

Palabora Asset Management Projects	Technical Specification
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Title:	New Kitchen Facility		
Division:	Asset Management		
Area:	Bollanoto Primary School		
Project No:	O.0071583		
	Name:	Signature:	Date:
Client: Engineer	Otis Mathebula		
Client: Manager	Nozipho Zitha		
Client Senior Manager:	Abby Ledwaba		
Project Leader:	Meshack Maonye		
Projects Supt.:	Rowan Van Rensburg		
Project Manager:	Michael Mbele		

1. GENERAL:

Content:

The bidder, being an expert in his field, will accurately evaluate the needs of the contract by visiting the Site/s, studying the relevant drawings and Technical Specifications for this Contract, and tender accordingly.

Should there be any discrepancies or omissions in the tender information supplied, the bidder will immediately inform the Project Leader accordingly. The Project Leader will then rectify the situation and will inform all other bidders to ensure that comparable bids are received.

Claims for extra work, as a result of tender omissions, will not be entertained.

Materials:

Materials shall be first class grade, new and shall conform to the relevant specifications as described on the reference drawings and elsewhere in the Specifications.

Equipment:

All related equipment and machinery which is used in the contractual discipline to achieve the scope of work must be available from the awarded contractor being the expert in the field. The equipment, machinery and tools must be of a very high quality and in suitable order to achieve top level work expected in each engineering discipline.

Queries:

All queries, as well as any requests for deviation from this Technical Specification, shall be directed to the Project Leader.

Name:	Meshack Maonye	Tel No:	082 361 9654
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Palabora has appointed the following Project Inspector, who will be responsible for construction supervision and safety on the Contract.

Name:	Meshack Maonye	Tel No:	082 361 9654
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Contract Clearance Requirements:

It is a requirement that all contract clearances are obtained prior to commencing work on site. The Project Inspector will assist the Contractor to complete the clearance procedure correctly and without delay.

2. Scope of work:

Overview:

Building New Kitchen Facility

Supply, fabrication and installation of:

<p>SITE ESTABLISHMENT</p> <ul style="list-style-type: none"> • The site accommodation will be located inside the property on the ground floor, leaving the pavement access to remain clear. • The site will be maintained in a safe and tidy manner with the implementation of good housekeeping procedures regularly checked by our Health and Safety Advisor on fortnightly site inspections and be set up with temporary power, water and drainage throughout the duration of the works. <p>1. Earth works and foundation</p> <ul style="list-style-type: none"> • Excavate foundation 700X250mm 15MPa concrete foundation as indicated on the construction drawing. • Top of the foundation to be Min 340mm below N,G.L • Supply and install 888 mesh steel for the entire foundation • Dispose all excavated material. • Rates shall include for cutting, bending, placing in position, holding and supporting including temporary fixing support hangers, binding wires and wire brushing. • Lap lengths wastages bend lengths at the end of bars should include to the rate. No provision will be given to above mentioned extra length when take measurement <p>2. COMPACTION OF SURFACES AND BACKFILLING</p> <ul style="list-style-type: none"> • Compact layers 93% ModAASHTO density before casting concrete. • All ground surfaces receiving concrete floors / slab should be compacted to 150mm <ul style="list-style-type: none"> • Supply and cast foundation concrete as per specification prescribed below, and allow concrete to cure to minimum required strength • Supply and treat the backfilling with the SABS approved insecticide and weed killer to comply with SABS 1164 & 1165. • Backfilling imported topsoil Average thickness > 0.25m, obtained off site, specified handling.
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3. SURFACEBEDS & FLOORS
3.1 Surface beds

- Supply and Install 85mm Thick 15MPa concrete
- Supply and cast the surface bed in sections of max 250M²

3.2 Screed & Floor Finish

- Supply and apply "Marley Super Metro" 2.5mm thick fully flexible vinyl floor sheeting on a ratio of 1:4
- Smooth cement sand screed to a total thickness of 30mm.
- Supply and Install a 30mm Cement sand screed with the ratio 1:4 to receive "Marley" 2mm thick fully flexible vinyl asbestos floor tiles, laid strictly to manufacture's spec.

3.3 Apron

- Supply and apply an apron of 1200mm wide 15MPa concrete apron with wood float finish.
- Apron to be cast in length of Max of 3M and to have 1:100 fall away from the building.

4. SKIRTING

- Supply and apply a 70mm high skirting "Marley" with ridged PVC skirting screwed & plugged to wall at 450mm C/C

5. WALL & STRUCTURE
5.1 External Wall

- Supply and install approved face brick wall in stretchedbond to receive 10mm wide X 6mm deep square recessed joints in both directions.

5.2 Brick force

- Supply and Install BRC Brick force to 230 & 115 wall foundation wall in every 2nd course
- Supply and Install Brick Force for super structure in every 4th course' over opening formed in brickwork, every course for every 4th courses extending 500mm beyond opening in both directions.
- Supply and Install 228 X 76mm SAP Beam to be built in & tied down to face brick column with a 2.5mm galvanised wire ties, beam to be creosote treated prior to be built in.

5.3 Lintels

- Supply and Install approved face brick on edge lintels all over windows and doors opening.
- Brickwork to receive 10 X 6mm square recessed joints.

5.4 DPC

- Supply and Install 375 micron DPC in walls at floor levels and in all under all external window cills

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5.5 Internal Wall

- Supply and Install approved stock brick walls in strecherbond to receive 1X coat smooth.
- Supply and erect a fireproof wall as indicated on a drawing.

5.6 Fire Protection & Detection System

- Supply & Install supporting clips, brackets, straps, rivets, plugs and all incidental
- Rates shall include for all necessary electrical wiring and accessories required for completion.
- All items shall be supply and complete installation
- Supply & Install Dry Riser System.
 - Supply & Install Dry riser pipe work
 - Supply & Install 2 Way Breeching inlet
 - Supply & Install Dry Riser Outlet - one way
 - Supply & Install Hose reel 30m with cabinet
- Supply & Install Fire Detection System
 - Supply & Install Manual Call Point
 - Supply & Install Sounder/Bell
 - Supply & Install Ceiling mounted smoke detector
 - Supply & Install Wall mounted smoke detector (below 300mm from the ceiling)

5.7 Wall Tiles

- Supply and Install 150 X150mm white glazed wall tiles from floor to top of the window high (2295mm).
- Supply and apply white grout for the tile.
- Supply and Install manufacture approved tiling adhesive.

6. WINDOW SILLS

6.1 Internal Window Sills

- Supply and Install 15mm thick fibre cement window sills bedded in 1:4 cement sand mortar sand.
- Supply and apply Alkali resistance sealer and two coats of enamel paint.

6.2 External Window Sills

- Supply and Install approved face brick on the edge to match walls joints to be square & recessed

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7. CEILING & CORNICE
7.1 Cornice

- Supply & Install 75mm gypsum coved cornice nailed to wall and ceiling at 450mm centres max and receive paint finish to match ceiling.

7.2 Ceiling

- Supply and Install 6mm clad fibre cement ceiling nailed to 38mm X 38mm SAP battens at max 400mm C/C with galvanised clout nails.
- Supply and Install galvanised H-Profile jointing strips to be painted.
- Supply, prepare and apply 1X universal undercoat & two coats Plascon Polvin Super Acrylic PVA Paint.
- Rates shall include for: all labour in framing, notching and fitting around projections, pipes, light fittings, hatches, grilles similar and complete with cleats, packers, and wedges and similar and all nails, bolts & screws.
- Rates shall also include for applying approved quality wood preservatives as per manufactures instructions for all Timber structures.
- Rates shall include for 10mm thick Plaster board ceiling fixed on 35 x 50mm Timber frame, trimming, nails, screws, hooks, hangers, clips and similar.

8. ROOF & FACIA
8.1 Roof Sheeting

- Supply and install 0.6mm "klimlok" sheeting in chromadek finish on 76mm X 50mm SAP Purlins at Max 1200mm C/C on patent & approved prefabricated roof truss system.

8.2 Ridge Capping

- Supply and Install standard factory manufactured ridges and flashing in finish to match roof covering.
- Supply & Install Hip and Ridge Capping.

8.3 Facia & Gutters

- Supply and Install 250mm X 10mm thick FC77 Pressed Fibre Cement Facia
- Supply and Install Screw fixed to truss ends & counter battens with countersunk brass screw.
- Supply, prepare & apply 1X universal undercoat & two coats Plascon Polvin Super Acrylic PVA Paint.
- Supply and Install 100mm X 100mm X 0.6mm gutters with 100mm DIA Rainwater downpipes with chromadek finish.

8.4 Truss System

- Supply and Install timber patent & approved pre-fabricated system at 1200mm C/C max.
- Supply & Install 76mm X 50mm SA Pine at Max 1400mm C/C max.
- Supply and Install wall plate 114 X 38mm SA Pine to be creosote treated before fixing.
- Supply the certificate from the truss manufacture for the design and erection.
- All exposed timber section as well as sections in contact with wet trades to be creosote treated before fixing into position.
- Supply and Install wall plate with 2.5mm Galvanised steel wire ties, built into walls min 6mm brick course to secure trusses to walls.
- Trusses to support roofing sheets.

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9. STEEL DOORS FRAMES

- Supply & Install 1.2mm thick standard steel door rebated door frame for 115mm wall to receive plaster on one side.
- Supply & Install 1.2mm thick standard steel door rebated door frame for 230mm wall to receive plaster on one side
- Supply and Install standard Wisp Eco 2185mm X 2400mm Galvanised roller shutter door with chromadek finish complete with fittings as supply by Manufacture.
- Supply and Install Frame out of 15mm X 25mm X1.6mm M/S rectangular tubing mitre 45 degrees at corner before welded and secured in opening with brackets welded to gate and bolted to wall.
- Supply & apply 1/red oxide primer.
- Supply & Install 1 coat universal undercoat.
- Supply & apply 2nd coat Plascon Gloss Enamel Paint.
- Rates shall include for locks, latches, closers, push plates, pull handles, bolts, kick plates, hinges and all door & window hardware

10. WOODEN DOORS:

- Supply and Install 2032 X 914mm X44mm thick solid hardwood door with Masonite backing.
- Supply and Install 2032 X 1626mm X44mm thick solid hardwood door with Masonite backing.
 - Prepare a new door and frame to receive 1 undercoat plus 3/coat Polyurethane Vanish
- Supply & Install gate out of 25X25X1.6mm M/S square tubing section with Expanded Metal Mesh on inside of opening welded to frame with 10X10mm M/S Solid bar on both sides of Mesh.
 - Supply & apply 1/red oxide primer.
 - Supply & Install 1 coat universal undercoat.
 - Supply & apply 2nd coat Plascon Gloss Enamel Paint.
- Supply and Install 2032 X 914mm X 40mm thick solid hardwood door with Masonite facings to receive 1/coat undercoat plus 2/coats of Plascon Velvago Paint.
- Rates shall include for door frames and window frames, mullions, transoms, trims, glazing, tinting, timber panels, boarding's, framing, lining, fastenings and all fixings and installation.
- All Timber door frames shall be treated timber.

11. IRON MONGERY & FITTINGS:

- Supply & Install 2X100mm M/S steel but hinges per door.
 - Supply & Install "Solid Blesbok" 460/313 four lever lockset.
- Supply & Install 4X100mm M/S Parlement hinges per door.
 - Supply & Install "Solid Blesbok" 460/313 four lever lockset.
 - Supply & Install 2X150mm Chrome Plated Cabin Hook, mounted on rebate conversion set with chrome finish.
 - Supply & Install 1x100mm barrel bolt with chrome finish.
 - Supply & Install 75X75X16mm Meranti Mounting Block. (Edges of mounting block to receive 5mm chamfers).
- Supply & Install 2/pairs of 100mm Bullet Hinges Welded to Frame & Gate
 - Supply & Install "Solid Blesbok" 460/313 four lever lockset.
 - Rates shall include for locks, latches, closers, push plates, pull handles, bolts, kick plates, hinges and all door & window hardware

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12. WINDOWS

- Supply & Install Standard SS Industrial Type Steel window frame with catalogue number SS41/SS41 complete with fittings as supplied by manufacture.
- Supply & Install Standard SS Industrial Type Steel window frame with catalogue number SS42 complete with fittings as supplied by manufacture
 - Supply & Install Iron-Mongery & Fitting as supplied by manufacture.
 - Supply & Install burglars proofing out of 10mm wide flat bars.
 - Supply & apply 1/red oxide primer.
 - Supply & Install 1 coat universal undercoat.
 - Supply & apply 2nd coat Plascon Gloss Enamel Paint.
 - Supply & Install 4mm thick clear floated sheet glazing secured in frame with SABC approved glazing putty.
- Supply & Install Standard E-Type Top-Hung steel window frame with catalogue number NE 1 with complete with fittings as supplied by manufacture.
 - Supply & Install 5mm thick Pacific Obscured sheet glazing secured in frame with SABC approved glazing putty.

13. GAS BANK

- Supply and Install 9kg DCP BC Type Fire Extinguisher
- Supply & Install Fire Blanket
- Supply and Install SABS approved symbolic sign.
 - No Smoking
 - No Open Fire
 - No Unauthorised Person
 - No Littering at the cage
 - LPG Gas at the entrance
- Supply and Install locks at the cage.
- Supply and Install LPG Cylinders
- Supply and Install
- Supply and install a 170mm thick reinforced concrete slab above the gas bank.
- Gas bank to be installed by a specialist and a test certificate to be provided by installer.
- Supply and Install a tamper proof gas supply line.
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14. VENTILATION

- Supply and Install galvanised steel metal extraction hood suspended from roof trusses with outlet through top.
- Supply and Install 300mm DIA convection rotating ventilations

15. COLUMNS

- Supply and Install 100 X 100 X 5mm M/S Square Tubing Column.
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16. SHELVING

- Supply and Install 2100mm High standard steel shelving
- Supply and Install 900mm High standard steel shelving
- Supply and Install 100mm High standard steel shelving
- Shelving should be complete with wall bands & brackets.

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17. WORK TOPS

- Supply and Install work top as described on the drawing

18. TOILETS

- Construct 1 dual sex toilet compartment.
- Supply and Install larger-than-standard-sized cubicles with a minimum internal dimensions of 1,7m by 1,8m with grab rails in separate sex washrooms for ambulant people with disabilities.
- Supply and Install separate unisex wheelchair-accessible toilets.
- Supply and install sliding door for disabled toilet with 150mm long pull handles on both sides-swing-over indicator bolt indicator and emergency release from outside.
- Supply and install protection plate 300mm by 750mm.
- Supply and Install door handles, cubicle latches, taps, and touch control flushing actuator mechanisms mounted on the wall that should be operable with a closed fist.
- Supply and install wash hand basin and a toilet roll holder. The toilet paper holder shall be located as indicated on the sidewall closest to WC seat, in an easily accessible position that does not interfere with the use of the grab rails.
- Supply and Install alarm pull cords are to be located within 100mm of the floor.
- The size of a cubicle shall be at least 1700mm x 1600mm, with a door that shall open outwards or a sliding door fittings, fixtures and the line of the door swing. The door shall be openable from the outside in case of an emergency
- An inward-opening door can be provided where there is a 1200mm internal diameter clear of all.
- There shall be free width to one side of the WC of at least 800mm to facilitate lateral transfer from a wheelchair to the WC. The rim of the WC bowl shall be a minimum of 480mm above the floor level, with the seat approximately 500mm to facilitate the transfer from a wheelchair. The seat lid is to be removed.
- Supply & Install a fixed mirror shall be provided with its lower edge not higher than 900mm above floor level.
- A toilet room...shall be completely enclosed and provided with a tight-fitting and self-closing door

19. Urinals

- Urinals shall be stall-type or wall-hung type with the rim 400mm maximum above the floor. Clear floor or ground space shall be provided for forward approach. (See Item 1.4) Flush controls shall be hand operated or automatic

20. Signs

- Supply and install signs with Letters that have a width to height ratio between 3:5 and 1:1 and a stroke width to height ratio between 1:5 and 1:10. The minimum character height to viewing distance ratio for signage shall be 1:30 and the minimum height of character for signage suspended overhead shall be 75mm. All signs shall utilise a high contrast between the background and the lettering.
- Where exterior or interior signs and pictograms are provided as permanent directional route information, designations or descriptions of spaces and rooms, the signs shall be tactile or in the case of pictograms, shall have tactile text descriptors.

21. Fire Alarm Systems (Supply & Install

- Where fire alarm systems are provided in public-use or common-use areas to alert occupants, the alarm shall provide both audible and visual signals. Where accessible guest rooms are required, fire alarm systems for those rooms shall be specifically designed to draw the attention of visually impaired or deaf guests. All alarm systems and evacuation procedures are to be available in print and Braille on request.
- For a detailed elaboration of fire alarm systems (audible alarms and visual alarms, light pulse characteristics, dispersion, mounting height, spacing allocation and minimum intensity, corridor spacing allocation and minimum intensity) refer to National Building Regulations.

22. RAMP

22.1 Ramp to main building

- Measure the area where the ramp is to be located
- Supply and install the stakes and mark the ramp area using stakes and strings
- Cut the top level of the formwork and measure the height to meet the entrance and calculate the length of the ramp not more than the 1:12 slope rule where the difference in level of the ends of the ramp is greater than 400mm or 1:10 where such difference in level does not exceeds 400mm
- It must have a clear trafficable surface not less than 1, 1 M wide.
- Supply and place the rebar inside the form. Use 3/8-inch rebar spaced 6 inches apart to form a grit.
- Supply and install the formwork by using a 2-by-4 or 2-by-6 wood and planks method. Dig deeper into the ground when placing the wood at the bottom of the ramp

22.2 Pouring Concrete

- Mix the concrete according to the instructions. It should look like the thick oatmeal
- Pour concrete on the thickest part of the ramp first.
- Pour evenly until the entire ramp is filled and concrete is all around the rebar
- Vibrate the concrete to ensure it gets in all the small spaces and eliminates any air bubbles.
- With the wooden screed the width of the ramp, smooth the concrete so it is level with the form work.

22.3 Finishing the Ramp

- Smooth the concrete with steel trowel.
- Apply broom finish before the concrete has hardened too much.
- Surface must be of the non-slip material.
- Take a medium-bristle broom and lightly sweep lines onto the concrete texture, to ensure people will not slip when it gets wet.
- After the concrete has hardened remove the form work.
- Wait until the concrete cures completely and spray the concrete with water to help it to dry up too quickly.
- Supply and install handrail on both sides of the ramp or where the width is greater than 2,4m.

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22.1.1 Building and slab

- Supply a 25 MPa strength concrete to be used throughout construction:
- All concrete to be as per Engineer's details and specifications.
- All concrete aprons to be 1000mm wide.
- Supply and install Pre-cast concrete lintels to be used as support under top slab of pit.
- Trial Concrete Mixes: Proportions
- Concrete Strength at 28 Days 25Mpa:
- 1 : 2 : 2 (mix proportion by volume)

- **1 bag cement : 0.08m³ Sand : 0.09m³ Stone (Volume/Bag)**
- **385 kg cement : 820 kg sand : 960 kg stone (Mass/m³)**

22.1.2 MORTAR

- Supply and build with mixed mortar as prescribed by cement specification.
- Supply and build the entire kitchen facility with double wall external FBS – Face Brick Standard and internal must be NFP – Non-Facing Plastered Bricks (NFP for interior partition walls) (Corobrik).
- Supply and install brick reinforcements as per SANS at on prescribed intervals.
- Supply and install damp-course on the foundation surface.
- Supply and install windows and doors' frames as per supplied drawings

23. Plastering

- Supply and plaster all interior and internal NFP – Non-Facing Plastered Bricks walls
- Supply and apply 15mm thick plastering on interior walls and concrete surface as specified incl. wire mesh shall be fixed at the joints of concrete surfaces and walls before plastering. Quantity is measured including concrete surfaces - Parapet walls, Lift walls, columns & beams.
- Rates shall include for approved brand water proofing compound shall be mixed with cement mortar for internal wall plastering as per manufacturers specifications.
- Slab soffits, all beams & lift walls must be fare face finish with no plastering.

24. Painting

- Supply and prime all plastered walls.
- Supply and paint all primed walls as per PMC's GS-M11 specification pale yellow
- Rates shall include for: the provision, erection and removal of scaffolding, preparation, rubbing down between coats and similar work, the protection and/or masking floors, fittings and similar work, removing and replacing door and window furniture.
- All painting work shall be carried in accordance with the Specifications
- Rate shall include for weather proof paint finish for exterior surfaces of the wall complete including 01 coats of oil based wall sealer, neat application of Texture + Paint finish 02 coats of weather bond paint.
- Rate shall include for putty and paint finish for interior surfaces of the wall and ceilings complete including application of two coats of wall sealer, two coats of putty finish and two coats of emulsion paint finish on top for Interior painting.

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25. Roofing

- Supply, fabricate and construct roof structure as per supplied drawings
- Supply and paint the steel roof structure as per specification described by GS-M11 for PMC
- Supply and install IBR sheeting with associated water-tight fasteners
- Supply and install suspended aluminium ceiling.

26. Electrical Tubing and Wiring

26.1 Main Power Connection

- Charges for Providing Laying and connecting main cable from STELCO Transformer Board to Building Main Panel Board.

26.2 Main Panel Board

- Supply and Installation of Main Panel Board with KWH meter complete including connection to Distribution Boards.

26.3 Distribution Board

- Supply and Installation of full electrical Distribution Boards with association breaker as per drawing.
- Supply and install PVA tubing for all electrics
- Supply and install full electrical cabling, plugs and switches as per specification below
- Supply and mark all electrical switches, plugs and DB
- Unless otherwise stated, Rates in Bill of Quantities shall include all necessary materials (Cables, conduits, PVC sunk box, bulbs, switches etc.) And labour required to complete the electrical installation to good working order.
- Except where specifically stated, all costs associated with provision of all holes, openings, chases, ducts and other builders' work required for installation and make them good, shall be included in the rates.
- Testing and commissioning of the electrical installation is to be carried out by the contractor and Cost of such testing and reports to be included in the rates unless otherwise mention separately.
- All types of fittings, materials, painting and finishes shall be approved by the Engineer prior to installation.
- Rates for final circuit wiring shall include all necessary switches, sockets, materials Cables, conduits, PVC sunk box, & junction boxes, draw wires, etc. and labour required to complete the electrical installation to good working order.
- **Supply and installation of switch gear cubicle made out of (2mm thickness) sheet steel enclosure (IP54) powder coated to Control panel for 63A, 3 Phase Main Breaker.**
- Sub Circuit in 10mm² 2/C PVC/SWA/PVC copper armoured cables in 50mm diameter HG PVC conduit from nearest Feeder Pillar to Consumer Unit (contractor have to measure the actual distance from constrainers and feeder pillar). The payment will be for the actual length of cable.



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	<ul style="list-style-type: none">• NB Rate shall include for necessary chasing, trenching, conduits, cables, cable trays, fittings and clips, cutting holes and chases in brick work/ block work/ concrete work complete with all necessary accessories such as sockets, connections, cable glands and boxes hardware clips, etc., for proper installing and laying of cables.• NB All underground cables directly buried in ground to be properly laid in ground trenches and covered with cable tiles. Rate for underground cables shall include for all necessary excavation, sand layers, cable tiles, warning strips and back filling with approved quality earth properly compacted.• NB Rates for all electrical panels shall include for supply and installation of all necessary MCCB's, MCB's, EFR's, ELCB's auxiliary contacts, Volt meters, ammeters, kWh meters, indicator lamps, selector switches, inter connecting copper bus bars, inter locks aligning and grounding the panel, interconnections, internal wiring instrument wiring loops, connecting to switch gears, cable gland lugs, steel channels and necessary hardware fixing and insulating materials with fully enclosed metal clad panels and distribution boards where ever necessary and complete as shown in drawing and comply with the specifications, and as per relevant latest SANS standards and I.E.T. regulations and all complete to working order to the approval of the Engineer.• NB (Point Wiring) Rates shall include for all conduits, conduit fittings, clips, earth cables, draw wire, wiring accessories, hardware fixing, insulating materials, making holes and chases in brick work, concrete work...etc. and making good the same.• NB Rate for lamp point shall include for cables, ceiling roses, flexible wire, bulb holders, and flush type switches, flush boxes etc.• NB Rates for socket outlets shall be inclusive of cables, switch socket outlets of correct rating, sunk boxes etc.,• NB All cables for equipment and units designated to function under fire condition to be in fire rated cables and steel conduits as indicated and rates shall include accordingly.• NB (FITTINGS) All the light fittings to be provided under this Contract shall be of the best quality without any defects to the complete satisfaction of the Architect/Engineer.• NB Rates shall also include for supply and installation of all the fittings complete with all the accessories, such as starters, bulbs, chokes, power factor correction capacitors...etc.• NB Rates shall also include for all the fixing material such as rawl plugs, hooks, chains, flexible cords...etc.• NB Contractor shall get approval from the Engineer for Electrical fittings before installation.• NB All lighting and power circuits shall include earth cable of 2.5mm² unless otherwise specified.• NB All 5A/10A circuit shall be wired in 2x1/1.13 mm² PVC insulated sheathed Cu cables and earth cable taken through minimum size of 20 mm PVC conduit unless otherwise specified. All corridors & staircases area lighting shall be wired with 2x2.5 mm² PVC/PVC Cu+2.5mm²E PVC Cu cables drawn in PVC Conduits.• NB All 13A/15A circuit/Socket outlet shall be wired in 2x7/0.067 mm² PVC insulated sheathed Cu cables and earth cable taken through minimum size of 2.5 mm PVC conduit. All corridors & staircases area small power outlets shall be wired with 2x4 mm² PVC/PVC Cu+2.5mm²E PVC Cu cables drawn in PVC Conduits.

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<ul style="list-style-type: none"> • NB Rate shall include for cutting, trimming, dressing, connecting cables, cutting holes & chase holes in brick work and connecting cables to supply points and equipment complete with all accessories such as sockets, connectors, conduits, cable trays, cable glands, cable lugs, and boxes, hardware clips, fixing, etc. • NB All specified items are re-measurable <p>26.4 Testing & Commission</p> <ul style="list-style-type: none"> • Test the entire system as per STELCO regulations. <p>27. Plumbing pipework</p> <ul style="list-style-type: none"> • Supply and install wash bays sinks with stainless steel footings chemically anchored onto the floor • Supply and install wash sinks taps with mixers • Supply and install drain pipe only the outside of the building from the sinks • All plumbing shall be installed by a licensed plumber under a valid, current plumbing permit in accordance with SANS Standard. • WATER SUPPLY AND SEWAGE DISPOSAL Facilities served by a public water supply and sewage systems do not require further evaluation. Private Wells must comply with chemical and bacteriological standards; a satisfactory analysis is required before an operating permit may be issued. • Individual sewage disposal systems require the approval of the Department of Natural Resources and Environmental Control prior to operating the food establishment. • Air gap, supply: An air gap between the water supply and the flood rim level of the plumbing fixture, equipment, or non-food equipment shall be at least twice the diameter of the water supply inlet and may not be less than 1 inch. • Air gap, drainage: No direct connection may exist between the sewage system and any drain originating from equipment in which food, portable equipment, or utensils are placed. • Equipment and fixtures utilized for the storage, preparation and handling of food shall discharge through an indirect waste pipe by means of an air gap. • Floor drains: Floor drains located within walk-in refrigerators or freezers in food establishments shall be indirectly connected to the sanitary drainage system by means of an air gap. • Backflow prevention device: A backflow or backsiphonage prevention device shall meet SANS standards for construction, installation, maintenance, inspection, and testing for that specific application and type of device. • Plumbing fixtures: The supply lines or fittings for every plumbing fixture shall be installed so as to prevent backflow. • Devices, appliances: All devices that connect to the water supply shall be provided with protection against backflow. This includes devices used for food preparation and processing steamers, the storage of ice or food, ware washing machines, and other food service equipment. • Hose Connections: Sillcocks, hose Bibbs, wall hydrants and other openings with a hose connection shall be protected by an atmospheric-type or pressure-type vacuum breaker or a 	

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permanently attached hose connection vacuum breaker. Exceptions: water heater drain valve, clothes washing machine.

28. UTILITY SERVICE INSTALLATION

- Utility lines including gas, plumbing and electrical shall be installed inside walls, above ceilings or below floors whenever structurally practical, and in accordance with applicable code requirements.
- If lines are run in front of walls, lines shall be installed with stand-off brackets or other secure mounting method, such that a minimum clearance of one inch (1”) exists between line and wall.
- Exposed horizontal utility service, including water supply and drain lines, may not be installed on the floor.

29. JOINT SEALING

- Joints formed by fixtures in contact with walls or floors shall be sealed with an approved sealant.
- Where installation does not allow access for cleaning, fixtures shall be sealed to walls or adjoining equipment.
- Where not structurally practical, a minimum gap of one inch (1”) shall exist between the fixture and walls or adjoining equipment.

30. Tiling and grouting

- Supply and install standard floor tiling – non-slippery (ceramic white) as per specification below
- Supply and grout all edges with tiles and aluminium end strips.
- Rates shall include for: Fixing, bedding, grouting, and pointing materials, making good around pipes, sanitary fixtures, and similar; cleaning & Polishing.
- Rates shall include for laying 60mm thick screeding for general floors & 35mm thick screed for toilet floors cement mortar in 1: 5 mix ratio, cleaning down to reveals where necessary and water proofing - Commix Moya proof HF to Toilet.
- All Tiling work in accordance with specifications and finishes schedule. Toilet wall tiling shall be at 2.4m height from the floor level. Toilet wall tiles shall be 300 x 600 mm size ceramic polished tiles and Toilet Floor Tiles shall be 300 x 300mm Non- Slip ceramic Tiles.

31. Site Security

- Visitors will be requested to identify themselves, and they will not be allowed on site until a site specific induction is conducted to them by a site supervisor.
- All other entrances and exits to the site will remain secured at all times.
- Security and staff will make regular inspections of the site boundary to ensure no suspect packages have been left.
- The Site Manager is responsible for ensuring the site is secure at the end of each working day, including the removal or locking down of any access ladders/ stairs to scaffolding and the gantry areas.

Palabora Asset Management Projects	Technical Specification
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32. Technical Requirement

SPECIAL TERMS AND CONDITIONS

- The entire foundation is to be trench as per wall pathway on the approved drawings
- The foundation is to be 600mm x 230mm compacted
- The foundation footing is to be box-reinforced with 888 Mesh steel and 35MPa concrete mix
- The entire building floor is to be filled with G5 and compacted 80% AASHTO
- The entire building floor is to reinforced with 888 Mesh steel and a cover of 75mm 25MPa concrete(floated)
- The entire building floor must be completed with standard tiling – cream white
- All walls must be of double bricks (222mm long x 106mm wide x 73mm high),
- External must be FBS – Face Brick Standard and internal must be NFP – Non-Facing Plastered Bricks (Coro Brik)
- All interior walls must be of NFP – Non-Facing Plastered Bricks (Coro Brik)
- All precast round concrete columns must be 35 MPa
- All internal and interior walls must be plastered to a minimum as to SANS10400
- All plastered building walls must be primed and painted as per PMC GS-M11 standard to pale yellow
- 2 x Full coat's high-sheen pale-yellow acrylic based coatings/painting
- 2 x Full coats of a good quality burgundy Alkyd Enamel Doors and windows' frame
- 2 x Full coats burgundy acrylic roof paint for window-ledges
- All windows and doors' frames must be standard steel
- The roof structure must be of standard steel roof as specification on the drawings
- All roof structural members must be welded and bolted as per specification provided on the drawings and painted as per PMS GS-M11 Standard
- 2 x Full coats of a good quality Alkyd Enamel for the entire roof structural steel, window frames and steel door frames
- LP Gas cage must be of steel specification prescribed in the drawing and painted accordingly
- Roof must be sheeted with IBR
- All electrical tubing must be PVA plastic
- All electrical plugs and switched must be of Crabtree standard
- All lighting must be double fluorescent tubing – cool white
- All electrical cables and DB must be of SANS for commercial building
- All wash bay sinks must be stainless steel with associated steel stands
- All wash bay sinks must be fitted with double taps with mixer
- Electrical geysers must be 200 litre exterior installation friendly

3. Drawings:

No	Description	Dwg No	Rev:
1	Bollanoto Primary School – Kitchen, General Arrangement		A
2	Bollanoto Primary School – Roof Structure Details		A
3	Bollanoto Primary School – 3D	-	-

Palabora Asset Management Projects		Technical Specification	

4. Inclusions/Exclusions:

Palabora

Contractor

Supply your own scaffolding

Supply own water

Supply own electricity

5. Project Schedule:

Venue: Edu Centre

Time: 10h15

Date: 30 April 2021 (Friday)

Palabora wishes to complete the work by: Project Completion Date: 30 October 2021

A detailed schedule must be submitted by the contractor within **7 days** of receipt of order.

6. Quality:

Quality parameters will be applicable but not limited to this project as per PROJ...Quality Management [PROJ-OP-009]

7. Tender Price Submission

The pricing will be done as per the attached Pricing Schedule (Appendix 1 – Schedule of Quantities) and payments will be subjected to re-measurement of all quantities if applicable, otherwise a realistic progress agreed to by the Project Leader and the Project Inspector.

8. Safety, Health and Environment Regulations

The bidder is requested to familiarise himself with Palabora regulations, as laid out in the Palabora Standards, which is available on CD, from Contractor Management Centre.

Housekeeping and Site Management

The contractor will maintain a demarcated and tidy site at all times.

All construction rubble, waste and redundant equipment will be removed to appropriate dumping areas within the Palabora property on a daily basis.

Environment:

Palabora Mining Company is a certified ISO 14001 Company. The contractor is required at all times to observe the environmental requirements of the specific area in which the work is to be carried out and the property as a whole.

In particular, any chemicals that will be brought onto the property during the course of the contract execution should be brought to the attention of the Environmental Department

Palabora Asset Management Projects

Technical Specification

9. PPE (Personal Protective Clothing)

Standard Palabora PPE (minimum)
Area specific (specify which items apply)

10. Training And Qualifications

See Appendix 2 – SHEQ plan, training and qualification matrix

11. Site Supervision

Minimum supervision required will be as specified in the latest revision of the Mines Health and Safety Act.

If more stringent supervision is required, it is to be specified here:

Palabora Asset Management Projects		Technical Specification			
Appendix 1					
Schedule of Quantities					
Project Title:		Bollanoto Primary School – Kitchen Facility			
Project No:		O.0071491			
	Description:	Unit	Qty	Rate	Amount
1.	Preliminary and general	Sum	1		
1.1	Site Establishment	Sum	1		
1.2	Site Preparation	Sum	1		
2.	Earth works and foundation				
2.1	Excavate foundation 700X250mm 15MPa concrete foundation as indicated on the construction drawing.	M ²	20		
2.2	Top of the foundation to be Min 340mm below N,G.L	Sum	1		
2.3	Supply and install 888 mesh steel for the entire foundation	M ²	20		
3	COMPACTION OF SURFACES AND BACKFILLING				
3.1	Compact layers 93% ModAASHTO density before casting concrete.	M ²	200.99		
3.2	All ground surfaces receiving concrete floors / slab should be compacted to 150mm	M ²	200.99		
3.3	Supply and cast foundation concrete as per specification prescribed below, and allow concrete to cure to minimum required strength	M ²	20		
3.4	Supply and treat the backfilling with the SABS approved insecticide and weed killer to comply with SABS 1164 & 1165.	M ²	200.99		
3.5	Backfilling imported topsoil Average thickness > 0.25m, obtained off site, specified handling	M ²	200.99		
3.6	Supply and cast foundation concrete as per specification prescribed below, and allow concrete to cure to minimum required strength	M ²	20		

Palabora Asset Management Projects		Technical Specification			
4.	Building and slab				
4.1	Supply and build with mixed mortar as prescribed by cement specification for 2.8m height building	M ²	134		
4.2	Supply and build the entire kitchen facility with double wall 2.8m height, external FBS – Face Brick Standard and internal must be NFP – Non-Facing Plastered Bricks (Corobrik) (NFP for all interior partition walls)	M ²	134		
4.3	Supply and install brick reinforcements as per SANS at on prescribed intervals	M ²	134		
4.4	Supply and compact with G5 material throughout entire floor	M ²	134		
4.5	Supply and install 888 Mesh reinforcing steel for the entire floor	M ²	134		
4.6	Supply and cast concrete slab for the floor of 134M ² with 25MPa spec	Sum	1		
4.7	Supply and install damp-course on the foundation surface	M ²	40		
5	SURFACE BEDS & FLOORS				
5.1	Surface beds				
5.1.1	Supply and Install 85mm Thick 15MPa concrete	M ²	20		
5.1.2	Supply and cast the surface bed in sections of max 250M ²	M ²	20		
5.1.3	Supply and Install green 250 micron damp proof membrane	M ²	20		
5.2	Screed & Floor Finish				
5.2.1	Supply and apply “Marley Super Metro” 2.5mm thick fully flexible vinyl floor sheeting on a ratio of 1:4	M ²	200.99		
5.2.3	Smooth cement sand screed to a total thickness of 30mm.	M ²	200.99		
5.2.4	Supply and Install a 30mm Cement sand screed with the ratio 1:4 to receive “Marley” 2mm thick fully flexible vinyl asbestos floor tiles, laid strictly to manufacture’s spec.	M ²	200.99		
5.3	Apron				
5.3.1	Supply and apply an apron of 1.2m wide x 3m length 15MPa concrete apron with wood float finish.	M ²	3.6		

Palabora Asset Management Projects		Technical Specification			
5.4	SKIRTING				
5.4.1	Supply and apply a 70mm high skirting "Marley" with ridged PVC skirting screwed & plunge to wall at 450mm C/C	Sum	1		
6	WALL & STRUCTURE				
6.1	External Wall				
6.1.1	Supply and install approved face brick wall in stretchedbond to receive 10mm wide X 6mm deep square recessed joints in both directions.	Sum	1		
6.2	Brick force				
6.2.1	Supply and Install BRC Brick force to 230 & 115 wall foundation wall in every 2 nd course	Sum	1		
6.2.2	Supply and Install Brick Force for super structure in every 4 th course' over opening formed in brickwork, every course for every 4 th courses extending 500mm beyond opening in both directions.	Sum	1		
6.2.3	Supply and Install 228 X 76mm SAP Beam to be built in & tied down to face brick column with a 2.5mm galvanised wire ties, beam to be creosote treated prior to be built in.	Sum	1		
6.3	Lintels				
6.3.1	Supply and Install approved face brick on edge lintels all over windows and doors opening.	Sum	1		
6.3.2	Brickwork to receive 10 X 6mm square recessed joints.	M ²	0,06		
6.3.3	Supply and Install 375 micron DPC in walls at floor levels and in all under all external window cills	Sum	1		
6.4	Internal Wall				
6.4.1	Supply and Install approved stock brick walls in strecherbond to receive 1X coat smooth.	Sum	1		

Palabora Asset Management Projects		Technical Specification			
6.4.2	Supply and erect a fireproof wall as indicated on a drawing.	Sum	1		
7	Fire Protection & Detection System				
7.1	Supply & Install supporting clips, brackets, straps, rivets, plugs and all incidental	Sum	1		
7.2	Rates shall include for all necessary electrical wiring and accessories required for completion.	Sum	1		
7.3	Supply & Install Dry riser pipe work	Sum	1		
7.4	Supply & Install 2 Way Breeching inlet	Sum	1		
7.5	Supply & Install Dry Riser Outlet - one way	Sum	1		
8	Fire Detection System	Sum	1		
8.1	Supply & Install Manual Call Point	Sum	1		
8.2	Supply & Install Sounder/Bell	Sum	1		
8.3	Supply & Install Ceiling mounted smoke detector	Sum	1		
9	Wall Tiles				
9.1	Supply and Install 150 X150mm white glazed wall tiles from floor to top of the window high (2295mm).	Sum	1		
9.2	Supply and apply white grout for the tile.	Sum	1		
9.3	Supply and Install manufacture approved tiling adhesive.	Sum	1		
10	WINDOW SILLS				
10.1	Supply and Install 15mm thick fibre cement window sills bedded in 1:4 cement sand mortar sand.	Sum	1		
10.2	Supply and apply Alkali resistance sealer and two coats of enamel paint.	Sum	1		

Palabora Asset Management Projects		Technical Specification			
11	Cornice				
11.1	Supply & Install 75mm gypsum coved cornice nailed to wall and ceiling at 450mm centres max and receive paint finish to match ceiling.	Sum	1		
12	Ceiling				
12.1	Supply and Install 6mm cladit fibre cement ceiling nailed to 38mm X 38mm SAP battens at max 400mm C/C with galvanised clout nails.	Sum	1		
12.2	Supply and Install galvanised H-Profile jointing strips to be painted.	Sum	1		
12.3	Supply, prepare and apply 1X universal undercoat & two coats Plascon Polvin Super Acrylic PVA Paint.	Sum	1		
13	ROOF & FACIA				
13.1	Roof Sheeting				
13.1.1	Supply and install 0.6mm "kliplik" sheeting in chromadek finish on 76mm X 50mm SAP Purlins at Max 1200mm C/C on patent & approved prefabricated roof truss system.	Sum	1		
13.2	Ridge Capping				
13.2.1	Supply and Install standard factory manufactured ridges and flashing in finish to match roof covering.	Sum	1		
13.3	Facia & Gutters				
13.3.1	Supply and Install 250mm X 10mm thick FC77 Pressed Fibre Cement Facia	Sum	1		
13.3.2	Supply and Install Screw fixed to truss ends & counter battens with countersunk brass screw.	Sum	1		
13.3.3	Supply, prepare & apply 1X universal undercoat & two coats Plascon Polvin Super Acrylic PVA Paint.	Sum	1		
13.3.4	Supply and Install 100mm X 100mm X 0.6mm gutters with 100mm DIA Rainwater downpipes with chromadek finish.	Sum	1		

Palabora Asset Management Projects		Technical Specification			
13.4	Truss System				
13.4.1	Supply and Install timber patent & approved pre-fabricated system at 1200mm C/C max.	Sum	1		
13.4.2	Supply & Install 76mm X 50mm SA Pine at Max 1400mm C/C max.	Sum	1		
13.4.3	Supply and Install wall plate 114 X 38mm SA Pine to be creosote treated before fixing.	Sum	1		
13.4.4	Supply the certificate from the truss manufacture for the design and erection.	Sum	1		
13.4.5	All exposed timber section as well as sections in contact with wet trades to be creosote treated before fixing into position.	Sum	1		
13.4.6	Supply and Install wall plate with 2.5mm Galvanised steel wire ties, built into walls min 6mm brick course to secure trusses to walls.	Sum	1		
14	STEEL DOORS FRAMES (D1 Bulk storage)				
14.1	Door Frame Description				
14.1.1	Supply & Install 1.2mm thick standard steel door rebated door frame for 115mm wall to receive plaster on one side. Right Hand	Each	2		
14.1.2	Supply & Install 1.2mm thick standard steel door rebated door frame for 115mm wall to receive plaster on one side. Left hand	Each	1		
14.2	Finishes				
14.3	➤ Supply & apply 1/red oxide primer.	M ²	18		
14.4	➤ Supply & Install 1 coat universal undercoat.	M ²	18		
14.5	➤ Supply & apply 2nd coat Plascon Gloss Enamel Paint.	M ²	36		
14.3	Door description				
14.3.1	Supply and Install 2032 X 914mm X44mm thick solid hardwood door with Masonite backing.	Each	3		
14.4	IRON MONGERY & FITTINGS:				
14.4.1	Supply & Install 2X100mm M/S steel but hinges per door.	Each	2		

Palabora Asset Management Projects		Technical Specification			
14.4.2	➤ Supply & Install "Solid Blesbok" 460/313 four lever lockset.	Sum	1		
14.4.3	Supply & Install 4X100mm M/S Parlement hinges per door.	Sum	1		
14.4.4	➤ Supply & Install "Solid Blesbok" 460/313 four lever lockset.	Sum	1		
14.5	Finishes				
14.5.1	Prepare a new door and frame to receive 1 undercoat plus 3/coat Polyurethane Vanish	Sum	1		
15	Entrance Door to toilet D2				
15.1	Door Frame Description				
15.1.1	Supply & Install 1.2mm thick standard steel door rebated door frame for 115mm wall to receive plaster on one side. Left Hand	Each	2		
15.2	Finishes				
15.2.1	➤ Supply & apply 1/red oxide primer.	M ²	18		
15.2.2	➤ Supply & Install 1 coat universal undercoat.	M ²	18		
15.2.3	➤ Supply & apply 2nd coat Plascon Gloss Enamel Paint.	M ²	36		
15.3	Door description				
15.3.1	Supply and Install 2032 X 914mm X 40mm thick solid hardwood door with Masonite facings to receive 1/coat undercoat plus 2/coats of Plascon Velvaglo Paint . (LH)	Each	2		
15.4	IRON MONGERY & FITTINGS:				
15.4.1	Supply & Install 2X100mm M/S steel but hinges per door.	Each	2		
15.4.2	➤ Supply & Install "Solid Blesbok" 460/313 four lever lockset.	Sum	1		
15.4.3	Supply & Install 4X100mm M/S Parlement hinges per door.	Sum	1		
15.4.4	➤ Supply & Install "Solid Blesbok" 460/313 four lever lockset.	Sum	1		

Palabora Asset Management Projects		Technical Specification			
15.5	Finishes				
15.5.1	➤ Supply & apply 1/red oxide primer.	M ²	18		
15.5.2	➤ Supply & Install 1 coat universal undercoat.	M ²	18		
15.5.3	➤ Supply & apply 2nd coat Plascon Velvaglo Paint	M ²	36		
16	Entrance Door to Nutritional Facilities D3				
16.1	Door Frame Description				
16.1.1	Supply & Install 1.2mm thick standard steel double rebated door frame for 230mm wall to receive plaster on one side	Each	1		
16.2	Finishes				
16.2.1	➤ Supply & apply 1/red oxide primer.	M ²	18		
16.2.2	➤ Supply & Install 1 coat universal undercoat.	M ²	18		
16.2.3	➤ Supply & apply 2nd coat Plascon Gloss Enamel Paint.	M ²	36		
16.3	Door description				
16.3.1	Supply and Install 2032 X 1626mm X44mm thick solid hardwood door with Masonite backing.	Each	1		
16.4	IRON MONGERY & FITTINGS:				
16.4.1	Supply & Install 4X100mm M/S Parlement hinges per door.	Sum	1		
16.4.2	➤ Supply & Install "Solid Blesbok" 460/313 four lever lockset.	Sum	1		
16.4.3	➤ Supply & Install 2X150mm Chrome Plated Cabin Hook, mounted on rebate conversion set with chrome finish.	Sum	1		
16.4.4	➤ Supply & Install 1x100mm barrel bolt with chrome finish.	Sum	1		
16.4.5	➤ Supply & Install 75X75X16mm Meranti Mounting Block. (Edges of mounting block to receive 5mm chamvers).	Sum	1		

Palabora Asset Management Projects		Technical Specification			
16.5	Finishes				
16.5.1	Prepare a new door and frame to receive 1 undercoat Polyurethane Vanish	M ²	3.3		
16.5.2	Prepare a new door and frame to receive 3/coat Polyurethane Vanish	M ²	9.9		
17	Nutrition Door Facilities (D4)				
17.1	Door Frame Description				
17.1.1	Supply and Install standard Wispeco 2185mm X 2400mm Galvanised roller shutter door with chromadek finish complete with fittings as supply by Manufacture.	Each	6		
17.2	Finish				
17.2.1	Chromadeck Finish color will be determine by Project Leader	Sum	1		
17.3	Door description				
17.3.1	Supply and Install standard Wispeco 2185mm X 2400mm Galvanised roller shutter door with chromadek finish complete with fittings as supply by Manufacture.	Each	6		
17.4.	IRON MONGERY & FITTINGS:				
17.4.1	Supply and Install standard Wispeco 2185mm X 2400mm Galvanised roller shutter door with chromadek finish complete with fittings as supply by Manufacture	M2	5.244		
17.5.	Finish				
17.5.1	Chromadeck Finish color will be determine by Project Leader	Sum	1		
17.6	Entrance Door to Nutritional Facilities (D5)				
17.6.1	Door Frame Description				
17.6.1.1	Supply & Install 1.2mm thick standard steel double rebated door frame for 230mm wall to receive plaster on one side 1 L/Hand	Each	1		

Palabora Asset Management Projects		Technical Specification			
17.7	Finishes				
17.7.1	➤ Supply & apply 1/red oxide primer.	M ²	18		
17.7.2	➤ Supply & Install 1 coat universal undercoat.	M ²	18		
17.7.3	➤ Supply & apply 2nd coat Plascon Gloss Enamel Paint.	M ²	36		
17.8	Door description				
17.8.1	Supply and Install 2032 X 914mm X40mm thick solid hardwood door with Masonite backing.	Each	1		
17.9	Finishes				
17.9.1	➤ Supply & Install 1 coat universal undercoat.	M ²	18		
17.9.2	➤ Supply & apply 2nd coat Plascon Velvaglo Paint	M ²	36		
17.10	IRON MONGERY & FITTINGS:				
17.10.1	Supply & Install 2X100mm M/S Steel butt hinges per door.	Sum	1		
17.10.2	➤ Supply & Install "Solid Blesbok" 460/313 four lever lockset.	Sum	1		
17.11	Finishes				
17.11.1	➤ Supply & Install 1 coat universal undercoat.	M ²	18		
17.11.2	➤ Supply & apply 2nd coat Plascon Velvaglo Paint	M ²	36		
17.12	Finishes				
17.12.1	Prepare a new door and frame to receive 1 undercoat Polyurethane Vanish	M ²	3.3		
17.12.2	Prepare a new door and frame to receive 3/coat Polyurethane Vanish	M ²	9.9		
18	BIC (D6)				

Palabora Asset Management Projects		Technical Specification			
18.1	Door Frame Description				
18.1.1	Supply and Install Frame out of 50mm X 25mm X1.6mm M/S rectangular tubing mitre 45 degrees at corner before welded and secured in opening with brackets welded to gate and bolted to wall.	Each	1		
18.2	Finishes				
18.2.1	➤ Supply & apply 1/red oxide primer.	M ²	2		
18.2.2	➤ Supply & Install 1 coat universal undercoat.	M ²	2		
18.2.3	➤ Supply & apply 2nd coat Plascon Gloss Enamel Paint.	M ²	4		
18.3	Door Description				
18.3.1	Supply & Install gate out of 25X25X1.6mm M/S square tubing section with Expanded Metal Mesh on inside of opening welded to frame with 10X10mm M/S Solid bar on both sides of Mesh.	Sum	1		
18.4	Finish				
18.4.1	➤ Supply & apply 1/red oxide primer.	M ²	2		
18.4.2	➤ Supply & Install 1 coat universal undercoat.	M ²	2		
18.4.3	➤ Supply & apply 2nd coat Plascon Gloss Enamel Paint.	M ²	4		
18.5	IRON MONGERY & FITTINGS:				
18.5.1	Supply & Install 2/pairs of 100mm Bullet Hinges Welded to Frame & Gate	Pair	2		
18.5.2	Supply & Install "Solid Blesbok" 460/313 four lever lockset.	Each	1		
18.6	Finishes				
18.6.1	Prepare a new door and frame to receive 1 undercoat Polyurethane Vanish	M ²	2		

Palabora Asset Management Projects		Technical Specification			
18.6.2	Prepare a new door and frame to receive 3/coat Polyurethane Vanish	M ²	6		
19	WINDOWS				
19.1	Prep Area, Nutrition & Toilet (W1)				
19.1.1	Window frame Description				
19.1.2	Supply & Install Standard SS Industrial Type Steel window frame with catalogue number SS41/SS41 complete with fittings as per supplied drawing and by manufacture.	Each	6		
19.2	Window Furniture				
19.2.1	➤ Supply & Install Iron-Mongery & Fitting as supplied by manufacture.	Sum	1		
19.3	Burglar bars				
19.3.1	➤ Supply & Install burglars proofing out of 10mm wide flat bars.	Sum	1		
19.4	Finishes				
19.4.1	➤ Supply & apply 1/red oxide primer.	Sum	1		
19.4.2	➤ Supply & Install 1 coat universal undercoat.	Sum	1		
19.4.3	➤ Supply & apply 2nd coat Plascon Gloss Enamel Paint.	Sum	1		
19.5	Glass Fittings				
19.5.1	➤ Supply & Install 5mm thick Pacific Obscured sheet glazing secured in frame with SABC approved glazing putty.	Sum	1		
20	Window Frame Description				
20.1	Bulk & Day Store (W2)				
20.1.1	Supply & Install Standard SS Industrial Type Steel window frame with catalogue number	Each	4		

Palabora Asset Management Projects		Technical Specification			
	SS42 complete with fittings as supplied drawing and by manufacture				
20.2	Window Furniture				
20.2.1	➤ Supply & Install Iron-Mongery & Fitting as supplied by manufacture.	Sum	1		
20.3	Burglar bars				
20.3.1	➤ Supply & Install burglars proofing out of 10mm wide flat bars.	Sum	1		
20.4	Finishes				
20.4.1	➤ Supply & apply 1/red oxide primer.	Sum	1		
20.4.2	➤ Supply & Install 1 coat universal undercoat.	Sum	1		
20.4.3	➤ Supply & apply 2nd coat Plascon Gloss Enamel Paint.	Sum	1		
20.5	Glass Fittings				
20.5.1	➤ Supply & Install 4mm thick clear floated sheet glazing secured in frame with SABC approved glazing putty.	Sum	1		
	Window Frame Description				
21	Toilets (W3)				
21.1	Supply & Install Standard E-Type Top-Hung steel window frame with catalogue number NE 1 with complete with fittings as supplied by manufacture.	Each	4		
21.2	Window Furniture				
21.2.1	➤ Supply & Install Iron-Mongery & Fitting as supplied by manufacture.	Sum	1		
21.3	Burglar bars				
21.3.1	➤ Supply & Install burglars proofing out of 10mm wide flat bars.	Sum	1		

Palabora Asset Management Projects		Technical Specification			
21.4	Finishes				
21.4.1	➤ Supply & apply 1/red oxide primer.	Sum	1		
21.4.2	➤ Supply & Install 1 coat universal undercoat.	Sum	1		
21.4.3	➤ Supply & apply 2nd coat Plascon Gloss Enamel Paint.	Sum	1		
21.5	Glass Fittings				
21.5.1	➤ Supply & Install 5mm thick Pacific Obscured sheet glazing secured in frame with SABC approved glazing putty.	Sum	1		
22	GAS BANK (D7)				
22.1	Door Frame Description				
22.1.1	Supply and Install Frame out of 50mm X 25mm X1.6mm M/S rectangular tubing mitre 45 degrees at corner before welded and secured in opening with brackets welded to gate and bolted to wall.	Each	1		
22.2	Finishes				
22.2.1	➤ Supply & apply 1/red oxide primer.	M ²	2		
22.2.2	➤ Supply & Install 1 coat universal undercoat.	M ²	2		
22.2.3	➤ Supply & apply 2nd coat Plascon Gloss Enamel Paint.	M ²	4		
22.3	Door Description				
22.3.1	Supply & Install gate out of 25X25X1.6mm M/S square tubing section with Expanded Metal Mesh on inside of opening welded to frame with 10X10mm M/S Solid bar on both sides of Mesh.	Sum	1		
22.4	Finish				
22.4.1	➤ Supply & apply 1/red oxide primer.	M ²	2		

Palabora Asset Management Projects		Technical Specification				
22.4.2	➤ Supply & Install 1 coat universal undercoat.	M ²	2			
22.4.3	➤ Supply & apply 2nd coat Plascon Gloss Enamel Paint.	M ²	4			
22.5	IRON MONGERY & FITTINGS:					
22.5.1	Supply & Install 2X100mm M/S steel but hinges per door.	Each	2			
22.5.2	➤ Supply & Install "Solid Blesbok" 460/313 four lever lockset.	Sum	1			
22.5.3	Supply & Install 4X100mm M/S Parlement hinges per door.	Sum	1			
22.5.4	➤ Supply & Install "Solid Blesbok" 460/313 four lever lockset.	Sum	1			
22.6	Finishes					
22.6.1	Prepare a new door and frame to receive 1 undercoat plus 3/coat Polyurethane Vanish	Sum	1			
22.6.2	Supply and Install 9kg DCP BC Type Fire Extinguisher	Each	1			
22.6.3	Supply and Install Fire equipment 2/RHR per wall	Each	2			
22.6.4	Supply and Install SABS approved symbolic sign.					
22.6.5	➤ No Smoking	Each	1			
22.6.6	➤ No Open Fire	Each	1			
22.6.7	➤ No Unauthorised Person	Each	1			
22.6.8	➤ No Littering at the cage	Each	1			
22.6.9	➤ LPG Gas at the entrance	Each	1			
22.6.10	Supply and Install locks at the cage.	Sum	1			
22.6.11	Supply and Install LPG Cylinders	Each	4			
22.6.12	Supply and install a 170mm thick reinforced concrete slab above the gas bank.	Sum	1			
23	VENTILATION					

Palabora Asset Management Projects		Technical Specification				
23.1	Supply and Install galvanised steel metal extraction hood suspended from roof trusses with outlet through top.	Sum	1			
23.2	Supply and Install 300mm DIA convection rotating ventilations	Each	2			
24	COLUMNS					
24.1	Supply and Install 100 X 100 X 5mm M/S Square Tubing Column.	Sum	1			
25	SHELVING	Sum	1			
25.1	Supply and Install 2100mm High standard steel shelving	Sum	1			
25.2	Supply and Install 900mm High standard steel shelving	Sum	1			
25.2	Supply and Install 100mm High standard steel shelving	Sum	1			
26	WORK TOPS					
26.1	Supply and Install work top as described on the drawing	Sum	1			
27	TOILETS					
27.1	Construct 2 toilet compartment.	Each	2			
27.2	Supply and Install larger-than-standard-sized cubicles with a minimum internal dimensions of 1,7m by 1,8m with grab rails in separate sex washrooms for ambulant people with disabilities	Sum	1			
27.3	Supply and Install separate unisex wheelchair-accessible toilets.	Sum	1			
27.4	Supply and install sliding door for disabled toilet with 150mm long pull handles on both sides-swing-over indicator bolt indicator and emergency release from outside.	Sum	1			
27.5	Supply and install protection plate 300mm by 750mm.	Sum	1			
27.6	Supply and Install door handles, cubicle latches, taps, and touch control flushing actuator mechanisms mounted on the wall that should be operable with a closed fist.	Sum	1			
27.7	Supply and install wash hand basin and a toilet roll holder	Sum	1			

Palabora Asset Management Projects		Technical Specification				
27.8	Supply and Install alarm pull cords are to be located within 100mm of the floor.	Sum	1			
28	RAMP					
28.1	Ramp to main building					
28.1.1	Measure the area where the ramp is to be located	Sum	1			
28.1.2	Supply and install the stakes and mark the ramp area using stakes and strings	Sum	1			
28.1.3	Cut the top level of the formwork and measure the height to meet the entrance and calculate the length of the ramp not more than the 1:12 slope rule where the difference in level of the ends of the ramp is greater than 400mm or 1:10 where such difference in level does not exceeds 400mm	M ²	5			
28.2	Pouring Concrete					
28.2.1	Mix the concrete according to the instructions. It should look like the thick oatmeal	Sum	1			
28.2.2	Pour concrete on the thickest part of the ramp first.	Sum	1			
28.2.3	Pour evenly until the entire ramp is filled and concrete is all around the rebar	Sum	1			
28.2.4	Vibrate the concrete to ensure it gets in all the small spaces and eliminates any air bubbles.	Sum	1			
28.2.5	With the wooden screed the width of the ramp, smooth the concrete so it is level with the form work.	Sum	1			
28.3	Finishing the Ramp					
28.3.1	Smooth the concrete with steel trowel.	Sum	1			
28.3.2	Apply broom finish before the concrete has hardened too much.	Sum	1			
28.3.3	Surface must be of the non-slip material.	Sum	1			
28.3.4	Take a medium-bristle broom and lightly sweep lines onto the concrete texture, to ensure people will not slip when it gets wet.	Sum	1			
28.3.5	After the concrete has hardened remove the form work and spray the concrete with water to help it to dry up too quickly.	Sum	1			

Palabora Asset Management Projects		Technical Specification			
29	Plastering and Painting				
29.1	Supply and plaster all interior and internal NFP – Non-Facing Plastered Bricks walls	M ²	110		
29.2	Supply and prime all plastered wall	M ²	110		
29.3	Supply and paint all primed walls as per PMC's GS-M11 specification pale yellow	M ²	110		
30	Roofing				
30.1	Supply, fabricate and construct roof structure as per supplied drawings (9 x 15.67M ² rafter) and purlains	Sum	1		
30.2	Supply and paint the steel roof structure as per specification described by GS-M11 for PMC (10 x 10m purlains and 9 x 15.67M ² rafter)	Sum	1		
30.3	Supply and install IBR sheeting with associated water-tight fasteners	M ²	200.99		
30.4	Supply and install suspended aluminium ceiling	M ²	134		
31	Electrical Tubing and Wiring				
31.1	Supply and install PVA tubing for all electrics	Sum	1		
31.2	Supply and install full electrical DB with associated breakers as per drawing	Sum	1		
31.3	Supply and install full electrical cabling, plugs and switches as per specification below	Sum	1		
31.4	Supply and mark all electrical switches, plugs and DB	Sum	1		
31.5	Supply and install fluorescent lights (double-tubes) as per drawing (fitting and tube)	Sum	1		
31.6	Supply and Install all internal lighting	Sum	1		
31.7	Supply and Installation of Main Panel Board with KWH meter complete including connection to Distribution Boards.	Sum	1		
31.8	Supply and Install Cables, conduits, PVC sunk box, bulbs, switches etc.	Sum	1		
31.9	Supply and Install all types of fittings, materials, painting and finishes	Sum	1		

Palabora Asset Management Projects		Technical Specification			
31.10	Supply and Install hardware fixing, insulating materials, making holes and chases in brick work, concrete work...etc	Sum	1		
31.11	supply and installation of all the fittings complete with all the accessories, such as starters, bulbs, chokes, power factor correction capacitors...etc.	Sum	1		
31.12	Test the entire system as per STELCO regulations.	Sum	1		
31.13	Issue the COC certificate	Sum	1		
32	Plumbing pipework				
32.1	Supply and install wash bays sinks with stainless steel footings chemically anchored onto the floor (double-sinks as per drawing)	Each	2		
32.2	Supply and install wash sinks taps with mixers	Each	2		
32.3	Supply and install drain pipe only the outside of the building from the sinks	Each	2		
32.4	Supply and Install all WATER SUPPLY AND SEWAGE DISPOSAL Facilities	Sum	1		
32.5	Supply and Install Air gap, supply between the water supply and the flood rim level of the plumbing fixtures	Sum	1		
32.6	Supply and Install air gap drainage	Sum	1		
32.7	Supply and Install Floor drains: Floor drains located within walk-in refrigerators or freezers in food establishments shall be indirectly connected to the sanitary drainage system by means of an air gap.	Sum	1		
32.8	Supply and Install Backflow prevention device	Sum	1		
32.9	Supply and Install all horse connectors & joint sealing	Sum	1		
33	Tiling and grouting				
33.1	Supply and install standard floor tiling – non-slippery (cream white) as per specification below	M ²	10.90		
33.2	Supply and grout all edges with tiles and aluminium end strips	M ²	10.90		
33.3	Supply and grout all edges with tiles and aluminium end strips.	Sum	1		

Palabora Asset Management Projects		Technical Specification			
33.4	Rates shall include for: Fixing, bedding, grouting, and pointing materials, making good around pipes, sanitary fixtures, and similar; cleaning & Polishing.	Sum	1		
33.5	Rates shall include for laying 60mm thick screeding for general floors & 35mm thick screed for toilet floors cement mortar in 1: 5 mix ratio, cleaning down to reveals where necessary and water proofing - Commix Moya proof HF to Toilet.	Sum	1		
		Total			

Palabora Asset Management Projects	Technical Specification
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Appendix 2 TRAINING AND QUALIFICATION MATRIX				
Contract description:				
Project No:				
Description	Team/member	Vehicle/equipment Operator	Supervisor	Manager
2.6.1 Appointment				
2.9.2 Appointment				
Medical examination				
Generic safety induction				
General isolation				
Working at heights				
Basic rigging				
Gas cutting & welding				
Electrical grinding				
Crane driver's license				
Truck & hydraulic hoist license (Hiab)				
HIRA Training				
Supervisor legal course				
Provincial license				
Access and driving license:				
PP&V mining				
VO plant				
Mining surface				
Mining pit				
Concentrator dams				
Trade certificates:				

Palabora Asset Management Projects		Technical Specification		
Fitter				
Boilermaker				
Electrician				
Instrument Technician				
Rigger				

After receiving an official order:	
Attend scope clarification meeting with project personnel.	
Submit method statement to Project Inspector	
Submit HIRA for job	
Submit project schedule	
Obtain contract clearance from Projects	
Obtain HIRA approval from Project Engineer	
Before starting work:	
Report to CMC for tool, equipment, personnel and competency and certification checks	
Attend site specific induction by client supervisor	
Obtain daily permit to work from client operations supervisor and sign off at end of shift.	
Obtain hot work permit from client supervisor if required	
Obtain confined space permit if required.	
Obtain excavation permit if required.	
Attach personal locks to equipment locked out by client isolation officer and supervisor if required, and remove when job is complete.	