

GHANDHINAGR MUNICIPAL CORPORATION

**NAME OF WORK: RENOVATION OF SWARNIM SANSKRUTIK KENDRA AT RAYSAN
IN GANDHINAGAR MUNICIPAL CORPORATION.**

DETAILED SPECIFICATIONS- (CIVIL WORK)

Item No :-18.

Providing TMT Bar FE 500/500D reinforcement for R.C.C. work including bending, binding and placing in position complete upto plinth level, above floor two level.

1.0 Materials

1.1. High yield Strength Steel Deformed Bars:

1.1.1 High yield strength steel deformed bars are either cold twisted or hot rolled, shall conform to I.S. 1739-1966 and I.S.1139-1966 respectively.

1.2. Mild Steel Binding Wire:

1.2.1 The mild steel wire shall be of 1.63 mm or 1.22 mm. (16 or 18 gauge) diameter and shall conform to I.S. 280-197.

1.2.2 The use of black wire be permitted for binding reinforcement bars. It shall be free from rust, Oil paint, grease, looser mill scale or any other undesirable coating which may prevent adhesion of cement mortar.

2.0. WORKMANSHIP:

2.1. The work shall consist of furnishing and placing reinforcement to the shape and dimensions shows as on the drawings or as directed.

2.2. Steel shall be clean and free from rust and loose mill scale at the time of fixing in position and subsequent concreting.

2.3. Reinforcing steel shall conform accurately to the dimensions given in the bar bending schedules shown on relevant drawings. Bars shall be bent cold to specified shape and dimensions or as directed using a proper bar bender, operated by hand or power to attain proper radius of bends. Bars shall not be bent or straightened in a manner that will injure the material. Bars bent during transport or handling shall be straightened before being used on the work. They shall not be heated to facilitate bending. Unless otherwise specified, a 'U' type hook at the end of each bar shall invariably be provided to main reinforcement. The radius of the bend shall not be less than twice the diameter of the round bar and the length of straight part of the bar beyond the end of the curve shall be at least four times the diameter of the round bar. In case of bars which are not round and in case of deformed bars, the diameter shall be taken as the diameter of circle having an equivalent effective area. The hooks shall be suitably encased to prevent any splitting of the concrete.

2.4. All the reinforcement bars shall be accurately placed in exact position shown on the drawing and shall be securely held in position during, metal hangers, supporting wires or other approved devices at sufficiently close intervals, Bars shall not be allowed to sag between supports nor displaced during concreting or any other operations of the work. All devices used for positioning shall be of non-corrodible

material. Wooden and metal supports shall not extend to the surface of concrete, except where shown on drawings. Placing of broken stone or brick and wooden blocks shall not be allowed. Pieces of broken stone or brick and wooden blocks shall not be used. Layers of bars shall be separated by spacer bars, precast mortar blocks or other approved devices. reinforcement after being placed in position shall be maintained in a clean condition until completely embedded in concrete. Special care shall be exercised to prevent any displacement of reinforcement in concrete already placed. To prevent reinforcement from corrosion, concrete cover shall be provided as indicated on drawings. All the bars producing from concrete and to which other bars are to be spliced and which are likely to be exposed for a period exceeding 10 days shall be protected by a thick coat of neat cement grout.

2.5. Bars crossing each other where required shall be secured by binding wires (annealed) of size not less than 1 mm in such manner that they do not slip over each other at the time of fixing and concreting.

2.6. As far as possible, bars of full length shall be used. In case this is not possible, overlapping of bars shall be done directed. When practicable, overlapping bars shall not touch each other, but be kept apart by 25 mm or 1.25 mm times the maximum size of the coarse aggregate whichever is greater by concrete between them. Where not feasible, overlapping bars shall be bound with annealed wires not less than 1 mm thick twisted tight. The overlaps shall be staggered for different bars and located at points along the span where neither shear nor bending movement is maximum.

2.7. Whenever indicated on the drawings or desired by the Engineer-in-charge, bars shall be joined by couplings which shall have a cross-section sufficient to transmit the full stresses of bars. The ends of the bars that are joined by coupling shall be upset for sufficient length so that the effective cross section at the base of threads is not less than normal cross-section of the bar. Threads shall be standard threads. Steel for coupling shall conform to I.S. 226

2.8. When permitted or specified on the drawings, joints of reinforcement bars shall be butt-welded so as to transmit their full stresses. Welded joints shall preferably be located at points when 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 rods are welded. Only electric arc welding using a process which excludes air from the molten metal and conforms to any or all other special provisions for the work shall be accepted. Suitable means shall be provided for holding bars securely in position during welding. It shall be ensured that no voids are left in welding and when welding is done in two or three stages, previous surface shall be cleaned properly. Ends of the bars shall be cleaned of all loose scale, rust, grease, paint and other foreign matter before welding. Only competent welders shall be employed on the work. the M.S. electrodes used for welding shall conform to I.S. 814. Welded pieces of reinforcement shall be tested. Specimen shall be taken from the actual site and their number and frequency of test shall be as directed.

2.9. The above specifications shall be followed except that the cold twisted steel bars shall be used with or without hooks and the ends. Deformed bars without hooks shall however comply with however comply with relevant anchorage requirements.

3.0 Mode of Measurement:

3.1 For the purpose of calculation consumption, wastage shall both be permitted beyond 5 percent. Excess consumption over 5 % will be charged at penal rate

3.2 Reinforcement shall be measured in length including overlaps, separately for different diameters as actually used in the works. Where welding or coupling is resorted to in place of lap joints such joints

shall be measured for a pimento as equivalent length of overlap as per design requirement. From the length so measured, the weight of reinforcement shall be calculated in tones on the same basic of as per M-18 even though steel is supplied to the contractor by the department on actual weight Length shall include hooks at the ends. Wastage and annealed steel wire for binding shall not be measured and the cost of these items shall be deemed to be included in the rate for reinforcement.

3.3 The rate shall be for a unit of One Kg.

Item No :-19,20

Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sqcm for super structure above plinth level upto floor two level using Polymer modified adhesive mortar complete as per Technical Specification & direction of Engineer in charge. (Ground floor)(First floor).

1.0 MATERIALS

Water shall conform to M-1, Cement shall conform to M-3, AAC BLOCK shall be conform to IS 2185(Part III), Cement Mortar shall conform to M-11 or **readymade premix tensile adhesive mixture** of approved make and approved by engineer in charge.

2.0 WORKMANSHIP (IS 6041:1985)

2.1 Wetting of AAC blocks : These blocks need not be wetted before or during the laying in the walls; in case the climatic condition so reqd , the top and sides of the blocks may be slightly moistened so as to prevent absorption of water from the mortar & ensure the development of the required bond with the mortar.

2.2 Laying :

Use of mortar in masonry: Mortar shall not be spread so much ahead of the actual laying of the units that it tends to stiffens & lose its plasticity, thereby resulting in poor bonds. For most of the work of the joints, both horizontal & vertical, shall be 10 to 15 mm thick. Except in the case of extruded joint construction, the mortar joint shall be struck off flush with wall surface & when the mortar has started stiffening, it shall be compress with rounded or “U” shaped tool. This compaction is important, since mortar, while hardening, has a tendency to shrink slightly & the thus pull away from the edges of the block. The mortar shall be pressed against the units with a jointing tool after the mortar has stiffened to effect intimate contact between the mortar & the block & obtain a water tite joint.

A layer of mortar shall be spread on full width for suitable length of the lower course. Each block shall first be properly bedded and set home by gently tapping with handle of trowel or wooden mallet. Its inside face shall be flushed with mortar before the next block is laid and pressed against it. On completion of course, the vertical joints shall be fully filled from the top with mortar.

The walls shall be taken up truly in plumb. All courses shall be truly horizontal and all vertical joint shall be truly vertical. Vertical joints in alternate course shall generally be directly one over the other. The thickness of block course shall be kept in uniform.

The block shall be laid with frogs up wards. A set of tools comprising of wooden straight edges, mason's spirit level, square half metre rub, and pins, string and plumb shall be kept on the site of work for frequent checking during the progress of work. Both the faces of walls of thickness greater than 20 cms. shall be kept in proper place. All the connected block work shall be kept not more than one metre over the rest of the work. Where this is not possible, the work shall beraked back according to bond (and not left toothed) at an angle not steeper than 45 degrees. All fixtures, pipes, outlet of water, hold fasts of doors and windows etc. which are required to be built in wall shall be embedded in cement mortar.

2.4 Joints : Blocks shall be so laid that all joints are quite flush with mortar. Thickness of joints shall not exposed 10 mm. The face joints shall be raked out as directed by raking tool daily during the progress of work, when the mortar is still green so as to provide key for plaster or pointing to done.

The face of block shall be cleaned the very day on which the block work is laid and all mortar dropping removed.

2.5 Curing : Curing is not required for AAC block masonry carried out in readymade premix tensile adhesive mixture

2.6 Fixtures - The frames of doors, windows, cup-boards etc. shall be housed into the block work at the correct location and level as directed. The heavy steel doors, window frames etc. Shall be built in with block work, but for ordinary steel doors and windows required opening for frames, hold-fasts etc. shall be left in the wall and frames embedded later on in order to avoid damage to the frames.

2.7 Scaffolding - Necessary scaffolding shall be provided. The supports of the scaffolding shall be sound and strong tied together with horizontal pieces, over which the scaffolding plunks shall be fixed. Simple scaffolding shall be allowed normally. In this case scaffolding hole shall rest in hole header horizontal course only. Minimum number of holes shall be left in block work for supporting horizontal scaffolding poles. The contractor is responsible for providing and maintaining sufficiently strong scaffolding so as to withstand all loads likely to come upon it.

2.8 Packing out of Joints - For the face of masonry work, where plastering is to be done, joints shall be raked out to a depth not less than thickness of joints. The false of masonry work shall be cleaned and mortar dropping removed on very same day that masonry work is laid.

2.9 Vender list for Aerated Autoclaved Concrete (AAC) Block.
Ecolite, Magicrete, Areocon, Bilttech, Litecon, ultratech-xtralite or approved by engineer in charge.

2.10 If the sample of above brand or Company fails in required testing same will be rejected.

3.0 MODE OF MEASUREMENTS & PAYMENT :

3.1 The measurements of this item shall be taken for the block masonry fully completed for limiting dimensions not exceeding those shown on the plans or as directed shall be final.

3.2 No deductions shall be made from quantity of block work. No extra payment will be made for embedding in masonry holes in respect of the following items ---

- i] Ends of joints, beams, posts, girders, rafters, purlins trusses corbel, steps etc. where cross sectional area does not exceed 500 Sq.Cm.
- ii] Opening not exceeding 1000 Sq.Cm.
- iii] Wall plate sand bed plates, bearing of slab, chajjas, and like whose thickness does not exceed 10 Cms. and the bearing does not extend the full thickness of wall.
- iv] Drainage holes and recesses for cement concrete blocks to embed hold fasts for doors, windows etc.
- v] Iron fixtures; pipes upto 300 mm. dia. hold fasts of doors and windows built into masonry and pipes etc. for concealed wiring.
- vi] Forming charges of section not exceeding 350 Sq.Cm. in masonry.
- vii] Apertures for fire places, shall not be deducted nor shall extra labour required to make splaying of jams, throating and making arches over the aperture be paid for separately.

3.4 The rate shall be for a unit of one cubic meter.

Item No :-24

Providing and fixing 150 mm wide, approved quality chicken wire mesh at junction of brick work and RCC work or two dissimilar surfaces, at all heights fixed by nails, rowal plugs or tag by cement mortar 1:3 before applying the plaster, including curing, scaffolding all complete as directed.

1.0. Materials

Approved quality chicken wire mesh (FRP / PVC)

Water shall conform to M-1. The cement mortar of proportion 1:3 shall conform to M-11

2.0 Workmanship

The **chicken wire mesh** of size of 150mm width. shall be fixed at junction of brick work and RCC work or two dissimilar surfaces, at all heights fixed by nails, rowal plugs or tag by using cement mortar 1:3 before applying the plaster, including curing, scaffolding all complete as directed.

3.0. Mode of measurements & payment

3.1. The chicken wire mesh shall be measured in Square meter.

3.2. The rate shall be for a unit of one Square meter.

Item No:-25

Providing 20 mm deep finished groove in plaster in line and level etc. Comp. For all Floor

In general the work shall be carried out as per the standard practice in the industry.

20mm deep finished groove shall be made as per Relevant drawings and as per the instructions of Engineer in Charge.

The work shall be carried including necessary scaffolding, tools and labour required.

The rate shall be for a unit of one Running Meter

Item No :-28

Applying two coats of Birla or Asian acrylic lapy (putty) & two coats of primer of approved brand and manufacture on new wall surface to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth. At all Floors

General :

Scope of work includes cleaning off the entire surface, remove all loose particles, dust, scale, smoke, grease from the surface, sand the surface with Emery paper 180 and wipe clean, applying 2 coats of white birla putty.

Material:

manufacturer's standard guide line Putty Make.

Workmanship:

The Putty shall be of approved brand. Plaster filler to be used for filling up uneven surfaces, small cracks and holes etc and it should be done as per the manufacturer's standard guide line. The whole process of paint required 2 times sand with 180 emery paper wipe off and 1 time sand with 320 emery paper wipe off.

Mode of measurement:

All the measurement shall be taken on net surface area actually painted, deduction will be made from the area for fixtures, grills, ventilation, elect boxes and such obstructions not painted, if they are individually more than 0.05 sq.m.

Rate :

Rate is to include for All materials of puttys, sand paper, etc with labour required for scaffolding, cleaning off the surfaces, cleaning the site after completion of job, etc as directed by engineer in charge.

Rate is for the net surface area of Painted surfaces in Square metre.

Item No :-32

Providing & applying single coat of textured at external surface at all floor levels with three coats of weather proof cement exterior paint of approved standard brands make (Asian/Dulux/Narolac) at outer side of the building on RCC or Masonary walls. Rate to include

for all labour, materials, staging, scaffolding, cleaing, curing etc. application of texture after thoroughly brushing th`e surface to give an even shade free from mortar dropping/other foreign matter etc. complete. application of textures & paints must be as per company's standard instructions. Texture and colour selection as per approved by engineer in charge.(It is recommended to use low voc paints rated by IGBC)

1.0. Materials

Approved quality **textured finish**

2.0 WORKMANSHIP

2.1. SCAFFOLDING

Wherever scaffolding is necessary it shall be erected in such a way that as far as possible on part of scaffolding shall rest against the surface to be white or colour washed. A properly secured strong and well tied suspended platform (Zoola) may be used for white washing. Where ladders are used, pieces of old gunny bags shall be tied at top and bottom to prevent scratches to the floors and walls. For white washing of ceilings proper stage scaffolding shall be erected where necessary.

2.2. PREPARATION OF SURFACE

- 2.2.1 The surface shall be thoroughly cleaned of all dust, dirt, mortar cropping and other foreign matter before white wash is to be applied.
- 2.2.2 The surface spoiled by smoke soot shall be scraped with steel wire brushes or steel scrapers or shall be rubbed with over-burnt surkhi or brick bats. The surface shall be then broomed to remove all dust, dirt and shall be washed with clean water.
- 2.2.3 Oil or grease spots shall be removed by suitable chemical and smooth surface shall be rubbed with wire brushes.
- 2.2.4 All unsound portion of the surface plaster shall be removed to full depth of plaster rectangular patches and plastered again after raking the masonry joints properly. Such portion shall be wetted and allowed to dry. They shall then be given one coat of white wash.
- 2.2.5 All unnecessary nails shall be removed; the holes cracks patches etc. shall be made good with materials similar in composition to the surface to be prepared. The surface shall be thoroughly wetted with clean water before textured finish is applied.

3.0. Mode of measurements & payment

- 3.1. The chicken wire mesh shall be measured in Square meter.
- 3.2. The rate shall be for a unit of one Square meter.

Item No :-33

P & L 24" x 24" vitrified 8 mm thick tile flooring over 50 mm (average) base of cement mortar 1:6 (1 cement: 6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantaling of existing flooring and jointed with color cement slurry including finised with flush pointing & cleaning the surface etc. complete for light shade At All floors

Vitrified Tile The tiles shall be of approved make and shall generally conform to IS 15622. They shall be flat, and true to shape and free from blisters crazing, chips, welts, crawling or other imperfections detracting from their appearance. The tiles shall be tested as per IS 13630. Classification and Characteristics of Vitrified Tile shall be as per IS 13712.

The tiles shall be square or rectangular of nominal size. Table 1,3,5, and 7 of IS 15622 give the modular preferred sizes and table 2,4,6 and 8 give the most common non modular sizes. Thickness shall be specified by the manufacturer. It includes the profiles on the visible face and on the rear side.

Manufacturer/supplier and party shall choose the work size of tiles in order to allow a nominal joint width upto 2mm for unrectified floor tiles and upto 1mm for rectified floor tiles. The joint in case of spacer lug tile shall be as per spacer. The tiles shall conform to table 10 of IS 15622 with water absorption 3 to 6% (Group BII).

The top surface of the tiles shall be double charged. Glaze shall be either glossy or matt as specified. The underside of the tiles shall not have glaze on more than 5% of the area in order that the tile may adhere properly to the base. The edges of the tiles shall be preferably free from glaze. However, any glaze if unavoidable, shall be permissible on only upto 50 per cent of the surface area of the edges.

2 Coloured Tiles

Only the glaze shall be coloured as specified. The sizes and specifications shall be the same as for the

3 Decorative Tiles

The type and size of the decorative tiles shall be as follows :

(i) Decorated white back ground tiles

The size of these tiles shall be as per IS 15622.

(ii) Decorated and having coloured back-ground

The sizes of the tiles shall be as per IS 15622.

4 Preparation of Surface and Laying

4.1 Base concrete or the RCC slab on which the tiles are to be laid shall be cleaned, wetted and mopped. The bedding for the tile shall be with cement mortar 1:6 (1 cement : 6 coarse sand) or as specified. The average thickness of the bedding shall be 50 mm or as specified while the thickness under any portion of the tiles shall not be less than 50 mm.

4.2 Mortar shall be spread, tamped and corrected to proper levels and allowed to harden sufficiently to offer a fairly rigid cushion for the tiles to be set and to enable the mason to place a wooden plank across and squat on it.

4.3 Over this mortar bedding neat grey cement slurry of honey like consistency shall be spread at the rate of 3.3 kg of cement per square metre over an area upto one square metre. Tiles shall be soaked in water washed clean and shall be fixed in this grout one after another, each tile gently being tapped with a wooden mallet till it is properly bedded and in level with the adjoining tiles. The joints shall be kept as thin as possible and in straight lines or to suit the required pattern.

4.4 The surface of the flooring during laying shall be frequently checked with a straight edge about 2 m long, so as to obtain a true surface with the required slope. In bath, toilet W.C. kitchen and balcony/verandah flooring, suitable tile drop or as shown in drawing will be given in addition to required slope to avoid spread of water. Further tile drop will also be provided near floor trap.

4.5 Where full size tiles cannot be fixed these shall be cut (sawn) to the required size, and their edge rubbed smooth to ensure straight and true joints. Tiles which are fixed in the floor adjoining the wall shall enter not less than 10 mm under the plaster, skirting or dado.

4.6 After tiles have been laid surplus cement slurry shall be cleaned off.

5 Pointing and Finishing

The joints shall be cleaned off the grey cement slurry with wire/coir brush or trowel to a depth of 2 mm to 3 mm and all dust and loose mortar removed. Joints shall then be flush pointed with white cement added with pigment if required to match the colour of tiles. Where spacer lug tiles are provided, the half the depth of joint shall be filled with polysulphide or as specified on top with under filling with cement grout without the lugs remaining exposed. The floor shall then be kept wet for 7 days. After curing, the surface shall be washed and finished clean. The finished floor shall not sound hollow when tapped with a wooden mallet.

5 Double charge layer

In all double charge tiles the top layer will be coated two times that is top 2 layer of color coated.

6 Measurements

Length and breadth shall be measured correct to a cm after laying flooring and the area calculated in square metre correct to two places of decimal. Where coves are used at the junctions, the length and breadth shall be measured between the lower edges of the coves. No deduction shall be made nor extra paid for voids not exceeding 0.20 square metre. Deductions for ends of dissimilar materials or other articles embedded shall not be made for areas not exceeding 0.10 square metre. Areas, where glazed tiles or different types of decorative tiles are used will be measured separately.

7 Rate

The rate for flooring shall include the cost of all materials and labour involved in all the operations described above, For tiles of sizes upto 0.16 sqm. unless otherwise specified in the description of the item. Nothing extra shall be paid for the use of cut (sawn) tiles in the work.

The rate shall be for a unit of one sq. meter

Item No :-34

Providing and laying light shade vitrified tiles 8 mm to 10 mm thick 24" X 24" in skirting , risers of steps and dado on 10 mm thick cement plaster 1:3 (1 Cement : 3 Coarse Sand) & jointed with white cement Slurry.At All floors

Detail specification same as Item no.33 above. Except tile shall be fixed on 10 mm thick cement plaster 1:3 (1 Cement : 3 Coarse Sand) including finishing with flush pointing and clearing the surface etc. complete.

Mode of Measurements

Length and breadth shall be measured correct to a cm after laying skirting, dado or wall plaster and the area calculated in square metre correct to two places of decimal. Where coves are used at the junctions, the length and breadth shall be measured between the lower edges of the coves. No deduction shall be made nor extra paid for voids not exceeding 0.20 square metre. Deductions for ends of dissimilar materials or other articles embedded shall not be made for areas not exceeding 0.10 square metre. Areas, where glazed tiles or different types of decorative tiles are used will be measured separately.

Rate

The rate for skirting, dado shall include the cost of all materials and labour involved in all the operations described above, For tiles of sizes upto 0.16 sqm. unless otherwise specified in the description of the item. Nothing extra shall be paid for the use of cut (sawn) tiles in the work.

The rate shall be for a unit of one sq. meter

Item No :-35

Providing & laying 600mm x 600mm Matt Vitrified tiles of 8 to 10mm thick in skirting,riser of steps & dado laid on bed of 10 mm (Average) base of cement mortar 1:3 (1 Cement : 3 Coarse sand) thick & jointed with white cement slurry etc. complete as per approval & selection by architect/engineer in charge.

Materials

Vitrified Tile

The tiles shall be of approved make and shall generally conform to IS 15622. They shall be flat, and true to shape and free from blisters crazing, chips, welts, crawling or other imperfections detracting from their appearance. The tiles shall be tested as per IS 13630. Classification and Characteristics of Vitrified Tile shall be as per IS 13712.

The tiles shall be square or rectangular of nominal size. Table 1,3,5, and 7 of IS 15622 give the modular preferred sizes and table 2,4,6 and 8 give the most common non modular sizes. Thickness shall be specified by the manufacturer. It includes the profiles on the visible face and on the rear side.

Manufacturer/supplier and party shall choose the work size of tiles in order to allow a nominal joint width upto 2mm for unrectified floor tiles and upto 1mm for rectified floor tiles. The joint in case of spacer lug tile shall be as per spacer. The tiles shall conform to table10 of IS 15622 with water absorption 3 to 6% (Group BII).

The top surface of the tiles shall be double charged. Glaze shall be either glossy or matt as specified. The underside of the tiles shall not have glaze on more than 5% of the area in order that the tile may

where properly to the base. The edges of the tiles shall be preferably free from glaze. However, any glaze if unavoidable, shall be permissible on only upto 50 per cent of the surface area of the edges.

2 Coloured Tiles

Only the glaze shall be coloured as specified. The sizes and specifications shall be the same as for the

3 Decorative Tiles

The type and size of the decorative tiles shall be as follows :

(i) Decorated white back ground tiles

The size of these tiles shall be as per IS 15622.

(ii) Decorated and having coloured back-ground

The sizes of the tiles shall be as per IS 15622.

4 Preparation of Surface and Laying

4.1 Base concrete or the RCC slab on which the tiles are to be laid shall be cleaned, wetted and mopped. The bedding for the tile shall be with cement mortar 1:6 (1 cement : 6 coarse sand) or as specified. The average thickness of the bedding shall be 25 to 75 mm or as specified while the thickness under any portion of the tiles shall not be less than 25 mm.

4.2 Mortar shall be spread, tamped and corrected to proper levels and allowed to harden sufficiently to offer a fairly rigid cushion for the tiles to be set and to enable the mason to place wooden plank across and squat on it.

4.3 Over this mortar bedding neat grey cement slurry of honey like consistency shall be spread at the rate of 3.3 kg of cement per square metre over an area upto one square metre. Tiles shall be soaked in water washed clean and shall be fixed in this grout one after another, each tile gently being tapped with a wooden mallet till it is properly bedded and in level with the adjoining tiles. The joints shall be kept as thin as possible and in straight lines or to suit the required pattern.

4.4 The surface of the flooring during laying shall be frequently checked with a straight edge about 2 m long, so as to obtain a true surface with the required slope. In bath, toilet W.C. kitchen and balcony/verandah flooring, suitable tile drop or as shown in drawing will be given in addition to required slope to avoid spread of water. Further tile drop will also be provided near floor trap.

4.5 Where full size tiles cannot be fixed these shall be cut (sawn) to the required size, and their edge rubbed smooth to ensure straight and true joints. Tiles which are fixed in the floor adjoining the wall shall enter not less than 10 mm under the plaster, skirting or dado.

4.6 After tiles have been laid surplus cement slurry shall be cleaned off.

5 Pointing and Finishing

The joints shall be cleaned off the grey cement slurry with wire/coir brush or trowel to a depth of 2 mm to 3 mm and all dust and loose mortar removed. Joints shall then be flush pointed **& cleaning the surface and filled with with 3 x 3 mm joint filling with epoxy joint filler on both direction**, the half the depth of joint shall be filled with **epoxy joint filler** on top with under filling with cement grout without the lugs remaining exposed. The floor shall then be kept wet for 7 days. After curing, the surface shall be washed and finished clean. The finished floor shall not sound hollow when tapped with a wooden mallet.

5 Double charge layer

In all double charge tiles the top layer will be coated two times that is top 2 layer of color coated.

Mode of Measurements

Length and breadth shall be measured correct to a cm after laying skirting, dado or wall plaster and the area calculated in square metre correct to two places of decimal. Where coves are used at the junctions, the length and breadth shall be measured between the lower edges of the coves. No deduction shall be made nor extra paid for voids not exceeding 0.20 square metre. Deductions for ends of dissimilar materials or other articles embedded shall not be made for areas not exceeding 0.10 square metre. Areas, where glazed tiles or different types of decorative tiles are used will be measured separately.

Rate

The rate for skirting, dado shall include the cost of all materials and labour involved in all the operations described above, For tiles of sizes upto 0.16 sqm. unless otherwise specified in the description of the item. Nothing extra shall be paid for the use of cut (sawn) tiles in the work.

The rate shall be for a unit of one sq. meter

Item No.36

Providing and laying polished granite stone slab 18 mm thick in skirting, sill and jambs, risers of steps, dado and pillars laid on 10 mm thick cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with gray cement slurry including rubbing & polishing etc. Complete

1.0. Materials

Water shall conform to M-1. Lime mortar shall conform to M-10. Cement mortar shall conform to M-11 Granite river stone shall conform to M-52.

2.0. Workmanship

2.1. Each slab shall be cut to the required size and shape and fine chisel dressed at all the edges. The sides must be dressed shall have a full contract if a straight edge is laid along. The sides shall be table rubbed with coarse sand before paving. All angles and edges of the slabs shall be true square and free from chippings and giving a plane surface. The thickness shall be 25 mm. (Average) as specified in the item but not less than 20 mm. at any place of the slab. **2.2.** Bedding for the Granite stone slabs shall be of cement mortar 1:6 (1 cement : 6 coarse sand) or L.M. 1:1.5 of average thickness 20 mm given in the description of the item. Sub grade shall be cleaned, wetted and mopped Mortar of the specified mix and thickness shall then be spread on an area sufficient to receive one kota stone slab. The slab shall be washed clean before laying. It shall be laid on top, pressed, tapped gently to bring it in level with the other slabs. It shall then be lifted and laid aside. Top surface of the mortar shall then be corrected by adding fresh mortar at hollows or depressions. The mortar shall then be allowed to harden bit. Over this surface, cement slurry of honey-like consistency shall be applied. The slab shall then be gently placed in position and tapped with wooden mallet till it is properly padded in level with and close to the adjoining slab. The joint shall be as fine as possible. The slabs fixed in the floor adjoining, the walls shall enter not less than 10 mm. under the plaster, skirting or dado. The junction between the wall and floor shall be finished neatly. The finished surface shall be true to levels and slopes as directed.

2.3. The floor shall be kept wet for a minimum period of 7 days so that bedding and joints set properly.

2.4. Polishing shall be normally commenced after 14 days of laying the stone slab. First polishing shall be done with carborundum stones of 120 grade grit fitted in the heavy machine and then second polishing shall be done with carborundum stone of 220 to 350 grade grit fitted in heavy machine. Water shall be properly used during polishing. The stone shall then be washed clean with water when directed by the Engineer-in-charge, wax polish of approved quality shall be applied on the surface with the help of soft cloth over a clean and dry surface. Then the polishing machine fitted with bobs shall be run over it.

3.0 Measurements

Length and breadth shall be measured correct to a cm after laying skirting, dado or wall plaster and the area calculated in square metre correct to two places of decimal. Where coves are used at the junctions, the length and breadth shall be measured between the lower edges of the coves. No deduction shall be made nor extra paid for voids not exceeding 0.20 square metre. Deductions for ends of dissimilar materials or other articles embedded shall not be made for areas not exceeding 0.10 square metre. Areas, where glazed tiles or different types of decorative tiles are used will be measured separately

Rate

The rate for skirting, dado shall include the cost of all materials and labour involved in all the operations described above, For tiles of sizes upto 0.16 sqm. unless otherwise specified in the description of the item. Nothing extra shall be paid for the use of cut (sawn) tiles in the work.

The rate shall be for a unit of one sq. meter.

Item No.39

Supply & Fixing of Broken Glazed (China Mosaic) tiles size 5-6 mm thick of different size and shade (approved crazy pattern) in Cement:Mortar 1:2 and joint filling with White Cement / Coloured Cement with water proofing component including Ramping, Watering, Curing etc. complete (FOR ALL FLOOR)

Immediately on applying the cement slurry over the surface of the brick bat coba and when the slurry applied is still green, Provide in position 6 mm. thick broken Glazed tiles in size 12 mm to 20 mm, of odd sizes and shapes laid in approved crazy pattern (with one or more color in pattern, as directed) for floor/ dado having plain or curved surfaces, in cement mortar 1:3 proportion with cement, floating, joints finished with white or approved colour cement including tamping, watering, curing, cleaning with oxalic acid, etc. complete as per the Engineer's instructions.

Curing and Testing the Treatment

The entire surface thus treated shall be flooded with water by making ponding arrangement with weak cement mortar, for a minimum period of two weeks.

MODE OF MEASUREMENT AND PAYMENT :

The measurement shall be taken along the finished surface of treatment including the rounded and tapered portion at junction of parapet wall. Length and breadth shall be measured correct to a cm and area shall be worked out to nearest 0.01 sqm. No deduction in measurement shall be made for openings or recesses or chimney stacks, roof lights or khurras of area upto 0.40 sqm., nor anything extra shall be paid for making such openings, recesses etc. For areas exceeding 0.40 sqm., deduction will be made in the measurements for the full openings and nothing extra shall be paid for making such openings.

The rate shall include the cost of all labour and materials involved in all the operations described above. The rate shall be for a unit of one sq. mt.

Item No :-40

Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc. consisting of following operations.(a) Applying and grouting a slurry coat of neat cement using 2.75 kg/ sqm of cement admixed with proprietary water proofing compound conforming to IS : 2645 over the R.C.C. slab including cleaning the surface before treatment.(b) Laying cement concrete using broken bricks\brick bats 25 mm to 100 mm size with 50 % of cement mortar 1:5 (1 Cement : 5 Coarse sand) admixed with proprietary water proofing compound conforming to IS : 2645 over 20 mm thick layer of cement mortar of mix 1: 5 (1 cement : 5 Coarse sand) admixed with proprietary water proofing compound conforming to IS : 2645 to required slope and treating similarly the adjoining walls upto 300 m height including rounding of junction of walls and slabs.(C)After two days of proper curing applying a second coat of cement slurry admixed with proprietary water proofing compound I.S.2645 (d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 admixed with proprietary water proofing compound I.S.2645 and finishing the surface with trowel with neat cement slurry & making of (300 x 300)mm square (e)The whole terrace so finish shall be flooded with water for a min. period of two weeks for curing and for final test. All above operation to be done in order and as directed and specified by the engi.-in-charge. With

average thickness of 120 mm and minimum thickness at khurra as 65mm Cement consumption 0.642 Bags / S.M.)

Providing and laying water proofing treatment to vertical and horizontal surface of depressed portion of W.C. kitchen and like consisting of (a) I Course of applying cement slurry @ 4.4 Kg./Sq.m. mixed with water proofing compound like S.B.R., (Styrene Butadiene Rubber) like conforming to IS:2645 in recommended proportions. (b) II Course of 20 mm cement plaster 1:3 mixed with water proofing compound in recommended proportion.

Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces, horizontal and vertical surface of depressed portion of W.C., bath etc. consisting of following operations. (a) applying and grouting a slurry coat of neat cement using 2.75 kg/sq.mt. of cement admixed with proportionate water proofing compound conforming to IS:2645 over the R. C.C. slab including cleaning the surface before treatment. (b) Laying cement concrete using broken bricks/brick bats 25 mm to 100mm size with 50% of cement mortar 1:5 (1 Cement :5 Coarse sand) admixed with proportionate water cement mortar of mix 1:5 (1 Cement :5 Coarse sand) admixed with proportionate water proofing compound conforming to IS: 2645 to required slope and treating similarly the adjoining walls upto 300mm height including of junctions of walls and slabs. (c) After two days of proper curing, applying a second coat of cement slurry admixed with proportionate water proofing compound conforming to IS: 2645 and finally finishing the surface with trowel with neat cement slurry and making of (300x300) mm square. (e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. All above operations to be done in order and as directed and specified by the engineer –in-charge. With average thickness of 120 mm and minimum thickness at khurra as 65mm.

(1) The whole work is to be executed through specialized agency with a guarantee of 10 years given no a prescribed proforma duly stamped.

(2) The rate shall include for work at all floors and conducting water proof test as directed.

Mode Of Measurement And Payment :

Rate including cost of all materials labours, tools, plants etc. required to complete the item.

Horizontal plan area of horizontal surfaces with side adjoining walls upto 300 mm height including of junctions of walls and slabs Vertical surface area shall be actual work carried out at site.

The rate shall be for a unit of one sq. mt.

Item No :-42

Providing and fixing window having extruded aluminum Colour anodized section frame main outer size 63.50 x 38.10 x 1.95 mm (of Jindal Section no:4605, @ Wt 1.094 Kg / Rmt), horizontal two track member size 61.85 mm x 31.75 mm x 1.20mm (of Jindal Section no: 8687 @ wt.of 0.695 Kg/mt), vertical member of size 61.85 mm x 31.75mm x 1.30 mm (of Jindal Section no:8758 @ wt.of 0.659 Kg/mt) with sliding shutters of horizontal member size 40mm x 18mm x 1.29mm (of Jindal Section no:8949 @ wt.of 0.456Kg/mt), vertical member of size 40mm x 18mm x 1.29mm (of Jindal Section no:8947 @ wt.of 0.456Kg/mt/ Section 8948, @ Wt. 0.457 Kg/mt) with 5 mm thick transparent bronze colour tinted float glass with powder coated aluminum fittings and fixtures and transparent silicon sealant glass fixing to frame as per details etc complete.

Matt anodized aluminium sliding windows shall be made of extruded aluminium sections having thickness not less than 1.5 mm and matt finished colour anodized not less than 20 micron.

All the section for Outer frame, sliding track and shutter frame shall be as described in the item description.

The glass 5 mm thick **transparent bronze colour tinted float glass** as directed.

The whole assembly of window shall be fixed in best workman like manner to have smooth operations.

All the windows shall be sealed to the R.C.C. or brick work with silicon sealants of dow corning or Wacker Germany as approved by Engineer-in-charge or his consultant.
The rate shall be for a unit of one square meter.

Item No :-43

Providing and fixing fully fixed stainless grill using 50mm x 8mm (SS 304) stainless steel flats vertical 50mm X 8 mm stainless steel lats horizontal, 16 mm diameter round stainless steel bar at 100 mm center to center fixed to S.S. flats necessary S.S screws and other S.S fittings etc. complete.

1.0. Materials

The Stainless steel shall conform to ASIS SS 304 Grade.

2.0. Workmanship

2.1. The S.S. Grill shall be prepared as per the drawing or as directed for fixing to wooden frames of windows etc.

2.2. The grill shall be fabricated to the designs and patterns shown in the drawings and the weight shall be as directed, and the joints shall be reverted or welded as shown in the plan or as directed. The grill so formed shall be fixed into the frames of the windows etc. before they are erected in position. The outside strip frame of the grill shall be housed to its full thickness into the recess cut into the frame of the windows etc. The grill shall be fixed to the frame with number of bolts and nuts or screws viz. bolt nut/screw per 30 cm. of the length of outer strip subject to minimum of 2 Nos. on each side of the frame or as indicated in the drawing or as directed.

2.3. The bolts and nuts or screws shall be counter sunk and shall be fixed with the top of their heads flush with the face of the frame strips.

3.0. Mode of measurements & payment

3.1. Item includes necessary fixtures and fittings like screw etc.

3.2. The rate shall be for a unit of one square meter.

H – Hardened and tempered at a relative low temperature.

T - Hardened and tempered at a relatively high temperature.

S – Stain hardened relatively high cold work.

B – Relatively severe cold work.

3.5 The specification covers stainless and heat resisting steel pipes, rods and sheets.

Chemical compositions of stainless steel: Alloy	C	Mn	P	S	Si	Cr	Ni
304	0.08	2.00	0.045	0.030	0.75-1.00	18.00 – 20.00	8.002 – 10.50

3.6 Mechanical properties of stainless steel pipes :

- a. Type – 304 f. Elongation % in 50 MM - 40
- b. UNS Designation – S 30400 g. Hardness Brielle – 150,
- c. Condition – Annealed h. ASTM Specification – A240
- d. Tensile strength Mpa. – Annealed i. Rust Proof and Non Magnetic.
- e. % Proof strength Mpa. – 205 j. Polished outside.

4.0 Mode of Measurement & payment :

The measurements will be in running meter correct to a cm. The rate shall include all materials and labour involved in all the operations described and specified, including fixing in R.C.C. polishing, etc. complete.

The rate shall be for a unit one Square meter.

Item No :-45

Removing and scraping of old deteriorated plaster of any thickness from wall/R.C.C member including stacking of service able material and disposal of unserviceable from site of work with all lead and lift.

Demolition :- The term 'Demolition' implies breaking up. This shall consist of demolishing work or part of work including all relevant items as specified or shown on the drawings.

Dismantling : The item 'Dismantling' implies carefully removing without damage (up or down). This shall consist of dismantling one or more part of the building as specified or shown on the drawings.

General : Precautions: All materials obtained from dismantling or demolition shall be the property of the Corporation unless otherwise specified and shall be kept in safe custody until handed over to any store of Surat Municipal Corporation. The demolition shall always be planned before hand and shall be done in reverse order of the one in which the structure was constructed. The scheme shall be got approved from the Engineer-in-charge before stating the work. Necessary propping, the shoring and or under pinning shall be provided for the safety of the adjoining work or property before dismantling and demolishing is taken up and the work shall be carried out the such away no damage is caused to the adjoining work or property. Wherever specified temporary enclosures or partitions shall also be provided. Necessary precautions shall be taken to keep down the dust nuisance. Dismantling shall be done in a systematic manner. All materials which are likely to be damaged by dropping from a height. The or demolishing roofs, masonry etc. shall be carefully removed first. The dismantled articles shall be passed by hand where necessary, lowered the ground (as not thrown) and then properly stacked as directed by the Engineer- in-charge. Where fixing is done by nails, screws, bolts, rivets etc. dismantling shall be done by taking out the fixing with proper tools and not by tearing or ripping off. Any serviceable materials, obtained during dismantling demolition, shall be separated out and stacked properly on site or any store of S.M.C. as directed by the Engineer-in-charge. All unserviceable materials rubbish etc. shall be disposed off as directed by the Engineer-in-charge. The contractor shall maintain/disconnect service temporary or permanent, if required.

Rates : The rate shall include the cost of all labour involved and tools and in used in demolishing and dismantling including scaffolding. The rate shall also include the charge of or separating out serviceable and in serviceable materials and stacking the same on site or at any store of Surat Municipal Corporation as directed by Engineer-in-charge. The rate shall also include for temporary shoring for the safety of portions not required to be pulled down or of adjoining property and providing temporary and providing temporary, enclosures or partitions, there considered necessary. Item also includes dismantling any kind of masonry R.C.C. work, flooring work, plaster work, sanitary work etc. complete.

The payment shall be made on cubic meter basis for complete item.

Item No :-47

Providing and fixing Stainless Steel railing having 50 mm x16G ASIS 304 Grade dia hollow stainless steel pipe as hand rail and 32x32 mmx16G ASIS 304 Grade sq. hollow stainless steel pipe with combination of 10 cm long 16 mmx16G ASIS 304 Grade dia pipe as vertical supports 16 mm x16G ASIS 304 Grade dia hollow stainless steel pipes as intermediate members running through stainless steel 30 mm dia solid runners having threaded screw to fix the runner with vertical suppoet including cutting bending w=elding & fabrication the structure as per drawing

including finishing etc complete

1.0 Materials

- 1.1 Material shall be best approved quality obtaining and they shall comply with the respective ASTM specification.
- 1.2 If necessary samples of all material shall be accompanied by the manufactures test certificate or by a recognized test laboratory by vendors own cost.
- 1.3 The vendor shall submit samples of material before supply for our verification form the original raw materials.
- 1.4 Stainless steel shall be austenitic chromium nickel steel, possessing rust, acid and heat resistant properties confirming to IS : 6603 and IS : 6911. Mechanical properties / grade for such stainless steel shall be as specified by the accepting authority, but in grades. AISI 304 which is equivalent to grade 04Cr18Ni10 of IS : 6911 satisfies the requirements of mechanical properties of structuralsteel. Other grades of stainless steel for specific requirements. For application in adverse / corrosive environment, stainless steel shall confirm to AISI 316L or 02G17 Ni Mo2 of IS : 6911.

2.0 Workmanship

- 2.1 There shall be one vertical per step fixed along the edge of the stair.
- 2.2 The excess welding shall be properly smoothened and burrs removed. The whole railing shall be finished and fixed in true line and level.
- 2.3 All the railing should highly polished after grinding.
- 2.4 After the final finish the railing should be properly rapped by thin polythene.
- 2.5 The nature of railing should be straight or curved as per requirement.
- 2.6 Fixing on the ground should be with SS CSK screw, if necessary anchor fishnet may be used as per requirement.

3.0 TECHNICAL SPECIFICATIONS

- 3.1 Type : SS 304 grade
- 3.2 Size of pipes, 38 mm dia. 25 mm dia (14 guage) – matt polish
SS Hand rail – 50mm dia. Mid rail- 12mmdia Balustrade – 75mm
- 3.3 Nature of railing : the railing may be straight or curved as per requirement.
- 3.4 Manufactured conditions should be are as follows :
 - A – Annealed
 - H – Hardened and tempered at a relative low temperature.
 - T - Hardened and tempered at a relatively high temperature.
 - S – Stain hardened relatively high cold work.
 - B – Relatively severe cold work.
- 3.5 The specification covers stainless and heat resisting steel pipes, rods and sheets.

Chemical compositi ons of stainless steel: Alloy	C	Mn	P	S	Si	Cr	Ni
304	0.08	2.00	0.045	0.030	0.75-1.00	18.00 – 20.00	8.002 – 10.50

- 3.6 Mechanical properties of stainless steel pipes :
 - a. Type – 304 f. Elongation % in 50 MM - 40
 - b. UNS Designation – S 30400 g. Hardness Brielle – 150,
 - c. Condition – Annealed h. ASTM Specification – A240
 - d. Tensile strength Mpa. – Annealed i. Rust Proof and Non Magnetic.

e. % Proof strength Mpa. – 205 j. Polished outside.

4.0 Mode of Measurement & payment :

The measurements will be in running meter correct to a cm. The rate shall include all materials and labour involved in all the operations described and specified, including fixing in R.C.C. polishing, etc. complete.

The rate shall be for a unit one Square meter.

Item No :-48

Supply and Fabrication,Erection of M.S. Box section with one coat of primer as per Approved Structural Drawings / working Drawings given by Your Structural Engineer. With Supply and Installation of 10mm thick 4 Layer Multiwall polycarbonate standing seam roofing sheet withrequired accessories.Sheet length : 15 Mtr as required.Make. COXWELL/DPI Colour: ICE

Materials

The structured steel work shall conform to M-22. One coat primer shall conform to I.S : 102-1962

The work shall be carried out by as directed by the Engineer-in-charge

The rate shall be for a unit one Square meter.