

REHABILITATION OF ESTORIL SECONDARY SCHOOL - BEIRA

Technical Specification**1. Preliminary and exterior work on buildings****1.1 Construction site management**

- 1.1.1 The Contractor shall include the cost of the assembly and disassembly of a removable shipyard, containers, fixed and manufactured with zinc sheets or temporary masonry, which creates a space for the storage of construction materials. At least six chairs and a table should be arranged in an office for the smoothly management and supervision of the work. The contractor should arrange the provision of electrical current with lighting and two simple plugs and sanitary facilities for the office.
- 1.1.2 The Contractor shall foresee about the cost in this "item" of the mobilization and demobilization after completion of the work. In an addition, the equipment and tools that should be in a plan to use it for this work.
- 1.1.3 It is the responsibility of the contractor to prepare a plaque related to work description with a minimum area of 1m², which basically contents; 1. Identification of the key stakeholders 2. Name the work designation 3. Name of work owner 4. The name of the contractor 5. The responsible technician 6. The Inspection work 7. The nature of the work and 8. The Financier or financial supporter to this project.

2. Sealing wall

- 2.1 The contractor should remove the remaining damaged parts of the fencing wall and remove all debris to a drain, leaving the wall spaces to clean for reconstruction work. The new wall should be erected in accordance with the presented one. To cast the concrete, the mixing ratio of cement, sand and aggregate should be 1:2:4 line so that it meets class B180. For the mortars, the mixing ration should be 1:4 line where coarse sand and fine sand should be used to manufacture laying work and plastering work respectively.
- 2.2 During quantifying the unit cost of the wall, the contractor must include the manufacture and assembly of new metal gates that should similar to the existing ones in the positions where the gates are currently located. Subsequently, the date should paint with good quality

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enamel paint. Together with, the plaster wall part should be painted with washable PVA paint in two coats over one of the primers.

3 Outdoors (exterior)

The contractor should have to remove all the screed from the existing sidewalks, keeping the concrete from the base, then removing the debris from the drain. The contractor rebuild plaster with cement mortar screed and coarse sand in a mixing ration of 1: 3 line, quartered on the surface with “mason iron” in 50 cm by 50 cm squares and execute the edges of all ends of the sidewalks.

4 Playground

In addition to removing the existing screed from the playground, transporting it to proper place/a rubbish dump and executing a new screed made of cement mortar and coarse sand, which ratio is prepared in 1: 3 line. It should later be finish with cement in English syrup and execution of the edges at the ends of the field including the side renders with cement and sand mortar of ratio of the 1: 4 line. The contractor should have to include the unit price the costs of supplying and assembling new tables, beacons and nets for basketball, indoor soccer, and volleyball. In doing so, the metallic structure should properly protect with anti-corrosive agent then it should later be painted with enamel paint and the outline of the required markings for the modalities indicated with appropriate paint.

5 Water supply

It consists of carrying out a complete overhaul of the water supply system. It consists of starting with the verification of all the external water supply piping, the existence or not of leaks in the pipeline’s path, the checking the pressure quality and the general cleaning of the concrete tanks. It makes to ensure that water reaches at all point of use is an acceptable pressure at any time of the operation. If there is an insufficient pressure in the water supply system, then the pumps should be replaced with existing one.

6 Sewers

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It includes the cleaning of all existing inspection boxes, replacing the masonry and with lids cover. It also includes the pumping of all ducts at sufficient pressure to ensure that there is no obstruction in the existing connection pipes from the sanitary appliances to the pits and the drains. With that, it also should proceed with the general cleaning of the existing pits with the aid of a waste collection truck.

7 Outdoor lighting

The contractor must make a network layout with the electronic technicians that allows the illumination of the existing sidewalks from the front to main entrance gate with connection to all existing buildings. The contractor should ensure that there is enough light with safe circulation during the overnight periods. The contractor may propose to the construction supervision cost for the type of lamp and post that to be installed where the electrical system should be provided as automatic starting.

8 Removals and demolitions

8.1 The contractor shall remove all remaining cover plates on the roofs of “M1” model buildings to the dumping place (in a dump)

8.2 The contractor shall remove all remaining ceiling remains in a “M1”, “M2”, canteen, library, and administration building to the dumping place (in a dump).

8.3 The constructor shall demolish all existing firewalls and remove all debris available on the roof of the buildings of the “M1”, “M2” models, canteen, library, toilet, and administration to the dumping place (in a dump).

8.4 The contractor shall demolish all existing debris of the top points of the pillars on the balconies of the buildings of the “M1” and administration models with all the necessary care to avoid any additional effort that may reduce their resistance capacity. Preferably, the contractor should use electrical equipment such as "grinders" and "drills" with a compression hammer while cleaning and removing the existing materials. The demolitions will be carried out according to the dimensions of the bottom of the gutters that was provided for in the project, and not taking the view of the longitudinal bars of the pillars.

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8.5 For the removal of screeds on the floors of all buildings in the school complex, it is advisable to quarantine them with diamond discs attached to electric grinders to facilitate peeling by manual means. The contractor must include price of all removal the debris resulting from the work to a dump in its price list.

8.6 The contractor must be carried out the demolition of the walls to open new window openings in “M1” model buildings on the front elevations with the utmost care to avoid sudden collapses of portions of the wall. The contractor is advisable to use electric grinders and drills to shore up the tops masonry of the openings before concreting the lintels. Similarly, all debris must be removed to a dump.

8.7 Remove all the joists that are attached to the roof tops of the highest masonry blocks in the classroom blocks of the M1 model buildings and move these to the dump.

8.8 The contractor shall remove the remaining of smooth sheets of fiber cement that are on the top of the shutter windows on the rear side of the classrooms of the M1 model buildings and move to the dump and carefully handling and maintaining the existing metal structure.

8.9 Remove all remaining part of wooden beams on the roofs of the front and rear balconies of the M1 model classroom buildings and move these to the dump.

8.10 Remove all leftover blackboards from the classrooms of the “M1” and “M2” model buildings and move the wreckage to the dump.

8.11 Remove all mosquito nets existing in the window frames of classrooms in buildings of the “M1” models including the bites and channeling them to the trash.

8.12 The electrical panels of the classroom buildings of the M1 model are attached to the masonry of the front elevations in positions where new window openings will be accessed/ opened which the contractor should be moved it to the walls of the classroom cabinets on the opposite side. The Contractor must foresee the price for the probable works of partial displacement of electrical plumbing network that is besides the opening of sections.

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8.13 The contractor shall remove all remaining cover plates on the buildings of roofs to the dump. However, the contractor should pay attention to quantify the unit price of one of the three blocks of classrooms of the “M2” model. Furthermore, there is a virtually completed coverage still with IBR plates. In this case, the Owner shall remove the all coverage with IBR plates.

8.14 Remove all remaining wooden beams, madras and trusses in the roof structures of the “M2” model buildings and transport it to the dump.

8.15 The contractor must demolish all gables that do not offer as good conditions to be reused in “M2” model buildings. However, keeping those gables that are observed in better condition where the indicators of these are have no cracks and the condition of the cement blocks is acceptable after the test result "in situ" carrying out to verify the tipping. For such simple verification tests, the contractor shall execute it in support of their technicians on site.

8.16 The contractor must be demolished the supposedly part masonry that appears on top of the beams which join to the pillars of the front balconies of the “M2” model buildings. It should demolish by inserting the concrete structures of the gutters. The contractor should also demolish a part of the top of the beams so that their longitudinal bars are in view to facilitate the connection with the reinforcement of the gutter slabs.

8.17 The contractor must be removed all the corresponding doors and frames which are still existing in the “M2” buildings successfully.

8.18 The contractor must be removed all the frames and window frames which are still existing in the “M2” model buildings successfully.

8.19 All existing grids in “M2” model buildings must be successfully removed by the owner.

8.20 All the remaining broken glasses which still exists in “M2” model buildings must be removed by the Project Owner for partial use.

8.21 All mosquito nets including fixing bites which still exists in “M2” model buildings must be removed without recovery.

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8.22 All cover plates that still exist in the building of the canteen in a usage by the Owner of the work must necessarily be removed.

8.23 The contractor shall demolish the ends of three pillars of the front porch by the insertion of reinforced concrete lintels which will support to the small masonry gables that will be incorporated to strengthen the resistance of the veranda roof of the canteen building.

8.24 All cover plates (in IBR and fiber cement) which are still existing in the library building should be removed and used by the project owner.

8.25 The contractor shall demolish the ends of six pillars of the front and rear balconies for the insertion of reinforced concrete lintels that will support the small masonry gables. It will also be incorporated to strengthen the resistance of the roofs of the front and rear balconies of the library building.

8.26 The contractor shall remove all tiles in the toilet of library building without any use and then lead them to a dump.

8.27 All existing sanitary devices in the toilet of the library building must be removed with use by the Owner of the work, which includes all the pipes embedded in the plumbing and sewage walls. Those materials which are existed without any use must be taken to the dump and

8.28 All cover plates (in zinc and fiber cement) in the male and female sanitary buildings must be removed which was used by the Project Owner.

9. Concrete, steel and formwork

9.1 The contractor shall execute a reinforced concrete beam in the shape of a "T" connecting the pillars of the front and rear balconies of the buildings of the "M1" model according to the section shown in the drawings for the incorporation of gutters including the operations of formwork, reinforcement and formwork after concrete curing (28 days). The concrete of the structures must be prepared to the mixing ratio of 1: 2: 3 line.

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9.2 In the alignment of the gutter side masonry to be executed on the concrete structures indicated in 9.1, small reinforced concrete pillars should be inserted and embedded in the gutter slabs to support the gutter masonry with 410 mm longitudinal bars and 6 mm, 12 cm apart, each pillar and should be positioned on the vertical lines of the pillars of the balconies. The contractor should also have to include the unit price for formwork and formwork should be removed after three days of concrete pouring. The mixing ratio of concrete should be prepared to the 1: 2: 4 line.

9.3 The contractor shall execute a reinforced concrete slab along the existing beam that connects the pillars of the front balconies of the “M2” model buildings according to the section shown in the drawings for incorporating gutters, including formwork operations, reinforcement and stripping after concrete curing (21 days). The concrete of the structures must be prepared to the 1: 2: 3-line ratio.

9.4. In the alignment of the gutter side masonry to be carried out on the concrete structures indicated in 9.3, small reinforced concrete pillars will be inserted and embedded in the gutter slabs to support the gutter masonry with 410 mm longitudinal bars and 6 mm straps, 12 cm apart each pillar and will be positioned in the vertical lines of the pillars of the balconies. The contractor will also have to include the unit price of formwork and formwork should be removed after three days of concrete pouring. The concrete should be prepared to the ratio of 1: 2: 4 line.

9.5 In masonry gables to be carried out on the roofs of “M2” model buildings, at least two reinforced concrete pillars must be incorporated into the existing crowning beams with a section of 15 x 40 cm, with 412 mm longitudinal bars and 6 mm straps with 15 cm spacing in each pillar. The contractor should also have to include unit price of formwork and formwork should be removed after three days of concrete pouring. The mixing ratio of concrete should be to be prepared to the mix of 1: 2: 3.

9.6 Reinforced concrete lintels must be made on the front balcony of the canteen building to support the small roof gables and it must be executed where these do not exist. The concrete must be prepared in mixing ratio of the line 1: 2: 4. It should have 4 longitudinal bars of 10 mm,

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with 6 mm stirrups, 15 cm apart each lintel and the lintel's section should be 15 x 25 cm. The contractor also includes unit price of formwork and the formwork should be removed after 21 days of concreting for the bottom mold and three days for the side molds.

9.7 Reinforced concrete lintels must be made on the front and rear balconies of the library building to support the small roof gables and it must be executed where these do not exist. The concrete must be prepared in a mixing ratio of the line 1:2:4 and it should have 4 bars longitudinal strips of 10 mm, with stirrups of 6 mm, spaced 15 cm apart. The lintel section should be 15 x 25 cm. The contractor also includes unit price of formwork and the formwork should be removed after 21 days of concreting for the bottom mold and three days for the side molds.

10. Masonry

10.1 On the side walls of the gutters of the "M1" model buildings, masonry blocks of cement and sand blocks of 15 cm thick and softened with simple concrete must be erected. The blocks will be laid with cement mortar and coarse sand in a mixing ratio of the 1: 4 line and the concrete for softening must be made in a mixing ratio of the 1: 4: 7 line. It is noted that concrete pillars should be included in the masonry alignments.

10.2 The firewalls on the roofs of the "M1" model buildings should be made of cement blocks and sand of 20 cm thick and laid with cement mortar and coarse sand in a ratio of the 1: 4 line. The softening of the blocks should be done with simple concrete in a ratio of the 1: 4: 7 line.

10.3 In buildings of the "M2" model, some masonry gables must be made in cement and sand blocks of 15 cm thick, which will be laid with cement mortar and sand in the mixing ratio of 1: 4 line. It is noted that each roof gable must have two reinforced concrete pillars.

11. Roof

11.1 Reuse of the existing metallic structures in the coverings of the "M1" model edifices, reviewing all the welds available in the angles that form good the structures, reinforcing the anchor bolts in the positions where the structures are embedded in the walls, carrying out complete and anti-corrosive application. The contractor shall be fixed the manufacture and place

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new braces similar to those existing in the space between the last higher-level madres and the tops of the front walls of the classrooms (see Drawings). The contractor must also check and correct the alignments of the structural elements in case of any mismatch that allows the roofing sheets to be well aligned.

11.2 A new pine wood structure that is duly treated with “carbolineum”, should be made use on the roofs of the front and rear balconies of the “M1” model buildings, consisting of crossbars of section 5 x 15 cm and cross sections of section 5 x 10 cm (see the Drawings).

11.3 The areas of the classroom of the “M1” model buildings must be covered with 0.6 mm thick thermo-lacquered IBR sheets whole from the top to the finish, overlapping in two waves and obligatorily fixed with two clips in the overlapping waves, placed in in order to counter the prevailing direction of the winds at the construction site in addition to preventing water infiltration during heavy rains, ensuring greater safety of the roofing sheet joints.

11.4 The sheets cover the classrooms of “M1” model buildings extend to the existing rear balconies. However, fixing them on wooden structures should be done with “bottom strip” screws, following the same principles indicated in 11.3. At the terminals of the plates, that is on the last mounts next to the gutters, the fixing screws should be there without any interruption in all the waves of the plates to reinforce the safety of the plate ends which are the places most susceptible to suction under high wind pressure. The roofs of the front balconies of the “M1” model buildings follow the same shapes as the corresponding rear elevations, and the tops of the slabs must be embedded in the masonry and must be finished with cement and sand mortar, waterproofed later.

11.5 The concrete gutters of the front and rear balconies of the “M1” model buildings should be led to water discharge outlets in 90 mm diameter PVC tubes (see details in the Drawings). The blocks of two classrooms of the “M1” model should have four exits at the rear gutters and two exits at the front gutters and those of three classrooms should have six exits at the rear gutters and three exits at the front gutters.

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11.6 The Contractor should make a new roof structure in the “M2” model buildings of pine wood properly treated with “carbolineum”, consisting of trusses, madras and braces (classroom areas), sleepers and madres (balcony area) fronts), crossbars, madres and struts (back elevation porch) - see Drawings. All wood joints must be protected with perforated metal sheets.

11.7. The areas of the classrooms, front porch and rear porch of “M2” model buildings should be covered with 0.6 mm thick thermo-lacquered IBR sheets, whole from the ridge to the finish in two “waters”, overlapping in two waves and obligatorily fixed with two screws on the overlapping waves, placed in such a way as to counter the prevailing direction of the winds at the construction site, in addition to preventing water infiltration during heavy rains, ensuring greater safety of the roofing sheet joints. The lower housings of the two “waters” of the roof should be fixed with screws without any interruption in all the waves of the sheets to reinforce the security of the tips of the sheets that are the places most susceptible to the suction forces under pressure of strong winds.

11.8 At the top of the roof of the “M2” model buildings, there are 0.6 mm thermo-lacquered IBR ridges that should be placed with an overlap of at least 50 cm in such a way as to counter the prevailing wind direction at the site with “bottom strip” screws in “wave yes wave no”.

11.9 The contractor should carry out a new roof structure in the Cantina building of pine wood properly treated with “carbolineum”, consisting of sleepers, housings and braces (interior areas of the building) and housings supported on the gables (areas of the front balcony and rear balcony) - see Drawings. All wood joints must be protected with perforated metal sheets.

11.10 The contractor should make a new roof structure in the Library building in pine wood properly treated with “carbolineum”, consisting of sleepers, crossbars and braces (interior areas of the building) and crossbars supported on the gables (front porch and balcony areas) later) as see Drawings. All wood joints must be protected with perforated metal sheets.

11.11The contractor should make a new roof structure in the administration building in pine wood properly treated with “carbolineum”, consisting of trusses in a partial area (see Drawings) and crossbars in the remaining areas, madras and braces (interior areas of the building) and by

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sleepers and crossbars (front and back porch areas). All wood joints must be protected with perforated metal sheets.

11.12 The contractor should make a new roof structure in the male and female toilet buildings of pine wood properly treated with “carbolineum”, consisting of trusses, madre, sleepers and braces (see Drawings). All wood joints must be protected with perforated metal sheets.

12. Coatings

12.1 The contractor should tow all new masonry and concrete faces with cement mortar and fine sand in mixing ration of to the 1: 4 line including the edges of the new open window spans on the front elevation of the classrooms of the “M1 model buildings”.

12.2 In buildings of the “M1” model, the contractor should repair all areas with cement mortar and fine sand that have plaster in poor condition or peeled including in the paths of open sections with the mixing ratio of 1: 4 line.

12.3 The contractor should tow the interior of the gutters of the buildings that are provided with cement mortar and fine sand in a mixing ratio of the 1: 4 line, with the cement spoon applied to the surfaces in English and then waterproofed.

12.4 In buildings of models “M1” and “M2”, the contractor should execute new screeds in the classrooms and balconies with cement mortar and coarse sand of mixing ratio of the line 1: 3, properly “burned” with an English spoon with cement syrup and redo the cement baseboards around the classrooms.

12.5 Preparing the classroom blackboard with plaster of cement mortar and fine sand with of mixing ratio of the line 1: 4, properly “burned” with cement syrup using an English spoon and then appropriate paint applied to the chalk boards. The contractor should execute the edges of the board with umbilic wood, the lower part being adapted in order to have support for eraser, chalk other equipment used by teachers during classes.

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12.6 The contractor should make a new plywood false ceiling in the classroom areas of the “M1” model buildings in rectangular pieces that must be adapted to the existing metallic structures, taking some reinforcements in 30 x 30 x 3 mm angles to facilitate the fitting of the plates. The metal angles must be protected with anti-corrosion beforehand.

12.7 The contractor should repair all small cracks (below 1 mm) in the interior and exterior walls with “cruck filler” in the buildings of the “M1” and “M2” models.

12.8 In wainscoting with “Tyrolea” plaster, the contractor should repair the places where these are worn with cement mortar and fine sand to the line that allows the good application of “roughcast” with the appropriate equipment.

12.9 The contractor should tow all new masonry and concrete sides with cement mortar and fine sand in mixing ratio of the 1: 4 line in the “M2” model buildings, canteen, library and administrative block.

12.10 The contractor should make a new plywood false ceiling in the classroom areas of the “M2” model buildings in rectangular pieces that should be adapted to the wooden structures of the roof, with some reinforcements of 5 x 7.5 cm and 5 x 5 cm slats in the plane of the “lines” of the roof trusses. All wood must be treated with “carbolineum”. The plywood sheets should take 4 x 1.5 cm wooden slats over the joints.

12.11 In the buildings of the canteen, library, male and female toilet and administrative block, the contractor should execute new screeds with cement mortar and coarse sand in mixing ratio of the line 1: 3, properly “burned” with an English spoon with cement syrup.

12.12 The contractor should repair all cracks with an average thickness above 1 mm with a cement mortar and fine sand finish in mixing ratio of the 1: 4 line, with considerably large cracks made in some cracks and locked with 6 mm rod flaps or chicken chain in the buildings of the canteen, library, male and female toilet and administrative block.

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12.13 The contractor should repair all small cracks (below 1 mm thick) in the interior and exterior walls with “cruck filler” in the canteen, library, male and female toilet and Administration buildings.

12.14 The contractor should make a new plywood false ceiling in the canteen buildings, library and administrative block in rectangular pieces that should be adapted to the wooden structures of the roof, however, with some reinforcements of 5 x 7.5 cm joists and 5 x 5 cm slats in the structural plane of the false ceiling. All wood must be treated with “carbolineum”. The plywood sheets will take 4 x 1.5 cm wooden slats over the joints.

12.15 In all the toilets of the school complex, up to 1.8 m in height of the interior walls, white tiles of 15 x 15 cm should be provided which should be laid with cement glue and the joints filled with appropriate bitumen.

12.16 The contractor should tow all new masonry faces with cement mortar and fine sand in ratio of the 1: 4 line in the male and female toilet building.

12.17 The contractor should use waterproof all the interior walls and bottom of the concrete cisterns on top of the male and female toilets, with appropriate waterproofing materials that must be presented and approved by the Construction Supervision.

13. Carpentry

13.1 The contractor shall reuse the existing wooden doors and frames of the “M1” model buildings, male and female toilets and administrative block. However, the contractor replaces “in situ” or in a carpentry the pieces that are not in good condition, using the *umbila wood* without white parts and subsequently grouting and mechanical sanding, having to replace with new good quality fittings to be approved by the Construction Supervision. The contractor should manufacture and assemble new *umbilical wood* fittings similar to the existing ones. The contractor, however, must foresee its price if there is to supply new doors in the case where the existing ones are proven invalid.

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13.2 The contractor should reuse the double doors and the respective existing wooden frames in the classroom cabinets of the “M1” model buildings. The contractor should replace “in situ” or in a carpentry the pieces that are not in good condition, using the *umbila wood* without white parts and subsequently grouting and mechanical sanding, should replace with new good quality fittings to be approved by the Construction Supervision. The contractor should manufacture and assemble new umbilical wood fittings similar to the existing ones. The contractor, however, must foresee its price if there is the possibility of supplying new doors and frames in the case where the existing ones prove to be invalid.

13.3 The contractor should reuse the frames of the existing wooden windows of the “M1” and administration model buildings, replacing “in situ” or in a carpentry the pieces that are not in good condition, using *umbilic wood* without white parts, and subsequently carry out grouting and mechanical sanding and must properly reseal it. The contractor, however, must foresee its price if there is the possibility of supplying new rims in the case where the existing ones prove to be invalid.

13.4 The contractor should reuse the existing wooden window frames of the “M1” and administration model buildings, replacing “in situ” or in a carpentry the pieces that are not in good condition, using *umbilic wood* without white parts, and subsequently carry out grouting and mechanical sanding, replacing it with new good quality fittings approved by the Construction Supervision. The contractor should manufacture and assemble new umbilical wood fittings similar to the existing ones. The contractor, however, must foresee its price if there is the possibility of supplying new window frames in the case the existing ones are proven invalid.

13.5 In all wooden shutter frames of the windows of buildings of the “M1” and administration models, the contractor shall place a plastic mosquito net with new *umbilical wood* fixing bites similar to the existing ones.

13.6 The contractor should supply and place new frames of *umbila wood* without white parts similar to those existing in the buildings of the “M1” models in the open spaces in the corresponding front elevations.

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13.7 The contractor should supply and place new wooden shutter frames *in umbila* without white parts similar to those existing in the buildings of the “M1” models in the open spaces in the corresponding front elevations including the good quality fittings to be approved by the Inspection of the Constructions.

13.8 The contractor shall reuse the triangular wooden frames existing in the “M1” model buildings, replacing “in situ” or in a carpentry the pieces that are not in good condition, using *umbila wood* without white parts and proceed later grouting and mechanical sanding and must be replaced with new glass. The contractor, however, must foresee in its price for the possibility of supplying similar new rims if the existing ones prove to be invalid.

13.9 The contractor should supply and place new doors and frames with new *umbilical wood* flags without white parts similar to those existing in the “M2” model buildings in the corresponding access spaces to the classrooms, including similar fittings and fittings to be installed of good quality and approved by the Construction Supervision.

13.10 The contractor should supply and place new window frames with flags on fixed glass blinds in *umbila wood* without white parts to fit the classrooms available on the front elevations of the buildings corresponding to the “M2” models, including the metal chunks or in rigid PVC according to the Construction Inspection decision with sufficient glass sheets to fit in the lower spaces of the corresponding windows, excluding glass.

13.11 The contractor should supply and place new window frames with flags on fixed glass louvers in *umbila wood* without white parts to fit the classrooms available on the rear elevations of the buildings corresponding to the “M2” models, including the metal chunks or in rigid PVC according to the Construction Inspection decision with sufficient glass sheets to fit in the lower spaces of the corresponding windows, excluding glass.

13.12 The contractor should supply and place 4 mm plain glass on all windows and door flags available in “M2” model buildings, with the edges properly facing to avoid cuts.

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13.13 In all windows and flags on the access doors to the classrooms of the “M2” model buildings, the contractor shall place a plastic mosquito net with new anchorage points *in umbila wood that is similar to the existing one*.

13.14 The contractor should supply and install new *umbilical wood* doors and frames without white parts similar to those existing in the canteen and library buildings in the corresponding openings including fittings similar to the existing ones and fittings that must be of good quality and approved by the Construction Supervision.

13.15 The contractor should supply and install new window frames and respective glass and network frames in *umbila wood* without white parts and similar to those existing in the buildings of the canteen and library in the corresponding openings, including fittings similar to the existing ones and fittings that should be of good quality and approved by the Construction Supervision.

13.16 The contractor should supply and place 4 mm plain glass on all window frames in the canteen and library buildings including the glass mass and fixing the protective bites.

13.17 In all windows of the canteen and library buildings, the contractor shall place a plastic mosquito net with new anchoring bits in *umbila wood*.

14. Metalwork

14.1 On the rear elevation of the “M1” model buildings, the contractor shall fix the joints by welding the tops of the existing windows with 3 mm metal plates on the existing metal structure and make some reinforcement with 25 x 25 x 3 mm metal angles. In part of the metal sheets, proceed to open some holes to allow ventilation to the suspended ceilings of the classrooms. Furthermore, the anti-corrosive to the entire metallic structure shall be applied.

14.2 The contractor shall utilize the best use of the existing metal gratings of the windows of the “M1” model buildings, sanding them and applying anti-corrosive. The contractor shall make welding reinforcements if necessary.

14.3 The contractor shall manufacture or supply and assemble new window grids for opening in the front elevation of the “M1” classroom blocks, similar to the existing grids in the same block, using 10

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mm smooth bars. With together, the contractor should apply sanding them and anti-corrosive agent as well as.

14.4 The contractor should supply or manufacture and assemble new grills on the windows of the classrooms and flags on the access doors on the “M2” model blocks, similar to the existing grids, using 10 mm smooth bars. With together, the contractor should apply sanding them and anti-corrosive agent as well as.

14.5 The contractor should utilize the best use of the existing metal grates on the doors and windows of the canteen, administration and library buildings, sanding them, welding reinforcements, deburring and anti-corrosive materials should also use on it.

14.6 To proper use of the existing opaque metallic grid in the sales sector of the canteen building, the contractor should be sanding it, welding reinforcements, deburring and applying of anti-corrosive on it.

14.7 To proper use of the existing metallic grid in the entrance hall for the interior compartments of the library building, proceeding with disassembly and reassembly in better conditions, the contractor should be sanding it, welding reinforcements, deburring and applying the anti-corrosive on it.

15. Electric installation

15.1 The contractor performs a complete overhaul of the electrical installation of the “M1” model buildings to guarantee the safe operation without anomalies, eventually replacing some conductor wires and other accessories that are not in good working condition. It also includes the moving current position from the electrical panel to near the access door to one of the classrooms in order to allow the opening of new window openings provided for in the project. The contractor should move the electrical ducts that may eventually be in the area of the open windows.

15.2 The contractor should supply and place the following accessories for acceptable quality and approved by the Construction Supervision where necessary and eventually replace the existing accessories with:

15.2.1 New simple switches.

15.2.2 New simple plugs.

15.2.3 New 10 x 10 cm branch boxes.

15.2.4 Simple new armatures with the respective 40 W fluorescent lamps for lighting classrooms and balconies.

15.2.5 Simple new armatures with the respective 20 W fluorescent lamps for lighting classroom boards and main door frames.

15.2.6 Simple new armatures with the respective 20 W fluorescent lamps for lighting the interior and exterior compartments of the buildings of the canteen, library, male and female toilet and administrative block.

15.2.7 Simple new armatures with the respective 40 W fluorescent lamps for lighting the interior and exterior compartments of the administration building in positions where it requires.

15.2.8 New electric ceiling fans for interior service compartments.

15.3 The contractor should check or review the existing electrical installation in the administration buildings, library, canteen, male and female toilet and classroom blocks of the “M2” model, contemplating the replacement of all conductor wires that may be damaged, replacement of the junction boxes missing or in poor working order, arrange for the proper operation of the electrical panels and other components that guarantee the proper functioning of the installation, that also includes the carrying out with the Construction Supervision of supporting tests.

16. Paintings

16.1 The contractor should paint the exterior walls, pillars, beams and gutters of the “M1” model buildings above the “Tyrolean” plastering with good quality normal PVA paint (“Dulux” or similar) in two coats (on faces with existing plasters) and two coats on one of primer (on surfaces with new plasters). The faces to be painted should be initially cleaned and blasted if necessary.

16.2 The contractor should paint all the wainscoting on the exterior walls with Tyrolean plaster, including those on the pillars of the “M1” model buildings, male and female toilets and administration block with good quality washable PVA paint (“Dulux” or similar) in two coats over one primer. The faces to be painted should be initially cleaned and blasted if necessary.

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16.3 The contractor should paint all the wainscoting on the interior walls of the classrooms of the “M1” and “M2” buildings with good quality washable PVA paint (“Dulux” or similar) in two coats. The faces to be painted should be initially cleaned and blasted if there is necessary.

16.4 The contractor should paint all the interior walls of the classrooms of the “M1” and “M2” buildings, above the wainscoting, with good quality normal PVA paint (“Dulux” or similar) in two coats. The faces to be painted should be initially cleaned and blasted if necessary.

16.5 The contractor paints all the plywood suspended ceilings made in the school complex buildings with good quality enamel paint (“Dulux” or similar) in two coats over a wooden primer, with the faces to be painted should be clean initially.

16.6 The contractor should paint all the wooden elements, namely the doors, cabinets, and windows, of the “M1” model buildings with good quality enamel paint (“Dulux” or similar) in two coats over a primer wood. In addition, the faces to be painted should be clean initially.

16.7 The contractor should paint all the metallic elements in sight, namely the window grilles and metal plates on top of the windows on the rear side of the “M1” model buildings with good quality enamel paint (“Dulux” or similar) in two coats, with the faces to be painted should clean initially.

16.8 The contractor should paint all the wainscoting on the exterior walls including the parts with plaster on tyrolean walls of the “M2” model buildings with good quality washable PVA paint (“Dulux” or similar) in two coats. The faces to be painted should be initially cleaned and blasted if necessary.

16.9 The contractor should paint the exterior walls above the wainscoting of “M2” model buildings, canteen, library, male and female toilet and administrative block with good quality normal PVA paint (“Dulux” or similar) in two coats (on faces with existing plasters) and two coats on one of primer (on surfaces with new plasters). The faces to be painted should be initially cleaned and blasted, if necessary.

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16.10 The contractor paints all the wooden elements, namely the doors and windows of the “M2” model buildings, canteen, and library with good quality enamel paint (“Dulux” or similar) in two coats over one of the primers of wood. The faces to be painted should be initially cleaned and blasted, if necessary.

16.11 The contractor should paint all the metallic elements (window grills) of the “M2” model buildings with good quality enamel paint (“Dulux” or similar) in two coats. The faces to be painted should be initially cleaned and blasted, if necessary.

16.12 The contractor should paint all the metallic elements (door and window grilles) of the canteen, library and administration buildings with good quality enamel paint (“Dulux” or similar) in two coats, with the faces to be painted should be initially cleaned, if necessary.

16.13 The contractor should be painted all the wainscoting on the exterior walls of the canteen and library buildings with good quality washable PVA paint (“Dulux” or similar) in two coats. The faces to be painted should be initially cleaned and blasted if necessary.

16.14 The contractor should be painted all the interior walls of the canteen, library and administration buildings with good quality washable PVA paint (“Dulux” or similar) in two coats. The faces to be painted should be initially cleaned and blasted if necessary.

16.15 The contractor should be painting all the wooden elements (doors) in the male and female toilet buildings with good quality enamel paint (“Dulux” or similar) in two coats over a wooden primer. The faces to be painted should be initially cleaned, if necessary.

16.16 The contractor should be painted all the interior walls above the tiles of the male and female toilet buildings with good quality washable PVA paint (“Dulux” or similar) in two coats. The faces to be painted should be initially cleaned and blasted if necessary.

17. General/access facilities

17.1 the contractor should execute a ramp to access the balconies of the classroom blocks of the models “M1” and “M2” in lightly reinforced concrete (trace of the concrete: 1: 2: 4 ratio,

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reinforcement to be used - diameter 8 mm), coated on the top with cement screed and coarse sand in prepared to the line 1: 3 mixing ratio, quartered with mason “scratch iron” on the surface to ensure a good adhesion of the floor.

17.2 The contractor should execute a light ramp to access the balconies of the canteen and library buildings in lightly reinforced concrete (concrete trace ratio 1: 2: 4, reinforcement to be used - diameter 8 mm), coated on the top with cement screed and coarse sand in prepared to the 1: 3 line, quartered with mason “scratch iron” on the surface to ensure a good adhesion of the floor.

17.3 In the space adjacent to the Canteen building, the existing wall must be reused, stripping the paint that is applied directly on the cement blocks, then plastering on both sides with cement mortar and fine sand to line of 1: 4 and applying washable paint over the plastered faces in two coats over one of the wall primer. Remove the existing “matcheça” and rebuild a new one that has been improved with the necessary protections.

17.4 The contractor should execute a ramp to access the balconies of the administration buildings and the male and female toilets in lightly reinforced concrete (concrete trace ratio of 1: 2: 4, reinforcement to be used - diameter 8 mm), coated on the top with screed made of cement and coarse sand, prepared to the of 1: 3 line, quartered with mason “scratch iron” on the surface to ensure good adhesion of the floor.

17.5 The contractor should take advantage of one of the sanitary divisions in each bathroom (male and female) to install a sanitary cabin for disabled people, with the necessary comfort so that the People Living with Disability can make use without any constraints.

18. Toilets, plumbing and sewers

18.1 The following accessories of acceptable quality and approved by the Construction Supervision unless a particular reference made which should be supplied and placed in all the toilets available in the buildings of the school complex:

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18.1.1 Toilets with their respective cisterns in white porcelain.

18.1.2 Washbasins with pedestal in white porcelain.

18.1.3 Taps for washbasins.

18.1.4 PVC flush valves for washbasins and urinals (diameter - 50 mm).

18.1.5 Rubber discharge siphons for washbasins and urinals (diameter - 50 mm).

18.1.6 Flexible spouts for washbasins and cisterns (length - 40 to 80 cm, inlet and outlet nozzle diameter - $\frac{1}{2}$ ").

18.1.7 Meter taps for washbasins, urinals and cisterns (inlet and outlet nozzle diameter - $\frac{1}{2}$ ").

18.1.8 Stainless steel towel rails (length - 60 to 80 cm).

18.1.9 Toilet roll holder.

18.1.10 Turkish white porcelain toilets including high-flush metal cisterns.

18.1.11 Urinals in white porcelain.

18.2 The contractor should carry out in all the toilets available in the buildings of the school complex with a new installation embedded in the walls for the water piping in hydronyl or PPR pipes with diameter $\frac{3}{4}$ "for the distribution and diameter $\frac{1}{2}$ " for the direct supply of the devices sanitary.

18.3 The contractor should carry out in all the toilets available in the buildings of the school complex with a new installation embedded in the walls and floors for the sewers in PVC pipes of the "Marley" diameter 50 mm in the direct exits of the sanitary appliances, 75 mm for the collection of the "White waters" for inspection boxes and 110 mm for "black water" discharges.

18.4 The contractor should necessarily make use of the existing cement washbasins in the male and female sanitary blocks, replacing the taps and the flushing accessories and clean the appliances properly with appropriate products.

19 Unforeseen

The contractor shall be able to detail in the Bill of Quantities all the works he/she deems convenient for the good execution of the work and quantify the respective costs.