Bill of Quantity - Transitional Mudbrick Shelter wit

			9	5	11.5	
No.	***Description***	***Unit***	***Quantity (2 room shelter)***	***Quantity (4 rooms)***	***Quantity (6 rooms)***	***Total quantity***
A	**Setting out, Excavation and Backfilling of excavated soil**					
1	Clear site, set out the shelter according to layout provided by IOM and Excavate foundation trench to a minimum depth of 305mm below natural ground and in width 300mm to receive the foundation footing of 75mm thick. And excavate foundation holes for studded poles each 200x100mm by 600mm deep	CuM	3.07	5.41	7.73	**143.48**
2	Backfill and Rammer sides of the excavated trench, as well as internal rooms and veranda to serve as base for finishing with sand cement floor, using excavated material from the foundation and the latrine pit excavation.	CuM	6.08	12.07	18.02	**322.31**
B1	**Substructure**					
3	**Foundation footings:** plain in situ sandcrete for foundations footing and studded poles (ratio 1:4 of cement:sharp sand - batching 1 cement bag for 2 wheelbarrows of sharp sand). 1. Footing of 75mm thick and 300mm wide. and 2. Fill the sides of the excavated footings of studded poles. Note: Poles should be pre-treated before inserting into the ground.	CuM	0.54	1.03	1.48	**27.04**
4	**Perimeter blockwork:** Sandcrete hollow blocks 6"x 18"x 9" (150x450x230mm) bedded and jointed in cement-sand mortar (ratio 1:6 - batching is 1 cement bag for 3 wheelbarrows of sand), block holes filled with mud. Two courses for the foundation of the main rooms and one course for the veranda.	SqM	13.54	25.08	35.90	**660.06**
B2	**Substructure finishing and floor**					
5	**Plastering of blockwork.** External sand-cement plastering of foundation blockwork above ground level (ratio 1:6 cement to plaster sand. Batching is 1 cement bag for 3 wheelbarrows of sand).	SqM	4.18	6.37	8.54	**167.67**
6	**Damp proof membrane (DPM).** Plastic sheet high puncture resistance extremely durable water & vapour resistant polythene, 0.1mm thickness. To cover the perimeter of the rooms including mid partitions with 250mm width. To protect walls from water capillarity.	SqM	5.63	10.63	15.25	**279.13**

7	**Floor**. Plain in situ sandcrete floor 50mm thick (ratio 1:4 - batching is 1 cement bag for 2 wheelbarrows of sand) cast over backfilled and compacted soil.	CuM	1.34	2.65	3.98	**70.99**
8	**Floor finish**: cement grout covering a surface of 26.7sqm for the internal rooms and veranda	SqM	26.71	53.01	79.52	**1,419.84**
	Subtotal substructure					
C	**Superstructure (mudbrick walls)**					
9	**Walling**: Construct walls with Locally hand-made Mudbricks (150mmx150mmx350mm), including preparation and screening of soil of agreed grain composition, mixing with water and vegetable fibres, laid with mud mortar. Where possible, bricks to be moulded on site by local workers, including direct shelter beneficiaries.	SqM	52.38	97.86	139.73	**2,567.65**
10	**Apply earth-based plaster**, 15mm thickness, mixture of mud, boiled bitumen and used engine oil (or water-based bitumen), to be applied in at least two coats. Inclusive of all required materials for the mixture, water and labour costs. For all external mudbrick walls, and only 300mm height from floor level for the internal rooms.	SqM	51.48	91.78	120.80	**2,311.29**
	Subtotal walls					
D	**Timbers for roof structure and door frame**					
11	**Provide and install Obeche Timber poles, 2x6 inches** - full length min. 3m**,** pre-treated with antitermite/engine oil solution**.** For wall plates (4pcs), door frames (4pcs) and lintel of front windows (1pc cut into two). To be secured with langalanga to the brick walls.	Pcs	9.00	18.00	27.00	**481.50**
12	**Provide and install Obeche Timber poles, 2x6 inches** - full length min. 3m for studded poles at front veranda, pre-treated with antitermite/engine oil solution and fully termite treated at base (soaked in metal drum min 900mm from base)**.** To be cast in sand-cement footing.	Pcs	5.00	10.00	14.00	**256.00**
13	**Provide and install Obeche Timber poles, 2x4 inches** - full length min. 3m**,** pre-treated with antitermite/engine oil solution**.** For ridge beam (2.5 pcs); 7.5pcs front rafters (330cm); 5pcs back rafters (230cm); 2pcs for wall plate for front veranda; 2pcs for tie beams at trusses no. 2 and 4. 3x tie collar at trusses 1-3-5 (100 cm length) and 2 king posts of (80cm length) at trusses no. 2 and 4, to be obtained from rafters offcuts.	Pcs	19.00	38.00	54.50	**987.75**

14	**Provide and install Obeche Timber poles, 2x3 inches** - full length min. 3m**,** pre-treated with antitermite/engine oil solution, for 10 lines of purlins, to be nailed to rafters and secured with langalanga.	Pcs	25.00	50.00	75.00	**1,337.50**
15	**Provide and install Fascia board**, **1x5 inches** timber plank - full length min. 3m - along the whole perimeter of the roof**,** pre-treated with antitermite/engine oil solution**.**	Pcs	9.00	13.00	17.00	**341.50**
	Roof cover					
16	**Provide and install CGI Sheets** (2.4m x 0.6m x 0.2mm thick) with 75mm cap nails fixed at every corrugation at the edges of the roof, wit side overlap of 2 corrugations and min. 200mm end overlap between sheets. Folded and fixed over fascia board at gable ends. With Branded IOM logo in blue color on selected sheets as per design (logos may be applied on construction site).	SqM	41.18	77.14	113.68	**2,063.64**
17	**Provide and install Aluzinc ridge cap,** 0.35mm thick * 400mm wide, blue color, folded at the centre. Overlap of minimum 250mm. Well secured with 4 cap nails over the fascia board at each gable end.	m	7.50	13.50	20.00	**365.00**
	Subtotal timbers and roof cover					
	Doors and windows					
18	**Install purpose made doors** of 2.1x0.7m with 2x3" timbers for door leaf, three 100mm hinges per door to fix leaf on frame, cladding with CGI sheet 0.2mm thick branded with IOM logo, internal and external latches 125mm, padlock of 0.25kg and keys.	Pcs	2.00	4.00	6.00	**107.00**
19	**Install purpose made windows** of 600mm height by 300mm width, with 2x3" timbers for frame and leaf, two 75mm hinges (one pair) and cladded with blue aluzinc, with internal 100mm tower bolts. Branded with white IOM logo.	Pcs	2.00	4.00	6.00	**107.00**
20	**Install purpose made fly screen net for ventilation** of 250mm height by 150mm width, with timber battens for frame nailed to the net to wall and wall plate.	Pcs	8.00	16.00	24.00	**428.00**
	Subtotal doors and windows					
	Fixings					
21	Nails - 5 inch	Kg	2.00	4.00	6.00	**107.00**

22	Nails - 4 inch	Kg	10.00	20.00	30.00	**535.00**
23	Nails - 3 inch	Kg	8.00	16.00	24.00	**428.00**
24	Nails - 1 1/2 inch	Kg	2.00	4.00	6.00	**107.00**
25	Wind security (Langa langa) - 1.5m length each.	Pcs	56.00	112.00	168.00	**2,996.00**
	Subtotal fixings					
	Subtotal substructure					
	Subtotal walls					
	Subtotal timbers and roof cover					
	Subtotal doors and windows					
	Subtotal fixings					
	Subtotal Cost for 1 Shelter					
	Contingency (1% of subtotal cost)					

	Total Cost					

h Veranda (3.3x6.45m, 2.3m height), all inclusive

414.89

Estimated Cost (NGN)		Estimated Cost (USD)		Remarks
Unit Cost (NGN)	Total Cost (NGN)	Unit Cost (USD)	Total Cost (USD)	
	0.00	0.00	0.00	
	0.00	0.00	0.00	
	0.00	0.00	0.00	
	0.00	0.00	0.00	
	0.00	0.00	0.00	
	0.00	0.00	0.00	

	0.00	0.00	0.00	
	0.00	0.00	0.00	
	0.00		**0.00**	
	0.00	0.00	0.00	13 courses of bricks above the plinth to reach 2.49m above NGL, plus overhead course above wall plate on long sides. Including internal partition and gables. Provide 50mm ventilation gaps at the overhead course as per design.
	0.00	0.00	0.00	
	0.00		**0.00**	
	0.00	0.00	0.00	
	0.00	0.00	0.00	
	0.00	0.00	0.00	

	0.00	0.00	0.00	
	0.00	0.00	0.00	
	0.00	0.00	0.00	
	0.00	0.00	0.00	
	0.00		**0.00**	
	0.00	0.00	0.00	
	0.00	0.00	0.00	
	0.00	0.00	0.00	Refer to design for location and size of ventilation holes.
	0.00		**0.00**	
	0.00	0.00	0.00	Fixing thicker wooden poles together (mainly rafters to ridge beam)

	0.00	0.00	0.00	Fixing thicker wooden poles together
	0.00	0.00	0.00	Fixing wooden poles together (mainly doors and window frames)
	0.00	0.00	0.00	For fixing langalangas and battens
	0.00	0.00	0.00	For key connections including tying of purlins and rafters to the superstructure, tying of wall plate to walls and secure connection of door and window frames to walls
	0.00		**0.00**	
	0.00		**0.00**	
	0.00		**0.00**	
	0.00		**0.00**	
	0.00		**0.00**	
	0.00		**0.00**	
	0.00		**0.00**	
	0.00		**0.00**	Provisional sum to cover for any minor variation, unexpected events and improvements or upgrades for people with disability.

NGN	**0.00**	**USD**	**0.00**	
		GBP	**-**	

Bill of Quantity - plot demarcation and planting of trees

			2	10	9	10	2	0	1						414.89
No.	**Description**	**Unit**	**Quantity (Plot A)**	**Quantity (Plot B)**	**Quantity (Plot C)**	**Quantity (Plot D)**	**Quantity (Plot E)**	**Quantity (Plot F)**	**Quantity (Plot G)**	**Total quantity**	**Estimated Cost (NGN)**		**Estimated Cost (USD)**		**Remarks**
											Unit Cost (NGN)	**Total Cost (NGN)**	**Unit Cost (USD)**	**Total Cost (USD)**	
A	**Setting out and Excavation of plot boundary**	*m*	*21.5*	*17.9*	*22.7*	*20.1*	*29.4*	*28.3*	*16.9*	*176*					
1	Clear site, set out the plot boundary according to layout provided by IOM and Excavate foundation trench to a minimum depth of 180mm below natural ground and in width 300mm to receive the foundation footing of 50mm thick.	CuM	1.16	0.97	1.23	1.09	1.59	1.53	0.91	**47.47**		0.00	0.00	0.00	
B	**Substructure**														
2	**Foundation footings:** plain in situ sandcrete for foundations footing (ratio 1:4 of cement:sharp sand - batching 1 cement bag for 2 wheelbarrows of sharp sand).	CuM	0.32	0.27	0.34	0.30	0.44	0.42	0.25	**13.19**		0.00	0.00	0.00	
3	**Perimeter blockwork:** Sandcrete hollow blocks 6"x 18"x 9" (150x450x230mm) bedded and jointed in cement-sand mortar (ratio 1:6 - batching is 1 cement bag for 3 wheelbarrows of sand), block holes filled with excavated soil. One course, with reinforced column at every 3m by rotating the block sideways	SqM	5.38	4.48	5.68	5.03	7.35	7.08	4.23	**219.75**		0.00	0.00	0.00	
	Subtotal substructure											**0.00**		**0.00**	
C	**Superstructure (walls)**	1.7													
4	**Walling**: Construct walls with Locally hand-made Mudbricks (150mmx150mmx350mm), including preparation and screening of soil of agreed grain composition, mixing with water and vegetable fibres, laid with mud mortar. Where possible, bricks to be moulded on site by local workers, including direct shelter beneficiaries.	SqM	34.85	28.73	36.89	32.47	48.28	46.41	27.03	**1,436.50**		0.00	0.00	0.00	Perimeter wall up to 1.8m height from NGL. Leaving a 1m gap for the access door
5	**Apply earth-based plaster**, 15mm thickness, mixture of mud, boiled bitumen and used engine oil (or water-based bitumen), to be applied in at least two coats. Inclusive of all required materials for the mixture, water and labour costs. On both sides of the perimeter wall including reinforcement columns.	SqM	69.70	57.46	73.78	64.94	96.56	92.82	54.06	**2,873.00**		0.00	0.00	0.00	
	Subtotal walls											**0.00**		**0.00**	
D	**Main access door**														
6	**Provide and install Obeche Timber poles,** 2x6 inches - full length min. 3m**,** pre-treated with antitermite/engine oil solution, for door frame. To be secured with langalanga to the brick walls.	Pcs	2.00	2.00	2.00	2.00	2.00	2.00	4.00	**70.00**		0.00	0.00	0.00	
7	**Install purpose made door** of 2x0.9m with 2x3" timbers for door leaf, three 100mm hinges per door to fix leaf on frame, cladding with CGI sheet 0.2mm thick branded with IOM logo, internal and external latches 125mm, padlock of 0.25kg and keys.	Pcs	1.00	1.00	1.00	1.00	1.00	1.00	2.00	**35.00**		0.00	0.00	0.00	
	Subtotal door											**0.00**		**0.00**	
E	**Tree plantation on plot**														
8	Provision and planting of tree seedling on the shelter plot.	Pcs	1.00	1.00	1.00	1.00	1.00	1.00	2.00	**35.00**		0.00	0.00	0.00	Tree species to be agreed based on location, including but not limited to: neem, papaya, guava, orange, cashew, huru, mango. Economic fruit trees to be prioritized, fast growing and high production
9	Supply and fix cylindrical plant protector (cage) made from palm stick size 1.2m x 0.45mm diameter.	Pcs	1.00	1.00	1.00	1.00	1.00	1.00	2.00	**35.00**		0.00	0.00	0.00	
	Subtotal tree planting											**0.00**		**0.00**	
	Subtotal substructure											**0.00**		**0.00**	
	Subtotal walls											**0.00**		**0.00**	
	Subtotal doors and windows											**0.00**		**0.00**	
	Subtotal tree planting											**0.00**		**0.00**	
	Total Cost for plot demarcation and tree planting for 34 plots	34									**NGN**	**0.00**	**USD**	**0.00**	
													GBP	**-**	

Bill of Quantities for the Construction of One Family Pit Latrine and Shower - Mud brick walling (1.2 x 0.9 x 2.15m deep pit)								
S/N	**DESCRIPTION**	**UNIT**	**Quantity**	**Unit cost (NGN)**	**Total cost (NGN)**	**Total cost (USD)**	**Remarks**	
A	**Excavation and earthworks**							
1	Clear site and excavate 1.8 x 2.1m x 2.05m depth pit for the latrine	m^3	7.75		-	-		
2	Backfill and compact already completed side of pit with the soil, and backfill and compact front of the latrine and the whole of shower area.	m^3	4.52		-	-	The remaining excavated soil can be spread or used for backfilling of the shelter	
	Total of section A carried to summary				-	-		
B	**Sub structure**							
3	**Plain in situ concrete for foundation footing** (concrete mix 1:2:4 – 20mm aggregate). For footing of pit lining, shower, front of latrine blockwork and separating wall.	m^3	0.537		-	-		
4	**Block work**: hollow sand:concrete block work bedded and jointed in cement and sand mortar (mix 1:6), 150mm thickness filled with cement sand mortar for pit lining, other foundation works, and soak pit from shower.	m^2	17.83		-	-		
5	**Reinforced precast concrete floor slabs** (1:2:4- 20mm aggregate) reinforced with Y12mm bars @ 150 c/c both ways. Slab 1 (1200x1500mm x 100mm thick) with one internal beam of 1200x150mm x100mm; and Slab 2 detachable service slab (1200x600mm x80mm thick) with two tie rod lifting handles	m^3	0.2376		-	-		
6	**Sawn form work** to Sides of slabs, using timber planks.	m^2	0.99		-	-	Formwork to be reused minimum four times.	
7	**Plain in situ concrete slab for shower floor** (concrete mix 1:2:4 – 20mm aggregate). 1.35x1.5m x 50mm thick;	m^3	0.235		-	-		
8	**External step** built with sandcrete blockwork as formwork and filled with sand-cement mix (ratio 1:6). 175mm rise x 300mm landing x 1.8m width	m^3	0.095		-	-		
9	**Provide and install 50mm diameter PVC floor drain** in shower area, connected to 50mm diameter drain pipe to be embedded in concrete slab and channelled to the shower soak pit.	LS	1		-	-		
10	**Soak pit** of 450mm long x 400mm width (in to in) x 500mm deep, filled with gravel stones of 3 inches thick to collect waste water from drain pipe (refer drawing)	m3	0.09		-	-		
11	**Plastering of blockwork above ground level.** Sand-cement plastering of external blockwork above ground level and internal blockwork above slabs (ratio 1:6 cement to plaster sand. Batching is 1 cement bag for 3 wheelbarrows of sand).	m^2	6.80		-	-		
	Total of section B carried to summary				-	-		
C	**Superstructure and Roofing**							
12	**Walling:** Construct mudbrick walling 150mm thickness. (mudbrick size 150mm thick x 150mm wide x 300-350mm length, locally molded and sun baked, if possible employing local labour). In Sand cement mix mortar.	m^2	16.064		-	-	Including separating wall on boundary line (refer to floor plan)	
13	**Internal and external earth-based plastering:** 15mm thickness, mixture of soil, sharp sand, boiled bitumen and used engine oil, to be applied in at least two coats. Inclusive of all required materials for the mixture, water and labour costs.	m^2	29.518		-	-	Including separating wall on boundary line (refer to floor plan)	
14	**Provide and fix wire mesh** with fly screen net on all sides of the structure, as ventilation opening.	m^2	3.03		-	-		
15	**Roof**: 0.20mm gauge corrugated Zinc roofing sheets (1800mm x 600mm) on 4No. 75mm x 50mm x 3200mm purlins on 5No. 100mm x 50mm x 1600mm timber Hardwood treated Taraba timber rafters on 2No. 100mm x 50mm Hardwood taraba treated timber wall plate (upper) and 2No. 150mm x 50mm Hardwood taraba treated timber wall plate (lower). With 25x125mm timber plank fascia board along the whole perimeter. All fastened with langalanga to the wall and both rafters with purlins at joints. see detail design.	m^2	5.76		-	-		
16	Hardwood treated Taraba timber 100mm x 50mm x 3100mm full lenght outer bracing laid on blockwork with langalanga and fastened to vertical timber studs to provide for fixing of net. Bottom and top chords	Pcs	6		-	-		
17	Hardwood treated Taraba timber 100mm x 50mm x 3100mm full lenght cut into pieces of 400mm-350mm-300mm for vertical timber studs fastened to horizontal bracing for fixing of net. Kindly note that additional four offcuts will be sourced from the remains from outer bracing. To make it 12 pieces in all.	Pcs	1		-	-	2pcs of 350mm (sides). 5pcs of 400mm (front). 5pcs of 300mm (rear).	
18	**Vent pipe:** Complete length 3m*100mmØ uPVC blue vent pipes with fulbora guard cover at the top, placed in detachable slab and firmly fastened to wall with metal strap bracket or langalanga at three points, tilted to avoid contact with the roofing (refer to drawing).	No.	1		-	-		
19	**Doors:** Purpose made IOM branded CGI sheet door sizes 650mm x 1920mm high, with 2x6 timber frame and 2x3 timber panel/leaf, installed complete with hinges, staples, padlocks and keys.	No.	2		-	-		
	Total of section C carried to summary				-	-		
	SUMMARY							
1	**Section A Excavation**				-	-		
2	**Section B Sub – structure**				-	-		
3	**Section C Super structure**				-	-		
4	**Contingency (1% of subtotal cost)**				-	-	Provisional sum to cover for any minor variation, unexpected events and improvements or upgrades for people with disability.	
	Grand Total for One Family Pit Latrine and Shower	**No.**	**1**		-	-		
	Grand Total for 35 Family Pit Latrines and Showers	**No.**	**35**		-	-		

414.89

CONTRACTOR 3			
SN	***Sub-activity***	***Total Cost (NGN)***	***Total Cost (USD)***
1	Plot demarcation and tree planting	-	0.00
2	Shelter construction	-	0.00
3	Latrine construction	-	0.00
		0.00	**0.00**

0.805

Total Cost (GBP)
-
-
-
0.00