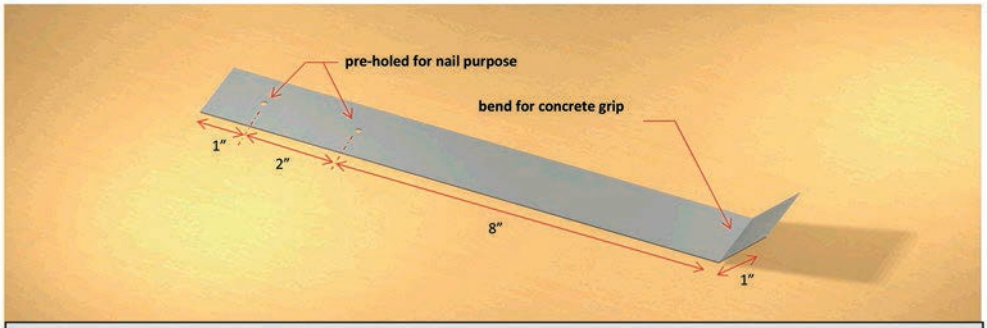
FOUNDATION ELEMENT – Post Strap

Length: 12" or 305 mm | Width: 1½" or 38 mm | Thickness: 3/16" or 4.7 mm

Post Strap



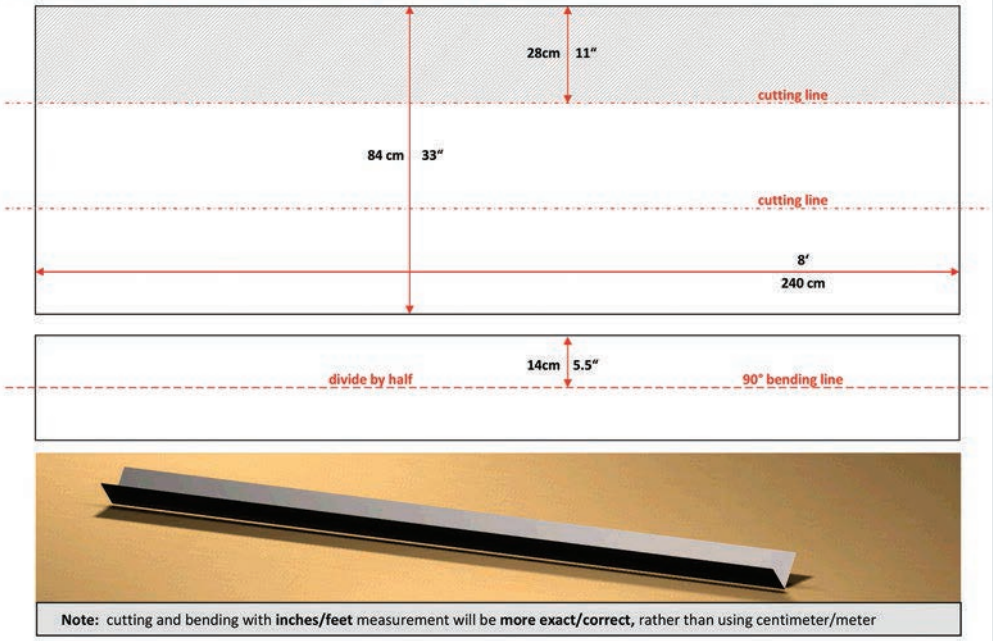
= 12 pcs / shelter



Note: cutting and bending with **inches/feet** measurement will be **more exact/correct,** rather than using centimeter/meter

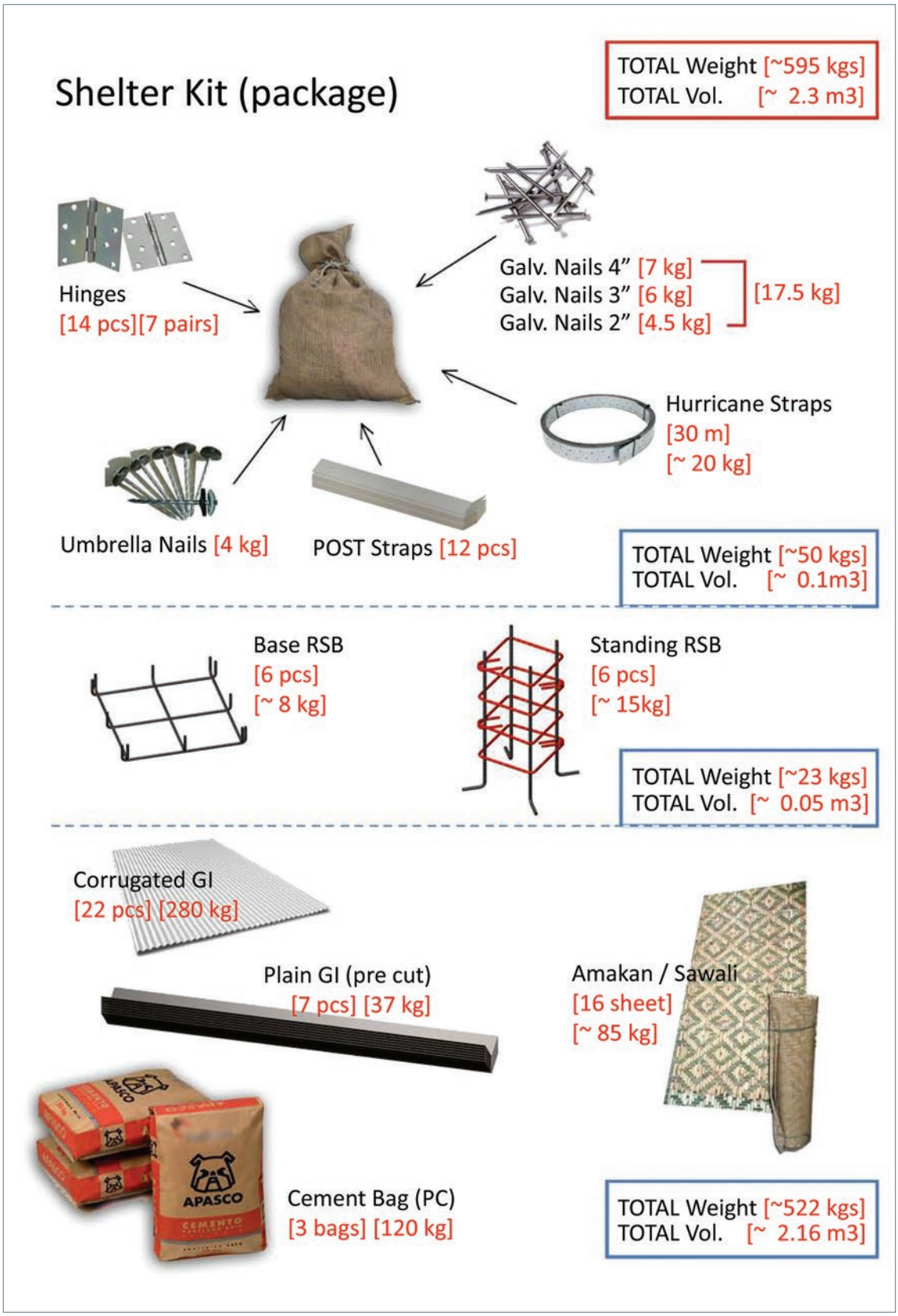
ROOF ELEMENT – Plain GI sheet

Length: 8 ft / 2.44m | Width: 2ft 9" / 0.84m | Thickness: 0.47 mm



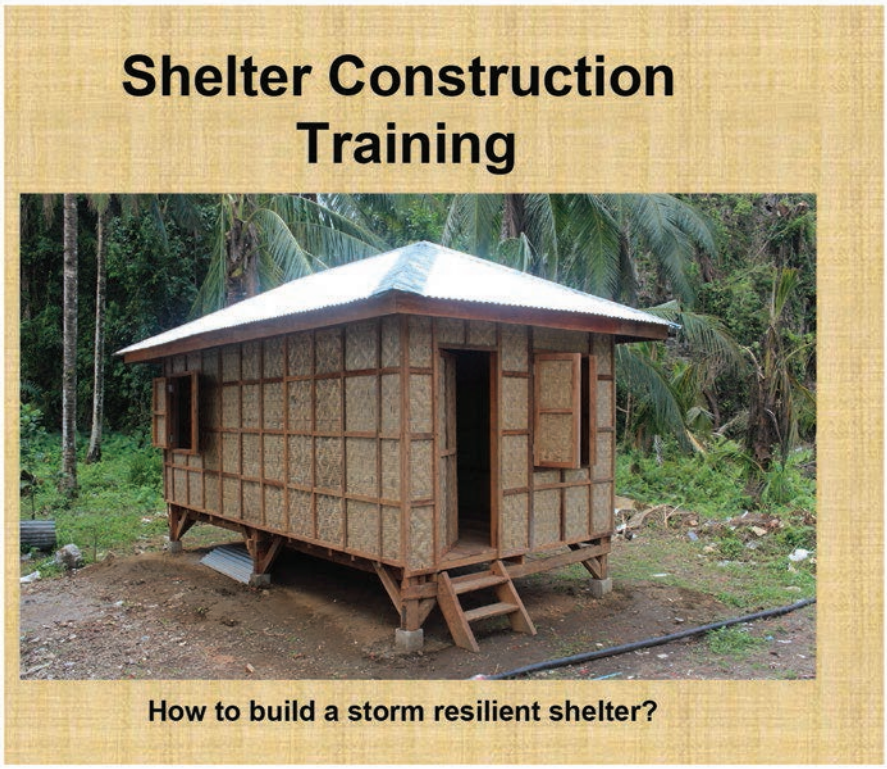
Note: cutting and bending with **inches/feet** measurement will be **more exact/correct,** rather than using centimeter/meter

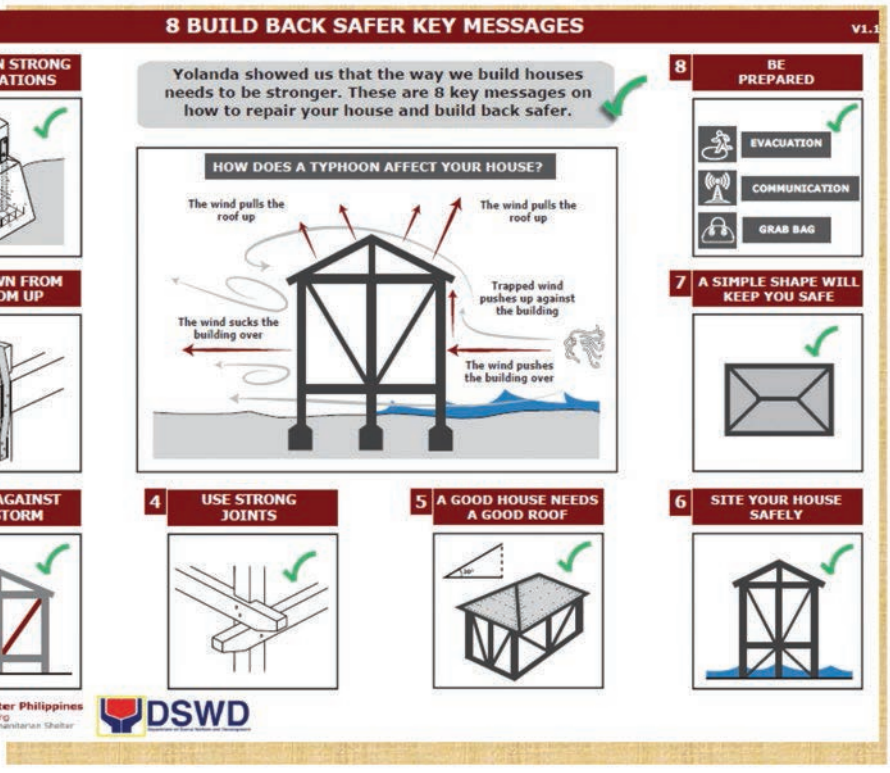
Annex 8. Shelter Kit



Annex 9. Training for Carpenters

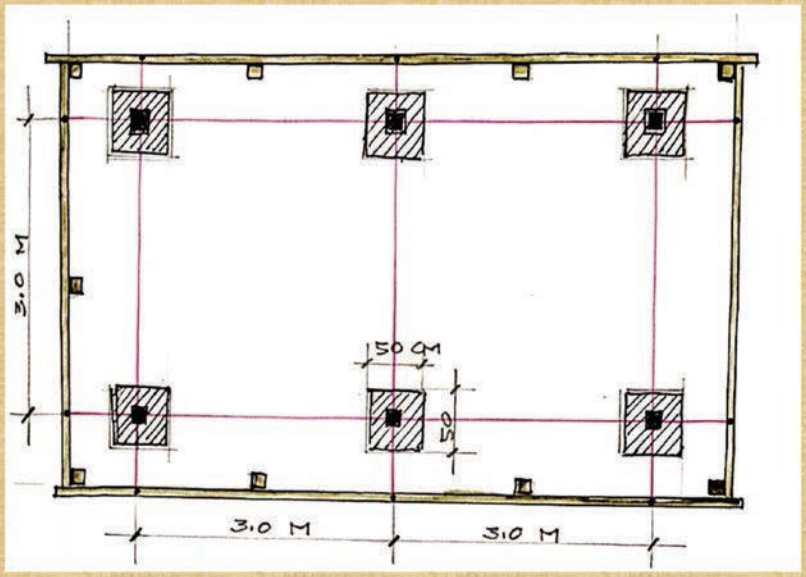
9.1 CONSTRUCTION TRAINING FOR CARPENTERS





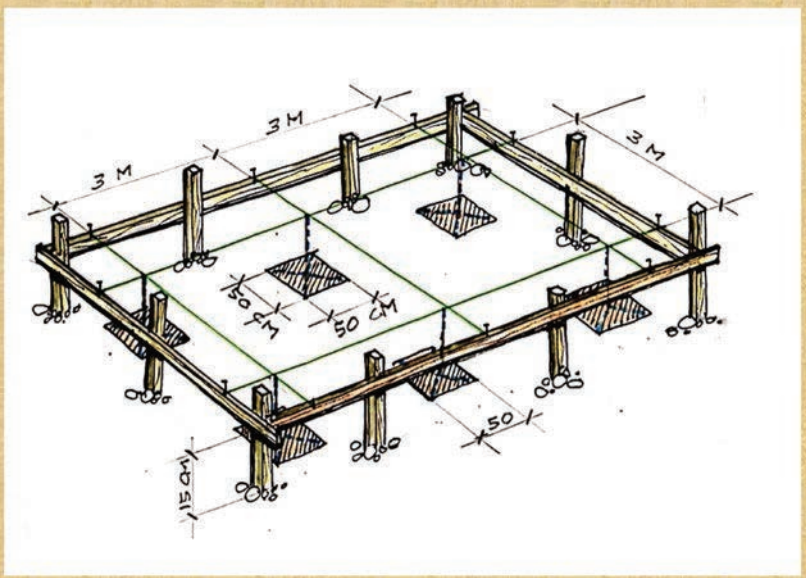
ICRC

LAYOUT: Preparations



ICRC

LAYOUT: Setting up guide strings



ICRC

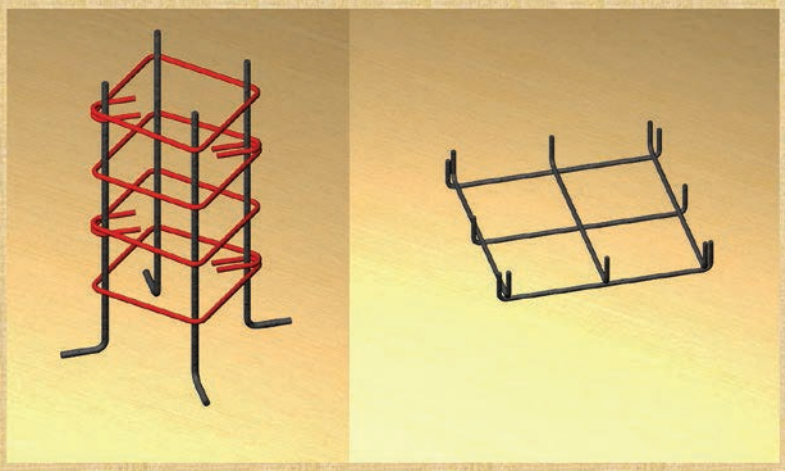
PHILIPPINE RED CROSS

LAYOUT: Excavation

ICRC

PHILIPPINE RED CROSS

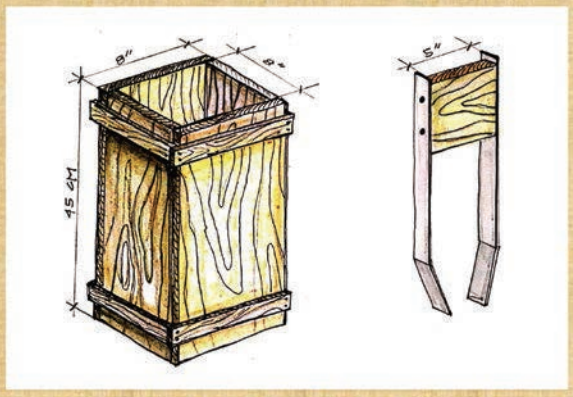
FOUNDATIONS: Preparations



ICRC

PHILIPPINE RED CROSS

FOUNDATIONS: Preparations



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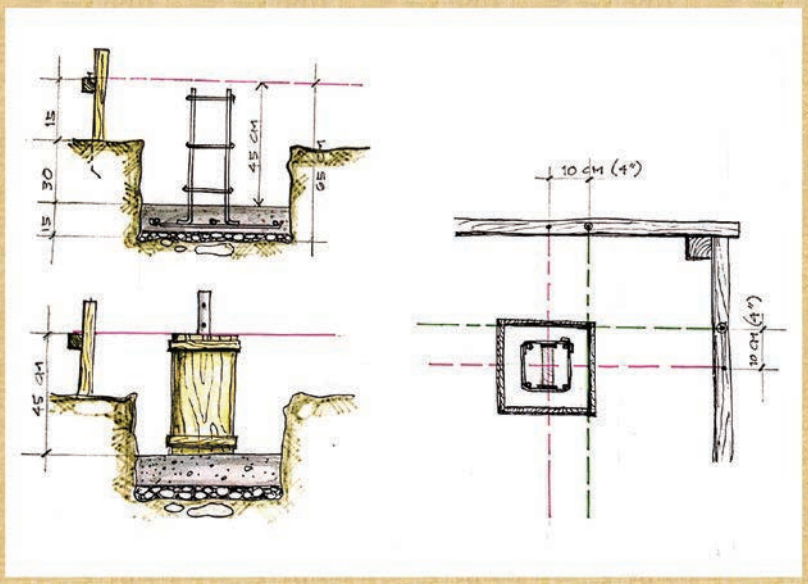
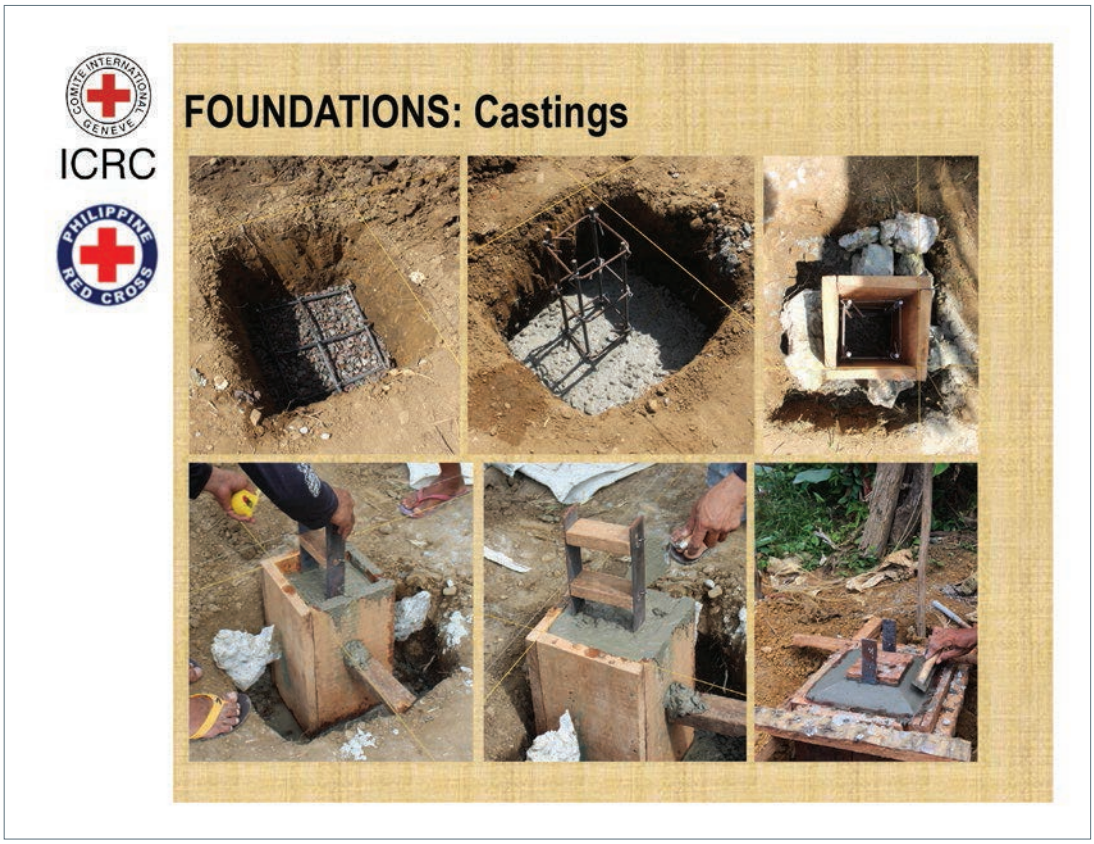
PHILIPPINE RED CROSS

FOUNDATIONS: Measurements




ICRC
FOUNDATIONS: Castings


ICRC
POST / COLUMNS: Fabrications
Start measurement from the top of the column!
240 CM
30 cm

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PHILIPPINE RED CROSS

POST / COLUMNS: Installations

Using triangular support / water level / plumb bob

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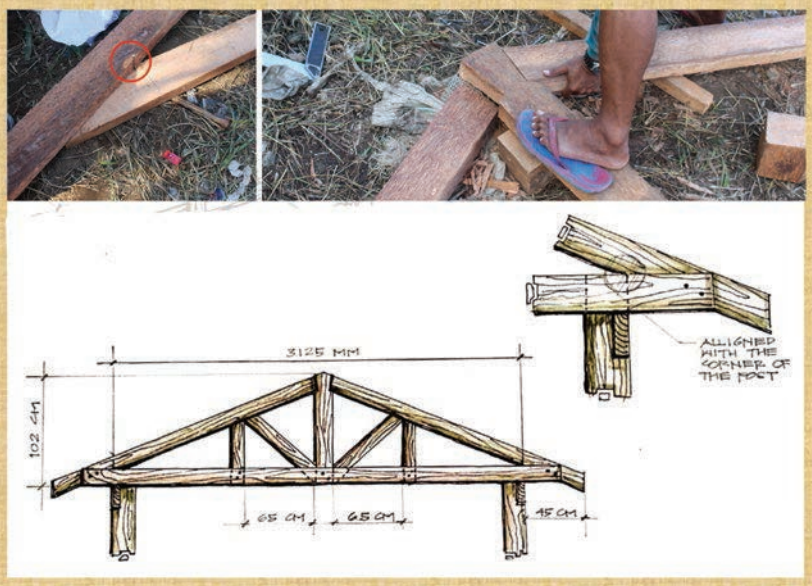
PHILIPPINE RED CROSS

ROOF: Truss Fabrications



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ROOF: Truss Fabrications

Fabricate truss on ground / exact copy of each

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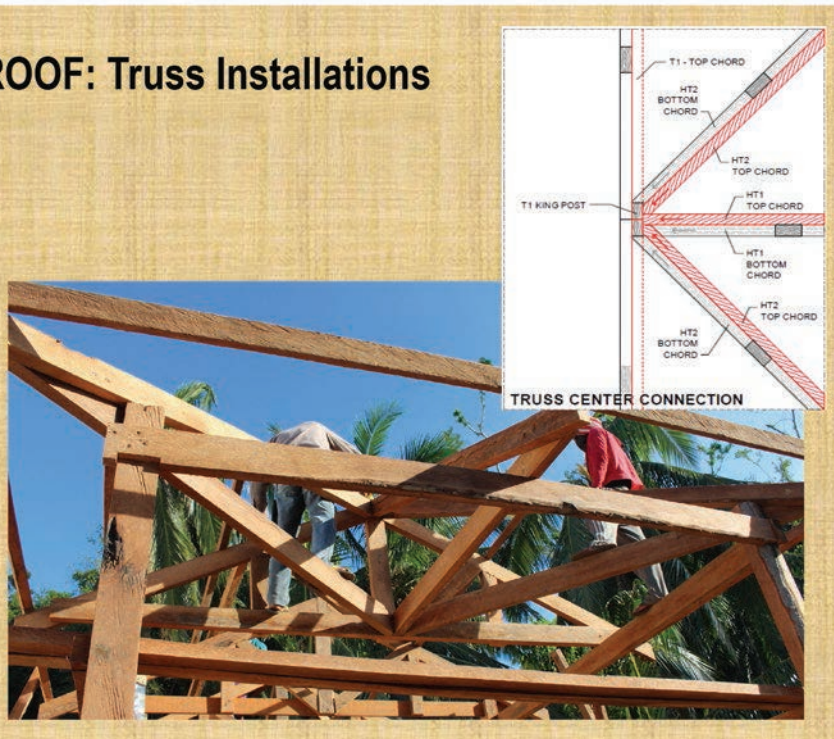
PHILIPPINE RED CROSS

ROOF: Truss Installations



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ROOF: Truss Installations

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ROOF: Purlins Installations

Use nylon string to correct levels and lining purlins straight

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ROOF: Hurricane straps / tie wire

To be installed between beam to truss & truss to purlins

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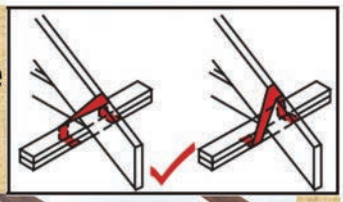
PHILIPPINE RED CROSS

Roof: Hurricane Straps / Tie wire

installed using pliers and hammer,
nails from bottom.



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Roof : CGI Sheets installations

Installed always from center of roof planes

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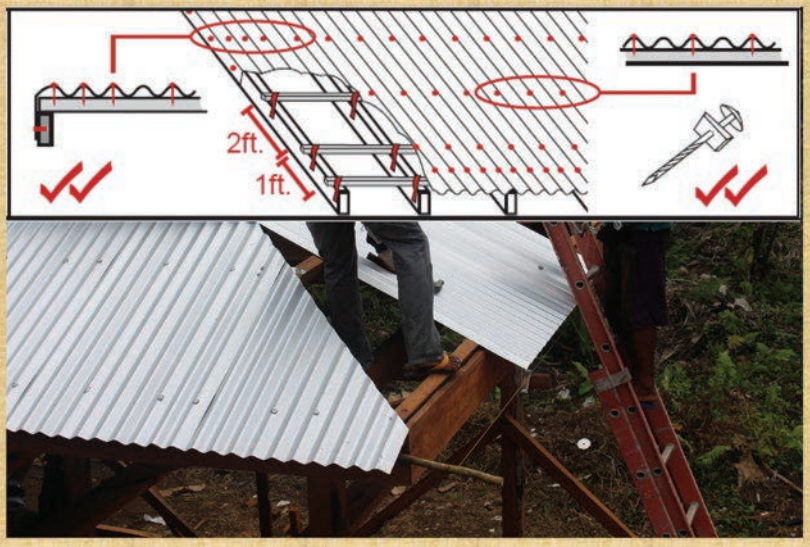
Roof : Umbrella Nails installations

Umbrella Nails to follow straight lines / Nylon guide

More nails on the edges



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PHILIPPINE RED CROSS

BRACING: Installations

Floor Girder / bottom beam to be installed on the outside
Bottom Bracing need to be done before flooring.

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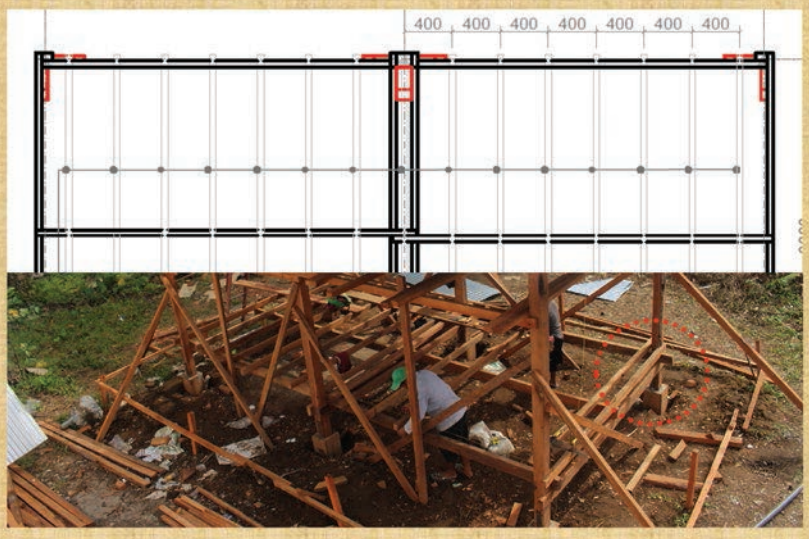
PHILIPPINE RED CROSS

Floor : Joist Installations

Floor Girder / bottom beam to be installed on the inside.
Bottom Bracing need to be done before flooring.



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Floor : Board Installations

Floor board to be installed in longitudinal
Finished Level and flush with Sawali frame.

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Wall : Frame Installations

Wall Studs attached to Girders/Beams flushed
on the outside Wall frame should not cut Bracing elements.

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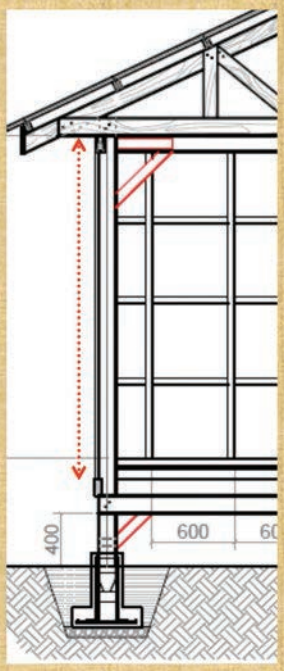
Wall : Sawali Installations

Sawali Wall clipped with 1"x2" lumber on the outside.



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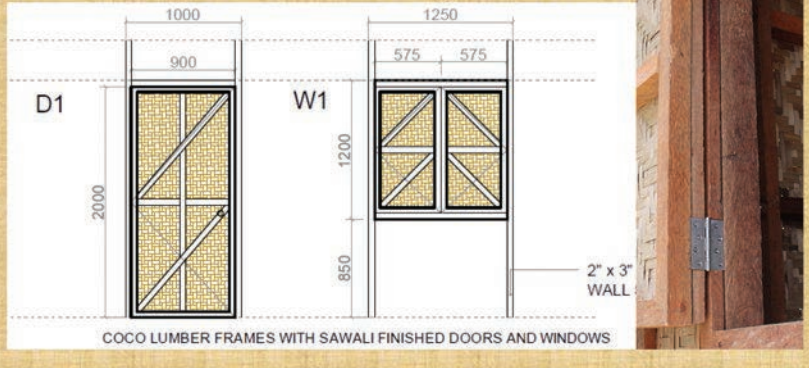
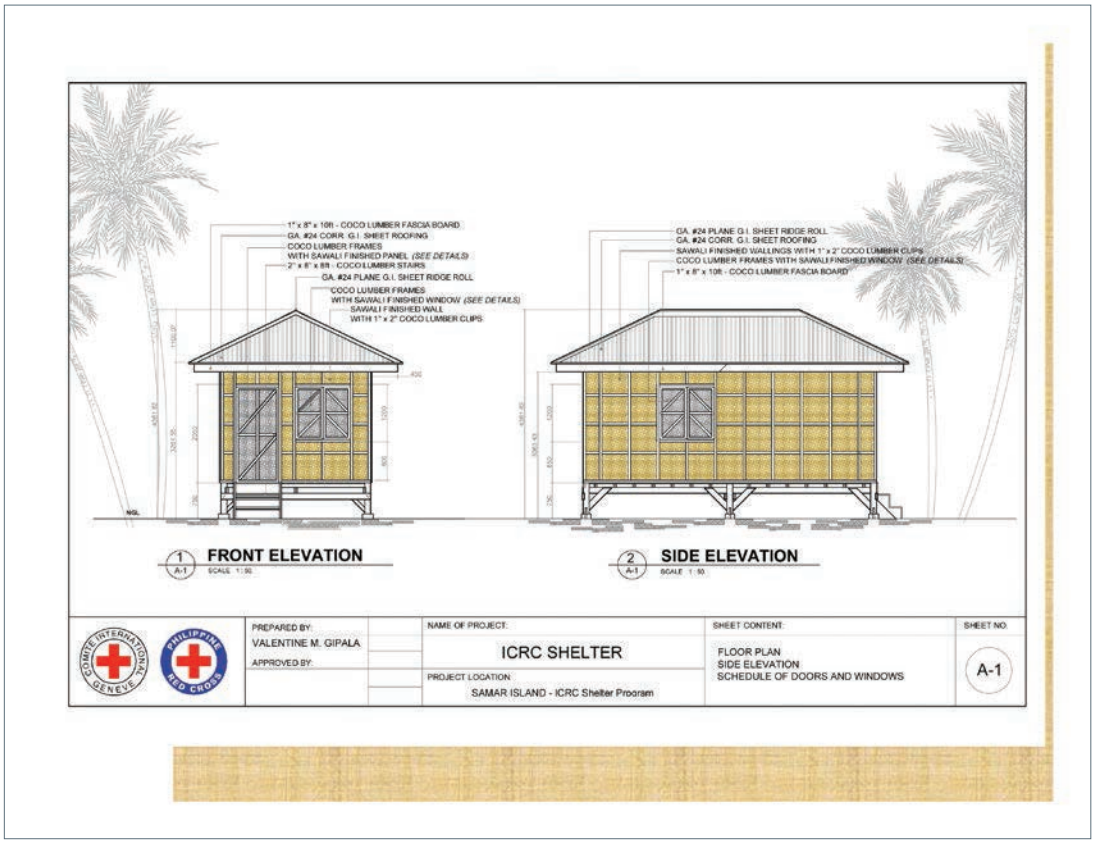
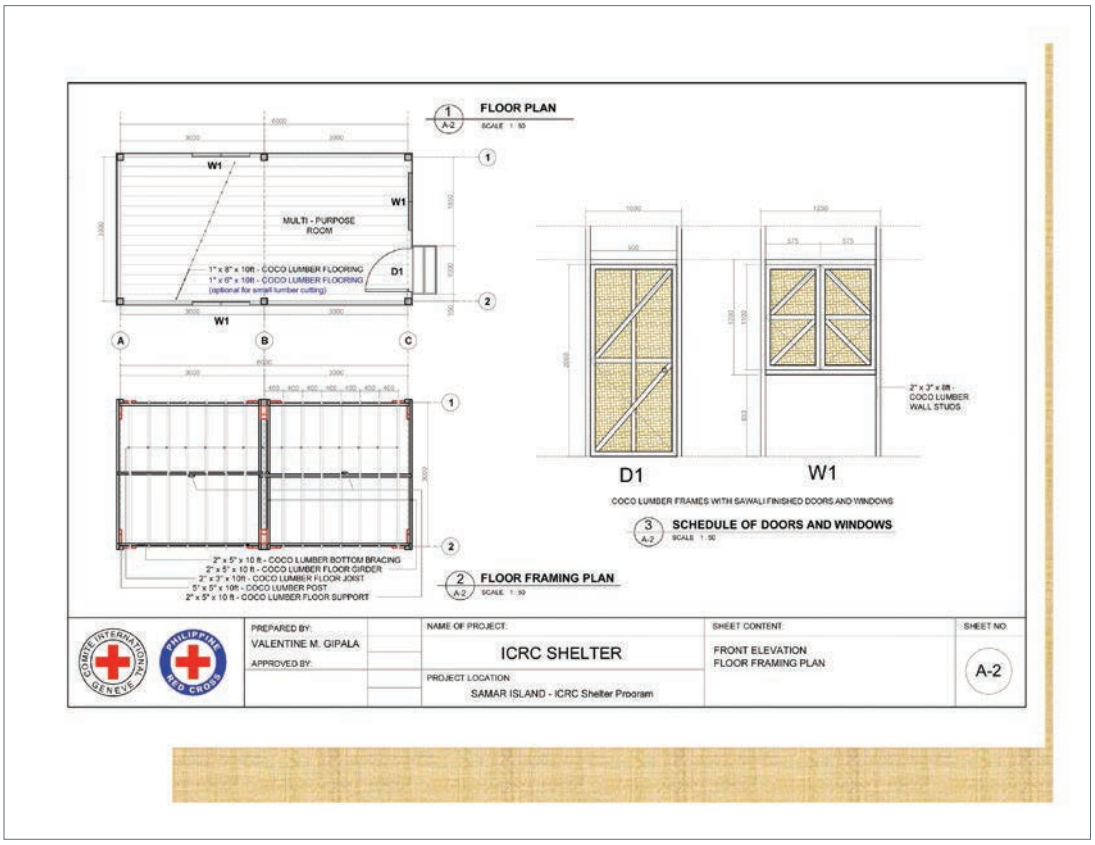
Wall : Doors / Windows Installations

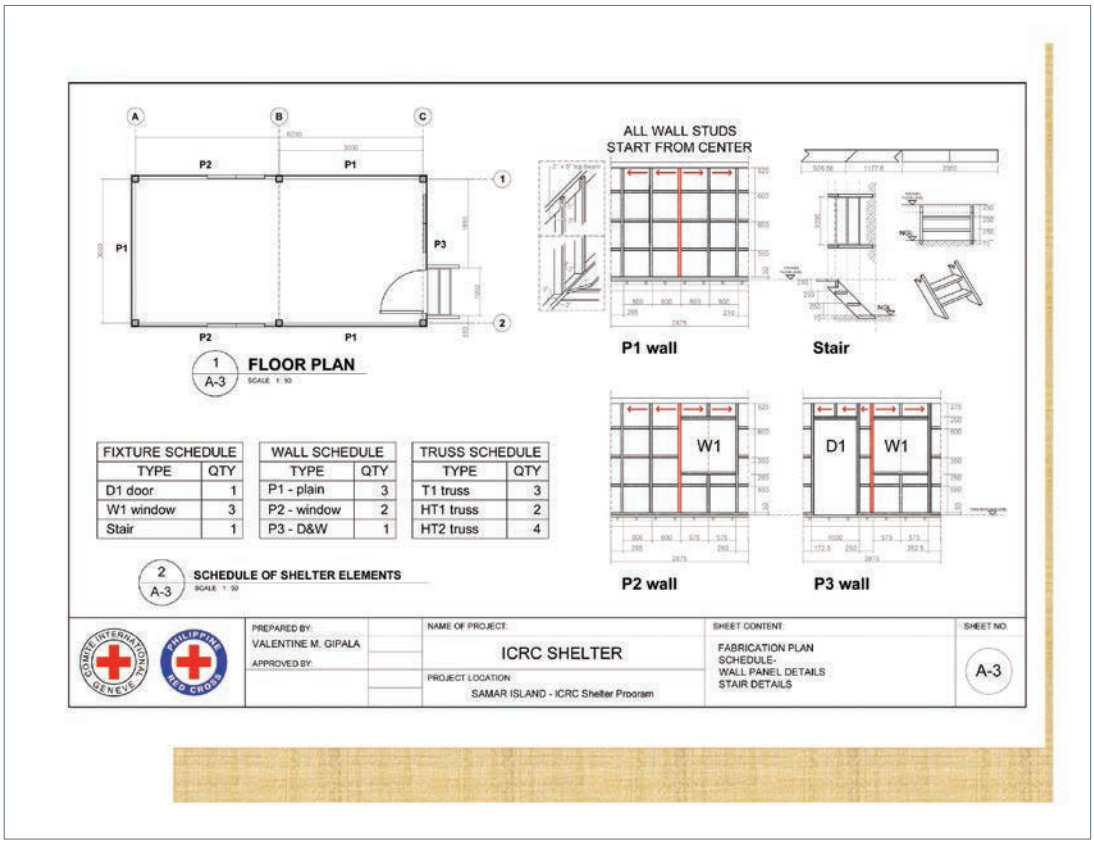
Doors/Windows bracing need to be installed
Hinges installation should be flushed with opening frame.
Window opening can be Inside / Outside.
Door opening must be Inside.

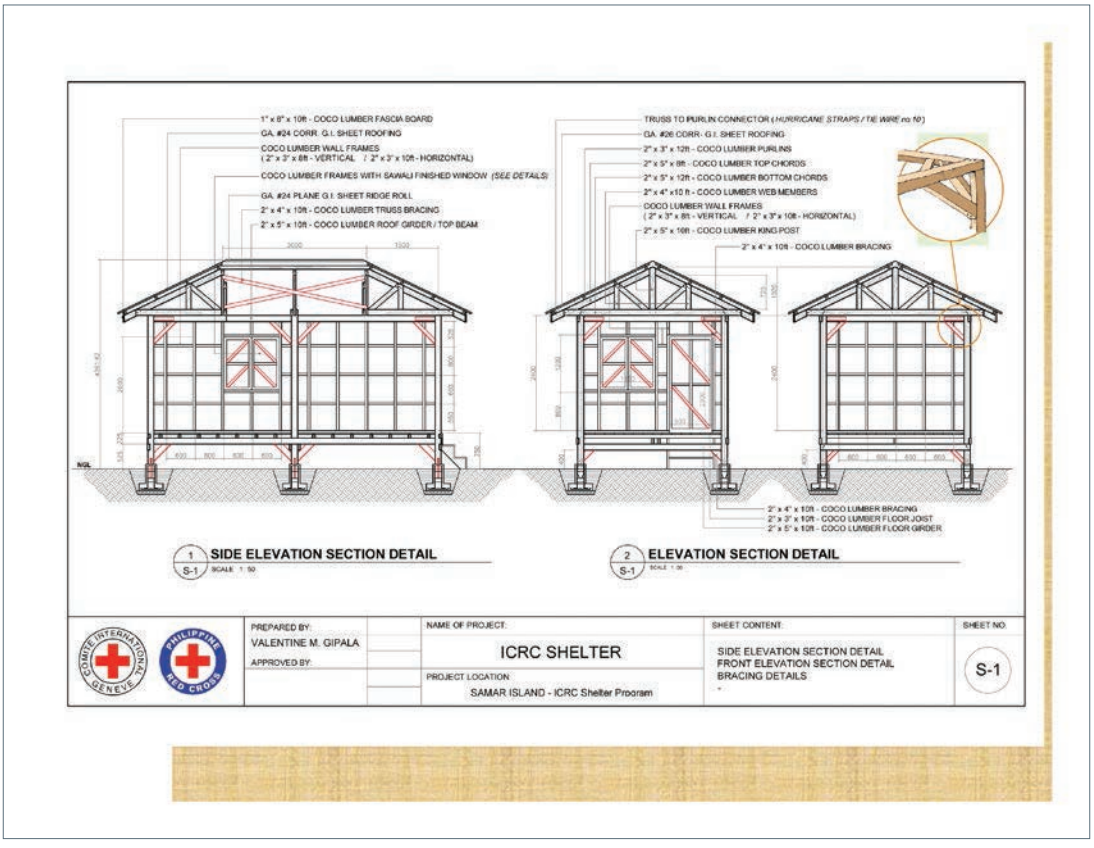


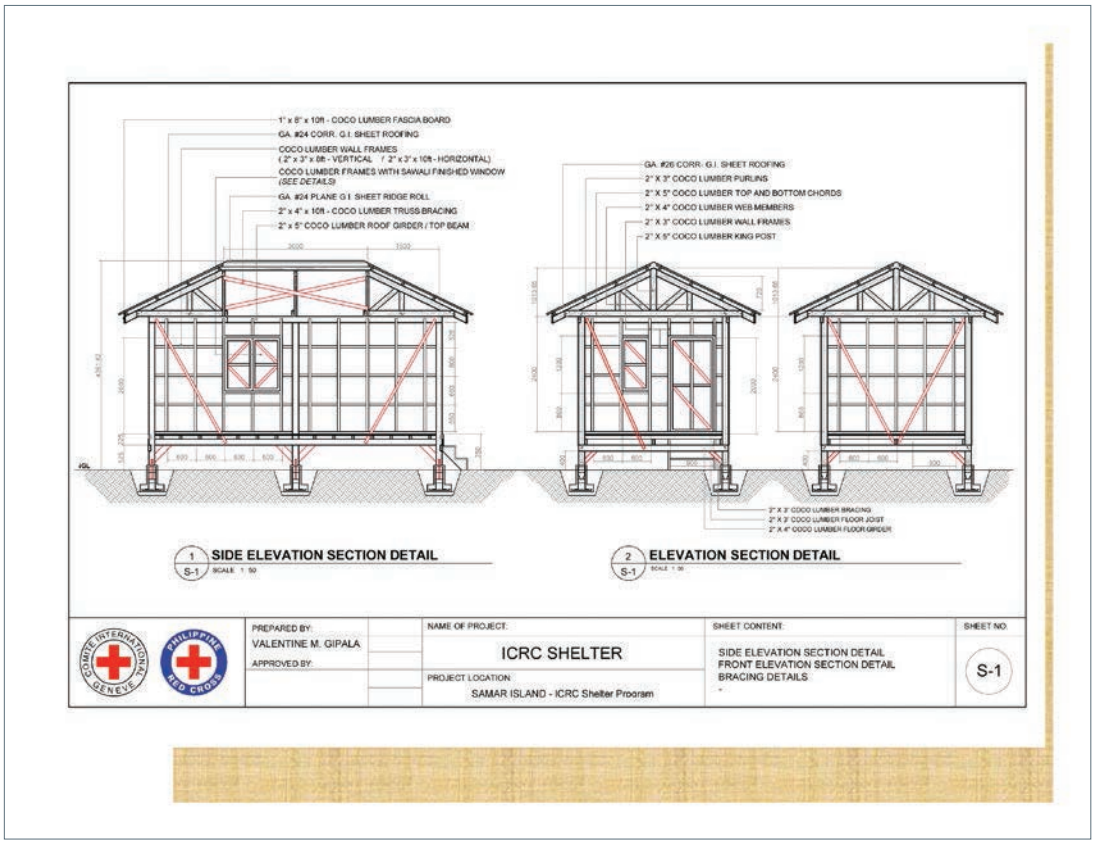
COCO LUMBER FRAMES WITH SAWALI FINISHED DOORS AND WINDOWS

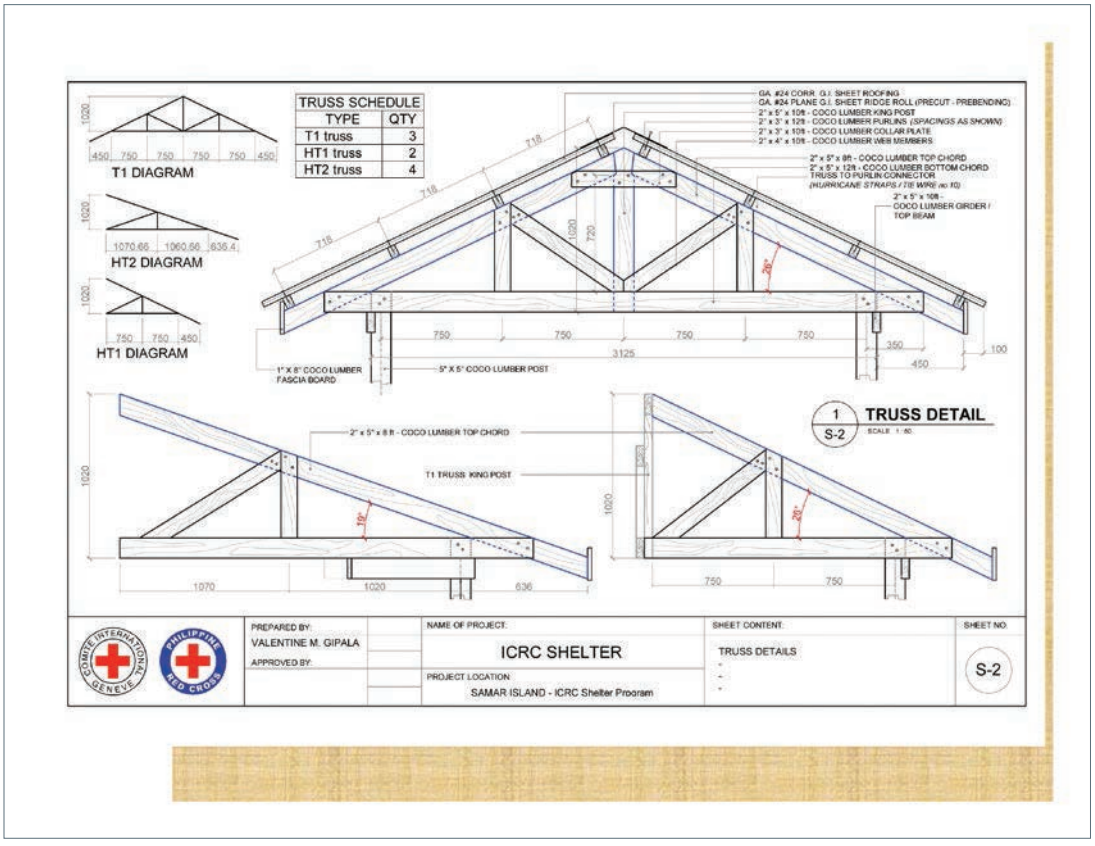

1" x 8" x 10ft - COCO LUMBER FASCIA BOARD
GA. #24 CORR. G.I. SHEET ROOFING
COCO LUMBER FRAMES
WITH SAWALI FINISHED PANEL (SEE DETAILS)
2" x 8" x 8ft - COCO LUMBER STAIRS
GA. #24 PLANE G.I. SHEET RIDGE ROLL
COCO LUMBER FRAMES
WITH SAWALI FINISHED WINDOW (SEE DETAILS)
SAWALI FINISHED WALL
WITH 1" x 2" COCO LUMBER CLIPS
GA. #24 PLANE G.I. SHEET RIDGE ROLL
GA. #24 CORR. G.I. SHEET ROOFING
SAWALI FINISHED WALLINGS WITH 1" x 2" COCO LUMBER CLIPS
COCO LUMBER FRAMES WITH SAWALI FINISHED WINDOW (SEE DETAILS)
1" x 8" x 10ft - COCO LUMBER FASCIA BOARD
1 A-1 FRONT ELEVATION
SCALE 1 : 50
2 A-1 SIDE ELEVATION
SCALE 1 : 50
PREPARED BY:
VALENTINE M. GIPALA
APPROVED BY:
NAME OF PROJECT:
ICRC SHELTER
PROJECT LOCATION
SAMAR ISLAND - ICRC Shelter Program
SHEET CONTENT:
FLOOR PLAN
SIDE ELEVATION
SCHEDULE OF DOORS AND WINDOWS
SHEET NO.
A-1

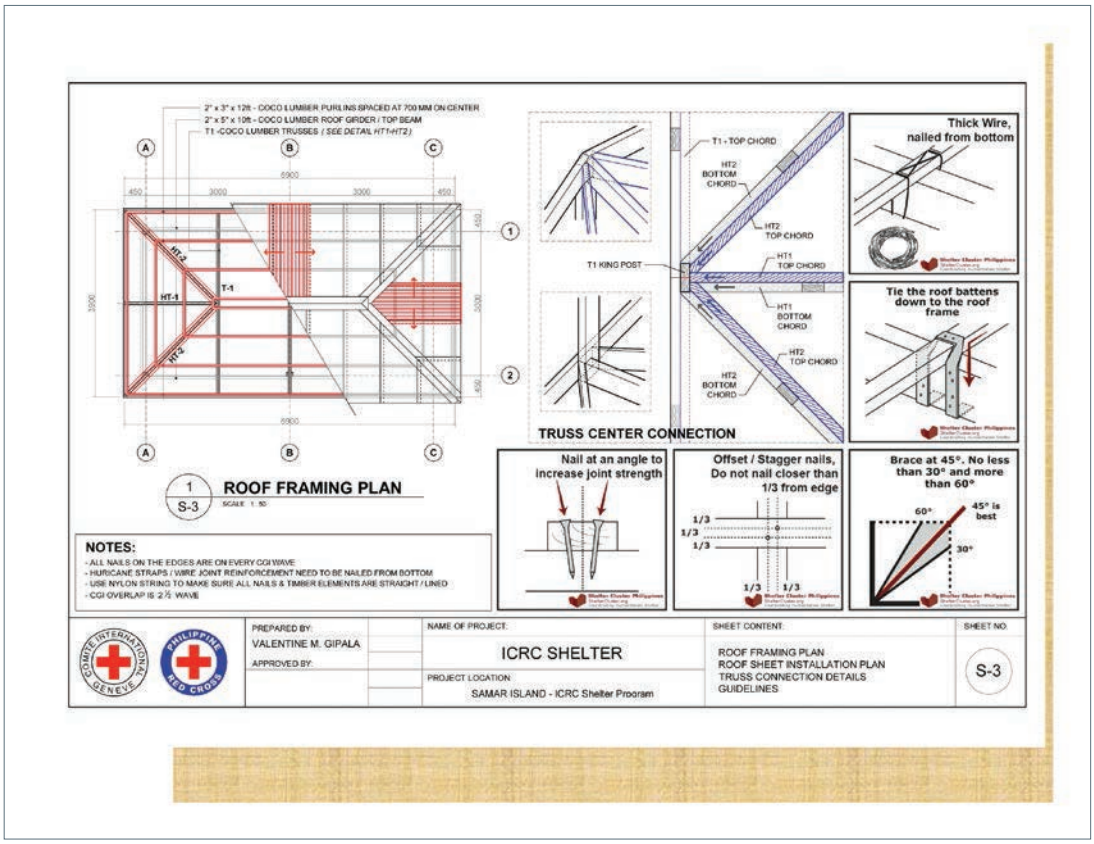

1 A-2 FLOOR PLAN
SCALE 1 : 50
W1
W1
MULTI - PURPOSE
ROOM
1" x 8" x 10ft - COCO LUMBER FLOORING
1" x 6" x 10ft - COCO LUMBER FLOORING
(optional for small lumber cutting)
D1
W1
A
B
C
2" x 5" x 10 ft - COCO LUMBER BOTTOM BRACING
2" x 5" x 10 ft - COCO LUMBER FLOOR GIRDER
2" x 3" x 10ft - COCO LUMBER FLOOR JOIST
5" x 5" x 10ft - COCO LUMBER POST
2" x 5" x 10 ft - COCO LUMBER FLOOR SUPPORT
2 A-2 FLOOR FRAMING PLAN
SCALE 1 : 50
2" x 3" x 8ft -
COCO LUMBER
WALL STUDS
D1
W1
COCO LUMBER FRAMES WITH SAWALI FINISHED DOORS AND WINDOWS
3 A-2 SCHEDULE OF DOORS AND WINDOWS
SCALE 1 : 50
PREPARED BY:
VALENTINE M. GIPALA
APPROVED BY:
NAME OF PROJECT:
ICRC SHELTER
PROJECT LOCATION
SAMAR ISLAND - ICRC Shelter Program
SHEET CONTENT:
FRONT ELEVATION
FLOOR FRAMING PLAN
SHEET NO.
A-2

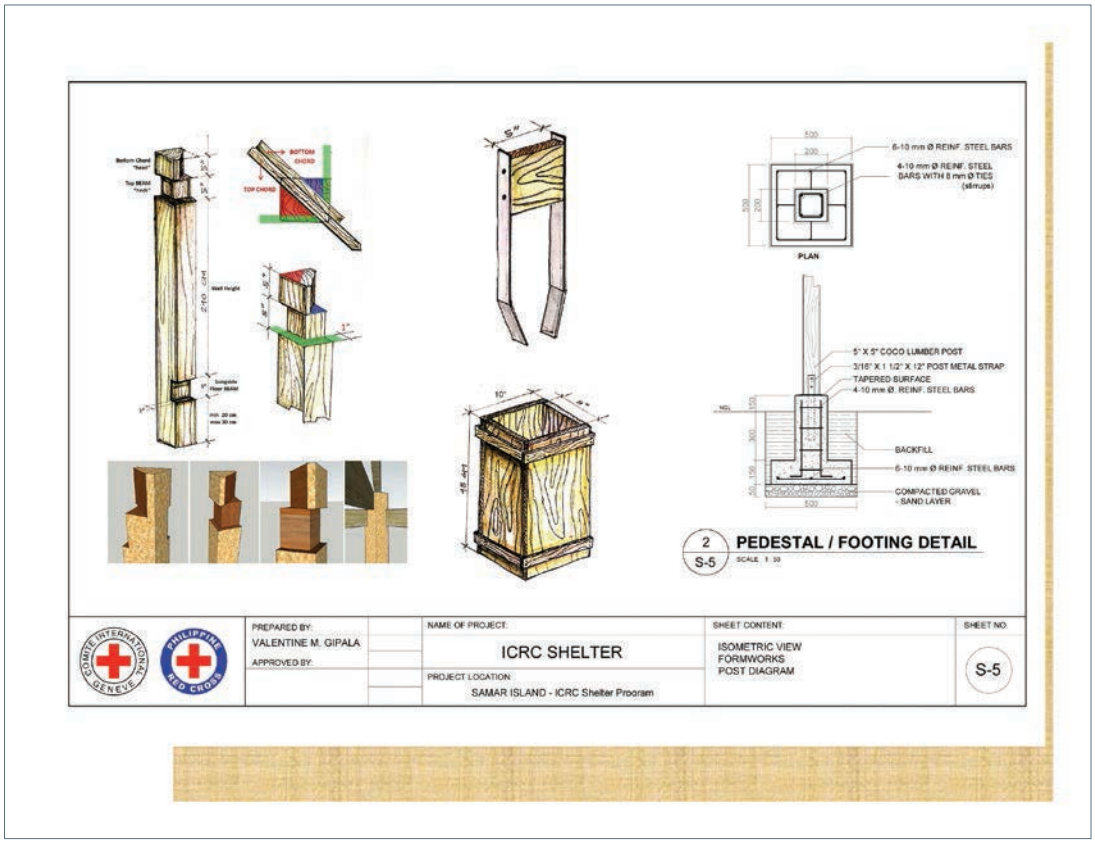

A
B
C
P2
P1
P1
P3
P2
P1
1
A-3
FLOOR PLAN
SCALE 1:50
ALL WALL STUDS
START FROM CENTER
P1 wall
Stair
W1
D1
W1
P2 wall
P3 wall
FIXTURE SCHEDULE
TYPE QTY
D1 door 1
W1 window 3
Stair 1
WALL SCHEDULE
TYPE QTY
P1 - plain 3
P2 - window 2
P3 - D&W 1
TRUSS SCHEDULE
TYPE QTY
T1 truss 3
HT1 truss 2
HT2 truss 4
2
A-3
SCHEDULE OF SHELTER ELEMENTS
SCALE 1:50
PREPARED BY:
VALENTINE M. GIPALA
APPROVED BY:
NAME OF PROJECT:
ICRC SHELTER
PROJECT LOCATION:
SAMAR ISLAND - ICRC Shelter Program
SHEET CONTENT:
FABRICATION PLAN
SCHEDULE-
WALL PANEL DETAILS
STAIR DETAILS
SHEET NO:
A-3

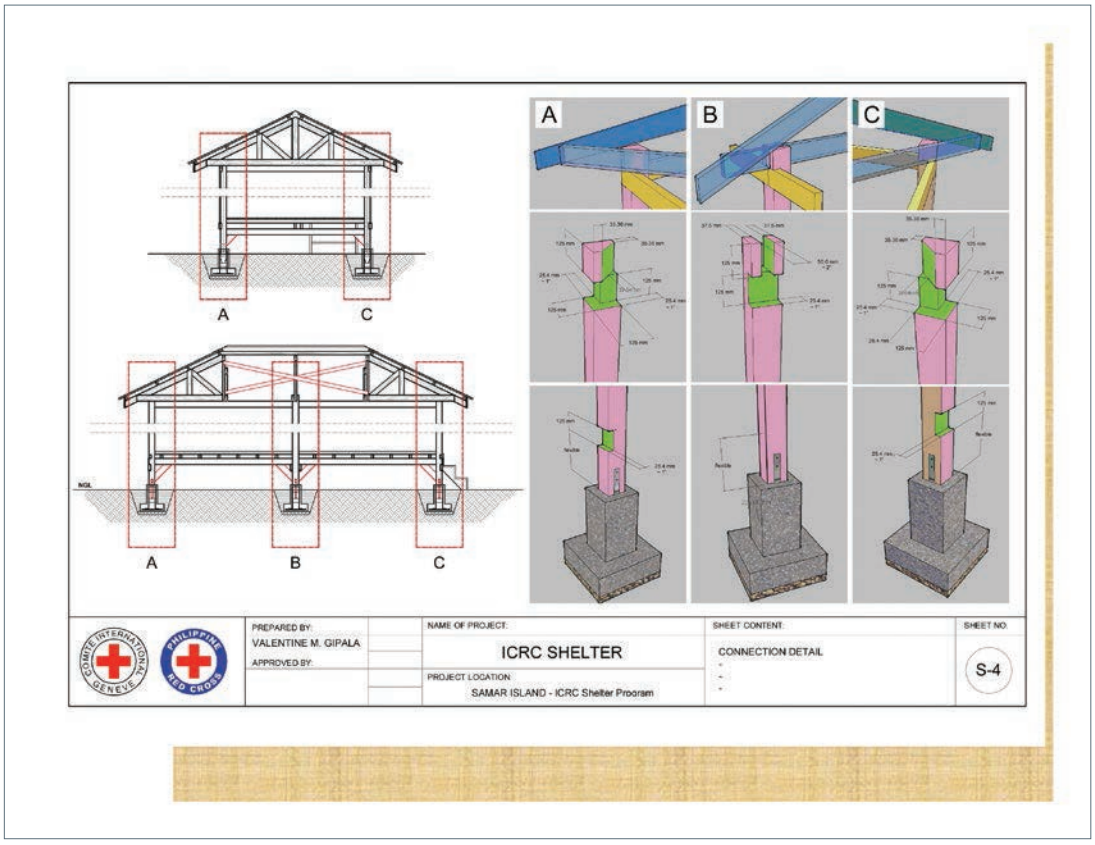

1" x 8" x 10ft - COCO LUMBER FASCIA BOARD
GA. #24 CORR. G.I. SHEET ROOFING
COCO LUMBER WALL FRAMES
(2" x 3" x 8ft - VERTICAL / 2" x 3" x 10ft - HORIZONTAL)
COCO LUMBER FRAMES WITH SAWALI FINISHED WINDOW (SEE DETAILS)
GA. #24 PLANE G.I. SHEET RIDGE ROLL
2" x 4" x 10ft - COCO LUMBER TRUSS BRACING
2" x 5" x 10ft - COCO LUMBER ROOF GIRDER / TOP BEAM
TRUSS TO PURLIN CONNECTOR (HURRICANE STRAPS / TIE WIRE no 16)
GA. #26 CORR. G.I. SHEET ROOFING
2" x 3" x 12ft - COCO LUMBER PURLINS
2" x 5" x 8ft - COCO LUMBER TOP CHORDS
2" x 5" x 12ft - COCO LUMBER BOTTOM CHORDS
2" x 4" x 10 ft - COCO LUMBER WEB MEMBERS
COCO LUMBER WALL FRAMES
(2" x 3" x 8ft - VERTICAL / 2" x 3" x 10ft - HORIZONTAL)
2" x 5" x 10ft - COCO LUMBER KING POST
2" x 4" x 10ft - COCO LUMBER BRACING
NGL
2" x 4" x 10ft - COCO LUMBER BRACING
2" x 3" x 10ft - COCO LUMBER FLOOR JOIST
2" x 5" x 10ft - COCO LUMBER FLOOR GIRDER
1
S-1
SIDE ELEVATION SECTION DETAIL
SCALE 1:50
2
S-1
ELEVATION SECTION DETAIL
SCALE 1:50
PREPARED BY:
VALENTINE M. GIPALA
APPROVED BY:
NAME OF PROJECT:
ICRC SHELTER
PROJECT LOCATION:
SAMAR ISLAND - ICRC Shelter Program
SHEET CONTENT:
SIDE ELEVATION SECTION DETAIL
FRONT ELEVATION SECTION DETAIL
BRACING DETAILS
SHEET NO:
S-1

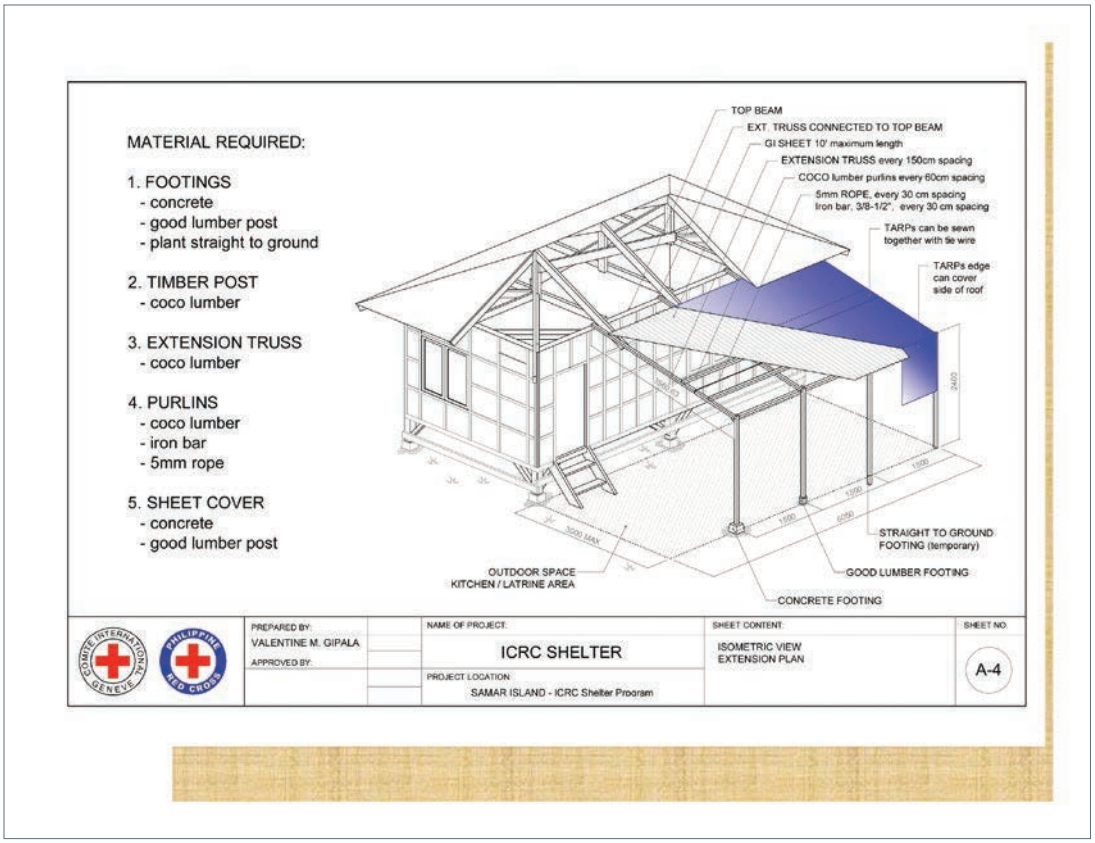

1" x 8" x 10ft - COCO LUMBER FASCIA BOARD
GA. #24 CORR. G.I. SHEET ROOFING
COCO LUMBER WALL FRAMES
(2" x 3" x 8ft - VERTICAL / 2" x 3" x 10ft - HORIZONTAL)
COCO LUMBER FRAMES WITH SAWALI FINISHED WINDOW
(SEE DETAILS)
GA. #24 PLANE G.I. SHEET RIDGE ROLL
2" x 4" x 10ft - COCO LUMBER TRUSS BRACING
2" x 5" COCO LUMBER ROOF GIRDER / TOP BEAM
GA. #26 CORR. G.I. SHEET ROOFING
2" X 3" COCO LUMBER PURLINS
2" X 5" COCO LUMBER TOP AND BOTTOM CHORDS
2" X 4" COCO LUMBER WEB MEMBERS
2" X 3" COCO LUMBER WALL FRAMES
2" X 5" COCO LUMBER KING POST
2" X 3" COCO LUMBER BRACING
2" X 3" COCO LUMBER FLOOR JOIST
2" X 4" COCO LUMBER FLOOR GIRDER
1 S-1 SIDE ELEVATION SECTION DETAIL
2 S-1 ELEVATION SECTION DETAIL
PREPARED BY:
VALENTINE M. GIPALA
APPROVED BY:
NAME OF PROJECT:
ICRC SHELTER
PROJECT LOCATION
SAMAR ISLAND - ICRC Shelter Program
SHEET CONTENT:
SIDE ELEVATION SECTION DETAIL
FRONT ELEVATION SECTION DETAIL
BRACING DETAILS
SHEET NO.
S-1


TRUSS SCHEDULE
TYPE | QTY
T1 truss | 3
HT1 truss | 2
HT2 truss | 4
T1 DIAGRAM
HT2 DIAGRAM
HT1 DIAGRAM
GA. #24 CORR. G.I. SHEET ROOFING
GA. #24 PLANE G.I. SHEET RIDGE ROLL (PRECUT - PREBENDING)
2" x 5" x 10ft - COCO LUMBER KING POST
2" x 3" x 12ft - COCO LUMBER PURLINS (SPACINGS AS SHOWN)
2" x 3" x 10ft - COCO LUMBER COLLAR PLATE
2" x 4" x 10ft - COCO LUMBER WEB MEMBERS
2" x 5" x 8ft - COCO LUMBER TOP CHORD
2" x 5" x 12ft - COCO LUMBER BOTTOM CHORD
TRUSS TO PURLIN CONNECTOR
(HURRICANE STRAPS / TIE WIRE no 10)
2" x 5" x 10ft - COCO LUMBER GIRDER / TOP BEAM
1" X 8" COCO LUMBER FASCIA BOARD
5" X 5" COCO LUMBER POST
2" x 5" x 8 ft - COCO LUMBER TOP CHORD
T1 TRUSS KING POST
1 S-2 TRUSS DETAIL
PREPARED BY:
VALENTINE M. GIPALA
APPROVED BY:
NAME OF PROJECT:
ICRC SHELTER
PROJECT LOCATION
SAMAR ISLAND - ICRC Shelter Program
SHEET CONTENT:
TRUSS DETAILS
SHEET NO.
S-2


2" x 3" x 12ft - COCO LUMBER PURLINS SPACED AT 700 MM ON CENTER
2" x 5" x 10ft - COCO LUMBER ROOF GIRDER / TOP BEAM
T1 -COCO LUMBER TRUSSES (SEE DETAIL HT1-HT2)
HT-2
HT-1
T-1
1
S-3
ROOF FRAMING PLAN
SCALE 1: 50
T1 KING POST
T1 - TOP CHORD
HT2 BOTTOM CHORD
HT2 TOP CHORD
HT1 TOP CHORD
HT1 BOTTOM CHORD
TRUSS CENTER CONNECTION
Thick Wire, nailed from bottom
Tie the roof battens down to the roof frame
Nail at an angle to increase joint strength
Offset / Stagger nails, Do not nail closer than 1/3 from edge
Brace at 45°. No less than 30° and more than 60°
60°
45° is best
30°
NOTES:
- ALL NAILS ON THE EDGES ARE ON EVERY CGI WAVE
- HURICANE STRAPS / WIRE JOINT REINFORCEMENT NEED TO BE NAILED FROM BOTTOM
- USE NYLON STRING TO MAKE SURE ALL NAILS & TIMBER ELEMENTS ARE STRAIGHT / LINED
- CGI OVERLAP IS 2 ½ WAVE
PREPARED BY:
VALENTINE M. GIPALA
APPROVED BY:
NAME OF PROJECT:
ICRC SHELTER
PROJECT LOCATION:
SAMAR ISLAND - ICRC Shelter Program
SHEET CONTENT:
ROOF FRAMING PLAN
ROOF SHEET INSTALLATION PLAN
TRUSS CONNECTION DETAILS
GUIDELINES
SHEET NO:
S-3


6-10 mm Ø REINF. STEEL BARS
4-10 mm Ø REINF. STEEL BARS WITH 8 mm Ø TIES (stirrups)
PLAN
5" X 5" COCO LUMBER POST
3/16" X 1 1/2" X 12" POST METAL STRAP
TAPERED SURFACE
4-10 mm Ø. REINF. STEEL BARS
BACKFILL
6-10 mm Ø REINF. STEEL BARS
COMPACTED GRAVEL
SAND LAYER
2
S-5
PEDESTAL / FOOTING DETAIL
SCALE 1: 10
PREPARED BY:
VALENTINE M. GIPALA
APPROVED BY:
NAME OF PROJECT:
ICRC SHELTER
PROJECT LOCATION:
SAMAR ISLAND - ICRC Shelter Program
SHEET CONTENT:
ISOMETRIC VIEW
FORMWORKS
POST DIAGRAM
SHEET NO:
S-5


A
B
C
A
C
A
B
C
PREPARED BY:
VALENTINE M. GIPALA
APPROVED BY:
NAME OF PROJECT:
ICRC SHELTER
PROJECT LOCATION
SAMAR ISLAND - ICRC Shelter Program
SHEET CONTENT:
CONNECTION DETAIL
SHEET NO.
S-4

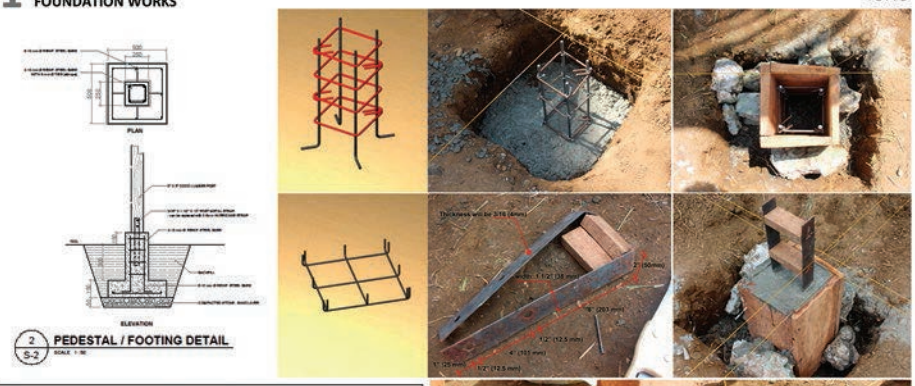

MATERIAL REQUIRED:
1. FOOTINGS
- concrete
- good lumber post
- plant straight to ground
2. TIMBER POST
- coco lumber
3. EXTENSION TRUSS
- coco lumber
4. PURLINS
- coco lumber
- iron bar
- 5mm rope
5. SHEET COVER
- concrete
- good lumber post
TOP BEAM
EXT. TRUSS CONNECTED TO TOP BEAM
GI SHEET 10' maximum length
EXTENSION TRUSS every 150cm spacing
COCO lumber purlins every 60cm spacing
5mm ROPE, every 30 cm spacing
Iron bar, 3/8-1/2", every 30 cm spacing
TARPs can be sewn together with 9e wire
TARPs edge can cover side of roof
STRAIGHT TO GROUND FOOTING (temporary)
GOOD LUMBER FOOTING
CONCRETE FOOTING
OUTDOOR SPACE
KITCHEN / LATRINE AREA
PREPARED BY:
VALENTINE M. GIPALA
APPROVED BY:
NAME OF PROJECT:
ICRC SHELTER
PROJECT LOCATION
SAMAR ISLAND - ICRC Shelter Program
SHEET CONTENT:
ISOMETRIC VIEW
EXTENSION PLAN
SHEET NO.
A-4

9.2 TECHNICAL REVIEW

Haiyan Shelter Programme SAMAR

ICRC

1 FOUNDATION WORKS



PEDESTAL / FOOTING DETAIL

The foundation can be classified as SPOT, or POINT foundation by its independent characteristic (not linked with/to other foundation). In terms of shape, the foundation can be considered as PAD or STEP foundation, due to its wide base (T shape).

The foundation can be linked to resistance of uplift forces, yet because the foundation and column system is not continuous, the uplift force resistance is shared between the foundation and the connection system between foundation and column (post strap – metal plate 3/16" x 1.5" x 12")

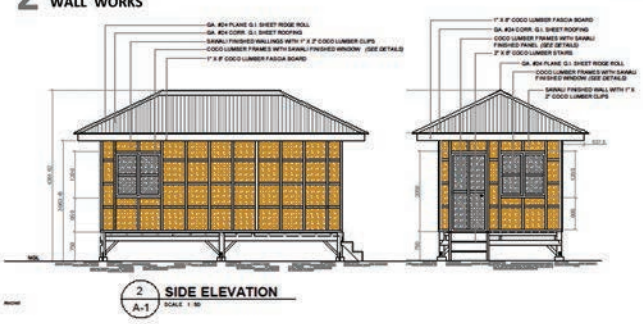
Step by Step work of the foundation:

- Excavation 50x50 cm area x 50 cm depth.
- Backfill of gravel of 5 cm.
- Casting of Base and Standing Reinforcement of 15 cm.
- Preparation of Formwork for foundation column and Post Strap.
- Casting of foundation column (15x15cm) and Post Strap inserted.
- 1 day drying of concrete, preparation of timber column.
- Placement of timber column, nailed to Post Strap.

Haiyan Shelter Programme SAMAR

ICRC

2 WALL WORKS



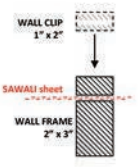
SIDE ELEVATION

Shelter wall is using traditional woven bamboo sheet (locally known as Sawali wall), which in turn gives the shelter more character in terms of cultural adaptation, aesthetic and tropical climate adaptation. This material is locally made, although in Samar province the production is less compared to Mindanao.

The wall is installed outside the wall frame (2"x 3") and then held together using a wall clip (1" x 2")

Step by Step installation of Wall system:

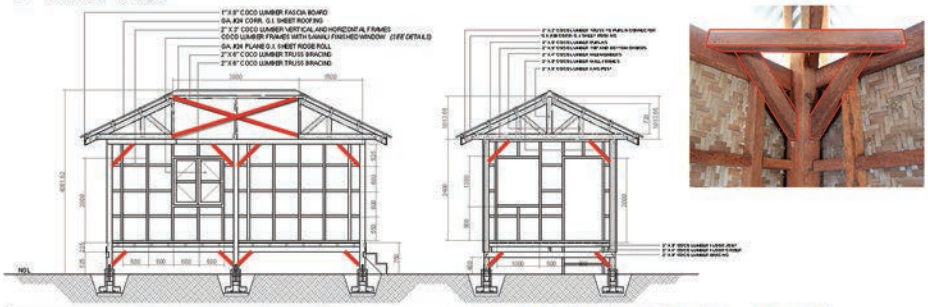
- Finished skeleton Shelter frame.
- Installation of Wall frame 60cm spacing, vertical & horizontal
- Installation of Sawali Wall on the outside, 4'x8' (120 x 240cm)
- Placement of wall clips, to correspond with each wall frame to grip the Sawali sheet in place.



3 BRACING WORKS

Haiyan Shelter Programme SAMAR

ICRC



Structural Bracing work is mainly using diagonal bracing work in the corners of each plane as well as in the roof structure. The bracing is done in two level, the floor level and top beam level.

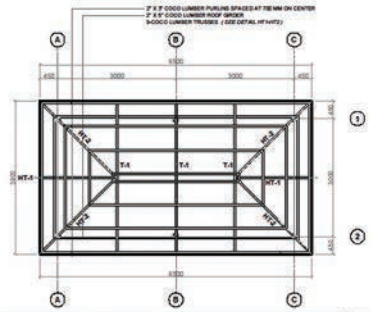
With wall section designed into 3 x 3 m frame all around, and the design of short corner bracing, the positioning/opening layout of door and windows of the shelter can be highly flexible as beneficiary need or as to accommodate site layout limitation.

One of the addition to the previous program model is the middle extra truss and their cross bracing. The cross bracing is to make sure the force of uplift from either side is countered.

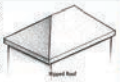
4 ROOF WORKS

Haiyan Shelter Programme SAMAR

ICRC



The Roof truss system consists of 3 main trusses and 2 types of half trusses, designed to support the hipped roof. Hurricane straps are added to increase the strength in connection.



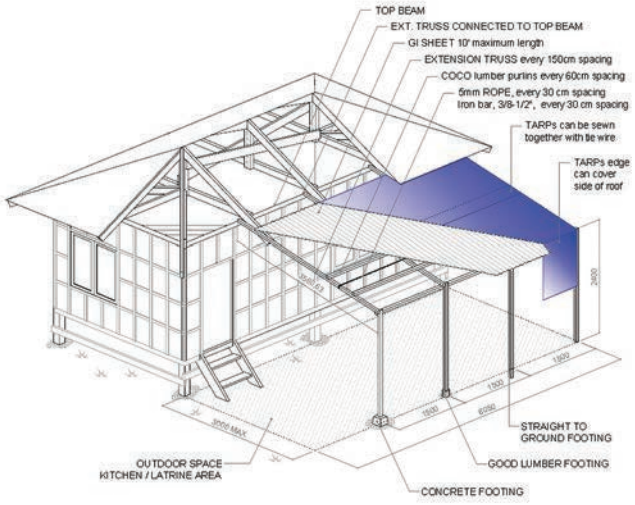
Step by Step of the Roof Works:

- Preparation of three Full trusses on ground level, exact copy of each.
- Mounting of three Full trusses into position, spaced 150 cm centerlines.
- Installation of four Diagonal Half Trusses, connected to all corner of shelter.
- Installation of two Short Half Trusses, center.
- Installation of Purlins spaced 60cm centerline.
- Installation of hurricane straps, on every connection between truss with beam & truss with purlins
- Installation of Roof sheet (CGI) with 3" umbrella nails, twisted –with rubber washer.
- Installation of Ridge cap covers.
- Sealant works for any sheet connection.

5 EXTENSION POSSIBILITIES

Haiyan Shelter Programme SAMAR

ICRC



The flexibility of shelter design allows adjusted layout based on future need or site condition, for example; entrance from front or sides, and windows positioning.

The elevated shelter design and open space under the roof facilitate the possibility for expansion/extension space at proper height level on its side.

This extension can either be built on elevated floor level (using the lower beam level as floor girder – one step down) or directly on the ground (two steps down).

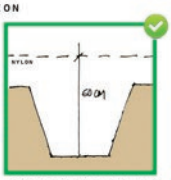
For the extension roof, options are open between CGI and plastic sheet (tarpaulin) both can be directly installed/inserted under current roof line.

Options/selection for purlins, columns, foundation type can vary depend on beneficiary resources/capacity.

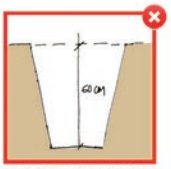
Possible extensions in the Philippine context are: kitchen on the side, latrine, and veranda/porch in the front or on the side.

9.3 SHELTER CONSTRUCTION CHECKLIST

1 Depth of excavation



EXCAVATION DEPTH SHOULD BE MEASURED FROM STRING LEVEL.



MEASUREMENT SHOULD NOT BE TAKEN FROM THE GROUND LEVEL.

CHECKED BY: _____ DATE: _____

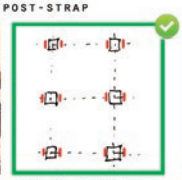
2 Gravel under foundation

USE GRAVEL TO ADJUST LEVELS.

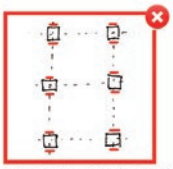
AVOID FOUNDATION ON TOP OF SOIL.

CHECKED BY: _____ DATE: _____

3 Installation of post-strap



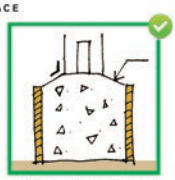
ALIGNMENT OF POST-STAPS SHOULD BE LONGITUDINAL.



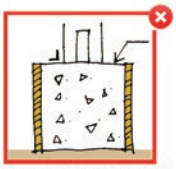
AVOID INSTALLATION OF POST-STRAP IN CROSS DIRECTION.

CHECKED BY: _____ DATE: _____

4 Tapering of surface



TAPER FOUNDATION TO AVOID WATER STAGNATION.



AVOID FLAT CONCRETE SURFACE.

CHECKED BY: _____ DATE: _____

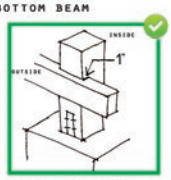
5 Removal of formwork

REMOVE FORMWORK BEFORE INSTALLATION OF FLOOR.

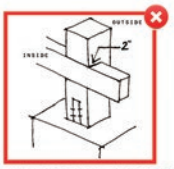
REMAINING FORMWORK WILL CAUSE SETTLING AND DECAY.

CHECKED BY: _____ DATE: _____

6 Installation of bottom beam



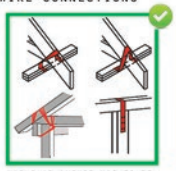
BOTTOM BEAM SHOULD BE INSTALLED OUTSIDE WITH 1 INCH INSET.



AVOID DEEP INSET TO PRESERVE COLUMN STRENGTH.

CHECKED BY: _____ DATE: _____

7 Strapping / tie wire connections

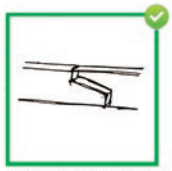


NAILS AS ANCHOR HAS TO BE ON THE BOTTOM.

NAILS FROM THE TOP OR SIDE DO NOT WORK AGAINST UPLIFT.

CHECKED BY: _____ DATE: _____

8 Fashia Board

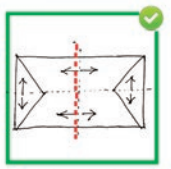


DIAGONAL CUTTING AND NAILING GIVE MORE STRENGTH.

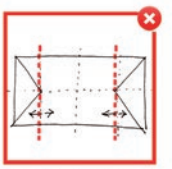
VERTICAL CUTTING AND NAILING GIVES WEAK CONNECTION.

CHECKED BY: _____ DATE: _____

9 Roof layout



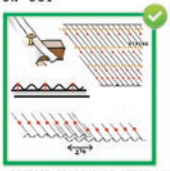
INSTALLATION FROM THE CENTER TO ENSURE SYMMETRY.



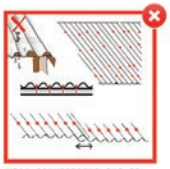
AVOID INSTALLATION FROM STARTING FROM THE SIDE.

CHECKED BY: _____ DATE: _____

10 Roof installation CGI



RESPECT SPACING OF UMBRELLA NAILS AND OVERLAP OF CGI.



WEAK CONNECTIONS DUE TO IMPROPER SPACING OF NAILS.

CHECKED BY: _____ DATE: _____

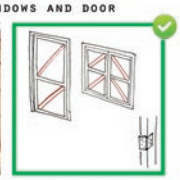
11 Wall studs

VERTICAL STUDS SHOULD BE CONTINUOUS.

CONTINUOUS HORIZONTAL STUDS WILL WEAKEN THE WALL.

CHECKED BY: _____ DATE: _____

12 Bracing of windows and door



BRACING SUPPORT DOOR & WINDOW FRAME. MAKE HINGES FLUSH.

WITHOUT BRACING DOOR & WINDOW WILL LOSE SHAPE.

CHECKED BY: _____ DATE: _____

Annex 10. Shelter Handover Form 2014

ICRC

Acceptance of ICRC /PRC Shelter

I hereby declare that I accept possession for myself and my family of a completed house built to the standard design of the International Committee of the Red Cross (ICRC) and the Philippine Red Cross Society (PRC).

I confirm that the house is completed to an adequate standard and that all works on the house are now finished.

I understand that ICRC / PRC are donating this house, and that neither myself, nor any members of my household have any obligations with regards making any kind of payments, financial or otherwise, to any party or person with regards the construction of the house.

In accepting to take over the house, I also accept that ICRC / PRC have no further responsibility or commitment towards me or my family with regards this, and that ICRC / PRC have completed what was agreed to when we accepted to become a beneficiary of their programme of shelter construction. In addition, I understand that ICRC / PRC will have no liability for any mishaps occurring due to the design or materials used in the construction.

Date: ***Place:***
Municipality **of**

Head of Household

Name:

*(**if not beneficiary**, write the Full Name):* _____

Relation: _____

Signature: _____

For ICRC/PRC

Name: *(ICRC – WatHab Delegate)*

Signature: _____

Pagpamatuod Han Pagkarawat Han Natapos Na Balay

Ini in pagpamatuod na nakarawat ko na an *shelter* na natapos na paghimua para ha akon ngan akon pamilya ha ilarom han programa han **International Committee of the Red Cross (ICRC)** ngan **Philippine Red Cross (PRC).**

Akon ginpapamatuod liwat na an *shelter* na ginhimo in kumpleto ngan tapos na ngan akma ha disenyo na ginimplementar han mao na organisasyon.

Naiintindihan ko na an *ICRC/PRC* in ginhahatag ini nga balay, ngan waray ako o bisan hin-o na miyembro hit akon pamilya, obligasyon magbayad bisan kan kanino para mapatindog ini.

Ha pagkarawat hini na natapos na *shelter*, akon liwat naiintindihan na an **ICRC/PRC** in waray na iba pa na responsibilidad ha akon o ha akon pamilya ngan an **ICRC/PRC** in natapos na tanan na butang na napagkasunduan han pagakseptar ko na maging benipesaryo han *shelter program.* Ha kadugangan, naiintindihan ko na an ICRC / PRC in waray magiging responsibilidad ha anuman nga aksidente na mahinanabo tungod han materyales na gin-gamit ngan disenyo na gi-implementar han paghimo han shelter.

ICRC

www.icrc.org/ph