

## **A) GENERAL SPECIFICATIONS:**

### **1) RATES FOR EXTRA ITEMS**

For items other than given in Schedule of Quantities the contractor shall produce for discussion of their rate, with the unless approved by the Architect, the following: 1. All related data. 2. Rate Analysis. 3. Vouchers showing prices of the materials used for the execution of the item. 4. Pay sheets showing amount paid to the labor Employed for the execution and total overhead expenses incurred if any the contractor shall be entitled to a Profit of 15% over the above costing submitted by the Contractor for the particular item. The quoted rates shall hold good for similar items executed during the construction period thereafter.

NOTE: It shall be noted that the contractor shall not execute any extra item before he has got Approved the rate for the same from the Architect as per above It shall also be noted that the Architect if it finds that the said rate can be arrived from quoted items then the rates worked out by the Architect shall hold good.

### **2) WATER & ELECTRIC POWER**

Water and Power shall be provided at one point in the boundary of the premises. The Contractor shall make his own arrangements for its distribution as and where needed within the plot.

### **3) USE OF OLD MATERIALS**

Old materials except for temporary work such as shoring shuttering, bracing etc shall not be permitted at site, unless approved by the Architect. No old or reused material shall be used in the construction unless approved by the Architect.

### **1) SUFFICIENCY OF LABOUR**

At all times the Contractor and/or his sub-contractors shall have sufficiency of labor to complete the work on schedule If according to the unless approved by the Architect the progress of work is affected by insufficiency of labor Contractor and/or sub contractor shall show good cause for the inefficiency. No delays or excuses shall be entertained for the lack of labor. If the Contractor is found to be negligent about supplying the labor required on the work, IIT shall at its own right shall do the work and recover the expenses incurred from the money due to the Contractor

## B) MATERIAL SPECIFICATIONS

1. **LIME:** Lime shall be best quality hydraulic lime properly burnt and from approved places and shall be slaked with fresh water at the site. The lime shall be free of unburned kankar, ashes and other impurities including salts.
2. **NEERU:** Neeru shall be made of the best description of hydraulics lime slaked with fresh water and sifted. The lime shall be ground to fine powder by grinding in a mortar. The neeru shall be kept moist until used and no more than what can be consumed in 15 days shall be prepared at one time.
3. **SAND:** The sand shall be coarse. Clean. River or pit, of approved quality free from salts clay, loam and other organic impurities. It shall be washed with clean water without any extra charge, if required by the unless approved by the Architect. All sand shall pass through a sieve having meshes not more than 3/4"wide. In mortar to be used for plaster the sand shall be used after screening.
4. **PORTLAND CEMENT** The cement procured by the Contractor or the clients shall be stored in a watertight room at the site. The cement in this room shall be stored at least 600 mm away from the walls, 300mm clear from the floor, in rows, and 10 bags in height. Cement shall confirm to IS: 269. The Contractor shall get the cement tested as per 1ST procedure if so required by the unless approved by the Architect and/or Consulting Engineer, at Contractor's expense The Contractor shall produce the statement of cement consumed to unless approved by the Architect whenever required.
5. **WATER** Water shall be fresh, sweet and potable. Storage for water shall be made as, directed by the unless approved by the Architect. The Contractor shall make his own necessary arrangement for storage at his own cost. The Contractor shall allow the use of the use of the water to other contractors working on site, if any and the unless approved by the Architect shall apportion the cost of the same. Due care shall be taken to see that the water is not contaminated in any way.
6. **BRICKS**The bricks shall be table molded and shall be of best quality locally available, subject to approval of the unless approved by the Architect. They shall be free from grit, well burnt, sound, hard, square and with sharp edges and shall have a ringing sound when struck with mallet. They shall be of uniform size. No brick shall absorb more than 15% by weight of the brick., water after immersing it for 24 hours in water. It shall confirm to IS1077
7. **TIMBER**The timber shall be best C.P. Teak or as specified in the Schedule of Quantities and approved by the unless approved by the Architect. It shall be perfectly dry, well seasoned, free from sap wood, sound, straight free from large and loose knots, crack, shakes and other defects. Defective wood is liable to be rejected even after it is fixed in position.
8. **GLAZING** Unless otherwise specified the glazing shall be patent, float glass of best quality. Plain ground as specified and shall be free from flaws, specks, and bubbles. It

shall be 24 oz per Sqft up to a size of 600mmx600mm and above that size 26 oz. per Sqft. for panes up to 750mmx750mm for panes 900mmx900mm glass not less than 32 oz. per 8ft. shall be used. Above 900mmx900mm size plate glass shall be used.

#### **9. PAINTS**

**BASES:** These shall be of best white lead, red lead, and zinc white or oxide of Iron of the best Indian make approved by the unless approved by the Architect.

**VEHICLE:** The oil shall be double boiled linseed oil of approved quality and shall appear. When filled in a single phial limpid, pale and brilliant. It shall test sweet with very little odour and shall dry quickly and firmly.

**SOLVENT:** These shall be spirits of turpentine

**PIGMENTS:** These shall be of elected tints and approved make

### **C) TRADE AND MODE OF MEASUREMENT**

#### **1) BRICK MASONARY**

Every brick to be used in the masonry work shall be soaked in potable water, till the bubbles stop coming out, or at least for 24 hrs. The bricks shall be laid with frog upwards. The courses shall be truly horizontal and the vertical joints shall come one above another in alternate course. If the wall is more than 230 mm thickness then both edges of the wall shall be in true face, line and plumb. All fixtures pipes, outlets of water window frames with holdfasts etc., shall be in proper place as per drawings and details, as the work proceeds. The joint must be raked at the end of the day. The joints shall not be thicker than 12 mm. If the bricks available on site the best approved by the unless approved by the Architect are not of uniform size, the Contractor shall try to achieve the above joint thickness and/or shall see to it that the joints are uniformly thick and are thin as possible subject to the approval of the unless approved by the Architect or Consulting Engineer. When placed above concrete foundations, though the foundation are cured for 10 days, the masonry work can be start within 48 hours of foundation casting. No broken or half bricks shall be used except for the closures. The vertical joints shall not be more than 10 mm in thickness. The brickwork shall not be raised more than 14 courses a day and table shall be formed at fourteenth course and kept full of water. The masonry shall be laid in English bond when bending the brickwork shall be laid back by 5.5 CMS. At every course, no vertical toothing will be accepted. The top course of all masonry in plinth, parapets, steps, and top of the walls below RCC work shall be laid with a leader course. Unless specified otherwise the course shall be taken that the brick, forming top of corners and ends of wall shall be properly radiated and keyed in position. The work shall be cured for 15 days. The dates must be marked on the walls to check the curing period. Holes shall be kept in masonry for erecting scaffolding for the construction of upper walls only. These shall be filled with mortar before commencement of the plastering work, or they shall be filled with brick only in case the masonry is to be pointed. .

**MEASUREMENT:** The measurement for walls up to 230 mm thickness shall be in length of the wall and height of the wall multiplied together. The above shall be subjected to following conditions. -

There shall be no deductions for openings of area less than 100 sqcm, ends dissimilar material, drainage holes, window or door hold fasts, concrete lintel bearings (note: deduction. shall be made for PCC bed block copings in case of load bearing construction), landing slabs (the PCC below the slabs if shown in drawing shall be deducted.), chimney flues cut-outs, iron fixtures, pipes up to 300 mm diameter Nothing extra for making .I) leaving grooves in the masonry shall be paid.

For brickwork of thickness higher than 230 mm the measurement shall be in Cu.m. The thickness shall be as per the drawings. No extra shall be paid for thickness higher than that specified in the drawings, if it is due to bad workmanship of the Contract. Quantity shall be arrived at subject to conditions mentioned above. In brick pillars if smallest dimension is less than or equal to 230 mm. then the payment for the pillars shall be made similar as 230 thick wall. Gable or tapered walls shall be paid as brick walls (in area or volume measurement). Cavity walls shall be treated as separate walls for measurement. No extra payment shall be made for the thickness of cavity. For ties etc., separate rate shall be worked out. For honey combed walls measurement shall be as per full wall with all the rules of deduction in opening stated above shall be considered No extra shall be paid; for the holes

For 115 mm thick wall the rate shall include 2 nos. 6 mm diameter bars at every fourth course. The overlap of the bars shall be 300mm

## **2) PLASTER**

In all plaster works DOUBLE SCAFFOLDING having 2 sets of vertical supports shall be provided so that the scaffolding is independent of walls. Single scaffolding shall be allowed only if the Contractor takes a prior permission from the unless approved by the Architect. Ceiling plaster shall be completed before wall plasterwork is commenced with. Wall plaster shall be done from top to bottom and the plastering of each wall shall be done within a single day. If for all reason of wall being long the

Contractor feels he has to the plastering of each of the walls will have to be done on different days, then he shall take a prior permission from the unless approved by the Architect. All the comers shall be straight in vertical or horizontal or curved alignment as the case may be. But these comers shall be sharp wherever required. Junctions wherever required shall be done without extra payment. Any cracks visible on the surface, or any portion or patch that will be found hollow by the unless approved by the Architect, the same shall be rectified by the method suggested by the unless approved by the Architect, by the Contractor without claiming any extra payments. The internal plaster shall be cured least for seven days and the external plaster shall be cured for least fifteen days.

The external plaster rate shall include sand facing, raised pointing, sunk bends, pattas, moulds, grooves, encasing all pipes etc. complete.

Measurements for plaster shall be paid on area basis for the area actually plastered. It shall be noted that apart from the non-permissible deductions of masonry items no deductions or additions in area of measurement of the plaster shall be allowed. The measurement shall be actualize also for door, windows jambs etc

### **3) POINTING**

The raked joints of the stone wall or the brick wall to be pointed shall be kept wetted for the pointing to be done. The mortar for pointing shall consist of 1 part by cement and 2 parts by sand.

This mortar shall be applied to the wetted joints uniformly. The joints of the pointed work shall be neatly defined by pointing lines being regular and uniform in breadth. The edges of the pointing shall be cut off parallel so that well defined lines are seen at 19 mm apart. The pointing shall be kept well-wetted least for 5 days after pointing is finished

The rate pointing shall be paid on the area of the wall to which the pointing is done.

### **4) FLOORING**

#### **A. INDIA PATENT STONE (IPS)**

A flash coat of cement slurry shall be broomed into the prepared surfaces just prior to placing the lapping concrete. India patent stone shall be of a concrete mix 1:2:4 proportion with maximum size of the aggregate being) 10 mm and shall confirm to relevant IS code specification. The topping concrete shall be placed above the base layer uniformly slightly above expected finished floor level. This topping layer shall be compacted by tamper. It shall then be brought off to proper slope etc. floated and finally trowled to desired finish. Trowelling shall be commenced after the concrete is hard enough so that no mortar sticks to the trowel. A ringing sound is produced when the trowel is drawn over the surface. The trowelling shall be finished with within the time of actual setting time of the cement, which is about 3 hours after the concrete is mixed. No dry cement shall be used to have a smooth finish. The approved pattern shall be marked before final setting time of the cement.

Finished and ready surface shall be kept under water least for 10 days for curing

#### **B. POLISHED KOTAH STONE**

The stone for the floor shall be of approved colour and thickness. The stone shall be machine cut or hand cut as decided with the Contractor before commencement of the work. The stone shall be cut square and shall have fine double machine polish surfaces to a smooth finish. The surface to be covered shall be closely picked or tacked in case of RCC surface. It shall be thoroughly cleaned before commencement of the work. Lime mortar of proportion 1:2 shall be used as base coat of not more than 20 mm thickness. The stone shall be laid on this bedding

immediately. As each stone is laid it shall be tamped with a wooden mallet to fit exactly in position and level. The joints of the work shall be as per unless approved by the Architect's drawings and shall have cement pointing of approved colour. On completion of the work the whole surface shall be cleaned of dirt and/or mortar etc, and shall be thoroughly washed. The polishing shall be done in situ to remove all unevenness.

#### C. MARBLE MOSAIC TILE FLOORING

Marble mosaic tile shall have a top layer of mosaic chips of not less than 1/4" thickness of the tiles. The conc. bed shall be same as that for stone flooring above. The tiles shall be soaked in water for least 15 minutes and shall be kept drying for some time. Tiles shall be laid in approved pattern. They shall be as close as possible so that the joints between the tiles are almost invisible.

After completion of entire floor of an area the surface shall be spread with cement slurry of same colour as the tiles surface colour. The slurry shall be rubbed in so as to seal the joints between the tiles. As soon as the slurry in joints is hardened the surface shall be kept under water for least 7 days. The surface shall be ground smooth with approved type of grinding machine. The floor shall be kept wet during the grinding process. After second coat of polish with grinding the surface shall be washed clean with water and shall be soaked in water to the satisfaction of the unless approved by the Architect

#### D. GLAZED TILES OR CERAMIC TILES

The glazed or ceramic tiles as the case may be shall be of approved make, colour and type as specified by the unless approved by the Architect. Under no circumstances warped, cracked or chipped tiles shall be used. The tiles shall be laid in maximum thickness of 2mm cement mortar and shall be jointed and pointed in the relevant colour cement slurry by process similar to that for marble mosaic tiles. Glazed rounded corners, concave or convex as required shall be provided and no extra cost. Measurement of all the flooring items shall be on the basis of area of surface covered with the tiles, stones as the cases may be.

### 5) CARPENTRY & JOINERY

Timber used for joinery shall be of good approved quality of CP Teak wood unless specified otherwise. All timber for framework, carpentry, joinery, backing, fixing strips etc., shall be coated with good quality and approved wood preservatives. The Contractor shall observe strictly the manufacturer's instructions regarding the preservatives while applying them. For joinery use of nails shall not be permitted Fixing of Joints or woodwork shall be done with screws or round brads, the heads of which shall be properly punched in. All exposed surfaces shall be rubbed with sand paper before erection for the approval of the unless approved by the Architect . No colour or preservatives shall be applied to the erected work before approval of the unless approved by the Architect. For fixing the screws to the concrete the screws shall be galvanized unless specified by the unless approved by the Architect, otherwise. The rate for doors and



windows shall include the procurement, provision on site of fixtures such as hinges, handles, guard rails, etc., as specified in the schedule else where, and also the cost of the labour for the same. All fixtures shall be fitted with brass screws.

If and where specified flush type block board or different kind, of ply or bison board type materials that shall be used shall be purchased by the Contractor after getting the approval of the unless approved by the Architect of the manufacturer of the material. These boards whenever used shall have TW lipping around them if so specified by the unless approved by the Architect. All surfaces of the timbers resting against concrete or wall shall have one coat of coal tar. Care shall be taken to see that no tar is visible on the surface, which is exposed.

Measurement of this item shall be area between the clear open spaces between the plaster surfaces for windows. For doors it shall be clear open area between plastered surface and the finished floor level (lowest floor level) at the bottom of the door.

**Laminate :** 5.1 Laminate shall be 1/1.5mm thick as specified in the drawings and details of the make and shade as approved by architect. The laminate shall be fixed with a good quality adhesive lie Fevicol / Vemicol it shall be pressed and left for sufficient time to give a good smooth surface without any air pocket or any sings of warping etc.

**Wood Polish :** The Surface to be polished shall be free of dirty, dust etc. And sand papered to a smooth surface. The polish shall be prepared with spirit and approved quality acrylic. The surfaces shall be prepared and all holes, cracks shall be filled to form truly even surface The Polishing of the exposed surface shall be done minimum three coat of spirit polish with intermediate sand papering after each coat of polish. It shall be finished to the entire satisfaction of the Architect, and a final coat of Mansion ax' Polish shall be applied, and the surface be finished. For insides of cabinets and drawers the polish shall be done in two coasts. The undersides of the tabletops shall be finished with one coat of polish. All samples of polish shall be approved by the Architect and the shades / colour shall be matched properly wherever necessary.

## **6)Painting:**

Timber surfaces that are to be polished or painted shall be free from unevenness and dirt etc. if any. The surface shall be rubbed down dry to the satisfaction of the unless approved by the Architect. Plaster surfaces to be painted shall be absolutely dry and free from dust or dirt. If the unless approved by the Architect feels the need the same shall be rubbed by sand paper to make it level and to remove any unevenness.

Oil paints, plastic emulsion paints shall be of approved make and shad shall he applied as per the manufacturer's instructions. .

Oil bound distemper shall he of approved make, and shade. The first coat shall be under coat recommended by the manufacturer. The second and third coats shall be applied as directed. No brush mark shall be seen after; application of the third coat

The surface for cement paint shall be made wet clean with water before commencing to paint the surface. Cement paint of approved quality, make and shade shall be applied. In three coats and shall be cured as specified by the manufacturer.

If in any of the above cases the brush marks are seen the Contractor at his own cost shall apply a new coat over the painted surface.

If epoxy based paint is recommended then the Contractor shall use these paints of approved manufacturer and shall follow strict instructions of the manufacturer for the application of paint.

Any paint dots etc. seen on the doorframes panels etc., shall be removed immediately.

The measurement for painting shall be on the area measurement of the painted surface. .

#### **White Wash:**

White wash shall be prepared from lime slaked on site and stirred with sufficient water to make a thin cream. This shall be allowed to stand for 24 hours and shall be screened through clean cloth, 4 kg of gum dissolved in hot water shall be added to each cubic meter of the cream (115 gm per cft) copper Sulphate not exceeding 3% shall be added to give required whiteness. The approximate quantity of water to be added to make cream shall be five litres per kg. Of lime.

White wash shall be applied in specified coats by a dispersing agent, detergent upto a maximum of 5% will be added to the mix before application using flat brushes or spray pumps. Each coat shall be allowed to dry before the next coat is applied. If additional coat then what have been specified are necessary to obtain uniform and smooth finish, it shall be given at no extra cost.

**Distemper:** The shades shall be approved by the Architect before the application of distemper. The surface shall be prepared as specified earlier. A primer coat using approved primer or sizing shall be applied. Distemper prepared as per manufacturers directions shall be applied and each coat shall be allowed to dry before the subsequent coat is applied. The finished surface shall be free from chalking when rubbed, even uniform and shall show no brush marks. If additional coats are necessary, they shall be given at no extra cost.

**Oil Paint:** Ready mixed oil paints, flat oil paint, plastic emulsion paint, ready mixed synthetic enamel paint, aluminum paint, etc. shall be brought in original containers and in sealed tins. If for any reasons a thinner is necessary, the brand and quality of the thinner recommended by the manufacturer or as instructed by the Architect shall be used. The surface shall be prepared above and a coat of approved primer shall be applied. After 24 hours drying approved or specified quality paint shall be applied evenly and smoothly. A filler putty coating may be given to give thoroughly and then lightly rubbed down with sandpaper and cleaned of dust before the next coat is applied. The number coats shall be specified in the item and if the finish of the surface is not uniform additional coat as required shall be applied to get good uniform finish at no extra cost. After completion no hair mark from the brush or clothing of paint puddles in the corners of panels, ends of the moulding etc. shall be left on the work. The glass panels, floor, etc. shall be cleaned off from stains. When the final coat is applied if directed the surface shall be rolled with a



roller or textured to a special texture finish as approved by the Architect as per sample to be prepared before start of work.

**Duco Paint :** All panting surfaces shall be sand papered and cleaned thoroughly. The pores, scratches etc. shall be filled and smoothened properly. A coat of surfaces (Duco P.S. Grey) shall be applied evenly. Then surfaces shall be sand papered and cleaned. A coat on N.C. putty shall be evenly and allowed to dry completely. The water polishing with the help of water – proof emery paper shall be carried out to obtain uniform smooth/even surface. Second coat of duco paint shall be applied after drying and cleaning of the first coat. Proper care shall be taken so that no dust, dirt etc. settles down on finished surfaces. The final surface shall be finished even and mat finished. The thinner and putty used shall be Duco only. Rubbing and polishing of the painted surfaces shall be done with waxpol/duco rubbing and wax polish till the surface finish is obtained. If the plaster surface is to be finished with plaster of Paris punning, the surface shall be combed slightly with the wire brushes or nails before it is completely set to form key for plaster of Paris punning. The surface shall be thoroughly cleaned of dust then only damped but not soaked before the application of plaster of paris punning. The Gypsum for preparing punning shall be approved quality. It shall be dry and free from lumps and shall be suitably packed in watertight bags or containers. Paste shall be prepared by adding required quantum of water and same shall be used before it sets. No dropping paste shall be used in the work. Punning shall be applied to the prepared surface with steel trowel to a thickness required to make the surface produce perfectly smooth and even surface working from top to bottom. It shall then be sand papered to give a smooth and even surface. Any unevenness shall be made good by applying putty, made of plaster of paris mixed with water, and then sand papering the same after it is dry. Filling in plaster shall be made good with plaster of paris mixed with colour to be used. The surface shall then be rubbed down again with a fine grade sand paper and made smooth. The surface shall be allowed to dry thoroughly before the regular coat of paint is applied. The measurement shall be in square metre.

**Plastic emulsion paint:** Plastic emulsion paint shall be of approved manufacturer and shall generally confirm to IS-5411 (Part-I) – 1969.

The colour and shade of the emulsion shall be got approved by the Architect. Double Scaffolding shall be used, ladden if used shall be tied with old gunny bags at top to prevent damage or scratches to the walls. The instructions of the manufacturer shall be followed, in application of priming and finishing coats. Turpentine or any other solvent shall not be used for thinning the paint. Minimum 3 coasts of paint shall be applied inclusive of primer coat. If a proper and even surface is not obtained to the satisfaction of the Architects in 3 coats, Contract shall carry out additional coasts of painting to approval at his expenses. Care shall be taken that dust or other foreign material do not settle or disfigure the various coats. The measurement shall be in square meter.

**Water proofing Silicon based painting :** It shall be used on external surface mainly on exposed stone surface by spray equipment. The contractor shall bring the material to the site in their original packing. The containers shall be opened in front of Asstt. Engineer and used as recommended by the manufacturers. The surface shall be free from residues and shall be washed down by brushing and washing with fresh water then allows to dry overnight. The silicon solution of approved make shall be applied on the clean & dry surface with spraying machine uniformly the second coat shall be applied after first coat has been set for at least 24 hours, before application of the second or subsequent coats the surface of the previous coat shall not be wetted. **The Rates generally include:** Work, at all heights and use of all scaffolding, trestles, cradles, etc. necessary for execution of work and for inspection by inspecting officers. Preparing surfaces to receive finishing coats such as brushing, sandpapering, scrapping, washing and rubbing etc. Work on comices, narrow widths bends, etc. Spreading and removing covering to door, windows floor fittings etc. to protect them from splash. Washing floors cleaning glass, joinery, sanitary and electric fittings etc. of drops and splashes and leaving premises clean and tidy. Racking and scraping concrete surface to be plastered or rendered.

## **7) POLISHING**

The French polish for woodwork shall be prepared by mixing 1:4 proportions of shellac and spirit. The mixture shall be shaken well to dissolve the ingredients thoroughly. The mixture shall be applied to wooden surface with cotton wool and with even pressure. The surface then shall be set aside for two hours for attaining hardness It shall then be rubbed with 0 no sand paper to remove any raised grains The above process shall be repeated twice A cotton wad wet with mentholated spirits shall be rubbed in single direction to obtain uniform glassy finish to the satisfaction of the unless approved by the Architect.

Surfaces polished with bees wax shall be first rubbed with sand paper and shall be made smooth and cleaned. Bee wax polish of approved make shall be applied as recommended by the manufacturer and to the satisfaction of the Architect.

## **8) STEEL WINDOWS**

All steel windows shall be of approved quality and make. If necessary the Contractor shall provide a sample of window material he proposes to use for the approval of the unless approved by the Architect. The Contractor shall bear the cost of the sample produced by him. The steel windows shall be fixed to the concrete or wall surfaces by iron screws or by steel holdfasts as approved by the unless approved by the Architect. The steel windows shall have one coat of red oxide paint in factory before they are brought to site for erection.

Measurement of this item shall be as per area between the steel frames of the windows. In case of doors the area shall be measured from the finished floor level (lowest floor level)

## **9) ALUMINIUM DOORS AND WINDOWS**

Aluminium section used for doors and windows shall anodized, satin finished, and/or powder coated as specified by unless approved by the Architect. The sections shall be of good quality and manufacture and a sample of the same shall be produced if required by the unless approved by the Architect. Aluminum sections shall be of standard weight specified by the unless approved by the Architect in the relevant items. The main frames shall be filled with Sal wood pieces only where the Contractor shall have to fix the hinges or shall need to screw it to the wall etc. The Contractor shall include cost of procuring and bringing the material at site and the labor, screws etc required for fabrication of the doors and windows at site, in his rate. The Contractor shall also include filling material rate like if any of the panels of shutter are to be made by marine ply/bison board etc., in his rate for the above items.

The measurement for the item shall be as per the clear opening of the wall from plaster face to plaster face. For doors the measurement shall be from lowest finish level to the top plaster level, vertically and plaster to plaster horizontally.

## **10) ROLLING SHUTTER**

Rolling shutter shall be procured from approved manufacturer

The measurement for the same shall be taken as unfinished opening between the walls floors, top.

## **11) Furnishing Materials and workmanship**

The Contractor shall be responsible for providing all plant, tools, materials, labour and all things necessary for the proper execution, completion and maintenance of the works.

### **a) Timber**

The moisture content of the timber during manufacture, delivery to site, storage, site working, assembly, installation shall be 10 to 12 percent Timber shall be teak wood, soft or hardwood and shall be suitable for the purpose for which it is intended. It shall be seasoned or kiln dried, absolutely free from worm holes, large loose or dead Knots or other defects which would effect strength or usability and shall be flat, straight non-splitting and dressed on all sides. It shall be matches for colors and graining.

### **b) Fixing**

The carpentry timber shall be fixed with nails, spikes, bolts screws, hangers, stirrups, anchors, ties or any other accessories which are suitable to develop the full strength of the member to which they are attached, as directed. All above hardware for fixing in exterior location shall be galvanized / anodized. Carpentry timber where fixed to solid masonry or concrete shall be secured with expansion bolts or other positive methods of mechanical fastening. MS hold fast grouted in CC block shall be hold the door frames.

### **c) Timber – Treatment**

All timber shall be protected with an organic solvent water repellent wood preservative to give a highly efficient protection against termite, spider, worm, all insects and fungus and rot attack and shall, where exposed, enhance the appearance of the timber. Colour of the product shall be such as to bring out the natural colour of the respective timbers. Colour of the product shall be such as to bring out natural colour of the respective timbers. Fire retardant paint to timber shall be applied as per the recommendations of manufacturer and shall comply with the requirement of ISI / B.S. code and local fire requirements.

### **d) Plastic Laminate**

Plastic decorate laminate sheeting shall be of the brand, catalogues number and indicated or approved. Plastic laminate shall be fire retardant to class I of BS 476 or ISI code where specified.

### **e) Veneers**

Veener shall be of the timber species shown on drawings. Veneers are to be kept in sequence as they are being cut from wood and supplied as such to the site for accurate matching or figuring. The veneer shall be finished as specified and shall be equal or superior quality to that laid don is IS : 1659 – 1960 or as approved. Wherever Veener of approved quality in Indian origin unless otherwise mentioned.

### **f) Plywood**

All plywood shall be of best / high quality close grained suitable for veneering, painting or bonding plastic laminate. It shall be resin bonded and weather proof. Exposed edges shall be finished with an edge strip of solid teakwood tongued and grooved and glued, or as detailed. The plywood of approved brand and manufacture only shall be used in the work. The thickness shall be in accordance with the drawings / schedule of quantities.

### **g) Adhesives**

The adhesives used for all woodwork and boards / ply shall be FEVICOL / VAMICOL of appropriate Grade. Manufacturers recommendations shall be followed for adhesive other than above required for any specified / specialized work. **Joinery** Joinery shall be carried out strictly in accordance with the drawings. Where joints are not specifically indicated recognized forms of joins shall be used. Joinery shall conform to IS standards. Panels shall be rendered flame retardant and to conform to local fire regulations. The Contractor shall submit samples of all materials including samples of veneer for approval. All materials pre-fabricated materials including samples of veneer for approval. All materials pre-fabricated, delivered and assembled shall be in accordance with the approved sample. The contractor shall be responsible for protecting all items of woodwork done by him. The contractor shall replace at his own expense any damaged work caused through lack of adequate protection or care in installation or handling.

#### **h) Gyp – Board**

Gyp – Board (Glass Fibre Reinforced Board of M/s. India Gypsum Ltd.) or Equivalent conforming to IS – 2095- 1982 and 2542 – 1981 shall be used. Technical detailing for fixing Gyp-Board along with jointing compound, paper tape, primer, screws, edge bead, angle bead etc. shall be as per Manufacturers specification. Proper care is to be taken while handling, storing and cutting the Gyp-Board as per manufacturers manual and the work shall be done in technical co-ordination / assistance with the trained staff of Manufacturer, such services being offered free by them.

#### **i) Mirrors and Glasses :**

Mirrors shall be fabricated from best clear plate or float glass of approved quality shall match the International Standards. All fixed panel mirrors shall be  $\pm 0.30\text{mm}$  tolerance. The edges of mirrors shall be polished and bevelled and mitred as per IS specifications wherever, it's indicated in the drawing. All vision glasses shall be MODI GUARD or FLOAT GLASS of specified thickness. The edges shall be bevelled as indicated in drawings and shall be done at approved source. The Etching wherever specified in drawings, shall be done at approved sources as per full-scale drawing approved by Architect / Project Manager. The etched panel shall be chemically washed / treated as per specialist specifications to have a permanent dust free surface. The Contractor shall be responsible for protecting all mirrors and glasses fixed by him and shall replace at his own expense any broken or damaged mirror / glass caused through lack of adequate protection or care in installation or handling.

#### **j) Latex Foam Rubber**

Latex foam rubber used in the work shall be ISI marked and shall conform to IS 1741 – 1960. The Grade of the foam shall be used as mentioned below :

- a) Grade B, C or D shall be used in the back cushion and arms.
- b) Grade D, E or F shall be used in the seat cushion of the furniture.

The Actual length and width of a latex foam rubber product should be greater than the nominal dimension by a small amount in order to admit of the foam rubber being slightly compressed by a cover made to the nominal dimensions.

**False Ceiling** The false ceiling comprises of Gyp-Board, Armstrong or equivalent USG & POP. The POP & Gyp board false ceiling is to be in different shapes such as Vaults, Coffers, cove's and Plain in unison with Armstrong Ceiling. The technical assistance and guidance is to be taken from manufacturers and work has to be done according to the manufacturer specifications and manuals. A sample of each finish shall be got approved before proceeding for bulk production. GI framing shall be erected as per recommendation of the manufacturer specification and approval of the Architect. The work shall be executed through the contractor recommended by the manufacturer. False ceiling work shall be carried out in accordance with the actual site conditions at different / split-levels. Any sagging, unlevelled stretch of work shall be redone / replaced and made good, at no extra charge, to the satisfaction of Architect. No compensation shall be paid on account of provision / coverage of openings for lighting fixtures, air – conditioning ducts and the likes as detailed in drawings and / or directed. Measurements shall be taken on plan area of the completed work or as specified. Deductions for openings, wherever applicable, shall be implied upon as per LS. Specification.

**Quality of Work.** All materials, article and workmanship shall be best kind for the class of work described in the Bill of Quantities and Rates. All materials to be used in various items of works shall be subjected to the approval of the Architect. The Architect shall have the power and rights to make the contractor purchase and use materials of particular source as may in his opinion, be obvious for proper and necessary compliance with specifications and description of items of work. The contractor shall provide all materials and fittings to perform any work which are obviously necessary to complete the work, which are generally provided in accordance with good accepted trade practice even though such items articles may not be explicitly mentioned in the specification and Bill of Quantities and rates or shown in the drawings. The contractor shall, without any additional charge, renew or replace any work which in the opinion of Architect are defective, improper handling during transportation / carriage or interior materials provided. Only approved bolts, screws and other metal fixing devices shall be used to secure frames, panels and other units in position. Holes shall be formed with electrical drills wherever required. Structural members shall not be cut or drilled without prior consent of Architect.

**Cleaning UP and Handing Over** Upon completion of the work all the areas should be cleaned. All floors, doors, windows, surface, etc. shall be cleaned down in a manner which will render the work acceptable to the Architect and Employer. All rubbish due to any reason shall be removed daily from the site. Upon completion of the project, the contractor shall hand over to the employer the following :

- a) Written guarantee and certificates;
- b) Maintenance manuals, if any and
- c) Keys



## **SERVICES**

### **1.0 General**

1.1 The drawings for services are diagrammatic but shall be followed as closely as actual construction permits. Any deviations from the drawings shall be in conformity with architectural and structural drawings. The dimensions designated by the manufacturers shall take precedence over the drawings.

1.2 At completion of work the Contractor shall submit one set of tracings and two sets of prints of "As-Built-Drawings". These drawings shall, among others, include invert levels, pipe runs, diameters, location of valves, access panels, layout of equipment, piping connections and such other information for maintenance & future extensions. Guarantees given by manufacturers shall be assigned to the Employer along with names & addresses of manufacturers, suppliers and information about spare parts.

1.3 No cutting / chasing shall be done in load bearing structural members without prior approval of the Asstt. En-gineer. Sleeves and openings shall be provided during the progress of construction in preference to cutting at later date.

1.4 The architect may require typical mock up(s) to be installed in advance for approval. Undamaged materials from the mock up shall be allowed to be reused in the work.

1.5 Unless otherwise described in the item CI / SCI pipes and fittings shall be a spigot and socket type.

1.6 G.I. pipe spouts shall be paid as per item of G.I. pipes (internal work). Cutting and making good is included. The free ends may be skew-cut.

1.7 Wherever use of G.I. pipes is called for the same shall be medium class (class – B)