

CABO DELGADO STABILIZATION AND RECOVERY

SCOPE OF WORK – IMBADA, MELUCO

**RECONSTRUCTION OF THE DOCTOR'S RESIDENCE, CONSTRUCTION OF THE
SANITARY'S DOCTOR RESIDENCE, REHABILITATION OF THE MAIN HEALTH
CENTRE AND CONSTRUCTION OF THE WAITING ROOM.**



PEMBA

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1. INTRODUCTION

The present Project Descriptive and Justificative Memories refers to the Reconstruction of the Doctor's Residence, Construction of the Doctor's Residence Sanitary, Rehabilitation of the Main Health Centre and Construction of the Waiting Room, Imbada, Meluco – Cabo Delgado. Bidders are advised to visit the site and familiarize themselves with the surroundings and take whatever action they deem necessary, as claims for lack of knowledge of the site will not be accepted. The method of measurement for all items will be based on actual dimensions; openings are deductible and all calculations per m². The contractor shall submit all necessary details (factory drawings), design as built, and update all progress of the works as directed by the UNDP Civil Engineer. All payments shall be submitted along with drawings and measurements, which are verified and approved by the UNDP Engineer.



2. PROJECT DESCRIPTION

This project consists of the Reconstruction of the Doctor's House, Construction of the Doctor's House Sanitary, Rehabilitation of the Main Health Centre and Construction of the Waiting Room, Imbada, Meluco – Cabo Delgado. The choice of this proposed facility was based on its importance according to the needs of Meluco District Government. The UNDP team conducted a site visit to explore the site, assess the damage and meet with the relevant authorities at technical level, and concluded that it was more appropriate to carry out the rehabilitation of this building (Main Health Centre) as it is slightly dilapidated and, for the buildings in an advanced state of degradation it is suggested that they be reconstructed (Doctor's Residence) and for the degraded buildings it is suggested construction (Doctor's Residence Sanitary and Waiting Room). The main interventions for the buildings to be rehabilitated consist in the general cleaning of the whole building, repairing cracks and plastering the walls, painting, execution of the floor, supply of a new roof structure, repair and supply of windows and doors and electric installation and, for the buildings that will be reconstructed and constructed, consist in the removal of all the constructive elements that used to exist in the building and subsequent removal of all the solid waste generated. Then, the execution of the foundations, foundation beam and pillars, concreting of the floor slab, laying of masonry, execution of the crowning beam, plastering of the walls, supply of window frames and roof, painting, supply and coating of the floor, installation and supply of all the hydraulic and electrical devices.



2.1. DEMOLITIONS, CLEANING, EXCAVATION AND SOIL TREATMENT

2.1.1. It consists of all the work inherent in the total demolition of the building (from the capping beam, masonry, pillars, floor beam to the foundation) and, partial (from the capping beam, masonry, pillars to the floor beam) using means that ensure an effective and controlled dismantling.

The demolition will include the following services:

- a) Removal of the roof and its structure;
- b) Removal of doors and windows;
- c) Demolition of the masonry walls;
- d) Demolition of the floor slab, consequently of the floor and of the entire foundation;
- e) Demolition of the concrete pillars and beams.

The roof plates will be detached from the wooden structure, which will later be removed. Doors and windows should be unfastened from their hinges, then the stops should be removed, or the pointers should be used when they are fastened to the sides of the opening. Doors and windows that are in reusable condition should be stored in an appropriate place. The removal of the stops should be done carefully in order to avoid damage.

The demolition of the walls should be considered first, then the structure. This demolition work will be carried out from top to bottom and from the edges to the middle, in order to burden the structure less and reduce the effects of vibrations on the building. As for the demolition methods, the manual method will be used, through the use of sledgehammers and other manual equipment, if necessary, for reinforced concrete structures, the mechanical method will be used, through electric demolition hammers and pneumatic hammers.



Adequate measures should be taken to protect workers and bystanders from injury, if any.

Afterwards, the work will be cleaned, leaving it free of demolished materials. The Contractor will be responsible for the transportation and final disposal of solid waste resulting from this activity. This activity will apply only to buildings that will be constructed and reconstructed.

2.1.2. General cleaning with the use of adequate materials and equipment, which implies the removal of residues resulting from demolition, wall and floor covering, all damaged frames and the roof and its structure. It also includes the removal of all disused sanitary ware, and if necessary damaged taps and pipes, all non-functional electrical devices and all debris and grass located outside the building. This activity includes the collection and transportation of the resulting materials to the public dump.

2.1.3. Soil excavation will be carried out for the opening of 0.80m deep gullies. This activity includes the supply of soil for filling in the paving box, with soil imported from the borrow pit, subsequent watering and compaction in layers 200mm thick and, treatment against termites and muck in the foundation bed, using appropriate insecticide in the paving boxes and foundation bed, including complementary works. For the waiting house, soil excavation will be done at a depth of 0.80m, and a width of 0.60m, including treatment against termites with a suitable insecticide.

2.2. SIMPLE AND REINFORCED CONCRETE STRUCTURES

The building will have simple and reinforced structures in footings, slabs, columns and beams considering the following descriptions:

2.2.1. Footings

The footings to be applied will be isolated, with 0.60x0.60x0.30m of geometry, preceded by the laying of B15 cleaning concrete in the trace 1:4:7 in volume of (cement sand and 3/4" stone) to a thickness of 0.05m in foundation bed. Ø12 reinforcement will



be applied, with 20cm spacing, including shuttering and all necessary work for its execution.

2.2.2. Floor slab

A simple concrete will be applied in the ratio of 1:2:3, B25, after the placement of the rockfill, including its compaction, followed by the application of a waterproofing screen, and subsequent application of the mesh with Ø 10 bars, with 10cm spacing.

2.2.3. Pillars

The pillars will be reinforced concrete with 4Ø12 and Ø6 reinforcement for stirrups with 15cm spacing, with a 0.15x0.15m section, class A400 steel and class B25 concrete with a 1:2:3 mix made on site and compacted with the aid of a mechanical vibrator.

For the waiting house, wooden piles will be set up as pillars, at a depth of 0.80m, with a spacing of 0.50m, up to a height of 2m, followed by the application of the simple concrete B25, at a trace of 1:2:3, to fix the piles.

2.2.4. Foundation Beam

The foundation beam will be made of reinforced concrete, with 2Ø10, 4Ø12 and Ø6 reinforcement for stirrups with 15cm spacing and a 0.20x0.40m section, class A400 steel and class B25 concrete, in a 1:2:3 ratio, made on site with the aid of a mechanical vibrator.

2.2.5. Crowning Beam

The supporting beam will be made of reinforced concrete, with 4Ø12 and Ø6 reinforcement for stirrups with 15cm spacing, with a section of 0.20x0.15m, class A400 steel and class B25 concrete, in a 1:2:3 ratio, executed on site with the aid of a mechanical vibrator.

2.2.6. Lintel beam



The lintel beam will be made of reinforced concrete, with 4Ø8 and Ø6 reinforcement for stirrups with 10cm spacing, with a section of 0.10x0.10m, supported on the masonry walls, with class A400 steel and class B25 concrete, in a 1:2:3 mixture, executed on site with the aid of a mechanical vibrator.

Note: After the concreting and vibration of all the structural elements presented above, the contractor will have to comply with the concrete curing procedures, in which he has to proceed with the periodic watering or wetting of the surface of the concreted part with water for 7 days, and for the floor slab cover the surface with wet sand. The formwork will be made with marine plywood sheets or pinewood with a smooth surface, free of mould and completely dry. The stripping of the formwork will be carried out after 3 to 4 days of concreting to avoid surface damage.

2.3. WALLS, FLOORS AND PAINTING

2.3.1. Plastering of the internal and external walls, preceded by the removal of the deteriorated plaster, depending on the state of the coating, the removal will be done by chopping or by the complete removal of the mortar. Subsequently, the cracks and plaster will be filled with cement and sand mortar in a 1:4 ratio, with mortar in a 1:3 ratio, finished with thin plaster 10 mm thick, properly straightened, to ensure a good finish.

For the buildings to be rebuilt, the masonry will be laid with solid blocks of 0.20x0.20x0.40 in the foundations and 0.15x0.20x0.40 in the exterior and interior walls, laid with cement and sand mortar at a 1:3 ratio, with 1 to 1.5 cm joints. The masonry will be straightened, leveled and executed in such a way as to facilitate its perfect finishing.

For the waiting house, the walls will be made of bamboo, from the floor to the roof, following the trimming of the same on the sides, fixed with 3" nails, and tied horizontally with tire strips.



All new masonry walls, internal or external, to be plastered must be well cleaned and wetted previously, removing all mortar or layers that do not prove to be perfectly adherent. Subsequently, the plaster will be made with cement mortar and sand in the proportion of 1:4, with mortar in the proportion of 1:3, properly straightened, in order to guarantee a good finishing, with a uniform and smooth surface. The minimum thickness of the plaster will be 2 cm.

2.3.2. The floor will be coated with spoon-fired screed on the interior floor, including the application of "Sikafloor-3 QuartzTop" hardener, a ready-to-use one-component powder that will be applied by spraying (Dry Shake) and smoothed over the newly leveled and straightened concrete to a thickness of 5 cm, and application of "Almagre" terracotta-colored dye to a thickness of 2 cm.

For the waiting house, the floor will be coated with cement and sand mortar, trace 1:3, with surface finishing by means of trowels on the interior floor, with 0.20m of thickness, followed by the laying of waiting benches, of concrete blocks, with a geometry of 0.20x0.20x0.40m, laid with cement and sand mortar trace 1: 3, in a height of 50 cm, and a width of 40 cm, coated with a plaster to the trace of 1:3, finished in burnt cement by means of English spoon.

2.3.3. This activity is preceded by the preparation of the surfaces to be painted, their proper isolation with white Cinolite (ref. 54-850) aqueous primer paint, from CIN, applied with a brush, roller or airless gun, applied in one coat, and followed by the application of the necessary leveling compounds, so that, after sanding, all imperfections are corrected, before the application of the following layers. After this work, two coats of emulsion paint (Supercryl) will be applied, for external walls, and, for internal walls, two coats of water-based paint Novaqua HD 10-125, from CIN, will be applied, the first coat having to be diluted with 10% water and the next with 5%, in case of application with an airless gun, the use of nozzles between 0,38 to 0,43 mm (0,015 to 0,017 inches) is recommended.



Note: The painting work must include the preparation of surfaces to be painted, free of dirt, rust, oil stains, grease, and in general, all foreign matter must be removed.

All coats will be applied in such a way as to avoid streaks, always resulting in a homogeneous finish; special care will be taken to prevent paint from thickening on edges, moldings, and recesses, and no coat will be applied until the previous one has dried properly.

2.4 ROOF STRUCTURE AND CEILING

2.4.1. A new roof structure will be applied in 150x75mm pine purlins, and these in turn will be fixed to 150x150mm pine timber rungs, sitting directly on the masonry beam and walls. For the wood treatment should be applied the transparent water-based Cuprinol, Wood with brush, at least 3 coats, interspersed for 1 hour.

The sheets to be applied will be coated Thermolacquered, type IBR 686, with a minimum thickness of 0.6mm and will be laid on 150x150 mm trusses and 150x75 purlins. The laying will be executed with clamps with nuts and metallic washers suitable for the supporting structure; the metallic washers will be tightened over rubber washers. Under the clamp washer will be executed, before final tightening or self-tapping screws.

All the necessary accessories for the assembly of the plates and finishes, such as ridge caps, which will be made of 0.60 m wide thermo-lacquered plate, and ruffles (if necessary).

For the waiting house, the roof structure will be made of 150x50 beams, placed directly on the wooden stakes fixed with nails. For the wood treatment, transparent, water-based Cuprinol should be applied, Wood with a brush, at least 3 coats, interspersed for 1 hour. Afterwards zinc plates of 0,27x3,6mm will be assembled. The price includes the supply and assembly of roofing nails and all the necessary fixing accessories for the proper functioning of the structure.



2.4.2. A 110mm Marley gutter should be applied on the front and side elevation (if necessary) of the building with two slopes, one at each end of the building with a 1% slope. 75mm diameter downpipes should be installed at the ends, properly fixed to the wall and with the water routed to the water tank. The gutter will be fixed to the wall with supports and should be positioned every 1m.

All support and fixing elements must be from the same manufacturer of the gutters to be applied.

2.4.3. A new ceiling structure will be supplied and assembled in plywood on rectangular wooden beams with S=50x100mm. Fixed on a hidden primary structure and supported on the side walls. Including painting, all fastenings, cleaning of debris and all work necessary for its proper functioning.

2.5. DOORS AND WINDOWS

The frames will be made of Chanfuta or Umbila wood, well dried, with straight and united fibers, without knots, not burned, without cracks, free of mold or other fungi, of uniform color, regular aspect and evenly distributed, and executed according to the drawings presented. The frames will be nailed to the masonry with 4" nails. Spacing between fixings will not exceed 0.70 m; 2 nails will be placed in each fixture. The window frames must be laid in such a way as to close hermetically and to function perfectly.

For the windows will be laid plastic mosquito nets, with a 1.5 mm mesh, in the placement of the network should be perfectly straightened and stretched, with the terminals protected. Glass with a thickness of 4 mm will be mounted on the windows, fixed with glass fixing paste.

As for the hardware, the windows will be fixed to the frame with stainless steel hinges of 2 to 3 plugs, chrome regulators will be mounted, and window latches, which allow the window to open completely, of a model to be approved in advance by the Inspection. The doors will be fixed to the frame with stainless steel hinges of 2 to 3 plugs, followed by the installation of "YALE" type locks on both the interior and exterior



doors. A rubber "door stop" will be mounted to limit the door opening, which will be fixed to the floor with a chrome screw.

Subsequently, two coats of CIN's water-based acrylic enamel, CINACRYL MATE (Ref. 12-230) will be applied to the wood surfaces. The wood to be painted must be dry and prepared so that it is free of dust, grease and other contaminants, cracks and roughness resulting from the application of repair paste, then a coat of primer acrylic wood undercoat (Ref. 18-050) will be applied.

The price includes replacement of the damaged plywood and wooden frame, new heavy-duty stainless steel hinges, branded tumblers or equivalent. This includes all work necessary to complete the job, such as painting the windows with CIN enamel paint for wood surfaces, respecting the previous color.

Note: For undamaged frames, only maintenance will be done, which will consist of scraping all previously existing paint, regularizing the surface with sandpaper, closing small cracks and scratches with putty made from wood glue and sawdust, replacement of deteriorated wood parts and replacement of all hardware necessary for proper functioning and subsequent painting..

2.6. ELECTRICITY, WATER AND SEWAGE INSTALLATION

2.6.1. The buildings to be rehabilitated will be repaired in general and a new installation will be provided for the buildings to be constructed, which will consist of feeding the building through a photovoltaic system, installing the electrical panel, channeling the conductors, fitting the equipment boxes, junction boxes, switches, lights and general purpose sockets, and protective earth.

A small photovoltaic system of the Offgrid type will be installed, with 95 w solar panels, complete including all the accessories for its correct operation, namely, 3000tl-x3km single-phase mini inverter, charge controller, 70A battery; male and female connectors, 2x6mm Pcn cable, 40A system circuit breaker (bipolar circuit breaker), 40A fuse, fuse holder, 60x60 empty box.

A battery seating cabinet will be supplied and installed, with two compartments (top/bottom), separated by 50x50mm bars, seated on 40x40x5mm angle irons, with a 4mm unitex movable iron plate to seat the batteries. The structure will be on 40x40x5mm angle brackets, with horizontal contouring with 50x50mm bars, according to the illustrative images below:

a)



b)



This activity includes preparing the surface to be painted, free of rust, welding drips and, in general, all foreign matter must be removed. Subsequently, a CIN water-based acrylic primer for metal will be applied, then two coats of high-quality water-based acrylic enamel will be applied using a roller, brush or gun, diluting the first coat with 10% water and the second with 5%.

The column box, meter box and main switchboard will be metallic, for embedded assembly with a mirror.

The conductors will be installed through exposed VD tubes, fixed through clamps and isogrips embedded in the walls or in the ceiling of the building, which will start in the main switchboard and go up to the different circuits according to the project. The conductors must be type V or VV insulated.

Conductor connections should be made within the embedded junction boxes.



The group's switches and commutators will be of the embedded type with mirror and are situated at 1.20m from the final floor of the building, of the brand legrand or rubi. The sockets for general use will be 30 cm from the floor and must be mirror-immersed, either legrand or rubi. The lighting will be constituted by points of light that will be inside and outside of the building to guarantee that the building is well illuminated and, the protection earth is constituted by three earth electrodes of 2m each one will be connected by a union for electrode that will be spread on the ground. The earthing conductor will be type V 10mm.

2.6.2. The hydraulic installation of the buildings is summarized in the feeding of the building through the nearest water source, removal of damaged pipes, sanitary fittings and unused taps and restoration of the sewage, followed by a new installation and supply of hydraulic devices.

The sanitary porcelain fixtures will be VAAL, SENDA, AISI and STIEBEL porcelain or equivalent of good quality, obeying the rules of assembly, sinfonage and protection of the joints with silicone or other suitable material. The taps and fittings will be metallic and chromed.

This activity includes, installation and repair of the entire water distribution system, from maintenance of the Afridev or Nira manual pump, replacement of piping, rusted rods, rod centralizers, damaged bushings, pistons, soles, foot valve, including cleaning, disinfection of the borehole and all the necessary work for the proper functioning of the water.

A 5000L Plastex type water tank made of rigid PVC will be assembled, for rainwater collection including all the fixing accessories for its good functioning.

The price includes the testing of the entire water installation for proper functioning and supply.



2.6.3. Repair of the sewage system, including if necessary, supply of all the necessary accessories for its good functioning. The price includes the testing of the entire sewage system for proper functioning.

3. METHOD OF ACHIEVEMENT

3.1 CONSTRUCTION MANAGEMENT

A construction company acquired under the supervision of UNDP engineers will carry out the rehabilitation work on the premises. The Provincial Department of Health (DPS) to ensure that the rehabilitation project is compatible with the existing one and is properly interlinked will provide additional engineering support.



3.2. CONSTRUCTION SCHEDULE

The rehabilitation schedule is fully integrated with the general resource loaded for UNPD projects. The facilities will be rehabilitated on a dynamic schedule with project schedule goals and designed to enable the project's mission performance objectives.

3.3. QUALITY WARRANTY

The project will be conducted in accordance with the UNDP Engineer Quality Assurance Program (QAP) which applies to all work carried out at UNDP. The QAP will consist of the following criteria: Program, Design, Work Processes, Inspection, Evaluation, Quality Improvement, Documents and Records.

3.4. COMMISSIONING

An important element of ultimate success will be the proper commissioning of the installation and instruments. Installation and instruments will require peak performance to fulfill the project's mission. The contractor's personnel will be responsible for the commissioning works.

4. FINAL DISPOSITIONS

Everything that is not mentioned in these specifications, it was recommended to follow the regulated techniques for the construction of such projects, and the procedures according to the instructions of the UNDP engineer.