

Name of Work: - Annual Rates for Maintaining and Repairing Various Building Works, Essential Services under Road & Building Division Anand

DETAIL ITEM SPECIFICATION

Item No.: - 34.

Providing T.M.T. Bar FE-500D reinforcement for R.C.C. work, including bending, binding and placing in position etc. complete for all floor level.

1601. Description:

This work shall consist of furnishing and placing coated or uncoated mild steel or high strength deformed reinforcement bars of the shape and dimensions shown on the drawings and conforming to these Specifications or as approved by the Engineer.

1602. General:

Steel for reinforcement shall meet the requirements of Section 1000 of these specifications.

Reinforcements may be either mild steel or high strength deformed bars. They may be uncoated or coated with epoxy.

1603. Protection of Reinforcement:

Uncoated reinforcing steel shall be protected from rusting or chloride contamination. Reinforcements shall be free from rust, mortar, loose mill scale, grease, oil or paints. This may be ensured either by using reinforcement fresh from the factory or thoroughly cleaning all reinforcement to remove rust using any suitable method such as sand blasting, mechanical wire brushing, etc., as directed by the Engineer. Reinforcements shall be stored on blocks, racks or platforms and above the ground in a clean and dry condition and shall be suitably marked to facilitate inspection and identification.

Portions of uncoated reinforcing steel and dowels projecting from concrete, shall be protected within one week after initial placing of concrete with a brush coat of neat cement mixed with water to a consistency of thick paint This coating shall be removed by lightly tapping with a hammer or other tool not more than one week before placing of the adjacent pour of concrete. Coated reinforcing steel shall be protected against damage to the coating. If the coating on the bars is damaged during transportation or handling and cannot be repaired, the same shall be rejected.

In case of fusion bonded epoxy coated reinforcement or hot dipped galvanized bars used, reference shall be made Clause 1010.3.2 of Section 1000 of these specifications.

1604. Bending of Reinforcement:

Bar bending schedule shall be furnished by the Contractor and got approved by the Engineer before start of work.

Reinforcing steel shall conform to the dimensions and shapes given in the approved Bar Bending Schedules.

Bars shall be bent cold to the specified shape and dimensions or as directed by the Engineer using a proper bar bender, operated by hand or power to obtain the correct shape and radii of bends.

Bars shall not be bent or straightened in a manner that will damage the parent material or the coating.

Bars bent during transport or handling shall be straightened before being used on work. They shall not be heated to facilitate straightening.

1605. Placing of Reinforcement:

- a) The reinforcement cage should generally be fabricated in the yard at ground level and then shifted and placed in position. The reinforcement shall be placed strictly in accordance with the drawings and shall be assembled in position only when the structure is otherwise ready for placing of concrete. Prolonged time gap between assembling of reinforcements and casting of concrete, which may result in rust formation on the surface, shall not be permitted.
- b) Reinforcement bars shall be placed accurately in position as shown on the drawings. The bars, crossing one another shall be tied together at every intersection with binding wire (annealed), conforming to IS: 280 to make the skeleton of the reinforcement rigid such that the reinforcement does not get displaced during placing of concrete, or any other operation. The diameter of binding wire shall not be less than 1 mm.
- c) Bars shall be kept in position usually by the following methods:
 - i) In case of beam and slab construction, industrially produced polymer cover blocks of thickness equal to the specified cover shall be placed between the bars and formwork subject to satisfactory evidence that the polymer composition is not harmful to concrete and reinforcement. Cover blocks made of concrete may be permitted by the Engineer, provided they have the same strength and specification as those of the member.
 - ii) In case of dowels for columns and walls, the vertical reinforcement shall be kept in position by means of timber templates with slots cut in them accurately, or with cover blocks tied to the reinforcement. Timber templates shall be removed after the concreting has progressed up to a level just below their location.
 - iii) Layers of reinforcements shall be separated by spacer bars at approximately one-meter intervals. The minimum diameter of spacer bars shall be 12 mm or equal to maximum size of main reinforcement or maximum size of coarse aggregate, whichever is greater. Horizontal reinforcement shall not be allowed to sag between supports.
 - iv) Necessary stays, blocks, metal chain, spacers, metal hangers, supporting wires etc. or other subsidiary reinforcement shall be provided to fix the reinforcements firmly in its correct position.
 - v) Use of pebbles broken stone, metal pipe, brick, mortar or wooden blocks etc., as devices for positioning reinforcement shall not be permitted.
- d) Bars coated with epoxy shall be placed on supports that do not damage the coating. Supports shall be installed in a manner such that point of weakness is not created in hardened concrete.

The coated reinforcing steel shall be held in place by use of plastic or plastic coated binding wires especially manufactured for the purpose. Refer Section 1000 of these specifications for other requirements.

- e) Placing and fixing of reinforcement shall be inspected and approved by the Engineer before concreting is commenced.

1606. Bar Splices:

1606.1. Lapping

All reinforcement shall be furnished in full lengths as indicated on the drawing. No splicing of bars, except where shown on the drawing, shall be permitted without approval of the Engineer. The lengths of the splice shall be as indicated on drawing or as approved by the Engineer. Where practicable, overlapping bars shall not touch each other, and shall be kept apart by 25 mm or 1.25 times the maximum size of course aggregate, whichever is greater. If this is not feasible, overlapping bars shall be bound with annealed steel binding wire not less than 1 mm diameter and twisted tight in such a manner as to maintain minimum clear cover to the reinforcement from the concrete surface. Lapped splices shall be staggered or located at points along the span where stresses are low.

1606.2. Welding

1606.2.1. Splicing by welding of reinforcement will be permitted only if detailed on the drawing or approved by the Engineer. Weld shall develop an ultimate strength equal to or greater than that of the bars connected.

1606.2.2. While welding may be permitted for mild steel reinforcing bars conforming to IS: 432, welding of deformed bars conforming to IS: 1786 shall in general be prohibited. Welding may be permitted in case of bars of other than Fe 240 grade including special welding grade of Fe 415 grade bars conforming to IS: 1786, for which necessary chemical analysis has been secured and the carbon equivalent (CE) calculated from the chemical composition using the formula:

$$CE = C + \frac{Mn}{6} + \frac{Cr + Mg + V}{5} + \frac{Ni + Cu}{15}$$

is 0.4 or less

1606.2.3. The method of welding shall conform to IS: 2751 and IS: 9417, any supplemental specifications and clause 1904.8 of these Specifications to the satisfaction of the Engineer.

Welding may be carried out by metal arc welding process. Oxy-acetylene welding shall not be permissible. Any other process may be used subject to the approval of the Engineer and necessary additional requirements to ensure satisfactory joint performance. Precautions on overheating, choice of electrode, selection of correct current in arc welding etc., should be strictly observed.

All bars shall be butt welded except for smaller diameter bars (diameter of less than 20 mm) which may be lap welded. Single-V or Double-V butt joints may generally be used. For vertical bars single bevel or double bevel joints may be used.

Welded joints shall be located well away from bends and shall be not less than twice the bar diameter away from a bend.

Generally, shop welding in controlled conditions is to be preferred, where feasible. Site welding where necessary shall, however, be permitted when the facilities, equipment, process, consumables, operators and welding procedure, are adequate to produce and maintain uniform quality at par with that attainable in shop welding to the satisfaction of the Engineer.

Joint welding procedures which are to be employed shall invariably be established by a procedure specification. All welders and welding operators to be employed shall be qualified by tests prescribed in IS: 2751. Inspection of welds shall conform to IS: 822 and destructive or non-destructive testing may be undertaken when deemed necessary. Joints with weld defects detected by visual inspection or dimensional check inspection shall not be accepted.

Suitable means shall be provided for holding the bars securely in position during welding. It must be ensured that no voids are left in welding. When welding is done in two or three stages, the surface shall be cleaned properly after each stage. Bars shall be cleaned of all loose scale, rust, grease, paint and other foreign matter before carrying out welding. Oily competent and experienced welders shall be employed on the work with the approval of the Engineer. No welding shall be done on coated bars.

M.S. electrodes used for welding shall conform to IS: 814.

1606.2.4. Welded joints shall preferably be located at points where steel will not be subject to more than 75 percent of the maximum permissible stresses and welds so staggered that at any one section, not more than 20 percent of the bars are welded.

1606.2.5. Specimens of Welded pieces of reinforcement taken from the site shall be tested. The number and frequency of tests shall be as directed by the Engineer.

1606.3. Mechanical Couplers and Anchorages:

1606.3.1 Mechanical Couplers:

Bars may be joined with approved patented mechanical devices as indicated on the drawing or as approved by the Engineer e.g., by special grade steel sleeves swaged on to bars in end-to-end contact or by screwed couplers. In case such devices are permitted by the Engineer, they shall develop at least 125 percent of the characteristic strength of the reinforcement bar.

1606.3.2 Anchorages:

Bars may be anchored with approved patented mechanical anchorages as indicated on the drawing or as approved by the Engineer. The anchorages shall be connected to the reinforcing bar by the use of taper thread system. The anchorage shall be capable of developing the characteristic strength of reinforcement without damage to concrete and shall have sufficient diameter and width to develop adequate shear cone strength. The connection shall develop 125% of the characteristic strength of reinforcement bar.

1607. Testing and Acceptance:

The material shall be tested in accordance with relevant IS specifications and necessary test certificates shall be furnished. Additional tests, if required, will be got carried out by the Contractor at his own cost.

The supply, fabrication and placing of reinforcement shall be in accordance with these specifications and shall be as checked and accepted, by the Engineer.

Manufacturer's test certificate regarding compliance with Indian Standards for each lot of steel, shall be obtained and submitted to the Engineer. If required by the Engineer, the Contractor shall carry out confirmatory tests in the presence of a person authorized by the Engineer. Cost of these tests shall be borne by the Contractor. The sampling and testing procedure shall be as laid down in IS: 1786. If any test piece selected from a lot fails, no re-testing shall be done and the lot shall be rejected.

1608. Measurements for Payment:

For payment, the bar shall be measured correct up to 10 mm length and weight payable works out at the rate specified below:

Reinforcement shall be measured in length including hooks, if any, separately for different diameters as actually used in work, excluding overlaps. From the length so measured, the weight of reinforcement shall be calculated in tonnes on the basis of IS: 1732. Wastage, overlaps, couplings, welded joints, spacer bars, chairs, stays, hangers and annealed steel wire or other methods for binding and placing shall not be measured and cost of these items shall be deemed to be included in the rates for reinforcement.

1609. Rate:

The contract unit rate for coated / uncoated reinforcement shall cover the cost of material, royalty, fabricating, transporting, storing, bending, placing, binding and fixing in position as shown on the drawings and as per these Specifications and as directed by the Engineer, including all labour, equipment, supplies, incidentals, sampling, testing and supervision.

The unit rate for coated reinforcement shall be deemed to also include cost of all material, labour, tools and plant, royalty, transportation, and expertise required to carry out the coating work as well as sampling, testing and supervision required for the work. **No Payment shall be made for Laps.**

The payment will be made on kilogram basis of the finished work.

Item No.: - 35.

Providing and filling of expansion joint (Cico, cicaa or equivalent) and finishing with polysulphide sealant etc. complete as directed by Engineer-in-charge.

1.0. Material:

The material shall be provided as mentioned in the item & conforming to the Standard Specification of the Manufacturer. The Key Features / Specification of the material as under.

Colours	White	Colours	White
Adhesion:	Excellent	Adhesion:	Excellent
Gloss:	Semi-gloss	Gloss:	Semi-gloss
Hydrostatic Pressure:	Withstand up-to approx 2.5kg/cm ² or 25 m head	Hydrostatic Pressure:	Withstand up-to approx 2.5kg/cm ² or

	of water.
Over painting:	May be over painted with most decorative emulsion paints.
Pot Life	2 hours at 25°C 1 hour at 40°C.
Min. Dry Film thickness per coat	a) 5mm on rough surfaces b) 0.12mm on smooth surfaces
Coverage	1st coat: Rough surfaces 2.5 m ² /kg; smooth surfaces 3m ² /kg 2nd coat: Rough surfaces 3.7m ² /kg; smooth surfaces 5m ² /kg
Curing	Recoat after 2 hours at 25°C or 50% R.H. Full Cure 7 days at 25°C or 50% R.H.
Specific Gravity	1.22
Total Solids(mixed)	55% by weight
Flash Point	Not applicable.

Colours	White
Adhesion:	Excellent
Gloss:	Semi-gloss
Hydrostatic Pressure:	Withstand up-to approx2.5kg/cm ² or 25 m head of water.
Over painting:	May be over painted with most decorative emulsion paints.
Pot Life	2 hours at 25°C 1 hour at 40°C.
Min. Dry Film thickness per coat	a) 5mm on rough surfaces b) 0.12mm on smooth surfaces
Coverage	1st coat: Rough surfaces 2.5 m ² /kg; smooth surfaces 3m ² /kg 2nd coat: Rough surfaces 3.7m ² /kg; smooth surfaces 5m ² /kg
Curing	Recoat after 2 hours at 25°C or 50% R.H. Full Cure 7 days at 25°C or 50% R.H.
Specific Gravity	1.22

	25 m head of water.
Over painting:	May be over painted with most decorative emulsion paints.
Pot Life	2 hours at 25°C 1 hour at 40°C.
Min. Dry Film thickness per coat	a) 5mm on rough surfaces b) 0.12mm on smooth surfaces
Coverage	1st coat: Rough surfaces 2.5 m ² /kg; smooth surfaces 3m ² /kg 2nd coat: Rough surfaces 3.7m ² /kg; smooth surfaces 5m ² /kg
Curing	Recoat after 2 hours at 25°C or 50% R.H. Full Cure 7 days at 25°C or 50% R.H.
Specific Gravity	1.22
Total Solids(mixed)	55% by weight
Flash Point	Not applicable.

Colours	White
Adhesion:	Excellent
Gloss:	Semi-gloss
Hydrostatic Pressure:	Withstand up-to approx2.5kg/cm ² or 25 m head of water.
Over painting:	May be over painted with most decorative emulsion paints.
Pot Life	2 hours at 25°C 1 hour at 40°C.
Min. Dry Film thickness per coat	a) 5mm on rough surfaces b) 0.12mm on smooth surfaces
Coverage	1st coat: Rough surfaces 2.5 m ² /kg; smooth surfaces 3m ² /kg 2nd coat: Rough surfaces 3.7m ² /kg; smooth surfaces 5m ² /kg
Curing	Recoat after 2 hours at 25°C or 50% R.H. Full Cure 7 days at 25°C or 50% R.H.
Specific Gravity	1.22

Total Solids(mixed) 55% by weight
Flash Point Not applicable.

Total Solids(mixed) 55% by weight
Flash Point Not applicable.

2.0.Mixing:

Stir both parts separately to overcome settlement which may have occurred, ensuring the stirrer is cleaned before using for the second part. Pour equal volumes of Part A and Part B into a clean container. Mix with a slow speed power drill fitted with a stirrer for at least 3 minutes. Do not mix more than the amount that can be applied in 40 minutes at 25⁰C. Do not use if temperature is below 10 ⁰C or above 85% humidity.

3.0.Mode of Measurement and Payment:

The work shall be measured on Sqm basis for the completed item. The rate includes the cost of all materials, labour, scaffolding, equipment's and all incidentals necessary for satisfactory completion of the work for all floor height. No extra payment will be given for any reason.

The payment will be made on running meter basis of the finished work.

Item No.: - 36.

Providing and fixing in expansion joint 100 mm thick expansion joint board of best quality and approved make including cutting to required size and shape at all levels etc. complete as directed.

Material:

Expansion Joint shall be 100 mm thick SIL FLEX (Capcell HD 100) expansion joint filler board in sheet foam of standard make as directed by Engineer in charge.

Workmanship:

The expansion joints shall be construction at the locations as shown on plan and as directed by the Engineer in charge, using a 100 mm thick SIL FLEX (Capcell HD 100) expansion joint filler board in sheet foam material which is subsequently removed. When removing the material care shall be exercised to avoid chipping or breaking the corners of the concrete. The edge of the concrete at the joints shall be edge finished. Reinforcement shall not extend across an open joint.

100 mm thickness of standard make 100 mm thick SIL FLEX (Capcell HD 100) expansion joint filler board in sheet foam shall then be placed in correct position before concrete is placed against the filler. The filler material shall form part of the joint. While concreting the care shall be taken to prevent the joint filler from displaced or damaged. After the work is completed the exposed face of the joint shall be cleaned of all loose material sticking to it.

Before fixing the expansion board the joint shall be cleaned off all debris and objectionable material. The board shall be fixed in exact line and level symmetrically to cover both the faces of expansion joints.

Mode of Measurement and Payment:

The rate shall be consolidated for all above items. The Rate shall also include all tools, plants, equipment, scaffoldings, labour, taxes, conveyance, and other incidentals for satisfactory completion

of the work at all floors / all heights and all levels, including necessary wastage involved for the work as directed by Engineer in charge. No extra payment will be given for any reason.

The payment will be made on square meter basis of the finished work.

Item No.: - 37.

Providing and laying and fixing 50 mm thick expansion joint by hydro cell semi rigid UV resistance with high performance laminated closed cell polythene foam joint filler in sheet foam as directed etc. complete.

Material:

Expansion Joint shall be 50 mm thick Hydro Cell XL semi rigid UV resistance with performance laminated closed dell polyethylene form joint of standard make etc. complete for all floor level or directed by Engineer in charge.

Workmanship:

The expansion joints shall be construction at the locations as shown on plan and as directed by the Engineer in charge, using a wood strip, metal plate and other suitable material which is subsequently removed. When removing the material care shall be exercised to avoid chipping or breaking the corners of the concrete. The edge of the concrete at the joints shall be edge finished. Reinforcement shall not extend across an open joint.

50 mm thickness of standard make Shalitax Board shall then be placed in correct position before concrete is placed against the filler. The filler material shall form part of the joint. While concreting the care shall be taken to prevent the joint filler from displaced or damaged. After the work is completed the exposed face of the joint shall be cleaned of all loose material sticking to it.

Before fixing the expansion board the joint shall be cleaned off all debris and objectionable material. The board shall be fixed in exact line and level symmetrically to cover both the faces of expansion joints.

Mode of Measurement and Payment:

The rate shall be consolidated for all above items. The Rate shall also include all tools, plants, equipment, scaffoldings, labour, taxes, conveyance, and other incidentals for satisfactory completion of the work at all floors / all heights and all levels, including necessary wastage involved for the work as directed by Engineer in charge. No extra payment will be given for any reason.

The payment will be made on square meter basis of the finished work.

Item No.: - 56.

Providing & fixing 28 mm thick Factory made solid PVC Door Shutter with frame made out of Mandana stone frame of size 125 x 65. Shutter consisting of solid core single leaf flush door of 28 mm thickness, lipped with 15 mm (5mm x 3) thick x 28mm width on one stiles and top

rail and 10mm (5mm x 2) thick x 28mm width on the other stiles and bottom rails. The inner panel laminated with 2mm thick termite proof, water proof and fire resistant moulded PVC sheet with 2,4,6 raised panel design in different plain and / or prelim colours on one side after routing the moulded design on flush door and 2mm plain and / or prelim PVC sheet on other side using rubber adhesive on flush door and solvent cement adhesive on the PVC lipping etc. complete as directed by Engineer in charge.

Frame Material:

Frame shall be Mandana stone Frame size 125 x 65 mm as specified in item description. Stone shall be of polished stone shall have the same specification as directed by Engineer in charge. Dholpur red Stone frame shall conform to M-50 / P-23 of General Technical Specifications for Building Works.

Fixing: Relevant specification for fixing frame work shall conform to Item No. 14.32 / P-97 of General Technical Specifications for Building Works.

Frame shall be straight in line, level, and having three joint pieces. Frame shall be fixed in masonry / RCC with M.S. holdfast or with 115 mm long screws as hold fast with sleeve in position and finished. Frame shall be fixed in masonry / R.C.C. in line level and plump.

Frame Tolerance: ± 1.2 to 2.00 mm tolerance will be allowed in thickness.

Shutter Material:

28 mm thick shutter in depress panel design shall be having 1.5 to 2.0 mm FRP thickness fire extinguishing grade FRP skin sandwich panel of 6 mm plywood and embedded wooden pieces for stiffening as well as holding hinges and fixtures all molded into one-piece shutter. Core material shall be injected fire extinguishing grade rigid polyurethane foam done in situ having density 32 to 36 Kg. / M³ compressive strength 1.8 to 2.0 Kg. / Cm², flexural strength 3.5 to 4.5 Kg. / Cm². Whole shutter shall be water proof, weather proof, termite proof and mild acid / alkali resistance.

Shutter: It shall be straight and smooth and of standard shape finished in gel coat. All necessary fixture and fastening shall be fixed where wooden pieces are provided.

Shutter Workmanship: Shutter shall be fixed in true line; level and proper manner having 2.0 to 3.0 mm play i.e. air space for smooth and easy working. Three S.S. hinges shall be fixed properly with necessary screws.

Shutter Tolerance: ± 1.5 mm tolerance will be allowed in thickness of Shutter.

Shutter Fixtures and fastenings: All fixtures like Aluminum / S.S. eardrop, Hinges tadi, or baby-latch, stopper, handle shall be fixed with shutter in usual manner.

Frame Modes of Measurement and Payment:

- (i) Item includes providing and fixing charges with necessary aluminum / S.S. fixtures and Fastening and screws with sleeve, M.S. holdfast.
- (ii) Frame shall be measured correct up to 1 00 cm.

(iii) The rate of frame shall be for a unit of one **square meter**.

Product should have three Years Performance Guarantee and company have ISO 9001-2000 certificate.

Mode of measurement And Payment: Rate of shutter includes the cost of aluminum fixtures & fastening with necessary screws for fixing in position including necessary wastage involved for the work. No extra payment will be given for any reason. The payment will be made on square meter basis of the finished work.

Item No.: - 57.

Providing and fixing FRP frame size 100 x 50 mm and 28 mm thick FRP depress panel shutter having extra reinforcement on sides and edges in Gel coat finish. The core of the shutter & frame is to be filed up with injected fire-retardant grade polyurethane foam done in situ along with embedded wooden pieces for stiffening and also taking hinges and fixtures. The whole FRP frame and shutter is to be water proof weather proof, termite proof & resistance to mild acid / alkali. Rates are to be inclusive of S.S. hinges with necessary screws & aluminium fixtures & fastenings & fastener sleeve.

Frame Material:

Frame material shall be of fire extinguishing grade FRP skin, having section 100 mm x 50 mm chamfered type with thickness of 1.5 to 2.0 mm and core material shall be fire extinguishing grade rigid polyurethane foam having density 32 to 36 Kg. / M³, compressive strength 1.8 to 2.0 Kg. / Cm², flexural strength 3.5 to 4.5 Kg. / Cm². Whole frame shall be water proof, weather proof, termite proof and mild acid / alkali resistance. PU foam shall be done in situ with plantation wooden pieces embedded inside for holding fixtures and stiffening.

Shutter Material:

28 mm thick shutter in depress panel design shall be having 1.5 to 2.0 mm FRP thickness fire extinguishing grade FRP skin sandwich panel of 4 mm plywood and embedded wooden pieces for stiffening as well as holding hinges and fixtures all molded into one-piece shutter. Core material shall be injected fire extinguishing grade rigid polyurethane foam done in situ having density 32 to 36 Kg. / M³ compressive strength 1.8 to 2.0 Kg. / Cm², flexural strength 3.5 to 4.5 Kg. / Cm². Whole shutter shall be water proof, weather proof, termite proof and mild acid / alkali resistance.

Frame: Frame shall be straight in line, level, and having three joint-les pieces. Frame shall be fixed in masonry/ R.C.C. with M.S. holdfast or with 115 mm long screws as hold fast with sleeve in position and finished in gel coat.

Shutter: It shall be straight and smooth and of standard shape finished in gel coat. All necessary fixture and fastening shall be fixed where wooden pieces are provided.

Frame Workmanship: Frame shall be fixed in masonry / R.C.C. in line level and plump.

Shutter Workmanship: Shutter shall be fixed in true line; level and proper manner having 2.0 to 3.0 mm play i.e., air space for smooth and easy working. Three S.S. hinges shall be fixed properly with necessary screws.

Frame Tolerance: ± 1.2 to 2.00 mm tolerance will be allowed in thickness

Shutter Tolerance: ± 1.5 mm tolerance will be allowed in thickness of Shutter.

Shutter Fixtures and fastenings: All fixtures like Aluminum / S.S. eardrop, Hinges tadi, or baby-latch, stopper, handle shall be fixed with shutter in usual manner.

Product should have Five Years Performance Guarantee and company have ISO 9001-2000 certificate.

Frame Modes of Measurement and Payment:

- (i) Item includes providing and fixing charges with necessary aluminum / S.S. fixtures and fastening and screws with sleeve, M.S. holdfast.
- (ii) Frame shall be measured correct up to 1.00 cm.
- (iii) **The payment will be made on one square meter basis of the finished work.**

Mode of measurement And Payment: Rate of shutter includes the cost of aluminum fixtures & fastening with necessary screws for fixing in position and the payment will be made on one square meter basis of the finished work.

Item No.: - 58.

Providing & fixing 30 mm thick Factory made solid both side prelam panel PVC Door Shutter consisting of frame made out of MS tubes of 19-gauge thick & size of 19mm x 19mm for stiles, top & bottom rails. MS frame shall have a coat of steel primer of approved make & manufactures. MS frame covered with 5mm thick heat moulded prelim PVC 'C' channel of size 30mm thickness, 70mm width of which 50 mm shall be flat & 20mm shall be tapered in 45-degree angle on either side forming stiles, & 5mm thick, 95mm wide prelam PVC sheet out of which 75mm shall be flat & 20mm shall be tapered in 45-degree on the inner side of form top & bottom rail & 115mm wide prelim PVC sheet out of which 75mm shall be flat & 20mm shall be tapered on both side to form lock rail, top, bottom & lock rails shall be provided either side of the panel. 10 mm (5mm x 2) thick 20mm wide cross PVC sheet shall be provided as gap insert for top rail & bottom rails. Panelling of 5mm thick both side prelam PVC sheet to be fitted in the MS frame welded, sealed to the stiles & rails with 7mm (5mm + 2 mm) thick x 15mm wide PVC sheet beading on inner side & joined together with solvent cement adhesive. An additional 5mm thick PVC strip of 20mm width is to be stuck on the interior side of the 'C' channel using PVC solvent adhesive etc. complete as per direction of Engineer in charge, manufacture's specification & drawing.

Workmanship:

This item is for 30 mm thick Factory made solid both side prelam panel PVC Door Shutter consisting of frame made out of MS tubes of 19-gauge thickness as per direction of Engineer-in-charge, manufacturer's specification & drawing.

The 30 mm thick Factory made solid both side prelam panel PVC Door Shutter consisting of frame made out of MS tubes of 19-gauge thickness & size of 19 mm x 19 mm for stiles, top & bottom rails. MS frame shall have a coat of steel primer of approved make & manufactures. MS frame covered with 5 mm thick heat moulded prelam PVC 'C' channel of size 30 mm thickness, 70 mm width of which 50 mm shall be flat & 20 mm shall be tapered in 45-degree angle on either side forming stiles, & 5 mm thick, 95 mm wide prelam PVC sheet out of which 75 mm shall be flat & 20 mm shall be tapered in 45-degree on the inner side of form top & bottom rail & 115 mm wide prelam PVC sheet out of which 75 mm shall be flat & 20 mm shall be tapered on both side to form lock rail, top, bottom & lock rails shall be provided either side of the panel. 10 mm (5 mm x 2) thick 20 mm wide cross PVC sheet shall be provided as gap insert for top rail & bottom rails. Panelling of 5 mm thick both side prelam PVC sheet to be fitted in the MS frame welded, sealed to the stiles & rails with 7 mm (5 mm + 2 mm) thick x 15 mm wide PVC sheet beading on inner side, & joined together with solvent cement adhesive. An additional 5 mm thick PVC strip of 20 mm width is to be stuck on the interior side of the 'C' channel using PVC solvent adhesive etc. complete as per direction of Engineering-in-charge, manufacture's specification & drawing.

The whole work / readymade product is to be completed as per design, sample, shade, drawing / photographs and premium quality as per approval & any other requirement shall be as per instruction of concern Department or as directed Engineer-in-charge.

Product should have three Years on site Guarantee and company have ISO 9001-2000 certificate.

Mode of Measurements & Payment:

All the work shall be measured on the basis of finished dimensions as fixed at site and shall be paid. The rate includes the cost of all materials, labour, machineries, tools and plants, fabrication, erection, hoisting, scaffolding, protective measures required for proper completion of the item of work as directed. The work shall be measured for the finished work.

This shall also include all taxes, conveyance, and other incidentals for satisfactory completion of the work, also material wastage involved for the work. No extra charge will be paid for any other reasons.

The payment will be made on square meter basis of the finished work.

Item No.: - 59.

Providing and fixing 35 mm thick shutter for door having factory made solid core, melamine faced, three layered resin flushed door of approved brand and manufacture, and covered with 1 mm thick decorative laminated sheet on both side and 6 mm thick and 35 mm x 35 mm specially shaped moulded teak wood beading fixed around the door with necessary fixtures and fastenings like S.S. door hinges, S.S. Aldrop, S.S. door Handle, stopper of approved brand etc. complete as directed by Engineer-in-charge.

General:

This item covers the requirement of providing and fixing door having side hung single shutter having 35 mm thick factory-made solid core, melamine faced, three layered resin flushed door of approved brand and manufacture and covered with decorative laminated sheet on both side with

specially shaped moulded teak wood beading fixed around the door with necessary S.S. fixtures and fastenings etc. complete as per detail colour & pattern approved by Engineer-in-charge.

Material and Workmanship:

All materials shall be as per item description of approved brand and manufacture as approved by Architect or Engineer-in-charge and specified item's Manufacturer's specifications.

The work shall be carried out with the best practice followed in the industry. The contractor shall make sure that the item to be carried out in its perfect state as per the standards practice. Additionally, executed work shall not be damaged and shall be free from any dents or scratches. It is the duty of the contractor to make proper arrangements for protection of the items during execution till handover. The contractor shall get the items inspected and approved by Architect or as directed by Engineer-in-charge before execution / installation. Any claim, upon rejection of any item by the Engineer-in-charge will not be entertained. The contractor shall execute the item as directed by Engineer-in-charge for all floors / all heights and all levels.

The 35 mm thick solid core melamine faced, three layered flush doors of factory made and stamped of I.S.: 12823 of grade one and it shall confirm to Item No. 10.30 (B) / P-72 of General Technical Specifications for Building Works.

1 mm thick laminated exterior grade sheet for applying on plywood sheet. It shall be approved brand or manufacturer as directed. Laminated sheet shade, colour and pattern as directed and it shall be free from any scratches or holes or any damages on surface and shall have finished luster surface on either side.

6 mm thick and 35 mm x 35 mm specially shaped moulded teak wood beading for door should confirm to M-29 / P-15 of General Technical Specifications for Building Works. The batons shall be free from any holes or any damages on surface. It shall be fixed on borders of door with adhesive and nails with perfect match with door as directed by the Engineer-in-charge.

The fixtures & fastenings shall confirm to M-43 / P-21 of General Technical Specifications for Building Works. Fixtures & fastenings like S.S. Door / window hinges 4 x 1" x 1", S. S. Aldrop of 25 cm long of ASIS 304 grade, S. S. Handle for Door of 15 cm size of ASIS 304 grade & S. S. Stopper for Door of 20 cm size of ASIS 304 grade are provide as specified.

All members of the shutters shall be straight without any warp or bow and shall have smooth, well paneled faces at right angles to each other. The thickness specified shall be finished thickness and no tolerance will be permitted. The Ready-made shutters shall be of correct size and shall fit into the door or other openings without excessive scraping of edges. Adding of battens etc., to make up to the size shall not be allowed.

Necessary adhesive / fixing solvent shall be used for proper fixing the frame at wall surface. Frame work shall be fixed as per direction.

Mode of Measurement and Payment:

All the work shall be measured based on finished dimensions as fixed at site and shall be paid. The dimension of the door shutter shall be measured clear size of the shutter in close position between the grooves of the marble frame.

The rate includes the cost of all materials, labour, machineries, tools and plants, fabrication, erection, hoisting, scaffolding, protective measures required for proper completion of the item of work as directed.

This shall also include all taxes, conveyance, and other incidentals for satisfactory completion of the work, also material wastage involved for the work. No extra charge will be paid for any other reasons.

The payment will be made on square meter basis of the finished work.

Item No.: - 64.

Constructing Parking Shed by excavation for posts, cement concrete 1:4:8 for support base and C.C. 1:2:4 for fixing post, 0.80 mm thick corrugated G.I. sheet with steel work welded, in built up sections, framed work in beams and joists, channels, angles, tees, flats with connecting plates or angle cleats, hip and trussed purlins connected to common rafters including cutting hoisting, fixing in position and applying a priming coat and two coats of oil paint etc. complete as per detailed drawing attached and / or as directed by Engineer-in-charge.

General:

This item is for shed with excavation for post including C.C. work, roofing with 0.80 mm thick corrugated G.I. sheets, steel work welding for beams and rafters and colour work etc. complete. The item should be carried out as per item description and as per the instruction of Engineer in charge.

Material & Workmanship:

All materials shall be as per item description as approved by Engineer in charge and specified item's Manufacturer's specifications.

Excavation for foundation of posts shall be as per Item No. 4.00 (a) / P-29 of General Technical Specifications for Building Works shall be applicable.

Ordinary C.C. 1:4:8 for foundation base of posts shall be as per Item No. 5.3.3 (A) / P-38 of General Technical Specifications for Building Works shall be applicable.

Ordinary C.C. 1:2:4 in foundation of post shall be as per Item No. 5.3.13 (A) / P-40 of General Technical Specifications for Building Works shall be applicable.

Steel work welded for shed structure shall be as per Item No. 11.4 (A) / P-80 of General Technical Specifications for Building Works shall be applicable. (The structure works includes red lead paint priming coat as directed). Work shall be carried out as per detailed drawing or as directed by Engineer in charge.

Corrugated G.I. sheets for roofing of 0.80 mm thickness shall be as per Item No. 15.1 / P-104 + Item No. 19.12 / P-139 of General Technical Specifications for Building Works shall be applicable.

The full parking shed frame structure should be painted with two coats of oil painting as per Item No. 19.7 / P-138 of General Technical Specifications for Building Works shall be applicable.

The work shall be carried out with the best practice followed in the industry. The contractor shall make sure that the item to be carried out in its perfect state as per the standards practice.

Additionally, executed work shall not be damaged and shall be free from any dents or scratches. It is the duty of the contractor to make proper arrangements for protection of the items during execution till handover. The contractor shall get the items inspected and approved by Engineer in charge before execution / installation. Any claim, upon rejection of any item by the Engineer in charge will not be entertained.

Mode of Measurement & Payment:

All the work shall be measured based on finished dimensions as fixed at site and shall be paid on square meter basis. The rate includes the cost of all materials, labour, machineries, tools and plants, erection, hoisting, welding, scaffolding, protective measures required for proper completion of the item of work as directed.

This shall also include all taxes, octroi, conveyance, and other incidentals for satisfactory completion of the work including necessary wastage involved for the work as directed by Engineer in charge. No extra payment will be given for any reason.

The payment will be made on square meter basis of the finished work.

Item No.: - 98.

Providing and fixing pre-cast Rubber Dye / Steel dye interlocking concrete block 60 mm thick with grade of concrete M-300 pneumatic compressed / vibrated by mechanically and as per approved design confirming to IS: 15658-2006, including 35 mm sand layer for levelling and filling the joint with sand in proper line and level as per guidelines of IRC SP: 63-2018 etc. complete.

General:

This work shall consist of providing and laying precast Rubber dye / steel dye interlocking concrete block 60 mm thick with grade of concrete M-300 pneumatic compressed / vibrated mechanically and as per approved design confirming to IS 15658: 2006 including 35 mm thick layer of sand of the shape and dimensions shown on the drawings and conforming to these specifications or as approved by the Engineer in charge.

Material:

Water shall conform to M-1 & Cement shall conform to M-3 of General Technical Specifications for Building Works shall be applicable.

Precast Rubber dye / steel dye interlocking concrete block.

Precast Rubber dye / steel dye interlocking concrete block shall be of approved size brand and make as approved by Engineer in charge.

The size shape and design of precast Rubber dye / steel dye interlocking concrete block shall generally be as per manufacturers product or as directed by the Engineer in charge and Architect.

The precast Rubber dye / steel dye interlocking concrete block shall satisfy the tests as regards compress strength transverse strength resistance to wear and water absorption.

The colour size shape and design of the precast Rubber dye / steel dye interlocking concrete block shall be directed by Engineer or Architect.

The precast rubber dye / steel dye interlocking concrete block shall be of best quality and design & colour shade as approved by the Engineer-in-charge. They shall be flat and true to shape. They shall be free from cracks, crazing spots, chipped edges, and corners. The glazing shall be of uniform shade.

Sand:

Sand shall be natural sand, clean well graded, hard strong durable and gritty free from immures amounts of dust, clay, kankar modules.

For masonry works sand shall confirm to the requirements of IS: 2116.

For plain and reinforced cement concrete (PCC and RCC) or pre-stressed concrete (PSC) works fine aggregates shall consist of clean, hard strong and durable prices of crushed stone, crushed gravel or suitable combination of natural sand crushed stone or gravel, they shall not contain dust lumps soft or flaky materials mica or other deleterious materials in such quantities as to reduce the strength and durability of concrete, or to attack the embedded steel. Motorized sand washing machines should be used to remove impurities from sand. Fine aggregate having positive alkali-silica reaction shall not be used. All fine aggregates shall conform to IS L 383 and tests for conformity shall be carried out as per IS 2386 (Part I to VIII) The contractor shall submit to the Engineer in charge the entire information indicated in Appendix A of IS 383. The fineness modulus of fine aggregate shall neither be less than 2.00 nor greater than 3.5.

Sand fine aggregates for structural concrete shall conform to the following grading requirements as shown in the table below.

Fine Sand: The fineness module shall not exceed 1.0 the sieve analysis of fine sand be as under:

IS. Sieve Designation	% by weight passing		
	Zone I	Zone II	Zone III
10 mm	100	100	100
4.75 mm	90-100	90-100	90-100
2.3 6 mm	60-95	75-100	85-100
1.18 mm	30-70	55-90	75-100
600 Mamlatdar Chamber	15-34	35-59	60-79
300 Mamlatdar Chamber	5-20	8-30	12-40
150 Mamlatdar Chamber	0-10	0-10	0-10

Coarse Sand: The fineness modules of coarse sand shall not be less than 2.5 and shall not exceed 3.0. The sieve analysis of coarse sand be as under:

I. S. Sieve Designation	% by weight passing
4.75 mm	100
2.36 mm	90 to 100
1.18 mm	70 to 100
600 Mamlatdar Chamber	30 to 100
300 Mamlatdar Chamber	85 to 70
150 Mamlatdar Chamber	00 to 50

Workmanship:

The precast Rubber dye / steel dye interlocking concrete block shall be laid on a layer 35 mm thick layer of coarse sand. The slope in the floors shall be provided in the sub grade. The base layer shall

be properly watered, rammed, and consolidated. Before laying the pavers blocks, it shall be moisture. Plinth masonry offset shall be depressed to allow the sub grade concrete to rest on it.

Precast Rubber dye / steel dye interlocking concrete block of approved quality shape and design and shall be laid evenly to level and slope as directed by Engineer-in-charge over a bed of a base layer consisting of 35 mm thick sand layer.

Laying: The precast Rubber dye / steel dye interlocking concrete block shall be laid in plain, diagonal or another pattern as directed. The cement concrete blocks shall be laid properly and set home by gentle taping.

End portion of pavement shall be finished with C.M. 1:3 as per detailed drawing etc. complete.

Mode of Measurements & Payment:

The unit rate precast Rubber dye / steel dye interlocking concrete block flooring shall include the cost of all materials, tools and plant required for supplying and laying material like brick bats sand pavers blocks, laying of base layer in true level and slope as required applying & placing pavers blocks in position, compacting, finishing, curing.

The length and breadth shall be measured correct to a square meter correct to 2 places of decimal. Length and breadth shall be measured to correct to a centimeter and between the finished the finished face of the skirting, dedo or wall plaster and no deduction shall be made nor extra paid for any opening in floors or areas up to 0.1 square meter.

The Rate shall also include all tools, plants, equipment, scaffoldings, labour, taxes, conveyance, and other incidentals for satisfactory completion of the work including necessary wastage involved for the work as directed by Engineer-in-charge. No extra payment will be given for any reason.

The payment will be made on square meter basis of the finished work.

Item No.: - 99.

Removing and refixing existing pre-cast Rubber Dye / Steel dye inter locking concrete block 60 mm thick with grade of concrete M-300 pneumatic compressed / vibrated by mechanically and as per approved design confirming to IS 15658:2006, including 35 mm sand layer for levelling and filling the joint with sand in proper line and level as per guidelines of IRC SP: 63-2018 etc. complete.

General:

This work shall consist of removing and refixing existing pre-cast Rubber Dye / Steel dye inter locking concrete block fixed with pneumatic compressed / vibrated by mechanically and as per approved design confirming to IS 15658:2006, including 35 mm sand layer for levelling and filling the joint with sand in proper line and level as per guidelines of IRC SP: 63-2018 etc. complete. to these specifications or as approved by the Engineer in charge.

Material:

Water shall conform to M-1 & Cement shall conform to M-3 of General Technical Specifications for Building Works shall be applicable.

Precast Rubber dye / steel dye interlocking concrete block shall be supplied by department or refixing existing block as directed by Engineer-in-charge.

Sand:

Sand shall be natural sand, clean well graded, hard strong durable and gritty free from immures amounts of dust, clay, kankar modules.

For masonry works sand shall confirm to the requirements of IS: 2116.

For plain and reinforced cement concrete (PCC and RCC) or pre-stressed concrete (PSC) works fine aggregates shall consist of clean, hard strong and durable prices of crushed stone, crushed gravel or suitable combination of natural sand crushed stone or gravel, they shall not contain dust lumps soft or flaky materials mica or other deleterious materials in such quantities as to reduce the strength and durability of concrete, or to attack the embedded steel. Motorized sand washing machines should be used to remove impurities from sand. Fine aggregate having positive alkali-silica reaction shall not be used. All fine aggregates shall conform to IS L 383 and tests for conformity shall be carried out as per IS 2386 (Part I to VIII) The contractor shall submit to the Engineer in charge the entire information indicated in Appendix A of IS 383. The fineness modulus of fine aggregate shall neither be less than 2.00 nor greater than 3.5.

Sand fine aggregates for structural concrete shall conform to the following grading requirements as shown in the table below.

Fine Sand: The fineness module shall not exceed 1.0 the sieve analysis of fine sand be as under:

IS. Sieve Designation	% by weight passing		
	Zone I	Zone II	Zone III
10 mm	100	100	100
4.75 mm	90-100	90-100	90-100
2.3 6 mm	60-95	75-100	85-100
1.18 mm	30-70	55-90	75-100
600 Mamlatdar Chamber	15-34	35-59	60-79
300 Mamlatdar Chamber	5-20	8-30	12-40
150 Mamlatdar Chamber	0-10	0-10	0-10

Coarse Sand: The fineness modules of coarse sand shall not be less than 2.5 and shall not exceed 3.0. The sieve analysis of coarse sand be as under:

I. S. Sieve Designation	% by weight passing
4.75 mm	100
2.36 mm	90 to 100
1.18 mm	70 to 100
600 Mamlatdar Chamber	30 to 100
300 Mamlatdar Chamber	85 to 70
150 Mamlatdar Chamber	00 to 50

Workmanship:

The precast Rubber dye / steel dye interlocking concrete block shall be laid on a layer 35 mm thick layer of coarse sand. The slope in the floors shall be provided in the sub grade. The base layer shall be properly watered, rammed, and consolidated. Before laying the pavers blocks, it shall be moisture. Plinth masonry offset shall be depressed to allow the sub grade concrete to rest on it.

Laying: The existing precast Rubber dye / steel dye interlocking concrete block shall be laid in plain, diagonal or another pattern as directed. The cement concrete blocks shall be laid properly and set home by gentle taping.

End portion of pavement shall be finished with C.M. 1:3 as per detailed drawing etc. complete.

Mode of Measurements & Payment:

The unit rate precast Rubber dye / steel dye interlocking concrete block flooring shall include the cost of all materials, tools and plant required for supplying and laying material like brick bats sand pavers blocks, laying of base layer in true level and slope as required applying & placing pavers blocks in position, compacting, finishing, curing.

The length and breadth shall be measured correct to a square meter correct to 2 places of decimal. Length and breadth shall be measured to correct to a centimeter and between the finished the finished face of the skirting, dedo or wall plaster and no deduction shall be made nor extra paid for any opening in floors or areas up to 0.1 square meter.

The Rate shall also include all tools, plants, equipment, labour, taxes, conveyance, and other incidentals for satisfactory completion of the work including necessary wastage involved for the work as directed by Engineer-in-charge. No extra payment will be given for any reason.

The payment will be made on square meter basis of the finished work.

Item No.: - 101.

Constructing a Sandwich type cooking platform of 60 cm width and 70 cm height resting with Granite polished stone top and 100 mm height faces in exposed faces with 18 mm thick of polished Granite stone of approved colour and quality on 25 mm x 2 No polished Kota stone sandwich supports, polished kota stone shelves and fixing stone using cement mortar 1:2 (1 cement : 2 fine sand) for sandwich and fitting at bottom & edges with water proof rigid adhesives, including making necessary grooves in walls, polishing and making edges etc. complete as directed by Engineer-in-charge. (Only top clear area of platform shall be measured and paid for)

1.0. General

This work shall consist Sand witch platform using polished Granite at top (granite stone colour & quality selected by Engineer-in-charge) and kota stone slab using cement mortar 1:2 for sand witch and fitting at bottom & edges with waterproof rigid adhesive, including cutting holes for fixing kitchen sink rubbing and polishing etc. complete as directed. The dimensions are as per item description and conforming to these Specifications or as approved by the Engineer-in-charge.

1.0 Materials:

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6, 25 mm thick polished Kota stone shall conform to M-49 / P-23, 18 mm thick granite stone shall conform to M-52 / P-23. Granite stone shall be 18 mm thick of polished of approved colour and quality as directed. Cement mortar in C.M. 1:2 shall conform to M-11 / P-11 of General Technical Specifications for Building Works Booklet shall be followed.

2.0. Workmanship:

The Sandwich type kitchen platform of size as directed shall be constructed in 0.60 M wide and 0.70 M height. The 25 mm thick polished kota stone using cement mortar 1:2 for sand witch and fitting at bottom & edges with waterproof rigid adhesive including making necessary grooves in walls with vertical kota stone 30 mm x 2 No sand witch thick every 60 cm center to center with granite stone of 18 mm thick at the top of sandwich type polish kota stone fixed in cement mortar 1:2 and granite stone patties should be provided in front and sides of kitchen platform. Edges of granite stone slab shall be rounded and polished as directed. The joints shall be cleaned and flush pointed with white cement / matching pigment as directed by Engineer-in-charge.

Grinding, polishing moulding round edges of Granite stone fascia as per Item No. 13.12 / P-87 of General Technical Specifications for Building Works. Hand polishing shall be done after the curing period to give a good polished appearance.

3.0. Mode of measurements & payment:

All the work shall be measured based on finished dimensions as fixed at site and shall be paid, i.e. Only top clear area of platform shall be measured and paid for.

The rate includes the cost of all materials, labour, machineries, tools and plants, fabrication, erection, hoisting, scaffolding, protective measures required for proper completion of the item of work as directed.

This shall also include all taxes, conveyance, and other incidentals for satisfactory completion of the work for all floor height, including necessary wastage involved for the work. No extra payment will be given for any reason.

The payment will be made on square meter basis of the finished work.

Item No.: - 102.

Providing and fixing Kitchen Platform shutter & Drawer using Indian teak wood frame work 50 x 25 mm size (equally provided ply patty on top & bottom) with 19 mm thick (all proof IS: 710) plywood in shutter with both side covered with 1.0 mm thick laminated sheet and teak wood batten with S.S. 304 grade hinges, handles, magnet, S.S. Baskets for storage (one side gas cylinder cup board), telescopic chanel of minimum 450 mm length for drawers and necessary S.S. fixture and fastening, edge polishing to wood work by melamine polish etc. complete as directed by Engineer in charge.

1.0 Materials:

The stainless-steel fixtures and fastenings shall conform to M-43. Plywood shall conform to M-37 and Indian teak wood shall conform to M-29 of General Technical Specifications for Building works. Also, it shall be covered on both sides with 1 mm thick laminated sheet of standard manufacturer or approved brand or as directed by Engineer-in-charge.

2.0. Workmanship:

The item covers the requirement of preparation of shutters below kitchen platform, their supply and fixing. All members of frames shall be exactly at right angles. The right angle shall be checked from

inside surfaces of the frames of the respective members. All members of frames shall be straight without any warp of bow and shall have smooth surfaces well planed on the three sides exposed at right angles to each other. The surfaces touching the wall may not be planed unless it is required in order to straighten up the member or to obtain the overall sizes within the tolerances as specified. Frame shall have dovetail joints. When no sills are provided, the vertical posts of the frame in the ground floor shall be embedded in the sill masonry for 10 cm on upper floors, the vertical posts shall be fixed in the floor or masonry by forming notches 10 mm deep. Slight adjustment of spacing as necessary shall be done to have the hold fasts in the joints of masonry; course. The frame shall be erected in position and held plumb with strong support from north sides and built-in masonry as it is being built. The transom shall be through tanned into the mortises of the jamb post to the full width of the jamb post and the thickness of the tenon shall be not less than 15 mm. Unless specially mentioned otherwise tolerance of + 1.5 mm shall be allowed for each wrought face.

Paneling:

Thickness of the shutter panel shall be 19 mm thick water proof ply wood as specified in the item as shown in the drawing or as directed. If the panel is made from more than one piece the pieces shall be finished as shown in the detailed drawings and shall be joined with continuous groove with specified size. The end pieces of the panel and the top and bottom of the panel shall be provided with continuous tongue to frame into groove of the frame shutter. An air space of 1.5 mm shall be left in the groove of frame of shutter while framing the panels in it. The faces of the panel as well as various pieces of the panel shall be closely fitted to the sizes of the grooves. Finishing of the corners of raised panel edges shall be done as shown in drawings or as directed. The thickness specified shall be finished thickness and no tolerance will be permitted.

The 1 mm thick laminated exterior grade sheet shall be good quality & all sides shall be Free from any scratches or holes or any damages on surface & fixed on both sides of shutter. Also, the color & pattern of sheet shall be got approved & as directed by engineer in charge. It shall be applied by appropriate adhesive in uniformly. No bobble or patches shall be allowed.

Edge polishing to wood work shall be done by melamine polish etc. complete as directed by Engineer-in-charge.

The fixtures and fastenings of S.S. 304 grade hinges, handles, magnet, S.S. Baskets for storage (one side gap cylinder cup board), Telescopic channel of minimum 450 mm length for drawers shall confirm to M-43 / P - 19 of General Technical Specifications for Building Works. Except that the fixtures & fastenings shall be stainless steel and it shall be of anti-corrosive high grade AISI 304 stainless steel and free from any scratches and damage.

3.0. Mode of measurements & payment:

All the work shall be measured based on finished dimensions as fixed at site and shall be paid. The rate includes the cost of all materials, labour, machineries, tools and plants, fabrication, erection, hoisting, scaffolding, protective measures required for proper completion of the item of work as directed.

This shall also include all taxes, conveyance, and other incidentals for satisfactory completion of the work for all floor height, including necessary wastage involved for the work. No extra payment will be given for any reason.

The payment will be made on square meter basis of the finished work.

Item No.: - 105.

Providing and laying water proofing treatment on terrace with broken China mosaic tiles flooring over average 40 mm C.C. 1:2:4 bedding for maintaining slope for plain and curve surface & 12 mm to 20 mm of broken piece of ceramic / glazed tiles (one for more colour as directed) to be laid over cement mortar bedding of C. M. 1:3 (1 cement : 3 sand) contain one KG of water proofing materials per bag of OPC at plain or / and slops and to be tempered to bring mortar ceramic up to surface with using white cement and colour pigment, including rounding of junctions and extending them up to 15 cm along the wall and curing with bends any patterns or design as per drawing and cleaning by using oxalic acid etc. complete.

1.0. General

The existing R.C.C. surface of slab shall be cleaned thoroughly.

Applying and grouting a slurry coat of neat cement using 2.75 KG / Sqm of cement admixed properly using water proofing compound conforming to IS: 2645 over the R.C.C. slab. The top surface shall be finished rough surface as per the direction so as to receive the next finishing item.

Laying 40 mm thick cement concrete 1:2:4 using stone aggregates of 20 mm to 40 mm size admixed with properly water proofing compound conforming IS: 2645 and the item shall be as per Item No. 14.71 (A) / P-100 of General Technical Specifications for Building Works Booklet shall be followed, except floating coat of neat cement slurry, treating similarly the adjoining walls up to 150 mm height including rounding of junctions of walls and slabs.

After two days of proper curing, applying a second coat of cement slurry admixed with proprietary water proofing compound conforming to IS: 2645.

Finishing the surface with 12 mm thick joint less cement mortar of mix 1:3 (1 Cement :3 Coarse sand) admixed properly using water proofing compound conforming to IS: 2645 than applying glazed tiles pieces over cement mortar and finally finishing the surface with trowel with white cement slurry.

Triangular China mosaic pieces shall not be used. Rectangular or square pieces shall only be used. The broken pieces shall be soaked in water for 24 hours before using. The broken China pieces are laid manually as close as possible over the specified bedding (before it sets/ gets hard), which shall be laid to the required slope and gradient.

While laying the broken glazed tiles, neat cement paste shall be applied over the bedding. After China mosaic is arranged, the entire surface shall be tampered by wooden piece with a wooden mallet so that tile piece is properly embedded and leveled in the mortar and slurry starts oozing from the joints. Vata shall be done along with the floor, keeping machine cut edges at the top end of the vata. At the end of day's work, the entire work shall be cleaned with the minimum quantity of water and moped with the cotton cloth. The joints shall be grouted firmly with white cement paste with the help of steel trowel.

2.3. Unless otherwise specified proprietary waterproofing treatment shall be executed through **approved specialized water proofing agency**. Contractor shall furnish a guarantee of 5 years on stamp paper to the employer directly and the tender rate shall be inclusive of the same.

A guarantee bond on appropriately stamp paper shall be given by the contractor to the client in the manner form prescribed below:

FORM OF GUARANTEE BOND

"I/We (Contractor) hereby guarantee that work will remain unaffected and will not be in any way damaged by water or any other form of humid condition, for a period of 5 years after completion of the work of water-proofing as per the terms and conditions of the contract and the Contractor hereby indemnifies and agrees to save the Client from any loss and or damage that might be caused on account of water and or other similar form of humid conditions and hereby guarantees to make good any loss or damage suffered by the Client and further guarantees to redo the affected work without claiming any extra cost."

2.4. This guarantee shall remain in force for a period of 5 years from the completion of the work under the contract and it shall remain binding to the Contractor for period of 5 years. The deposit at the rate of 50% of the cost of this item from the running and final bills shall be recovered and retained for the first one year after completion of the work and 10% shall be retained for the balance of guarantee period and shall be refunded only after the completion of the guarantee period.

2.6. After two days of proper curing, applying a second coat of cement slurry admixed with proprietary water proofing compound conforming to IS: 2645.

2.7. Finishing the surface with 20 mm thick joint less cement mortar of mix 1:4 (1 cement : 4 coarse sand) admixed properly using water proofing compound conforming to IS: 2645 than applying glazed tiles pieces over cement mortar and finally finishing the surface with trowel with white cement slurry. The joints of white glazed tiles pieces (broken China mosaic flooring) shall not be more than 3 mm apart and joints shall be pointed with flush pointing.

2.8. Well defined cracks other than hair cracks in the treated structure shall be cut to 'V' section, cleaned and then filled up flush with 1:1 cement sand mortar with polymer based waterproofing compound.

2.9. The surface under treatment, part of parapet (in case of balcony or terrace) and gutters, drain mouths etc. over which the water proofing treatment is to be applied, shall be cleaned of all foreign matter such as fungus, moss and dust by wire brushing and dusting.

2.10. Drain outlet shall be suitably placed with respect to the surface gradient to ensure rapid drainage and prevention of local accumulation of water on the treated surface. Masonry drain mouth shall be widened sufficiently and rounded with cement mortar.

2.11. In case of masonry parapet wall over 450 mm in height, for tucking in the water proofing treatment, a horizontal groove 75 mm wide and 65 mm deep at minimum height of 300 mm above terrace level shall be left in the vertical face at the time of construction, the horizontal face of the groove shall be shaped with cement mortar 1:4.

2.12. In case of low parapet where the height does not exceed 450 mm, no groove shall be provided and the water proofing treatment shall be carried right over the top.

2.13. In case of existing R.C.C. and stone wall cutting the chase for tucking in the water proofing treatment is not recommended.

2.14. At the junction between the terrace slab and vertical face of the parapet wall, a fillet 75-100 mm in radius shall be constructed.

2.15. At the drain mouths the fillet shall be suitably cut back and rounded off for each application of water proofing treatment for easy flow of water.

2.16. Outlet at every low dividing wall about less than 300 mm in height shall be rounded smooth and corners rounded off for easy application of water proofing treatment.

2.17. The top surface shall be kept wired finish to receive the China mosaic. In case China mosaic is not to be provided, the surface shall be kept cement finished @ 2.75 kg / Sqm and marked with 300 x 300 mm false square (with string).

The whole terrace so finished shall be flooded with water for a minimum period of two weeks of curing and for final test. All above operations to be done in order and as directed and specified by the engineer in charge. The testing shall be done by ponding for at least 48 hours.

3.0. Mode of Measurement and Payment:

3.1. The rate includes cost of all materials and labour required to carry the works as per the above specifications. The rate also includes cleaning and hacking the R.C.C parapet and inverted beam surface and treating the cracks shall not be paid separately. Cutting of horizontal grooves in parapet walls for tucking in water proofing treatment shall not be measured or paid separately.

3.2. Measurements shall be based on the drawings or as executed on site, the lesser of the two shall be given. No extra payment shall be made for rounding and vata at the junction of slab & parapet. A deposit at the rate of 50% of the cost of this item from the running and final bills shall be recovered and retained for the first one year after completion of the work and 10% of the same or equivalent bank guarantee shall be retained for the balance of the guarantee period and shall be refunded only after the completion of the guarantee period.

3.3. The Rate shall also include all tools, plants, equipment, scaffoldings, labour, taxes, conveyance, and other incidentals for satisfactory completion of the work including necessary wastage involved for the work as directed by Engineer in charge. No extra payment will be given for any reason.

3.4. The payment will be made on square meter basis of the finished work.

Item No.: - 108.

Providing and laying of Smart care damp proof water proofing Paint (three coats), for terrace (exterior surface) of approved brand and manufactures & approved by Engineer-in-charge including cleaning the surface with wire brushing & water & free from mortar droppings, filling cracks with white cement and applying each coat with keep in dry required period & other foreign matter etc. complete.

1.0. General

This work shall consist providing and laying of Smart care damp proof water proofing paint (three coats), for terrace (exterior surface) of approved brand and manufactures & approved by Engineer-in-charge, including cleaning the surface with wire brushing & water & free from mortar droppings,

filling cracks with white cement and applying each coat with keep in dry required period & other foreign matter etc. complete. as directed by Engineer-in-charge.

2.0. Workmanship:

- 2.1 Smart care damp proof water proofing paint (three coats), for terrace shall be as specified in the schedule of item.
- 2.2 The concrete surface should be cleaned of all unwanted materials and the same shall be made rough.
- 2.3 The construction joints or cracks or cracks if any should be inspected and if found necessary "damp proof" compound with cement solution as per manufacturer's specifications shall be injected to seal off the honey-combs and cavities in the slab.
- 2.4 The same shall then be subjected to terrace method of water proofing treatment as per manufacturer's specifications.
- 2.5 The cleaned terrace / wall surface shall be watered properly and cement slurry shall be laid to provide necessary gradient for easy flow of rain water.
- 2.6 The coba shall be laid in a special manner with brick bats partly projected above. Brick bat coba shall be of average thickness of 110 mm or as specified in the drawing or as directed by Engineer-in-charge.
- 2.7 The bricks joints shall be filled in with "Damp Proof" jointless water proof plaster finished smooth with trowel in thin layer of cement and marked dales in to 300 mm x 300 mm squares or left smooth if directed by Engineer-in-charge.
- 2.8 This treatment shall be continued along the inner sides of parapets or adjoining walls up to a height of 300 mm to 375 mm in the shape of round vata.
- 2.9 The construction joints shall be taken at ridges and should be made properly watertight and monolithic.
- 2.10 Care shall be taken to finish the rain water inlets etc. properly so that no leakage occurs.
- 2.11 The terrace / wall surface shall be tested for leak tightness after the treatment is completed and any defects shall be made good.

The whole terrace so finished shall be flooded with water for a minimum period of two weeks of curing and for final test. All above operations to be done in order and as directed and specified by the engineer in charge. The testing shall be done by ponding for at least 48 hours.

A guarantee bond on appropriately stamp paper shall be given by the contractor to the client in the manner form prescribed below:

FORM OF GUARANTEE BOND

"I/We (Contractor) hereby guarantee that work will remain unaffected and will not be in any way damaged by water or any other form of humid condition, for a period of 5 years after completion of the work of water-proofing as per the terms and conditions of the contract and the contractor hereby indemnifies and agrees to save the client from any loss and or damage that might be caused on account of water and or other similar form of humid conditions and hereby

guarantees to make good any loss or damage suffered by the Client and further guarantees to redo the affected work without claiming any extra cost."

This guarantee shall remain in force for a period of 3 years from the completion of the work under the contract and it shall remain binding to the contractor for period of 3 years. The deposit at the rate of 50% of the cost of this item from the running and final bills shall be recovered and retained for the first one year after completion of the work and 10% shall be retained for the balance of guarantee period and shall be refunded only after the completion of the guarantee period.

3.0. Mode of measurements & payment:

3.1. The rate includes cost of all materials and labour required to carry the works as per the above specifications. The rate also includes cleaning and hacking the R.C.C parapet / wall surface and inverted beam surface and treating the cracks shall not be paid separately. Cutting of horizontal grooves in parapet walls for tucking in water proofing treatment shall not be measured or paid separately.

3.2. Measurements shall be based on the drawings or as executed on site, the lesser of the two shall be given. No extra payment shall be made for rounding and vata at the junction of slab & parapet. A deposit at the rate of 50% of the cost of this item from the running and final bills shall be recovered and retained for the first one year after completion of the work and 10% of the same or equivalent bank guarantee shall be retained for the balance of the guarantee period and shall be refunded only after the completion of the guarantee period.

The payment will be made on square meter basis of the finished work.

Item No: - 112.

Providing and fixing single layer water proof gypsum board 12.5 mm thick ceiling of the approved make sections using water proof board of size 1220 mm x 1830 mm x 8.0 mm suspended by G.I suspender of size 25 mm x 3 mm with intermediate channel of size 18 mm x 40 mm x 0.80 mm at 1220 mm centre to centre ceiling section of size 40 mm x 35 mm x 0.55 mm at 457 mm centre to centre and perimeter channel of size 20 mm x 27 mm x 30 mm x 0.50 mm at edges & drops including paper tap sand soffit cleat, anchor fastener, scotch bolt connecting cleat joining compound top coat on ceiling including making necessary opening for light fitting, diffuser etc. complete as per detail drawing as directed.

Materials:

The necessary materials like M.S. frame, G.I. suspender, screws, bolt and nuts, 12.5 mm thick single layer water proof Gypsum Board Ceiling tiles with necessary openings for hanging light with glass shall be of best quality and shall be got approved from Engineer in charge before starting the work.

Workmanship:

The whole work shall be carried out as per drawing instructions of Engineer in charge. The suspended false ceiling shall be fixed to ceiling with the help of sections using water proof board of size 1220 mm x 1830 mm x 8.0 mm suspended by G.I suspender of size 25 mm x 3 mm with intermediate channel of size 18 mm x 40 mm x 0.80 mm at 1220 mm centre to centre ceiling section of size 40 mm x 35 mm x 0.55 mm at 457 mm centre to centre and perimeter channel of size 20 mm

x 27 mm x 30 mm x 0.50 mm at edges & drops including paper tap sand soffit cleat, anchor fastener, scotch bolt connecting cleat joining compound top coat on ceiling including making necessary opening for light fitting, diffuser etc. complete as per detail drawing as directed by Engineer in charge.

The edges shall then be joined and finished to give a flush finish with filler, paper etc. and finished smooth. The gaps between two sheets shall be filled by Plaster of Paris and finished smooth. Suitable openings as directed by Engineer in charge for lighting arrangement shall be provided. The ceiling shall then be finished in exact line and level with plaster of Paris to have a good and even surface. The contractor shall execute the item / work at all floors / all heights and any levels.

Mode of measurement & payment:

The rate includes the cost of false G.I. skeleton, work for fixing false ceiling, including all materials, labour, scaffolding, equipment to carry out the whole work.

This shall also include all taxes, conveyance, and other incidentals for satisfactory completion of the work, also material wastage involved for the work. No extra charge will be paid for any other reasons. The work shall be measured for the finished work. Only clear area of ceiling shall be measured and paid for.

The payment will be made on square meter basis of the finished work.

Item No.: - 113.

Providing and fixing eco-friendly light weight calcium silicate false ceiling tiles having tegular edge & 15mm thick densified edges on the tile periphery for extra strength. The light weight calcium silicate ceiling tiles shall have, light reflection 85% non-combustible as per B.S. 476, part-IV, 100% humidity resistance and having thermal conductivity 0.043° w/m KC for the best thermal Insulation. The light weight calcium silicate tile shall be of approved texture fine fissured / spin tone / cosmos having NRC value of 0.5 & globe having NRC value of 0.75 NRC or equivalent of size 595 x 595 mm to be laid on true horizontal level suspended inter locking metal grid of hot dipped galvanized steel sections (galvanizing @ 120 grams per sqm, including both side) consisting of main 'T' runner suitably spaced at joints to get required length and size of 24 x 38 mm made from 0.30 mm thick (minimum) sheet, 1200 mm centre to centre, and cross 'T' of size 24 x 28 mm made out of 0.33 mm (minimum) sheet spaced 1200 mm along spaced between main 'T' at 600 mm centre to centre to form grid of 1200 x 600 mm including all materials and labour etc. complete as per detail drawing and instruction of Engineer in charge.

General

This work shall consist of providing and fixing eco-friendly light weight calcium silicate false ceiling tiles having tegular edge & 15 mm thick densified edges on the tile periphery for extra strength conforming to these Specifications or as approved by the Engineer in charge.

Material:

All materials shall be as per item description as approved by Architect or Engineer-in-charge and specified item's Manufacturer's specifications.

Calcium silicate tiles for false ceiling confirming to relevant IS standard.

Grid channels of GI hot dipped galvanized steel section and Miscellaneous fixtures and fastening shall be confirming to relevant IS / as approved by Engineer-in-charge.

Workmanship:

The item covers the requirement of fixing of Calcium silicate tiles and grid framing of GI sections with approved fixtures & fasteners such as bolts, screws etc., as per detail Architect drawings or as directed by the Engineer-in charge / concern department requirement.

GI channels confirming M-23 / P-14 shall be followed as per General Technical specification for Building work booklet only be used.

Wall angle fixed to the perimeter at the wall at the ceiling level which decided. Main sections are suspended from the soffit with the help of plugs, soffit cleat, 4 mm rod and levelling deep. Cross sections are locked with the main section. Completed framework with section ready for laying ceiling panels.

The light-weight calcium silicate tile shall be of approved texture fine fissured / Spin tone / Cosmos having NRC value of 0.5 & Globe having NRC value of 0.75 NRC or equivalent of size 595 x 595 mm to be laid on true horizontal level.

The edges shall then be joined and finished to give a flush finish with filler, paper, tapes etc. and finished smooth.

The whole work is to be completed as per design, sample, shade, drawing approval & any other requirement shall be as per instruction of concern Department / Engineer-in-charge.

Mode of Measurements & Payment:

The whole work is to be completed as per design, sample, shade, drawing / photographs and premium quality of work as per approval & any other requirement shall be as per instruction of Architect or as directed Engineer-in-charge.

The Rate shall also include all tools, plants, equipment, scaffoldings, labour, taxes, conveyance, and other incidentals for satisfactory completion of the work including necessary wastage involved for the work as directed by Engineer-in-charge. No extra payment will be given for any reason.

The payment will be made on square meter basis of the finished work.

Item No.: - 143.

Providing, fixing and arranging sneeze protection partition made up of 5mm thick extra clear acrylic sheet having height of the partition as 3.00 feet and overall knock down structure according to the dias seating arrangement such that it should act like a barrier between Judicial officer & litigants. The overall acrylic knocks down partition shall be supported with 8mm thick acrylic inter locking triangle leg; T-leg supports. The top of the partition junction shall be clamped with acrylic sheet member of suitable shape and size to provide extra strength. Two-way hinged window opening of size 0.40 x 0.25 Mtr shall be provided for filing movement and necessary gap shall be provided at bottom part for cables & other utilities as directed. The overall arrangement of the knockdown structure shall be detail drawing. This

item is including all required material, labour, S.S. fixtures & fasteners, bonding adhesive, clamp etc. complete for all height as directed by Engineer in charge.

General:

This item is for Providing, fixing and arranging sneeze protection partition made up of 5 mm thick extra clear acrylic sheet having height of the partition as 3.00 feet and overall knock down structure according to the dias seating arrangement such that it should act like a barrier between Judicial officer & litigants. The overall acrylic knocks down partition shall be supported with 8 mm thick acrylic inter locking triangle leg; T-leg supports. The top of the partition junction shall be clamped with acrylic sheet member of suitable shape and size to provide extra strength. Two-way hinged window opening of size 0.40 x 0.25 Mtr shall be provided for filing movement and necessary gap shall be provided at bottom part for cables & other utilities as directed. The overall arrangement of the knockdown structure shall be detail drawing. This item is including all required material, labour, S.S. fixtures & fasteners, bonding adhesive, clamp etc. complete for all height as directed by Engineer-in-charge.

Mode of Measurement & Payment:

The rate shall be consolidated for all above items. The rate shall include cost of all materials, fixtures, joineries etc. & labour to complete the work satisfactorily as per instructions of engineer in charge. No Extra payment will be given for any of the reasons.

The payment will be made on one square meter basis of the finished work.

Item No.: - 144.

Providing and fixing fully panelled Cupboard frame shutter using Indian teak wood frame work of 50 x 75 mm size (equally provided ply patty on top & bottom) and 18 mm thick mm thick all proof (IS: 710) plywood in double openable shutter with both side laminated by 1.0 mm thick decorative laminate sheet and teak wood batten patti of suitable size with melamine polishing, including necessary fixtures & fastenings like S.S. hinges, decorative handle, Stainless-steel chain, magnet etc. complete as directed by Engineer-in-charge.

1.0 Materials:

Indian teak wood shall conform to M-29. Stainless-steel fixtures and fastenings shall conform to M-43. Plywood shall conform to M-37 of General Technical Specifications for Building works. Also, it shall be covered on both sides with 1 mm thick laminated sheet of standard manufacturer or approved brand or as directed by Engineer-in-charge. Polish shall conform to M-45 / P-21, except that the polishing shall be melamine polishing work as directed by Engineer-in-charge.

2.0. Workmanship:

The item covers the requirement of preparation of fully panelled Cupboard frame shutter using Indian teak wood frame work of 50 x 75 mm size (equally provided ply patty on top & bottom) and 18 mm thick mm thick all proof (IS: 710) plywood in double openable shutter with both side laminated by 1.0 mm thick decorative laminate sheet and teak wood batten patti of suitable size

with melamine polishing on edges / exposed surface, including necessary fixtures & fastenings like S.S. hinges, decorative handle, Stainless-steel chain, magnet etc. complete as directed by Engineer-in-charge. Except that the fixtures & fastenings shall be stainless steel and it shall be of anti-corrosive high grade AISI 304 stainless-steel as directed and Sample shall be get approved by Engineer-in-charge.

The whole work is to be completed as per design, sample, shade, drawing approval & any other requirement shall be as per instruction of concern Department / Engineer-in-charge.

3.0. Mode of measurements & payment:

All the work shall be measured based on finished dimensions as fixed at site and shall be paid.

The rate includes the cost of all materials, labour, machineries, tools and plants, fabrication, erection, hoisting, scaffolding, protective measures required for proper completion of the item of work as directed.

This shall also include all taxes, conveyance, and other incidentals for satisfactory completion of the work for all floor height, including necessary wastage involved for the work. No extra payment will be given for any reason.

The payment will be made on square meter basis of the finished work.

Item No.: - 145.

Providing and fixing 90 cm high Stainless steel railing made from anti-corrosive 304 grade S.S. pipe of 50 mm diameter (16 Gauge) as hand rail with S.S. 304 grade Baluster of 25 mm dia (16 Gauge) as a vertical support fixed in R.C.C. slab at 1.2 m c/c including three horizontal S.S. pipes at equal distance fixed by 18.75 mm dia (16 Gauge) S.S. pipe with baluster including accessories as per detailed drawing as directed etc. complete for all floor level.

Material:

Stainless-steel Grade: 304 hollow sections for railing shall confirm to ASTM A-554. Stainless-steel hollow section should be corrosion-resistant, easy to clean, free from any scratches or any damages on surface. Material should be standard manufacturer or approved brand as approved by Architect or as directed by Engineer-in-charge. Railing must be as per sample approved by Engineer-in-charge.

Workmanship:

Fixing 90 cm high Stainless steel railing made from anti-corrosive 304 grade S.S. pipe of 50 mm diameter (16 Gauge) as hand rail with S.S. 304 grade Baluster of 25 mm dia (16 Gauge) as a vertical support fixed in R.C.C. slab at 1.2 m c/c including three horizontal S.S. pipes at equal distance fixed by 18.75 mm dia (16 Gauge) S.S. pipe with baluster including accessories as per detailed drawing as directed etc. complete for all floor level or as directed by Engineer in charge.

The railing shall be fabricated to the designs and patterns shown in the drawings and the weight shall be as directed, and the joints shall be riveted or welded as shown in the plan or as directed. The railing so formed shall be fixed into trades of steps etc., before they are erected in position. The outside strip frame of the railing shall be housed to its full thickness into the recess cut into the trades of steps etc. The railing shall be fixed to the trades of steps with number of bolts and nuts of

screws viz. bolt nut/screw per 30 cm of the length of outer strip subject to a minimum of 2 numbers on each side of the trades of steps or as indicated in the drawings or as directed.

The bolts and nuts or screws shall be counter sink and shall be fixed with the top of their heads flush with the face of balustrade.

The item shall be for providing and fixing 0.90 Mtr High staircase railing as per details drawing with S.S. 38 or 40 mm dia pipe for stair post with S.S. 50 mm dia pipe balustrade on top of hand rail including support every 1 mt fixed with handrail attachment saddle, handrail bracket end post cap, hollow cap solid cap of approved quality etc. complete as directed by Engineer-in-charge.

The whole work is to be completed as per design, sample, shade, drawing approval & any other requirement shall be as per instruction of concern Department / Engineer-in-charge.

Mode of Measurement and Payment:

The rate includes cost of all cutting, welding, buffing, rounding, and fixing, labours & materials to complete the specified item of work as per detail drawing and design. The Rate shall also include all tools, plants, equipment, scaffoldings, labour, taxes, conveyance, and other incidentals for satisfactory completion of the work at all floors / all heights and all levels, including necessary wastage involved for the work as directed by Engineer-in-charge. No extra payment will be given for any reason.

The payment will be made on running meter basis of the finished work.

Item No.: - 146.

Providing and fixing composite panel cladding work at front with using 3 mm thick exterior grade 30 micron PVDF coating with foil thickness of 0.25 mm composite panel and aluminium flat of 38.10 x 25.40 x 1.10 mm with 15 micron colour anodized with silicon grade 995 and 989 and G.P. where it is necessary at pressure tape Baker Rod size depend upon groove between two panel with all internal hardware accessories and fitting, including scaffolding and labour charges etc. complete as directed by Engineer-in-charge.

This item is for providing & fixing composite panel cladding work at front with using 3 mm thick exterior grade 30 micron PVDF coating with foil thickness of 0.25 mm composite panel and aluminum flat of 38.10 x 25.40 x 1.10 mm with 15 micron colour anodized with silicon grade 995 and 989 and G.P. where it is necessary at pressure tape Baker Rod size depend upon gape between two panel with all internal hardware accessories and fitting including scaffolding and labour charges etc. complete with all floors as directed.

Materials:

The aluminum pipe section 3 mm thick exterior grade shall conform to M-31 / P-17 of General Technical Specifications for Building works. The size of aluminum pipe section shall be 38.10 mm x 25.40 mm x 1.10 mm.

The aluminum grading sheet silicon sealant of approved quality and pressure tape of approved quality as directed by Engineer-in-charge.

Workmanship:

The first fixing aluminum pipe section framing for making scaffolding as per drawing or as directed by Engineer-in-charge then fixing aluminum pipe on wall as per detailed drawing and spacing to fix exterior cladding as per requirement. Now exterior 3 mm thick aluminum cladding fixed on pipe framing in line and level and joining as shown as per design in vertical and horizontal direction. Pattern, colour & shade approved by Architect or as directed by Engineer-in-charge.

After filling all silicone sealant chemical with pressure tape of good quality & workmanship in line and level. The whole work is to be completed as per design, sample, shade, drawing / photographs and premium quality as per approval & any other requirement shall be as per instruction of Architect or as directed Engineer-in-charge.

Mode of measurement and payment:

The item shall be measured with clear dimension in all respect. The Rate shall also include all tools, plants, equipment, labour, taxes, conveyance, and other incidentals for satisfactory completion of the work including necessary wastage involved for the work as directed by Engineer-in-charge. No extra payment will be given for any reason.

The payment will be made on square meter basis of the finished work.

Item No.: - 147.

Providing and fixing vertical folding type good quality tapestry fabric curtain in position, including operating mechanism with gear and spring booster. The endless chains of 2.3 mm polyester cord with 7.0 mm curtain with optional stopper for stopping the blind at desire position. The item includes idler, outside sleeve, centre shaft, sleeve, roller tubes, bracket, overhead or face mounting with clutch assembly, neat look etc. complete as directed.

1.0 Materials:

All materials shall be as per item description as approved by Engineer-in-charge and specified item's Manufacturer's specifications.

Extruded aluminum tube section shall be as per M-31 / P-17 of General Technical Specifications for Building Works Booklet as directed.

Fixtures and fastenings shall be confirming to relevant IS standards and approved by engineer in charge and it shall confirm to M-43 / P- 19 of General Technical Specifications for Building Works.

The powder coated Aluminum alloy used in the manufacture of extruded section shall confirm to I.S. designation HEA-WP of I.S. 733-1975 and Designation WVG-WP of I.S. 1285-1975. All tube shall be Free from any scratches or holes or any damages on surface. The aluminum tube shall be 55 microns powder coating shall be done as directed by the Engineer-in-charge.

2.0 Workmanship:

The Item covers the relevant requirements of providing and fixing vertical folding type good quality tapestry fabric curtain. The curtain shall be made from extruded aluminum alloy of 48 mm outer dia the tube shall be designed with support ribs to keep it straight and shall have a pocket for holding the fabric in position. The operating mechanism shall consist of a gear with spring booster. The

mechanism shall be designed using high strength fibred glass reinforced polyester assembly and high carbon steel spring to transmit motion from driving to driven members.

The main spring torque shall be 16 kg per cm to ensure ultra-smooth operation of curtain of up to 3 m width and 4 m drop. The mechanism shall operate with the use of an endless beaded chain. the endless chain shall be made from 2.3 mm polyester cord with 7 mm beads an optional stopper shall be provided for stopping the blind at desire position. Idler shall be high strength fiberglass reinforced polyester consisting of an outside sleeve and center shaft.

Sleeve shall provide bearing surface for the roller tube and rotate freely on the center shaft, providing smooth, quiet and long wearing operation. Brackets shall be of optimized steel powder coated to give superior finish. Bracket shall accommodate side, overhead or face mounting with clutch assembly on either end of roller. Bottom of blind shall be provided with aluminum tube powder coated to the matching of fabric the fabric shall be enclosed in the pocket along with the tube. The tube shall be enclosed with side caps to give neat look etc. complete as per details.

3.0 Mode of Measurement & Payment:

The unit rate of vertical curtain shall include the cost of all materials, cost of powder coating, cost of all necessary fixtures and fastenings, labour charges for fixing roller blinds on wall. All tools and plant required for assembling and fixing in position, finishing as per direction of the Engineer-in-charge, and all other incidental expenses for preparing blinds of specified size to complete the door structure or its components as directed. They shall also include the cost of making, fixing and making walls good by plaster patch colour etc. as required. No extra charge will be paid for any other reasons.

The vertical curtain shall be measured for its **width** and **height**, limiting dimensions to those specified on plan or as directed. Also, material wastage shall not be paid for. No extra charge will be paid for any other reasons.

The payment will be made on square meter basis of the finished work.

Item No.: - 148.

Providing and fixing Impulse Blackout Roller Blinds with fabric of 0.53 mm thickness and top channel of non-rusting aluminium alloy with 1.25 mm thickness and bottom channel of 1.50 mm thickness & 21 mm diameter. Tilt channel of ABS plastic with 1.50 mm polyester cord with 4.50 mm balls with stop lock arrangement including all necessary fixture, fasteners, fittings, labour material machinery etc. complete of premium quality & as selected and directed by Engineer-in-charge.

Material:

Type of Fabrics	Blackout
Composition of Fab.	100 % Polyester woven
Visibility	Zero
Light Transparent	Zero
Available Width	2.50 Mtr

Fabric Thickness	0.53 MM (+-0.05)
Weight	475 g/m ² (+-5%)
Tearing Strength	Very High
Hanging Properties	Excellent
Coating	Acrylic coating resistant to Cracking & Fraying
Cleaning	Conditionally cleanable with damp cloth

Top Channel

Roller Blind top channel extruded by Non-Rusting Aluminum alloy with 1.25 mm thickness, with anodized for long life. The Channel is designed with support beam to keep it straight and shall have a pocket for holding the fabrics in position. Available in 32 mm & 38 mm diameters for small and big blind respectively.

Fixing Brackets

The Brackets are made by steel with powder coating to give greater finish. Brackets shall be accommodating overhead or side mounting with clutch assembly on either end of the blind.

Workmanship:

The item covers providing and fixing Impulse Blackout Roller Blinds with fabric of 0.53 mm thickness and top channel of non-rusting aluminium alloy with 1.25 mm thickness and bottom channel of 1.50 mm thickness & 21 mm diameter. Tilt channel of ABS plastic with 1.50 mm polyester cord with 4.50 mm balls with stop lock arrangement, including all necessary fixture, fasteners, fittings, labour material machinery etc. complete as selected and directed by Engineer in charge.

The contractor shall make sure that the item to be installed is in its perfect state as per the standards established by its manufacturer. Additionally, the items installed shall not be damaged and shall be free from any dents or scratches. It is the duty of the contractor to make proper arrangements for protection of the items during stacking, transporting, loading / unloading till handover. The contractor shall get the items inspected and approved by the architect and / or Engineer in charge before installation. Any claim, upon rejection of any item by the Engineer in charge will not be entertained. The contractor shall install the item as directed by Engineer in charge at all floors / all heights and all levels.

The whole work / readymade product is to be completed as per design, sample, shade, drawing / photographs and it shall be of premium quality as directed by Engineer in charge.

Mode of Measurements & Payment:

All the work shall be measured on the basis of finished dimensions as fixed at site and shall be paid.

The rate shall be consolidated for all above items. The rate shall include cost of all materials, fixtures, joineries, hardware etc. & labour charges for all height to complete the work satisfactorily including supplying and arranging as per layout plan at site of work and as per the instruction of Engineer in charge. No extra charge will be paid for any other reasons.

The payment will be made on square meter basis of the finished work.

Item No.: - 149.

Providing and fixing Ring Curtains with using premium fabric and let system with S.S. matt finish rod accessories (basic rate of 750/- per mt) with necessary other fittings, fixtures & fastening etc. complete and material shall be used of approved brands or directed by the Engineer in charge.

Material:

All materials shall be as per item description and specified item's Manufacturer's specifications or as approved by Engineer in charge and associated with General Technical Specifications for Building Works shall be applicable.

Workmanship:

The item covers the requirement of preparation and fixing of Ring Curtains with Using imported premium fabric cloths having minimum 227 GSM and minimum width shall be 137 cm. The cloth shall have composition 72 % polyesters and 58 % cotton and let system with S.S. 304 grade matt finish rod accessories with necessary other fittings, fixtures & fastening etc. complete and material shall be used of approved brands or directed by the Engineer in charge.

The whole work is to be completed as per design, sample, shade, drawing approval & any other requirement shall be as per instruction of Engineer in charge. The contractor shall make sure that the item to be carried out in its perfect state as per the standards practice. Additionally, executed work shall not be damaged and shall be free from any dents or scratches. Any claim, upon rejection of any item by the Engineer in charge will not be entertained. The contractor shall execute the item at all floors / all heights and any levels.

Mode of Measurements & Payment:

All the work shall be measured based on finished dimensions as fixed at site for its width and height, limiting dimensions to those specified on plan or as directed. The rate includes the cost of all materials, labour, machineries, tools and plants, fabrication, erection, hoisting, scaffolding, protective measures required for proper completion of the item of work as directed. This shall also include all taxes, conveyance, and other incidentals for satisfactory completion of the work. No extra charge will be paid for any other reasons.

The payment will be made on square meter basis of the finished work.

Item No.: - 153.

Providing erecting and fixing double coated ISI water tank of required capacity each with all necessary fittings and connection etc. complete on terrace.

1.0 Materials:

- 1.1 Polyethylene water storage tank shall be as per IS 12701, this material should be light weight, non-toxic all fitting materials shall be H.D.P.E. / Brass. Water storage tank shall be double coated.

- 1.2 The P.V.C. cylindrical vertical type having storage capacity as required or as directed. Water tank shall have closed top monolithic single piece molded without any joints, welds, or seams. It should have F.D.A. approved grade of polythene and shall be suitable for storing potable water. The tank should have ribbed construction in molding for added structural strength. It shall be of ISI mark and approved quality and brand, and it shall be approved by Engineer-in-charge.
- 1.3 The thickness of P.V.C. materials shall be as per Company's specification. The size of tank shall be decided by Engineer-in-charge.

2.0 Workmanship:

- 2.1 Water tank shall be installed on perfectly planed and smooth surface.
- 2.2 Outlet pipe shall be 7.5 cm high then bottom surface.
- 2.3 Diameter of overflow pipe shall be bigger than inlet pipe diameter.
- 2.4 Unions shall be used in inlet and outlet pipe.
- 2.5 For connection in water tank required vicar and check-nuts shall be used.
- 2.6 Fitting shall be done by G.I. / P.V.C. pipes as per instruction of Engineer-in-charge in each tank. All joints shall be leaking proof.
- 2.7 All necessary accessories like neo-preen gasket / packing / washers, GI washer & check nuts for inlet and outlet connections, ball cock and locking arrangements shall be fixed without any extra cost.

3.0 Mode of Measurement and Payment:

- 3.1 This shall be measured in one-liter basis and rates are as per liter basis for the volumetric capacity of the water tank.
- 3.2 Rate shall be inclusive of placing, lifting, storing, and making connection for inlet, outlet, overflow pipe, out pipe with all necessary plumbing work, material, for fixing additional accessories supplied by the supplier accessories. The necessary pedestal / supporting structures shall be measured relevant items. No extra payment will be given for any reason.
- 3.3 **The payment will be made on liter basis of the finished work.**

Item No.: - 154.

Providing erecting and fixing triple layer, U.V. protected standard make PVC (ISI) mark water tank with cover of required capacity each with all necessary fittings and connection etc. complete, including placing on terrace as directed with all lifts.

1.0 Materials:

- 1.1 Polyethylene water storage tank shall be as per IS 12701, this material should be light weight, non-toxic all fitting materials shall be H.D.P.E. / Brass. Water storage tank shall be triple layer, U.V. protected.

- 1.2 The P.V.C. cylindrical vertical type having storage capacity as required or as directed. Water tank shall have closed top monolithic single piece molded without any joints, welds, or seams. It should have F.D.A. approved grade of polythene and shall be suitable for storing potable water. The tank should have ribbed construction in molding for added structural strength. It shall be of ISI mark and approved quality and brand like Infra, Syntex or National or equivalent. It shall be approved by Engineer in charge
- 1.3 The thickness of P.V.C. materials shall be as per Company's specification. The size of tank shall be decided by Engineer in charge

2.0 Workmanship:

- 2.1 Water tank shall be installed on perfectly planed and smooth surface.
- 2.2 Outlet pipe shall be 7.5 cm high then bottom surface.
- 2.3 Diameter of overflow pipe shall be bigger than inlet pipe diameter.
- 2.4 Unions shall be used in inlet and outlet pipe.
- 2.5 For connection in water tank required vicar and check-nuts shall be used.
- 2.6 Fitting shall be done by G.I. / P.V.C. pipes as per instruction of Engineer in charge in each tank. All joints shall be leaking proof.
- 2.7 All necessary accessories like neo-preen gasket / packing / washers, GI washer & check nuts for inlet and outlet connections, ball cock and locking arrangements shall be fixed without any extra cost.

3.0 Mode of Measurement and Payment:

- 3.1 This shall be measured in one-liter basis and rates are as per liter basis for the volumetric capacity of the water tank.
- 3.2 Rate shall be inclusive of placing, lifting, storing, and making connection for inlet, outlet, overflow pipe, out pipe with all necessary plumbing work, material, for fixing additional accessories supplied by the supplier accessories. The necessary pedestal / supporting structures shall be measured relevant items
- 3.3 **The payment will be made on liter basis of the finished work.**

Item No.: - 221.

Providing and fixing 12 mm thick Glass Door Cum Partition made by using 12 mm thick toughened glass with acid etching work and with necessary hardware materials like standard make floor spring (heavy duty) and S.S. stud clamps and hinges for glass door, S.S. 0.45 cm long glass door handles, mortise type door lock with all S.S. fittings to be matt finished with necessary other fixtures and fastening etc. complete as directed by Engineer in charge.

Material:

All materials shall be as per item description and specified item's Manufacturer's specifications or as approved by Engineer in charge and associated with General Technical Specifications for Building Works shall be applicable.

The glass shall confirm to M-38 / P-12 of General Technical Specifications for Building works. Except that the glass shall be of approved make having thickness of 12 mm thick toughened glass for full height partition and it shall be clear and free from scratches and cracks.

Fixtures and fastenings, hardware materials shall confirm to M-43 / P- 19 of General Technical Specifications for Building Works. It shall be standard make floor spring (heavy duty) and S.S. stud clamps and hinges for glass door, S.S. 0.45 cm long glass door handles, mortise type door lock with all S.S. fittings to be matt finished.

Workmanship:

Workmanship shall be as per description given above and to the satisfaction of the engineer in charge. The Item covers the relevant requirements of 12 mm thick toughened glass full height partition cum door with installation up to ceiling or beam bottom as per drawing. Glass Door Cum Partition using 12 mm thick toughened glass with acid etching work and with necessary hardware materials like heavy duty floor springs, S.S. clamps, S.S. D handles and other with other fixtures and fastening including of edges polished of the door etc. complete or as directed.

All the work shall be exactly at right angles. The right angle shall be checked from inside surface of the respective members. All members shall be straight without any warp or bow and shall have smooth surface well planned on the three sides exposed at right angles each other. The surface touching the wall is not panned unless it is required to straightening up the member or to obtain overall size with tolerance specified. The contractor shall execute the item at all floors / all heights and any levels.

Mode of Measurements and Payments:

All the work shall be measured based on finished dimensions as fixed at site and shall be paid. The rate includes the cost of all materials, labour, machineries, tools and plants, fabrication, erection, hoisting, scaffolding, protective measures required for proper completion of the item of work as directed.

This shall also include all taxes, conveyance, and other incidentals for satisfactory completion of the work including necessary wastage involved for the work. No extra charge will be paid for any other reasons.

The payment will be made on square meter basis of the finished work.

Item No.: - 249.

Providing and fixing double stack scaffolding system (cup lock type) on the exterior side, up to any height made with 40 mm dia M.S. tube 1.5 m centre to centre, horizontal & vertical tubes joining with cup & lock system with M.S. tubes, M.S. tube chollies, M.S. clamps and M.S. staircase system in the scaffolding for working platform etc. and maintaining it in a serviceable condition for the required duration as approved and removing it thereafter. The scaffolding system shall be stiffened with bracings, runners, connection with the building etc.

wherever required for inspection of work at required locations with essential safety features for the workmen etc. complete as per directions and approval of Engineer in charge. The elevational area of the scaffolding shall be measured for payment purpose. The payment will be made once irrespective of duration of scaffolding.

The item should be carried out as per item description and as per the instruction of Engineer in charge.

Workmanship:

All scaffolding, hoisting arrangements and ladders etc., required for the facilitating of conceding shall be provided and removed on completion of work by contractor at his own expense. The scaffolding, hoisting arrangements and ladders etc. shall be strong enough to with stand all live, dead and impact loads expected to act and shall be subject to the approval of the Engineer in charge. However, contractor shall be solely responsible for the safety of the scaffolding, hoisting arrangement, ladders, work and workman etc. The scaffolding, hoisting arrangements and ladder shall allow easy approach to the work spot and afford easy inspection.

The rate is applicable to all condition of working and for ant height as per site requirement. The rate shall include the cost of materials and labour for various operations involved such as:

- (a) Splayed edges, notching, allowance for overlaps and passing at angles, battens centering, shuttering propping, bolting, wedging easing, striking and removal.
- (b) Filleting to form stop chamfered edges or splayed external angles not exceeding 20 mm: width to beams, columns and the like.
- (c) Temporary openings in the forms for pouring concrete, if required removing rubbish etc.
- (d) Dressing with oil to prevent adhesion of concrete with shuttering and.
- (e) Raking or circular cutting.

Mode of Measurement and Payment:

Scaffolding shall be measured as the area in square meters to shuttering in contract with required work except in the case of inclined member and portion of curved profile and upper side in which case on area of underside shall be measured for payment. No deduction shall be made form the form work of a column at inter section of beams.

The payment will be made on square meter basis of the finished work.

**Deputy Executive Engineer
R & B Sub Division,
ANAND.**

**Executive Engineer
R & B Division,
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