

# MAQAM AL-NABI MUSA

### Architectural & Civil Book Of Specifications



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### Specification

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#### 1. Dismantling and Demolishing Works

#### 1.01 Scope of work:

included in this contract shall be the demolishing of existing walls and fixtures as shown on drawings .

#### 1.02 Contractor:

should submit a complete Method statement for the Demolishing works to obtain Engineers approval before commencement with work. The method to include the sequence of operation, shoring methods and any procedural requirements.

#### 1.03 Services:

The Contractor should coordinate with the authorities and will arrange the disconnection of electricity, gas, water and any other obsolete services before commencing site operations and mark and protect existing services, which are to remain

# 1.04 Protection of Electrical and Mechanical installation in use: protect drains still in use ensuring that:

- a) Manholes. Gulies etc. are not damaged.
- b) Drains are kept clear of debris at all times.
- c) Electrical and Mechanical installations shall be diverted in a manner to avoid any disruption to the services in the project area and surroundings.
- d) Any damage caused during demolition operations is made good and drains are left in clean and working order.

#### 1.05 Demolishing works

- Temporary Supports: provide maintain, alter and adapt temporary supports of adequate strength to ensure the safety of adjoining structures, buildings and nearby services.
- b) Partialy Demolished Structures: Prevent access of unauthorized persons to partialy demolished structures. Leave safe at close of each day's work and prevent debris from overloading any part of the structure.



- c) Dangerous Openings: illuminate and protect as necessary.
- d) Hazardous Gases and Substances: make safe any tanks or pipes known or thought to have contained flammable liquids, gases or other potentially hazarous substances before removal. Take precautions to prevent fire or explosion caused by gas or vapor present in or leaking from storage tanks, pipes etc.

#### **1.06** Supports and protection

- a) Support of existing structure: support existing structure is necessary during cutting of new openings or replacement of structural parts. Submit details of the supports to the supervising engineering for information. Do not allow new work to be over-stressed when removing supports.
- b) Protection of existing structure: Existing structures should be protected to preserve existing status. All cutting away or stripping out should be performed with care to reduce the amount of repair works and making good to a minimum.
- c) Protection of existing services: protect existing services exposed during course of alternative work.
- d) Protection of building interiors: protect building interiors exposed to weather during course of alteration work with temporary weather tight enclosures of sufficient size to permit execution of new work and ability to withstand severe weather.

#### 1.07 The Contractor

shall upon completion of demolishing works remove all surplus material at a dumpsite designated by the municipality.

## 1.08 Rates of demolishing works shall include demolition of any materials at any height or thickness.

- a) Dismantling of existing walls.
- b) Dismantling of metal and timber works.
- c) Removal of tiles, ceramic tiles, sanitary fixtures, and unload disposal and surplus material at dump site designated by the municipality.
- d) Protection of existing utilities and surroundings.



- **1.09** Contractor shall check on site prior to demolishing works.
- 1.10 Measurements for dismantling and demolishing works for floor tiles is in m2.
- 1.11 Measurement for demolishing existing walls and any stuctures of any size are LS.
- **1.12** Measurement for dismantling doors and windows are in No.
- 1.13 Contractor will be severely sanctioned if debits are dumped in unauthorized areas.

#### 2. Excavations and Backfilling Works

- 2.1 Rates for excavation shall include for:
  - a) Cleaning the site of all debris, rubbish, shrubs, trees, bushes, and fences, etc. Prior to commencement of work.
  - b) Excavation in any material what so ever found including rock to any depth.
  - c) Trimming, leveling, ramming bottom of excavation.
  - d) Stockpiling.
  - e) Keeping excavation free from underground water by pumping or any other means.
  - f) Properly supporting the sides of excavation.
  - g) Removing & cleaning extra earth of site.
- 2.2 Excavations shall be measured net, no allowance shall made for palking strutting and working spaces.
- 2.3 The quantities for excavation are those before excavation, no allowance shall be made for increase in bulk after excavation.
- 2.4 Testing of compacted fill shall be performed by an approved testing laboratory:
  - a) Compacting shall be accomplished by approved equipment.
  - b) Laboratory tests shall be performed by approved equipment.



- c) Test results should be submitted to the supervising engineer within 3 days of placing fill. If results indicated tests do not meet requirement all defective work should be removed, re-compacted and re-tested at the contractor expense.
- d) One test shall be made for 50 cubic meters of fill material placed.

#### 2.5 The base coarse :

shall be maintained in a condition satisfactory to receive a subsequent base or surfacing material, and shall be compacted to not less than 95% of the maximum density determined in accordance with the latest modified AASITTO T - 180D.

- 2.6 Measurement for all kind of excavation are in cubic meters (m3).
- 2.7 Measurement for all kind of backfilling are in cubic meters. (m3).

#### 3. Concrete Works

#### 3.1 Rate for concrete work shall include for:-

- a) Vibrating and packing around reinforcement and between form work.
- b) Curing and sprinkling.
- c) Work of any cross –section area and at any height.
- d) Grading, tamping and traveling.
- e) Form work and metal ties.
- f) Form work grooves, throats, holes, chases rebates chamfer, splayed angles, molding and the like.
- g) Forming mortises and grouting in.
- h) Steel reinforcement of any grade, size and length as in detailed drawings.
- i) Construction expansion and contraction control joints.
- j) The use of white cement where necessary.
- k) Mastic sealant.
- I) Approved additives and admixtures.
- m) Sampling and testing.



#### 3.2 Concrete shall be measured net, no deduction will be made for:-

- a) Volume pieces and spaces.
- b) Distance pieces and spaces.
- c) Rods and bars in any location and at any height.
- d) Cutting and waste.
- e) Steel reinforcement bars.
- f) Ready mix concrete with pump... etc.

#### 4. Stone Work

#### 4.1 repair and replacement of stone:-

- a) Stones to be repaired or replaced are shown on the drawings or any others stones requested by the Engineer. Stone should be replaced with stones of similar material. Color, shape and size, dressing texture free from any defects. Mortar and pointing shall be as specified, of lime ingredients,
- b) Old stones should be removed carefully without affecting the adjacent stones.
- c) Height of joints should be same as adjacent.
- d) The traditional construction methods and materials will be used when replacing stones or rebuilding them.

#### 4.2 Grouting

- a) The objective is to strengthen decayed masonry, which is weakened by large fractures and voids.
- b) Grout mixtures:-
  - 2 part of PFA (pulverized fly ashes in a puzzolanic material.
  - Parts lime in volume.
  - Parts of bentonite clay additive.

Crushed conical stones should be used to fill wide cracks with mortar solid to water ratio 1:3.

- c) Before inserting the grout close the cracks and the joints in the vaults and clean voids and wet all surfaces.
- d) Grout is inserted working sideways then upwards.



e) Measurement for grouting will be in M2.

#### 4.3 New stone:-

Recommended use of reused old stones

Rates for stone work shall include for

- a) Preparation of any surface.
- b) Any width pattern or area, any location and any height.
- c) Fair, rebated, rounded, chamfered splayed, beveled, and mould edges grooves flutes and the like.
- d) Square, raking and circular cutting.
- e) Cutting and fitting into any opening or recessed area, and fitting around any section.
- f) Admixtures.
- g) Traditional stone links over any opening.
- h) All reinforced concrete columns inside walls, corners, etc.
- i) Fixing any stone (Lintels).
- j) Fixing any stone wall at existing building at joints between old and new elements.
- k) Sleeves inside any wall for electrical or sanitary and heating installation and size is according to the instructions of the architect.
- I) Sample of stone should be submitted and approved before commencement of work. It is recommended to reuse old stones.
- m) Size of stone should match existing stone courses.
  - Measurement of all types of new stone shall be in meter square no measurement will be made for any recesses, projections or side of stone pieces side of jambs and lintels all opening over 0.1 m2 shall be deducted.
  - Measurement of coping and sills shall be in square meter.
  - Measurement for replacement of decayed stone shall be in square meter or lump sum as indicated in the bill of quantity.
  - Size of stone must be identical to existing, with the same Construction methods and materials.



#### 5. Tiling Works

- a) Pavement tiling shall be done as described in the drawings.
- b) Stone tiles are measured net in square meters from dimensions shown on the drawings.
- c) Rates shall include for supplying all materials, haulage, protection, storage, plant, equipment and tools, accessories, fixing, mixing and curing and all incidental work necessary for the proper execution of the finishing to the engineer's satisfaction. Rates shall include for preparing and submitting samples for approval.
- d) Rates for tilling shall include for attending and making good all work after other trades to the approval of the Engineer.
- e) Rates for street tile finishing shall include for patterns, straight and curved cutting, waste, grouting, pointing and the like to execute the works according to the drawings, and to the approval of the Engineer.
- f) Rates for tile street finishing shall include for cutting to shape around fittings, chamfering, leveling and the like, and shall include for purpose – made tiles and (ex. Rounded edges, coves, etc.) where shown on the drawings or directed by the Engineer.
- g) Rates to include stone, sand mortar, pointing, tools, tests and workmanship.

#### 6. Masonry Cleaning and Pointing

#### **Cleaning Masonry**

In all cleaning operations the original surface of the stone must be respected, together with its patina. Wire brushes of any sort should not be used as they may damage the patina. Cleaning by hand using Nylon brushes only. Before cleaning test areas must be prepared, in order to agree on the amount of required cleaning and to find the most suitable method.

#### a) Weed Removal:-

The recommended treatment for masonry covered with algae, lichen, mosses and a small plant is described below. The biocides based on a



quaternary ammonium compound effect the initial kill, and when combined with tributyl tin oxide will have a ling term inhibiting effect on re-colonization. When handling and mixing biocides, remember to wear rubber gloves and in addition, when spraying, to wear safety glasses, mask and goggles. Do not spray in the immediate vicinity of other unprotected people and animals.

- Remove as much growth as possible in the form of plants and thick cushions of moss with knife blades, spatulae and stiff bristle or nonferrous soft wire brushes. If the surface below the growth is delicate or liable to be marked or scoured in any way this preparation must be limited to lifting of the moss only.
- 2. Prepare a solution of quaternary ammonium based biocide to the manufacturers specification.
- 3. Fill a pneumatic garden type sprayer two thirds full with the diluted biocide. Adjust the nozzle to a coarse spray setting. There should be sufficient pressure at the wand nozzle, after pumping the container to saturate the surface of the masonry without causing excessive bounce back and spray drift.
- Apply a flood coat. Commence at the top of the vertical surface to be treated and move across horizontally and slowly approximately 100mm run down. The next horizontal pass should be made across the previous run down.
- 5. Leave the treated area for at least one week. Brush off as much dead growth as hoppers are kept clear.
- 6. Prepare a solution of a proprietary biocide based on a quaternary ammonium compound and incorporating tributyle tin oxide or other proven long lasting biocide to the manufacturers specification.
- 7. Fill a second pneumatic sprayer with the dilute biocide and apply in eh same manner as (4) above.
- 8. Allow the surface to absorb and carry out a second application of proprietary biocide as (6) above.
- b) Mist cleaning:-

Mist Cleannig is used for exterior evaluations.



- 1. Fine mist gives most wetting effect and uses the least amount of water.
- 2. Should not be done in winter.
- 3. To obtain a fine mist sufficient water pressure is necessary.
- 4. The time to soften the dirt must be found by trial and error, once softened it may be removed by brushing.
- 5. Wire brushes of any sort should not be used as they may damage the patina. Use nylon brushes only.
- 6. The water used for cleaning should be collected form the base of the well and can be re -circulated. Water should be free from any chemicals.
- 7. No sand blasting is allowed.
- c) Paint removal:-
  - Paint should not be removed by abrasives but by solvents, if the surface of the stone is not to be damaged. Sodium Hydroxide (caustic soda) or Methyline Chloride are usual.
  - 2. Take care not to spill on adjoining surfaces.
  - 3. The surface of the stone should be thoroughly wetted before applying chemicals.
  - 4. For sensitive, valuable stonework use poultices of clay or lime or Carboxy Methyl Cellulose + solvent (Na or Hydroxide).
  - 5. Scrape off with wooden scraper.
  - 6. Rinse off with low-pressure water lance.
  - 7. Neutralize hydroxide with weak (acetic) acid.
- d) Rates:-

The rates for cleaning the stone shall include:-

- 1. Supplying, storing of solvents and other chemicals for cleaning the stone and removal of paint.
- 2. Fixing of any damage that might occur during the work of cleaning the stone.
- 3. Labor costs of cleaning and paint removal.
- 4. Cost of materials and tools.



- 5. Scaffolding costs.
- 6. Cleaning of surrounding after work.
- e) Measurement for stone cleaning are given in square meters. All openings over 0.5m2 shall be deducted.

#### 6.01 The Re-pointing Process

a) Preparing the joint:-

Loose, powdery, excessively soft, badly stained or cracked mortar should be raked (cut out) to a minimum depth (2-2.5 times the width of the vertical joint) using hand tools, without widening the original joints.

Before filling any brick or stone that are loose should be reset. No electrical tools to be used.

The joints should be finally cleaned out gently flushing with water to remove all loose particles and dust.

When filling, the joints should be damp to prevent too rapid absorption of water form the new mortar, but no standing water should present.

- b) The new mortar should:-
  - 1. Match the original mortar in color and texture.
  - 2. Be softer than the brick or the stone and as soft as the original mortar.
- c) Mortar mixes:-
  - The mixes lime / sand (in different proportions) are the traditional mortars, mixes with lime / sand and set- additive like brick dust is laso required.
  - 2. In time the color and texture of the sand dominate.
  - A clean well graded aggregate is essential for the good performance of mortars and plasters. Small size aggregates fits between the larger. In term of size "well – graded" aggregate will range between 2-3, 6mm to 150 microns. The proportions can be determined by a stack of standard sieves.
  - The use of stone dust is not permitted, a sharp crystalline sand with a little sparkle is desirable:-



- 5. St. Astier Limes or similar NHL 2 is recommended 1 volume of NHL 2:2 volumes of sand.
  - The fines must be sieved out to avoid putty like surface of the pointing.
  - With some stones the remaining coarse particles may decompose in time and thus spoil the mortar.
  - A proper mix is a proportion of 1:3 wet lime to aggregate (sharp sand well washed and graded).
- d) Filling the joints.
  - 1. The joint should be filled in successive layers, allowing each layer to harden before adding the following. Layering reduces shrinkage.
  - 2. To give the joint a smooth, denser outer layer the joint must be tooled.
  - 3. It is important to tool at the right moment, when mortar is neither too soft (hairline cracks may occur), nor too hard.
- e) Shaping the joints.
  - 1. pointing styles used on the masonry should be analyzed and reproduced.
  - 2. The appropriate shape of the joint depends on the type of a masonry.
  - 3. The mortar joints should shed water to avoid the penetration and the accumulation of rainwater between the mortar and masonry elements.
  - 4. The profile to be used is the concave joints.
  - 5. Pointing style must be compatible with the existing pointing styles.
- f) Cleaning and aging the mortar.
  - 1. Bits of mortar are best removed with a stiff dry of lightly dampened brush after the mortar has initially set.
  - 2. If the mortars have been properly matched, it is best to let the new age staining is an unreliable and unstable technique.



- g) Rate should include cost of labor, cost of materials, tools and scaffolding, cleaning and patching.
- h) Measurement for pointing should be in square meters, all opening over 0.5m2 shall be deducted.

#### 7. Waterproofing and Expansion joints

#### 7.01 Rates for damp proofing and water proofing shall include for:

- a. Cleaning down preparing surfaces.
- b. Any width or area.
- c. Fair and rounded edges, drips arises and angle fillets.
- d. Cutting to line, overlapping turning into grooves and pointing.
- e. Laying to slope, falls or cross falls.
- f. Working into outlets channels gullies and the like.
- g. Cutting, trimming making holes and forming openings, including working around pipes and openings, and making good.
- h. Protection of the whole work under this section.
  - Rates should include cost of labor, cost of material tools, tests and guarantee.
  - Measurement for damp proofing shall be in square meter.

#### 8. Block Works Rendering and Plastering

#### 8.01 Block works: rate for block work shall include for:-

- a. Work for all classifications in any location.
- b. Rough and fair cutting.
- c. Cutting or leaving holes chase grooves, mortises and sinkings including all making good.
- d. Cutting and piping or building in ends of lintels steps, timbers, rails brackets, steel sections and the like including all making good.
- e. Bedding and piping frames with cement mortar and building in door and window frames and the like.
- f. Fair facing and pointing.



g. Metal latching and bonding.

Reinforced concrete beam 20cm high above doors or any opening.

Mortar Portland cement and fine aggregate mix above doors or any opening.

Measurements of blocks are given net in square meters, all openings over 0.1m2 shall be deducted.

#### 8.02 Plastering and rendering:-

Rates for plastering shall include for:-

- a. Removing any old plastering and re-plaster for areas shown in drawings.
- b. Wire mesh between differing materials or over pipes and conduits.
- c. Picture rails at construction joints and angle beads at corners.
- d. Any width or area any location and any height.
- e. Plaster to surfaces to falls, crossfalls and slopes including making good after all trader.
- f. Working into channels, around grills outlets and the like.
- g. Fair joints, fair edges, rounded edges, chamfered edges, sharp arises, round angles, cove angles and the like.
- h. Watering walls before and after plastering for a period of one week at least.
- i. Using special lime mix rendering for existing walls and patching works, all as mentioned in specifications.
  - Render coat : 2 lime: 6 sand 9mm thick
  - Floating coat : 2 lime: 6 sand 9mm thick
  - Finishing coat : 1 lime: 2 sand 3-6mm thick

Finish coat should match existing level (surface).

- j. For external cement plaster, works should be executed to areas shown in drawings and as directed by the engineer, mix to be as follows.(Not applicable for Project of Dar Saba in Beit Sahour).
  - Bond coat 1 cement: 1 fine aggregate.
  - Base coat 1 cement: 4 fine aggregate.



- Finish coat 1 cement: 1 sand + Nito Bond SBR with a special additive to be close to the stone color, as approved by the engineer.
- Mixes are by volume in wet conditions.
- Sand should be clean and well graded.
- Lime should be at least three days set in water.
- Some aggregate like brick dust or crushed ceramic can be used.
- External plastering.
- k. Samples should be approved by engineer.
- I. Batches should be in size that they could entirely be used within half an hour.
- m. Price includes, plastering doors and windows jambs lintels, soffits ets.
- n. All openings over 0.5m2 shall be deducted.

#### 9. Wall and Floor Cladding

#### 9.01 Rates for tiles and floor finishing shall include for:

- a) Cleaning and removing old tiles, mortar at any existing floor and walls.
- b) Application to and preparation of any surface.
- c) Any width pattern or area, any location and any height.
- d) Pointing.
- e) Finish to surfaces, to falls, crossfalls and slopes.
- Fair, rebated, rounded, chamfered, splayed beveled and molded edges, grooves, flutes and the like.
- g) Square, raking and circular cutting.
- h) Cutting and fitting into any opening or recessed area, fitting around any section.
- i) Admixtures.
- j) Cramps and all other fixing accessories.
- k) Metal angles or supports.
- I) Fill at any height. Fill under floor ceramic tiles will be sand.
- m) Samples should be submitted to architect to be approved.
- n) Wire mesh at junctions and over pipes and where is needed.
- o) Cleaning all surfaces after tiling and removing debris.



- p) Fill under tiles will be aggregates (somsom), sand layer at the top.
- q) For cut stone, stone should be hard, sample should be submitted for approval.
- r) Pointing all kinds tiling, skirting etc. With white cement.
- s) Polishing any type o cut stone, windows sills, steps, steps and skirting etc.

#### 9.02 Ceramic tiles should be (20 x 20)cm Negev class A.

- 9.03 Mortar mix to be 1.5 cement 3 fine aggregate.
- 9.04 Ceramic tiles are measured net in square meters including all details, no deductions will be made for areas less than 0.1 M2.

#### 10. Metal Works

#### **10.01** Rates for Metalwork shall include for:

- a) Submitting approved shop drawings proir to fabrication of units.
- b) Transporting hoisting, welding and the like.
- c) Assembling, welding and grinding.
- d) Drilling, countersinking, bolting and riveting including all nuts and washers.
- e) All cuttings, notches and making holes.
- f) Anchors and lugs including fixing and building in.
- g) Factory rust proof painting or two primer coats of nuts inhibiting before fixing as specified.
- h) Swan softwood dovetailed grounds, blocking and backings including all making good.
- 10.02 Where doors have no structural member to which they may be secured the provision for rigidity of such doors shall be provided.
- 10.03 Doors should be supplied with Italian handles (Domicile handles) or similar as approved by the supervising engineer. Three heavy duty hinges, Yale lock and Yardini Cylinder.
- 10.04 All dimensions of metal work must be readapted to fit the existing conditions of the site.



- 10.05 Fixing any frame to any new and existing wall.
- 10.06 All metal works should be painted with two coats of anti rust paint before installations.

#### 10.07 Prices include for:-

- a) Handles, hinges, locks.
- b) Glazing (where shown in drawings).
- c) Anti rust painting (2 primer coats).

#### 10.08 Metal works shall be measured:-

- a) For fences and hand rails in meter run from one face only.
- b) For doors and windows in square meter.
- c) For I beams in meter run.

#### 11. Carpentry Works

#### 11.01 Rates for carpentry shall include for:-

- a) Submitting of approved shopdrawings before fabrication of the units.
- b) Any length or cross section.
- c) All kind of joints, all cutting and waste.
- d) Raking, curved or circular work and labors.
- e) Notching, mortising, boring, sinking forming angles, and rounded edges.
- f) Plugging to concrete, block and stone work including all making good.
- g) Two coats of wood preservative to all non-exposed faces of timber.
- h) Preparing surfaces to receive finishes.
- i) Swan ground, sub-frames blocking and backings.
- j) Easing and adjusting doors protection generally.

#### **11.02** The Contractor is to take measurement on site.

- 11.03 Doors should be supplied with Italian handles (Domicile handles) or similar as approved by the supervising engineer. Three heavy duty hinges, Yale lock and Yardini Cylinder.
- 11.04 All doors should be submitted for approval.
- 11.05 New doors should be beech wood, hard ware finish: metal brass.



- 11.06 Handles and hinges for windows should be Italian heavy-duty brass finish and approved by the architect.
- 11.07 Wood beams and surface wood boards for balconies should be Brazilian wood, (IPEA treated), with dimensions as indicated in drawings.
- 11.08 The Contractor is required to Fabricate and install a full scale model for inspection and approval of the architect before commence.
- 11.09 Measurement patching and repairing existing doors plus accessories are in No.
- 11.010 Measurement for new doors, door frames and accessories are in NO.
- 11.011 Measurement for wooden windows including glazing and accessories will be in No.

#### 12. Painting Works

- 12.01 Rates for painting shall include for:
  - a) Preparation of paint and preparation of surfaces to be painted.
  - b) Any area or width in any location.
  - c) Work in multi colors.
  - d) Cutting in edges and rubbing down between coats.
  - e) Attendance, protection and making good after all trades.
  - f) No deduction has been made for voids of any size.
  - g) All protection and care should be taken against drips, drops, droplets and brushing.
  - h) Approved best quality material, by approved manufacturers.
  - i) Rates shall include materials, storage, workmanship and treatment.
  - j) Making good all paint work to the satisfaction of the engineer, surfaces should be allowed to dry completely prior top.
- 12.02 A sample test specimen should be submitted by the contractor and approved by the engineer.



#### 12.03 Repainting of metal elements:-

a) Preparation of metal surface:-

Surface preparation:- one or more of the following procedures are to be applied for surface preparation upon the existing conditions and the engineers approval, tests should be applied to find the most appropriate method on the expenses of the contractor.

- b) Degreasing any oil or grease should be removed, by scrapping, warm water or non caustic degreasing agents.
- c) Manual preparation: chipping, scraping and brushing, if not sufficient mechanical preparation is required by grinders and rotary wire brushes.
- d) Flame cleaning also provides a high level of cleanliness from paint, loose mill scale and rust, it should be used for small sections specially elements located at damp areas.
- e) Acid pickling is also recommended use phosphoric acid not hydrochloric acid, which leave soluble salts on metallic surfaces.
- f) Dry abrasive cleaning: be sure not to be too heavy to keep milled or beaten surfaces safe. Removal of dust from surface of iron thoroughly prior to painting.
- g) Rust removing solutions: Mechanical removal of loose and thick rust layers then apply orthophosphoric acid which is available in gel form.

#### 12.04 Painting:

a) Primers and inhibiting pigments:

Two coats of red lead or any conventional primer should be applied.

- b) Coat of bidders containing drying oils (alkyd resin paints) is applied.
- c) Under coat and finishing coat should be chlorinated rubber paint exterior grades, used in accordance with the directions of an approved manufacturer.

#### 12.05 Repainting work for plastering: -

- " All plastered masonary surface should be line washed" (old and new).
  - a) Use of Lime wash: -



Old lime washed surfaces should be maintained with lime wash and any alternative paint system is strongly forbidden.

b) Constituents:-

The basic constituent is lime, to which pigments (for the color), and tallow, linseed oil or casein for a more durable treatment may be added and water.

Application of lime wash

The surface should be brushed down to removal loose dust.

Immediately before application the surfaces should be sprayed with water. The lime wash is applied with a grass brush or other soft – haired brushes, working it well into the surface, but not trying to cover cracks and imperfections with the first application. As it dries it will become semitransparent.

The use of three applications is standard, four or five may be necessary on exposed faces.

Lime wash should not dry too quickly by exposure to hot sun. Temporary protection from sun and rain should therefore be provided.

#### Painting rendering:-

Where color is to be applied it is extremely important to ensure that the new rendering has dried out completely (usually about four weeks for a 25 mm thick plaster).

#### 12.06 Painting works shall be measured:-

- a) For fences and hand rail in meter from one face only.
- b) For doors and windows in square meter.
- c) For plastered surfaces in square meter, all opening exceeding 0.5 m2 shall be deducted.

