

**BILL OF QUANTITIES FOR CONSTRUCTION TO COMPLETION OF A 45 STUDENT CAPACITY
LABORATORY AT MALINDI**

ITEM	DESCRIPTION	UNIT	QTY	RATE	SHS. CTS
	<u>ELEMENT NO.1</u> <u>SUBSTRUCTURES</u> <u>ALL PROVISIONAL.</u> <u>EXCAVATIONS AND EARTH WORKS</u> Site clearance Clear site of all bushes, shrubs and undergrowth, up root and burn all the arising Excavate vegetable soil average 200mm deep and cart away as directed. Excavate foundation trench not exceeding 1.5m deep commencing from stripped level. Excavate to reduce levels 150mm deep Extra over excavation for excavating in hard rock exceeding 1.5m but not exceeding 3.0m Allow for keeping the whole of the excavations free from all water including spring and running water. Allow for planking and strutting to sides of excavations. Return fill and ram selected excavated material. Cart away surplus excavated material. 300mm thick approved hardcore well compacted in layers not exceeding 150mm deep. 50mm thick murrum blinding to surface of hardcore.				
A.		M ²	237		
B.		M ²	237		
C.		M ³	58		
D.		M ³	9		
E.		M ³	17		
F.		ITEM			
G.		ITEM			
H.		M ³	45		
I.		M ³	85		
J.		M ²	186		
K.		M ²	186		
	TOTAL CARRIED TO COLLECTION				

ITEM	DESCRIPTION	QTY	UNIT	RATE	SHS. CTS
A.	<u>INSECTICIDE TREATMENT</u> Treat surface of blinded hardcore with Termidor or any other equal and approved insecticides with ten year guarantee as per the manufacturers printed instructions.	M ²	186		
B.	500 gauge polythene sheet damp proof membrane lay with 150mm side and end laps.	M ²	186		
C.	<u>CONCRETE WORKS</u> 50mm Thick blinding to Strip foundations	M ²	58		
D.	Insitu reinforce concrete (1:2:4) to foundation trenches	M ³	6		
E.	<u>BEDS</u> 150mm Thick surface bed	M ²	186		
F.	200mm Ditto	M ²	10		
G.	<u>SAWN FORM WORK TO:</u> Edges of slab 75 to 150mm high	LM	61		
H.	<u>High steel reinforcement to b.s 4461 including tying wire spacer blocks.</u> 8mm ditto	KGS	124		
I.	12mm ditto	KGS	279		
J.	B.R.C Mesh BS 4483 ref.A 98 200 X 200mm wgt 1.89kgs/m ² measured net no allowance made for laps including bends tying wire and distance	M ²	186		
K.	<u>Substructure walling</u> 200mm thick natural stone block walling in cement and sand mortar (1:3) reinforced with and including 20swg x 25mm wide hoop iron in every alternative course.	M ²	153		
	CARRIED TO COLLECTION				

ITEM	DESCRIPTION	QTY	UNIT	RATE	SHS. CTS
A	<u>PLINTHS</u> 15mm thick cement and sand(1:4) rendering to plinth walls.	M ²	25		
B	Two coats bituminous paint to rendered plinth walls.	M ²	25		
C	B.S 743; Type A bitumen hessian 200mm (no allowance made for laps) for horizontal ; 1NO layer ;200 wide	LM	70		
D	<u>EXTERNAL PAVING</u> 600 x600 x50 mm thick precast concrete paving slabs around the building including 100mm thick bed of murram.	M ²	25		
<u>CARRIED TO COLLECTION</u>					
<u>COLLECTION</u>					
1	From Page KC /S/01				
2	From Page KC /S/02				
3	From Page above				
TOTAL FOR ELEMENT NO .1 CARRIED TO SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE	SHS. CTS
	<u>ELEMENT NO. 02</u> <u>SUPERSTRUCTURES WORKS</u>				
	<u>CONCRETE WORKS</u> Insitu; concrete; reinforced normal; concrete (1:2:4); vibrated				
A	Beams	M ³	5		
	<u>REINFORCEMENT</u> Fabric B.S. 4483 Reference A98; 50 x50mm; wgt 0.54kgs/m2 (measured net no allowance made for laps) including bend, tying wires and distance blocks in any location Bars; m.s; high yield; cold worked; B.S 4461 including bend, tying wires and distance blocks and spacers in any location				
B	8mm Diameter	KGS	233		
C	12mm Diameter	KGS	320		
	<u>FORMWORK</u> Sawn formwork to soffits and sides				
D	Beams	M ²	61		
TOTAL FOR SUPERSTRUCTURE CARRIED TO MAIN SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE	SHS. CTS
	<u>ELEMENT NO. 3</u> <u>WALLING.</u> <u>MACHINE DRESSED NATURAL</u> <u>STONEWORK</u> Approved local stone, fine chisel dressed all sides; reinforced with hoop iron G500 in every alternate course; bedding and jointing in cement sand mortar (1:3) <u>EXTERNAL WALL</u>				
A.	200mm thick	M ²	179		
B.	Eaves fillings	LM	39		
C.	Ditto gable	M ²	34		
D	Raking cutting 200mm thick stone walling for slope	LM	33		
E.	200 x 200mm piers	LM	36		
F	<u>SOAK PIT</u> Allow for construction of a soak pit to detail to the approval of project manager	SUM	1		
TOTAL ELEMENT NO.3 WALLING CARRIED TO SUMMARY.					

KC /SL/05

ITEM	DESCRIPTION	UNIT	QTY	RATE	SHS. CTS
	<u>ELEMENT NO. 4</u> <u>ROOFING.</u> <u>Structural timbers; sawn cypress; pressure impregnated.</u> <u>The following in 11NO. Single pitch trusses; 1500mm clear span; including hoisting and fixing in position approx. 3000mm above ground floor; including all necessary jointing</u>				
A	100 x 50mm rafters	LM	185		
B	150 x 50mm tie beam	LM	158		
C	100 x 50mm king post	LM	44		
D	Ditto struts and ties	LM	203		
E	75 x 50mm purlins	LM	250		
F	100x50mm wall fixed with hoop iron straps at 1.0m centers cast in concrete.	LM	39		
G	100 x50mm verandah joist	LM	21		
H	200 x 25mm facial board	LM	76		
I	100 x 25mm eaves nailed to rafters or bearer at 100mm c/c	M ²	9		
J	Prepare stop and apply three coats glass oil paint or equal and approved to timber surfaces exceeding 200mm but not exceeding 300mm girth.	LM	76		
	<u>COVERING</u> <u>Pre-painted galvanized box profile sheeting as resin cot or other equal and approved manufacturer.</u>				
K	Gauge 30 G.C.I. roofing sheets.	SM	268		
L	Ditto half round ridge capping	LM	20		
	<u>GUTTERS</u> Supply and fix semi-circular pvc gutters complete with all accessories and piping to ground level to approval				
M		LM	38		
TOTAL FOR ROOFS CARRIED TO MAIN SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE	SHS. CTS
	<u>ELEMENT NO. 5</u> <u>DOORS</u> <u>METAL WORK – PURPOSE-MADE UNITS</u> <u>Mild steel casement</u> <u>doors;100x50x3mm thick frame pegged to concrete or block work with 100mm long fish tail 25 x 25x 2mm thick angle section,50 x 50x3mm thick angle section frames at 300mm centres both sides, angles cut, mitered and welded; panels in filled with glazing(m/s),one coat manufacturer's primer, complete with all necessary iron mongery; all welding ground to smooth finish</u>				
A	Double door; 1500 x 2400mm high, including 3 pairs 150mm long purpose made hinges; and 2No. 300mm aluminium D handle (m/s); all welded.	NO	2		
B	Single door; 900 x 2400mm high, including 3 pairs 150mm long purpose made hinges; and 1No. 300mm aluminium D handle (m/s); all welded. Flush door; B.S 459 part 2 solid core; 6mm thick internal quality wood facing both sides; hardwood lipping sides	NO	1		
C	Single door; 45mm thick; size 900 x 2400mm high. <u>Wrot cypress timber as described</u>	NO	1		
D	150mm x 50mm frame rebated; once times moulded	LM	8		
E	40 x 15mm Architrave	LM	8		
F	20 Quadrant	LM	8		
TOTAL FOR DOORS CARRIED TO SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE	SHS. CTS
	<u>IRON MOGERY</u> Supply and fix the following iron mongering screw to match (Ref is to union dialogue or other equal and approved)Softwood or the like with matching screws				
A	Two levers rebated mortise lock as complete with furniture.	NO	1		
B	100mm butt hinges	PRS	1.5		
	<u>GLAZING</u> Glass in openings set; clear 4mm thick to metal putty 0.10-0.50mm for windows and doors				
C		M ²	2		
	<u>PAINTING AND DECORATING</u> Three coats ; aluminium wood primer; to crown solo or other equal and approved to				
D	wood surfaces of girth 100- 200mm	LM	8		
	One undercoat; two coats gloss finish oil paint; crown solo; paints or equal and approved metal surfaces				
E	300mm girth	M ²	12		
	<u>CARRIED TO COLLECTION</u>				
	<u>COLLECTION</u> From Page KC/SL/07 From Page above				
TOTAL FOR DOORS CARRIED TO SUMMARY					

KC/SL/08

ITEM	DESCRIPTION	QTY	UNIT	RATE	SHS. CTS
	<u>ELEMENT NO.6</u> <u>WINDOWS</u> <u>METAL WORK</u> Purpose made units Mild steel; ks 02-18 neat cut and welded; all welds ground smooth and to even surfaces Casement windows; standard metal casement ; section comprising of standard z-section forming, burglar proofing flat bars, transoms, mullions, permanent ventilators, comprising t-bars, gauze and 6G sheet metal hood, 25 x 3mm flats at 100mm c/c both ways, all coupling mullions; complete with bronze handles, pegs stays and all other necessary iron mongering; one coat red primer by manufacturer. Metal; for glazing with putty; cutting and pinning to concrete or masonry jambs, head and cill; bedding in cement sand (1:3) mortar; pointing round frames easing, oiling adjusting opening lights on completion				-
A	Window overall size 1500 x 1500mm; 2NO. openable and 2NO. fixed ends each size 450 x 1500mm high	NO	8		
B	Window overall size 1500 x 1500mm; 2NO. openable and 2NO. fixed ends each size 450 x 1500mm high with barglar proofing	NO	2		
C	<u>GLAZING</u> Glass in openings set; clear 4mm thick to metal putty 0.10-0.50mm for windows and doors	M ²	21		
	<u>PAINTING & DECORATION</u> One undercoat; three coats gloss finish oil paint; to crown solo paints or other equal and approved to				
D	Metal surfaces girth over 300mm	M ²	21		
E	Burglar proofing over 300mm girth	M2	4.5		
TOTAL FOR WINDOWS CARRIED TO MAIN SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE	SHS. CTS
	<u>ELEMENT NO. 7 FINISHES</u>				
	<u>FLOOR FINISH</u>				
	Bedding screed; cement and sand (1:3)				
	32mm Thick; 1NO coat bed; steel trowel led; smooth to concrete base (m/s) generally to finished with non-slip ceramic tiles floor finish				
A	Floor; level; internal	M ²	179		
B	Ramps ; slopping; external	M ²	8		
C	Skirting; 100 x 20mm; rounded top and grooved at junction with floor	LM	103		
D	Ceramic tiles finishing to worktops complete with dividing strips	M ²	25		
	<u>INTERNAL WALL FINISHES.</u>				
	Plaster; 12mm first coat of cement sand (1:4); 3-5mm; steel trowel led				
E	Concrete or stone walls.	M ²	202		
F	Supply and fix sliding white board to approval size 6000x1200mm	No	1		
	<u>PAINTING & DECORATING</u>				
G	Three coats of silk vinyl paint; to crown solo or other equal and approved to Plastered surfaces of girth over 300mm.	M ²	202		
	<u>EXTERNAL WALL</u>				
H	A neat recessed keying; horizontal; in 10mm diameter rod in cement sand mortar (1:3) to external walling	M ²	96		
I	15 mm (minimum) two coat lime plaster with wood floated finish as described to masonry beams	M ²	74		
	<u>PAINTING AND DECORATIONS</u>				
J	Three coats silk vinyl paint; to crown solo paint or equal and approved to plastered surfaces of girth over 300mm	M ²	125		
TOTAL FOR CARRIED TO COLLECTION					

ITEM	DESCRIPTION	UNIT	QTY	RATE	SHS. CTS
	CEILING FINISH Sawn cypress as described:-				
A	75x50mm cypress; celcured brandering.	LM	706		
B	12mm thick; set to symmetrical pattern v-joint; fixed to brandering with clout headed nails celotex ceiling fixed into brandering.	M2	186		
C	100 x 25mm thick cornice ; concave moulding; plugged	LM	133		
D	Size 600 x 600; comprising sawn cypress 50 x 50mm joist frame all round; 12mm soft board panel fixed on top of frame with clout and other necessary accessories	NO	2		
	Three coats aluminium primer to crown solo paints r equal and approved to celotex surfaces				
E	Over 300mm girth	M ²	186		
F	0-200mm girth	M	133		
	.				
	CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	From Page KC/SL/12				
	From Page above				
TOTAL FOR FINISHES CARRIED TO MAIN SUMMARY					

ITEM	DESCRIPTION	PAGE	KSHS
	<u>SUMMARY.</u>		
1	SUBSTRUCTURES	KC/SL/03	
2	SUPERSTRUCTURES	KC/SL/04	
3	WALLING	KC/SL/05	
4	ROOF CONSTRUCTION, COVERING	KC/SL/07	
5	DOORS	KC/SL/09	
6	WINDOWS	KC/SL/11	
7	FINISHES	KC/SL/13	
TOTAL CARRIED TO GRAND SUMMARY			

KC/SL/14

ELECTRICAL INSTALLATION WORKS-LABORATORY BLOCK

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	Supply, install, test and commission the following: <u>LIGHTING POINTS.</u> Lighting points wired in 3 x 1.5sq mm single core pvc cables drawn in 20mm diameter h/g concealed conduits all accessories included but excluding switches and fittings A 18 NO SWITCHES. 5A white moulded plate switches mounted 1350mm above FFL as MK or approved equivalent as follows: a) 1 gang1 way 4 NO b) 2 gang2 way 2 NO c) 3 gang 3 way 0 NO Lighting fittings. Complete with energy saving bulbs and tubes of appropriate wattage and colour rendering: C a) 36W flood light lamp 6 NO b) 1200mm batten fluorescent fitting type thorn, Philips. 12 NO <u>CEILING FAN</u> Lighting points wired in 3 x 1.5sq mm single core pvc cables drawn in 20mm diameter h/g concealed conduits all accessories included but excluding switches and fittings D 6 NO E Ceiling fan as orient or other approved equivalent 6 NO				
TOTAL CARRIED TO COLLECTION					

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
A	<u>POWER POINTS</u>				
	<u>SOCKET OUTLETS</u>				
	Socket outlet points wired in 3 x 2.5sq.mm PVC insulated single core cu cables drawn in 25mm PVC Conduits as follows:				
	a) Twin switched	24	NO		
B	13A socket outlet plates mounted 300mm above worktop as Crabtree or approved equivalent, flush mounted.				
	a)Twin switched	24	NO		
C	Multiple circuit breakers				
	a) 10A SP MCB	2	NO		
	b) 20 SP MCB	2	NO		
	c) 32A SP MCB	2	NO		
D	<u>EARTHING TO KPLC APPROVAL</u>				
	a) 300 x 300 x 300mm concrete earthing chamber complete with concrete cover.	1	NO		
	b) Earth rod (16mm dia 1800mm long) with Earth-rod-cable clamp and Driving Head for Earth rod.	1	NO		
	c) 10mm ² SC/PVC copper cable earth lead in concealed 20mm dia. HP//PVC conduit from the loop-in box to the earth pit	10	LM		
TOTAL CARRIED TO COLLECTION					

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>INTERNAL POWER DISTRIBUTION.</u>				
A	6way SPN consumer unit with 100A integral isolator as Crabtree or approved equivalent.	1	NO		
	<u>Sub main cables.</u>				
B	Lay 3x16mm ² PVC/SWA/PVC Sub main copper cable from loop-in box to CU	15	LM		
C	Standard galvanized cable loop-in box c/w 30Atwin cutout and HRC fuse and connection to consumer unit with 25mm diameter pvc	1	NO		
D	16.00mm ² 2-core pvc armored underground cable from meter box/cubicle to the loop in box	30	LM		
TOTAL CARRIED TO COLLECTION					

EW/3

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
A	COLLECTION BROUGHT FORWARD FROM PAGE EW/1				
B	BROUGHT FORWARD FROM PAGE EW/2				
C	BROUGHT FORWARD FROM PAGE EW/3				
TOTAL FOR ELECTRICAL INSTALLATIONS WORKS CARRIED TO GRAND SUMMARY					

MECHANICAL WORKS					
Item	Description	Qty	Unit	Rate	Cost Kshs
C	<u>LABORATORY SINKS</u>				
	Supply and fix 18" x 12" x 8" (or specified depth e.g., 5"/8") chemical-resistant moulded polypropylene / fibreglass laboratory sink, complete with anti-acid/alkali waste outlet, overflow, plug, and standard 38mm polypropylene/PVC bottle trap, bedded and sealed flush into laboratory workbench top, all in accordance with the manufacturer's specifications and-or project managers approval	25	No.		
	Overhead water tank base to hold 3000 litre water tank	1	Item		
	Total carried to collection page				
MW/01					

Item	Description	Qty	Unit	Rate Kshs	Cost Kshs
	<u>FOUL WATER INTERNAL DRAINAGE</u> Supply and fix uPVC soil system to BS 4660 and BS 4515 and MuPVC waste systems to BS 5255 with screwed and socketed joints to BS 21. Solvent welded joints shall be as per the system's manufacturer's written instructions. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.				
	MuPVC and uPVC Waste and Soil pipework				
A	100mm diameter heavy gauge golden brown UPVC pipe	60	Lm		
B	40mm diameter waste pipe	24	Lm		
	Bends				
	100mm diameter long radius bend				
C		11	No.		
D	100mm diameter sweep bend	11	No.		
E	40mm diameter sweep bend	8	No.		
	Access Caps				
F	100mm diameter access cap	11	No.		
G	40mm diameter access cap	8	No.		
H	Allow for a standard 300 x 300 x 450mm masonry gully trap complete with mild steel cover.	4	No.		
	Weathering Slates and Vent Cows				
J	100mm diameter vent cowl	2	No.		
K	Testing and Commissioning Allow for testing and commissioning of the	1	Item		
	<u>EXTERNAL DRAINAGE</u>				
M	Excavate trench 300x 750mm deep lay pipe and back fill to original level	60	Lm		
N	Supply and fix 150mm diameter heavy gauge Umpvc pipe complete with all necessary connectors, bends, tees to drain the waste water to septic tank from sanitation blocks	60	Lm		
o	Supply and install 3,000 litre water tank as "ROTO" or equally approved	1	Item		
	TOTAL FOR MECHANICAL WORKS CARRIED TO GRAND SUMMARY				
MW/02					

ITEM	DESCRIPTION	QTY	UNIT	RATE	SHS. CTS
	<u>PROVISIONAL & PRIME COST SUMS</u>				
	The contractor shall include in his tender the following to be deducted in whole or part as directed by the project manager				
	<u>GAS INSTALLATION</u>				
A	Allow a provisional sum of Kenya shillings one hundred thousand (100,000) for fire extinguishers(2No. Of different types as directed) and gas installation & supply works to be deducted in whole or part as directed by the project manager		LS		100,000.00
	<u>CONTINGENCIES</u>				
B	Allow a provisional sum of Kenya shillings one hundred thousand(100,000) for contingencies to be deducted in whole or part as directed by the project manager		LS		100,000.00
	<u>FUME CHAMBER</u>				
C	Allow a provisional sum of Kenya shillings fifty thousand(50,000) for fume chamber and associated fittings to be deducted in whole or part as directed by the project manager		LS		50,000.00
	<u>PROJECT MANAGEMENT</u>				
D	Allow a prime cost sum of Kenya shillings one hundred thousand(100,000) for project supervision and attendance by the project manager (public works)		LS		100,000.00
	<u>STORE SHELVES</u>				
E	Allow Ksh 30,000 for supply and installation of store shelves				30,000.00
	<u>PROJECT PUBLICITY</u>				
F	Allow a prime cost sum of Kenya shillings twenty thousand(20,000) for project publicity as directed on site by the project manager		LS		20,000.00
TOTAL FOR PROVISIONAL & PRIME COST SUMS TO GRAND SUMMARY					400,000.00

GRAND SUMMARY

BILL NO	DESCRIPTION	FOR CONTRACTOR'S USE (KSH)
3	SCIENCE LABORATORY FROM PAGE KC/SL/14	
4	ELECTRICAL WORKS FROM PAGE EW/04	
4	MECHANICAL FROM PAGE MW/04	
5	PROVISIONAL SUMS - PS/1	
	SUB TOTAL	
	ADD 16% VAT	
	ADD 0.03% PPRA LEVY	
GRAND TOTAL CARRIED TO FORM OF		

Amount in words:.....

.....

Tenderer's Signature and stamp.....

Address:

Date:

Witness's Name:

Signature:

Description:

Address:

Date: