

**ITEM WISE
SPECIFICATIONS**

Item wise Specifications

Name of Work:- Constructing Office Building Of Drainage Sub Division, Mahudha.

Item No.1 - Excavation for foundation in all sorts of soil including yellow sandy gravelly soils ,soft & hard murrum etc. in dry condition including depositing the excavated stuff in uniform layers in banks or as and where directed etc. complete for lead upto 500 m and all lift. (BY MACHINERY) (Excluding Dewatering).

1 General

- i. The foundation levels shown on the plans accompanying the tenders are tentative and the actual levels shall be decided by the Engineer - in - Charge on the basis of construction stage drawing & actual site conditions revealed after opening of the foundation. The construction stage drawing will be provided stage wise and work shall be carried out as directed by Engineer - in - Charge.
- ii. The excavation for canal structures shall be done for all type of soils, sand, murrum, soft rock & hard rock etc. according to the dimensions and size shown on the drawings. These drawings are tentative and subject to change but drawing issued at the time of execution shall be considered final.
- iii. Before start of the excavation for the first time the free water above the ground level of the particular location of the structure shall have to be dewatered. Then after the level of the ground surface whether in dry, wet or slushy conditions so obtained shall be considered as initial level for the purpose of measurements for excavation. However for such cases, the decision of the Engineer-in-Charge for fixing initial level shall be considered final. The excavation shall be in dry, wet, slushy or in muddy condition. The contractor shall have to carry out the excavation in the above condition without claiming the extra cost.
- iv. Blasting shall be done in such a manner as not to cause over breakage which is excessive in the opinion of the Engineer-in- Charge. Special care shall be taken to prevent over breakages or loosening of material on bottom and side slopes against which foundation concrete is to be done. Final cutting for 45 cm in hard rock shall be carried out by controlled blasting or chiseling or with the help of pneumatic pavement breakers. If excavation is required to be done within 30 m from the existing structure the same shall be carried out by chiseling without resorting to blasting for which no extra rate shall be payable. The method of drilling and blasting to be resorted to for hard rock excavation shall be got approved from the Engineer-in-Charge.
- v. The pay line quantities will be to the dimensions shown on the drawings. If the pay line is not shown on drawing or there is any discrepancy in drawing the decision of Engineer-in-charge shall govern. However, the excavation shall be as judged safe and all loose materials shall be removed prior to back filling and compaction.
- vi. The recommended side slopes for pay lines are considered as quite safe and no shoring and strutting is necessary. However, if necessity arises, the contractor shall have to provide shoring and strutting and scaffolding and rate for excavation will be treated as inclusive of such costs. No extra payment shall be made for the required shorting and strutting.
- vii. The contractor shall provide at his cost line pegs, nails, string, lime powder and skilled and unskilled labours and other material and equipment for lining out of the foundation for work. During excavation of earth under this items, if the sub soil water is met at a lower to the foundation level, the contractor shall have to make arrangement for

dewatering or pumping out the entire quantity of water to keep foundation dry for which no additional amount shall be payable to the contractor.

- viii. Whenever ground water is met with during excavation for structures, dewatering shall be resorted to by the contractor. No extra claim for dewatering shall be entertained as the provision of the same shall be made in relevant item.
- ix. The excavation of structure shall include excavation in all types of soils including yellow, sandy or gravelly soil, sand, soft and hard murrum, wet, slushy or moist soil including capillary fringe.
- x. During rock excavation the contractor will not be allowed to dispose off the rubble. Surplus usable rubble will be allowed to be used in construction of rock-toe work, masonry work, pitching, road metal etc. subject to approval of the Engineer-in- Charge regarding usability. WRD will charge the cost for using such rubbles as per prevailing S.O.R.
- xi. The clause no. 1.8.2 "Conveyance and disposal of excavated materials" as mentioned hereinafter in this section for canal, shall also be applicable to excavation for structure.

1.1 Over Excavation :-

1.1.1 The work shall conform to the true line & levels and shall be carried out uniformly to the approved sections. Over excavation shall not be done beyond the defined pay line. If any such over excavation is done, the same shall be filled back with suitable soil or 1:5:10 cement concrete with brickbats or aggregates and properly compacted or concrete filled as required or as directed by the Engineer-in-Charge. No extra claim for such over excavation, filling and compaction of concrete / soil shall be entertained.

1.1.2 The usable material removed from the excavation for structures shall be used for back fill and embankment otherwise it shall be disposed off as directed by the Engineer-in-Charge.

1.1.3 Backfilling of structures :

1.1.3.1 The backfill material around the structure shall be placed carefully and spread in uniform layer not more than 15cm thickness. The backfill shall be, brought up as uniformly as practicable on both sides of walls where ever applicable and all sides of structures to prevent unequal loading. Backfill placement and compaction around structures shall be restricted until the structure is complete.

1.1.3.2 Compaction around the structure and over the lining key shall be done by pneumatic rammers in thin layers.

1.1.3.3 In cases, the barrels of canal syphon, drainage syphon, super passage, foundations of cross regulators and other structures are proposed on the natural ground or its approaches are proposed on the compacted backfill made up ground, the soil of natural ground and the embankment on which the barrel syphon foundations and other component of structure rest shall be prepared as per canal embankment, then after the actual barrel or other concrete structure work shall be started as per instruction of the Engineer-in-Charge.

1.1.3.4 The embankment work shall be carried out with all precautions necessary from safety requirement and as per the method specified in the normal embankment technique.

1.1.3.5 When compacting the soil against steep rock abutment walls of masonry or concrete structures, the construction surface of embankment shall be sloped away from the rock or masonry or concrete structure leaving a minimum distance of 0.60 meter and at an inclination of 3:1. Rollers shall not be used close to structures as structural damage is very likely more particularly when structures have not been fully, cured. The size and weight of equipment will depend on nature of material, the height and load assumed in design of structure. The backfill close to the structure up to the rolled layer shall be compacted in suitable uniform layers using pneumatic /hand tampers at appropriate for dry density of at least 90% of Standard Proctor Density. Profused watering shall be done to pervious materials, (sand) before compaction as per instruction of the Engineer-in-Charge. Compaction at junction of earthwork and backfill around the structure shall be carried out with special care without claiming any

extra cost.

1.1.3.6 All foundation trenches shall be back filled around masonry or concrete as the case may be to the original surface of the ground as directed and shall be @ in 15 cm. layers. Without any extra payment in this case. The contractor shall have to back fill the excavation of structure using the available and usable soil from the canal/drain/gutter excavation and structure excavation in a proper manner layer wise with proper compaction as directed by the Engineer-in-charge with all leads and lifts. As the compaction is to be carried out near the structure suitable compacting equipment as decided and directed by the Engineer-in-charge shall be used. No separate payment shall be made to the contractor for backfilling of over excavated portion. Over excavation shall be restored by the contractor at his cost as directed by the Engineer- in-charge.

1.2 Measurement & Payment

1.2.1 No extra rate shall be payable for excavation below designed depth shown on the drawings. No claim for extra rate shall be entertained for any excavation that may be required to be done for widening or deepening the foundations consequent upon lowering of foundation below the level shown on the drawings. The works so done will be paid at the tendered rates of the item.

1.2.2 No extra rate shall be payable for excavation of loose boulders which are embedded in soil and can be removed by pick bar and shovel without blasting.

1.2.3 The excavation of canal structures shall be measured and paid on cubic metre(cum) basis. **The quantity of excavation shall be computed As Per Section Show in Drawings(Based on Length, Breadth And Width).** No payment shall be entertained for any excavation beyond payline. The rate shall include providing all the materials, tools, plants and labour required for excavation.

1.2.4 The rate for the respective items of excavation for canal structures includes the excavation in all lifts, disposal of excavated stuff as stipulated in the specifications, providing all tools, plant, machinery, survey instruments, labour and material, preparation and maintenance of haul roads, transport of excavated material to temporary stock piles, rehandaling of excavated material temporarily deposited in stockpiles to disposal areas or points of final use, disposal of excavated waste materials, maintaining excavated slopes and trenches, etc complete. The cost of sorting and stacking the useful excavated material above high flood levels will not be paid extra and shall be deemed to have been included in the unit rate of completed item of excavation.

a) The rate also includes the backfilling of structure excavation. The rate including refilling the sides of trenches excavated for foundation of walls, head walls, wing walls, abutments and C.R. walls etc. complete.

Backfilling of structures :

The contractor shall have to back fill the excavation of structure using the available and usable soil from the canal/drain/gutter excavation and structure excavation in a proper manner layer wise with proper compaction as directed by the Engineer-in- charge with all leads and lifts. As the compaction is to be carried out near the structure suitable compacting equipment as decided and directed by the Engineer-in-charge shall be used. No separate payment shall be made to the contractor for backfilling of structure.

b) No extra payment shall be made for the required shorting and strutting.

c) The rate also includes cost of all incidental operations required for carrying out the work in accordance with the specifications. The intermediate payment will be made at 98% of the full rate. The remaining 2% will be paid when the backfill is completed as per designed profile true to the line and levels and finally accepted on completion by the Engineer – in – Charge.

Item No. 2 - Providing & Placing in position reinforcement bars including cutting, bending, welding joints where necessary, hooking etc. complete as per drawing for all lead and lifts. (B) TMT FE500D

General

Steel reinforcing bars shall be placed in concrete where shown on the drawings or as directed by the Engineer-in-Charge.

The Contractor's reinforcement detailed drawing for approval shall be prepared in accordance with IS: 456-1978 "Code of Practice for plain and Reinforced Concrete"; IS: 2502-1963 "Code of Practice for Bending and fixing of Bars for concrete Reinforcement" and IS-5525-1969 "Recommendation for detailing of Reinforcement in reinforced concrete work" unless otherwise shown on the reinforcement detail drawings. Contractor's drawings shall show necessary details for checking the bars during placement and for use in establishing payment quantities. Reinforcement bars shall conform to requirements shown on the drawings or as directed by the Engineer-in-Charge. The approval of the Engineer-in-Charge to the Contractor's reinforcement detailed drawings shall not absolve the Contractor of his responsibility for the correctness of details or for conformance with the requirements of these specifications.

TMT(FE 500D) /CRS/HYSD bar conforming to IS and as mentioned in general description material specification shall be used as reinforcement.

Cutting, Bending and Binding

The Contractor shall be responsible for the accuracy of the cutting, bending and placing of the reinforcement. Reinforcement shall be inspected for compliance with the requirements as to placed. No concreting shall be started unless the reinforcement as placed in the work is finally checked, recorded and certified by the Engineer-in-Charge.

Before the reinforcement is placed, the surface of the bars and the surfaces of any metal bar supports shall be cleaned of the rust, loose mill scale, dirt, grease and other objectionable foreign substances. After being placed, the reinforcing bars shall be maintained in a clean condition until they are completely embedded in the concrete.

Reinforcing bars shall be accurately placed and secured in positions so that there will be a clear distance of at least 25 mm between the bars and any adjacent embedded metal work and the bars and the bars and fabric shall not be displaced during the placing of concrete. The Contractor shall also ensure that there is no disturbance of the reinforcing bars in concrete that has already been placed.

Wire for binding reinforcement shall be of soft and annealed mild steel and shall conform to IS: 280-1978. Binding wire shall have tensile strength of not less than 56 kg/mm². The wire shall have minimum diameter of 1 mm. Chairs, hangers, spacers and other supports for reinforcement may be of concrete, metal or other approved material. The minimum allowable clearance between parallel round bars shall not be less than 1.1/2 times the diameter of the larger bars and for square bars shall not be less than twice the side of aggregate whichever is greater. Bars crossing each other, where required, shall be secured by binding wire in such a manner that they do not slip over each other at the time of fixing and concreting. Wire used for binding reinforcement shall not be measured for payment.

Splicing

Where it is necessary to splice reinforcement the splices shall be made by lapping, by welding or by mechanical means.

Joints or splices in reinforcing bars shall generally be made at the location where neither shear nor bending moment is maximum, but the Contractor would be permitted to make joints or splices at other position provided that such positions are approved by the Engineer-in-Charge and joints and splices in adjacent bars are staggered as directed by the Engineer-in-Charge. Approval of such additional splices will generally to be restricted to splices not closer than 8 m in horizontal bars or 4 m in vertical bars measured between midpoints of laps.

If the Contractor proposes, to use welded splices in reinforcing bars, the equipment the material and all welding and testing procedures shall be subject to the approval of the Engineer-in-Charge. The Contractor shall also carry out test welds as required by the Engineer-in-Charge.

Reinforcing bars 28 mm in diameter and larger may be connected by butt welding provided that lapped splices will be permitted if found to be more practicable than butt welding and if lapping does not encroach on cover limitation or hinder concrete or reinforcement placing.

Reinforcing bars 25 mm in diameter and less may be either lapped or butt welded, whichever is the most practicable.

Butt welding of reinforcing bars shall be performed under cover from weather and may be performed either by the gas pressure or flash pressure welding process or by the electric arc methods. The following requirements shall apply to all welding of reinforcing bars including butt welding and the preparation of welded reinforcement mats.

Care of Placed Reinforcement and Concrete

Where reinforcement bars are bent aside at construction joints and afterwards bent back into their original position, care shall be taken to ensure that at no time the radius of the bend is less than 6 diameters for deformed bars and 4 diameters for plain mild steel bars. Care shall also be taken, when bending such bars, to ensure that the concrete around the bars is not damaged.

Mode of measurement and Payment

Measurement for payment, for furnishing and placing reinforcing bars will be made only on the calculated weight of the bars placed in concrete, in accordance with the drawings or as directed by the Engineer-in- Charge.

All other joints or splices shown on the drawings or as directed by the Engineer-in-Charge shall be measured as laps. Except as provided additional joints or splices shall not be measured for payment. Payment for furnishing and placing reinforcement bars shall be made at the rate tendered thereof in the Schedule B. The rate shall include the cost of preparing reinforcement as per detailed drawings. The unit rate shall also include cost of all incidental operations necessary to complete the work as per specifications.

Payment Shall be made on **Qtl.** Basis.

Item No.3C, 3F - Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement.(A) For Foundation concrete / General purpose.

(c) C. C. Nominal Mix, M-15 and MSA-20 mm

(f) C. C. Nominal Mix, M-20 and MSA-20 mm

1. Materials

The specification of all the materials required in executing this item shall confirm to General specifications of the materials given in the beginning.

2. Workmanship

The sides of the bank which has to receive lining shall be dressed and trimmed to the required slopes including watering on the surface to receive lining, rolling, compacting to make the sub-grade o.k. and profiles be put up at regular intervals and to ensure uniform and regular work. The proportion of cement concrete shall be as specified in the item. The mixture of the concrete shall be prepared as the general specification of the concrete work. The lining work shall be carried out from the toe of the slope. It shall be checked for correct and uniform thickness of the concrete. The whole work shall be cured with water in bed by ponding and by curing compound in slope as membrane curing.

3. Proportion of mix and Mixing

The proportion of concrete mix shall be as specified in the item and shall be measured by volume. The concrete shall be mixed in a mechanical mixer at the site of work. Hand mix may be allowed for smaller qty. of work if approved by Engineer-in-charge. When hand mix is permitted in the interest of the work, it shall be carried out on water tight platform and care shall be taken to ensure that the mixing shall be continuous till uniform color mix and consistency is reached. The mix shall be produce so dense and of required workability for the purpose.

4. Transporting, placing , compaction and curing

The concrete shall be handled from the place of mixing to the place of wok in not more than 30 min. by the method as directed and shall be placed in to its final position without any segregation, compacted and finished within 30 min. of mixing with water i.e. before initial setting commence. The concrete shall be laid in the layers of specific thickness. The concrete shall be rammed with rammers and rapidly to get compaction and to allow all the interspaces to be filled with mortar. After the final set the concrete shall be cured and kept continuous wet by water in bed and by membrane forming compound in slopes and adequate care shall be taken to prevent any movement on cured surface up to 28 days. This compound shall be suitable for use as curing media for fresh concrete and after initial moist curing, white pigmented of approved quality conforming to ASTM-C-309-81 Type-2. The specifications cover curing of membrane forming compound to retard the loss of water during the early hardening period and to reduce the temperature rise in concrete exposed to radiation from the sun so as to achieve the desired effect of water curing at 28 days, when applied at the specified rate of application mentioned by the manufacturer or at the effective coverage rate decided actually on site depending upon surface finish. Before applying the curing compound

the concrete surface shall be cleaned by brooms or other means not to disturb, damage or any foot impression on concrete.

The compound shall be sprayed using mechanical sprayer of pressure tank type and got approved from the Engineer-in-charge. However, in emergency for very small areas (patches) it can be applied with brush as per the directions of the Engineer-in-charge.

5. Tests and acceptance criteria

The testing of construction materials and carried out work shall confirm to the standard provisions of I.S. codes for various materials and procedures of work for which required tests as per the quantum of the work will be decided by the Engineer in charge and contractor shall convey the samples to the laboratory at his own expense. The manufacturer test results from his lab shall be furnished to the Engineer-in-charge for approval. On receipt of the test results satisfactory, work done will be accepted for the purpose of payment.

Measurement and Payment

The measurement for the payment shall be made on the cubic meter basis as per the executed qty. The payment for the item shall be made at the unit rate mentioned in Schedule-B. The rate shall include watering on the surface including providing all tools and plants, labor and cost of curing compound etc. complete.

Item No. 4 - Providing and laying burnt brick masonry for super structure with ordinary portland cement mortar 1:5 proportion including providing scaffolding racking out joints curing etc. complete for all leads and lifts.

Brick & Cement Mortar shall conform to Material specification

The proportion of the cement mortar shall be 1 : 5 (1 cement: 5 fine sand) by volume.

The bricks required for masonry shall be thoroughly wetted with clean water for about two hours before use or as directed. The cessation of bubbles, when the bricks are wetted with water is an indication of through wetting of bricks.

Half or cut bricks shall not be used except when necessary to complete to bond; closers in such case shall be cut to required size and used near the ends of walls.

A layer of mortar shall be spread on full width for suitable length of the lower course. Each brick shall first be properly bedded and set home by gently tapping with handle of trowel or wooden mallet. Its side face shall be flushed with mortar before the next brick 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 laid 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 brick course shall be kept uniform.

The brick shall be laid with frog upwards. A set of tools comprising of wooden straight edges, mason's spirit level, square half metre rule, 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 23 cms. shall be kept in proper place. All the connected brick work shall be kept not more than one metre over the rest of the work. Where this is not possible, the work shall be raked back according to bond (and

not left toothed) at an angle not steeper than 45 degrees.

All fixtures, pipes, outlets of water, hold fasts of doors and windows etc. which are required to be built in wall shall be embedded in cement mortar.

Bricks shall be so laid that all joints are quite flush with mortar. Thickness of joints shall not exceed 12 mm. The face joints shall be raked out as directed by tacking tools daily during the progress of work, when the mortar is still green so as to provide key for plaster or pointing to be done.

The face of brick shall be cleaned the very day on which the brick work is laid and all mortar dropping removed. Green work shall be protected from rain suitably. Masonry work shall be kept moist on all the faces for a period of seven days. The top of masonry work shall be kept well wetted at the close of the day.

Mode of measurement:

The masonry work of G.F. i.e. above plinth level to floor two level shall be measured and paid under this item.

Brick work in parapet shall be included in the corresponding masonry item of storey immediately below the floor above which the parapet is built.

No deduction shall be made from quantity of brick work. No extra payment shall be made for embedding in masonry or making holes in respect of following items :

(1) Ends of joints, beams, posts, girders, rafters, purlins, trusses, corbel, steps etc. Where cross sectional area does not exceed 500 Sq.Cm.

(2) Opening not exceeding 1000 Sq. Cm.

(3) Wall plate, sand bed plates, bearing of slab, chhajjas and like whose thickness does not exceed 10 Cms. and the bearing does not extend the full thickness of wall.

(4) Drainage holes and recesses for cement concrete blocks to embed hold fasts for doors, windows etc.

(5) Iron fixtures, pipes upto 300 mm. dia. hold fasts of doors, and windows built into masonry and pipes etc. for concealed wiring.

(6) Forming charges of section not exceeding 350 Sq. Cm. in masonry.

(7) Apertures for fire places, shall not be deducted nor shall extra labour required to make spaying of Jambs, throating and making trenches over the aperture be paid for separately.

The measurement shall be for a unit of one cubic metre(cum).

The rate shall be for a unit of one cubic metre(cum).

Item No.5 - Providing and laying burnt brick masonry in foundation ordinary portland cement mortar 1:5 proportion including, curing etc. complete for all leads and lifts. (Conventional Bricks)

Brick & Cement Mortar shall conform to Material specification

The proportion of the cement mortar shall be 1 : 5 (1 cement: 5 fine sand) by volume.

The bricks required for masonry shall be thoroughly wetted with clean water for about two hours before use or as directed. The cessation of bubbles, when the bricks are wetted with water is an indication of thorough wetting of bricks.

Half or cut bricks shall not be used except when necessary to complete to bond; closers in such case shall be cut to required size and used near the ends of walls.

A layer of mortar shall be spread on full width for suitable length of the lower course. Each brick shall first be properly bedded and set home by gently tapping with handle of trowel or wooden mallet. Its side face shall be flushed with mortar before the next brick 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 laid truly horizontal and all vertical joints shall be truly vertical. Vertical joints in alternate course shall generally be directly one over the other. The thickness of brick course shall be kept uniform.

The brick shall be laid with frog upwards. A set of tools comprising of wooden straight edges, mason's spirit level, square half metre rule, 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 23 cms. shall be kept in proper place. All the connected brick work shall be kept not more than one metre over the rest of the work. Where this is not possible, the work shall be raked back according to bond (and not left toothed) at an angle not steeper than 45 degrees.

All fixtures, pipes, outlets of water, hold fasts of doors and windows etc. which are required to be built in wall shall be embedded in cement mortar.

Bricks shall be so laid that all joints are quite flush with mortar. Thickness of joints shall not exceed 12 mm. The face joints shall be raked out as directed by taking tools daily during the progress of work, when the mortar is still green so as to provide key for plaster or pointing to be done.

The face of brick shall be cleaned the very day on which the brick work is laid and all mortar dropping removed. Green work shall be protected from rain suitably. Masonry work shall be kept moist on all the faces for a period of seven days. The top of masonry work shall be kept well wetted at the close of the day.

Mode of measurement:

The masonry work Below G.F. i.e. Below plinth level to floor level shall be measured and paid under this item.

No deduction shall be made from quantity of brick work. No extra payment shall be made for embedding in masonry or making holes in respect of following items :

(1) Ends of joints, beams, posts, girders, rafters, purlins trusses corbel, steps etc. where cross sectional area does not exceed 500 Sq.Cm.

(2) Opening not exceeding 1000 Sq. Cm.

(3) Wall plate, sand bed plates, bearing of slab, chhajjas and like whose thickness does not exceed 10 Cms. and the bearing does not extend the full thickness of wall.

(4) Drainage holes and recesses for cement concrete blocks to embed hold fasts for doors, windows etc.

(5) Iron fixtures pipes upto 300 mm. dia. hold fasts of doors, and windows built into masonry and pipes etc. for concealed wiring.

(6) Forming charges of section not exceeding 350 Sq. Cm. in masonry.

(7) Apertures for fire places, shall not be deducted nor shall extra labour required to make spaying of Jambs, throating and making trenches over the aperture be paid for separately.

The measurement shall be for a unit of one cubic metre(cum).

The rate shall be for a unit of one cubic metre(cum).

ITEM NO:06 Sand Filling in foundation and plinth with murrum or selected soil in Layers of 20 cm thickness including watering, ramming and consolidation etc, complete.

SCOPE:

Scope of Item is For filling & providing good filter material behind wheel holes or any other parts of rigid structure to provide safe path for excess water.

(A) Material:

Materials: Sand to M-3

Measurement and storage of materials:

Measurement and storage of materials shall be done in accordance with the requirements of IS:456-2000.

Filling

First Sand layer of at least 20 mm shall be laid on soil than joints and Gap shall be filled with Sand. After Filling material up to Desired Level or Thickness. Filled part Shall be kept flooded for 2 hour with water to achieve 0% gap in Filling. After watering if Filling Material shows gap additional Sand Shall be filled.

Work done shall not found satisfactory the Engineer-in-charge may ask the Contractor to resort Whole work without any extra cost

Mode of measurement :-

The Measurement shall be made on Cubic meter(cum) basis.

Mode of Payment :-

The payment shall be made on Cubic meter (cum)basis.

Item No. 07 - Providing cement plaster in thickness and proportion as under including, smooth finishing, curing, scaffolding etc. complete for all leads and lifts. Cement mortar 1:3 proportion.(b) 12 mm thick.

The work covered under these specifications consists of supplying all materials and rendering all types of plaster/pointing finishes strictly in accordance with these specifications, applicable drawings etc. For all finishing works mentioned above, only blended cement shall be a used.

Blended cement, sand and water required for the work shall conform to above specifications conforming to I.S. 1542. The plastering works shall generally conform to I.S. 1661 (Pt. III) (Code of practice for cement and cement plaster finish on walls and ceilings). All general precautions as specified in I.S. 1661 (Pt. III) clause-8, shall be taken and preparation of the back ground shall be done as laid down in I.S. 1661 clause 12 and I.S. 2402 shall be generally followed for rough cast and sand faced plaster work. Scaffolding required for facility of working shall be provided by the contractor at his own cost. This may be double or single according to the requirement and shall be approved by the Engineer-in-Charge. Stage scaffolding shall be erected when ceiling plastering is done. The contractor shall be responsible for accidents, if any, take place. The contractor shall cooperate with the other agencies also. Whenever electrical contractor/agency has to fix up switch boxes in walls, necessary Thiyyas, Tapanish or Dhadas shall be arranged to be given in advance of actual plastering process at these locations so that the boxes are fixed properly in line with finished plaster surface. All finishing in and around these boxes as also around the conduit boxes in ceiling shall be done by plastering contractor without any extra cost to the Department. The decision of the Engineer-in-Charge in this regard shall be final and binding on the contractor. The surface to be plastered shall first be thoroughly cleaned of all muck and cleaned down. All

joints shall be raked out in case of brick work / stone masonry and closely hacked in case of concrete, under the relevant masonry / concrete items. The surface to be plastered shall be well wetted for a minimum period of 6 hours before commencing the work. The mortar for all plaster work shall be blended cement mortar of mix as specified in the schedule of quantities. After erection of scaffolding and before commencement of plastering work, top most junctions/joints/sides with beam/column shall be thoroughly packed with blended cement mortar to prevent cracks. Before commencement of plastering operation, the contractor shall ensure that all the service pipes, electrical conduits, boxes, switch boxes etc. have been installed in position by other agencies and the plastering surface is duly approved by the Engineer-in-Charge. In order to enable other service contractors to fix the electrical conduits, conduit boxes, EDBs, pipes, outlets etc. in proper level and line with reference to the finished surface of the plaster, Thiyyas and Tapanis i.e. finished plaster patches shall be given by the main civil contractor on walls, ceiling at regular intervals well in advance of his plaster work at no extra cost to the Department. The entire work of preparation of surface before plastering shall thus be co-ordinated by the main civil contractor with all other agencies working at site. Just before actual plastering work is taken up in hand, all the ceilings and walls etc. shall be marked with Tapanis or Thiyyas indicating the thickness of plaster required and which shall be in true line, level and plumb. The contractor shall get these marks approved by the Engineer-in-Charge before starting the plastering work. The contractor shall also be responsible to render the final surface true to line, level and plumb etc. All building operations like construction of walls, concreting etc. shall have been completed before plastering is taken up. The plastering operation should be taken up only after the service pipes etc. that are to be embedded in the wall or ceiling are completed and suitably protected against erosion by other agencies and okayed by the Engineer-in-charge. Damage if caused to any of the existing fittings, fixtures, including doors and windows etc. during the plastering operation shall be made good by the contractor at his own cost. If the surface which is to be plastered either internally or externally is out of plumb and not in line and level and if the plastering to be done is more than specified thickness to bring the plastered surface to perfect line and levels, in such specific cases, chicken wire mesh is to be provided by the contractor at his own cost and the plaster should be done to required line and level with no extra cost whatsoever. The finished plastered surface shall be free from cracks, fissures, crevices, hair cracks, blisterings, local swellings and flakings. The finished surface shall be true to line, level, plumb & plain and durable. The adhesion of the mortar with the background surface is of prime importance as this affects durability of plaster. Preparation of surface which has to take plastering is of great importance. Before starting the plastering work the surface should be got approved by the Engineer-in-charge.

The grooves shall be of required dimensions. The same shall be made to turn wherever necessary. The finish, inside, shall be of the same finish as that of the plaster. The lines of the grooves shall be well defined and rounded. The grooves are to be provided in plastering in internal and external surfaces and shall be paid extra in the rates given in schedule of quantities.

The mortar for plastering shall be of proportion as specified in the item schedule. The mixes specified in the schedule are volumetric.

Cement and fine aggregates shall be mixed dry in the required proportions to obtain a uniform colour. Water shall then be added to get the required consistency for the plaster.

Mixing shall be done mechanically. However, manual mixing will be allowed only in exceptional circumstances at the discretion of the Engineer-in-Charge. Manual mixing, where adopted, shall be carried out on a clean water tight platform. After water is added during mixing, the mix shall be held back and forth for 10 to 15 minutes. In machine mixing, the mixer shall run atleast five minutes after placing all the ingredients in the drum. Only so much quantity of mortar which can be used within half an hour after the addition of water shall be prepared at a time. Any mortar for plaster which is set or partially set shall be rejected & shall be removed forthwith from the site.

Plastering items amongst all other things as described in various items also include:

Preparation of surfaces to receive the plaster, providing cement plaster of the specified average thickness and proportions with specified number of coats.

All labour, materials, scaffolding, use of tools and equipment to complete the plastering work as per specifications.

Curing for 10 days.

Cleaning the surface of doors, windows, floors or any other surfaces where plastering might have splashed.

Mode of measurement & payment shall be square meter(Sqmt) of completed item.

ITEM NO. 08 - 20 mm. thick sand face cement plaster on walls up to height of 10 mm. and above ground level consisting of 12 mm. thick backing coating of C.M. 1:3 (1 cement : 3 sand) and 8 mm. thick finishing coat in C.M. 1:1 (1 cement : 1 sand) etc. complete.

Materials

Water shall conform to M-1. Cement mortar shall conform to M-11.

Workmanship

The work shall be carried out in the coats. The backing coat (base coat) shall be 12 mm. thick in C.M. 1:3. The relevant specifications of item No. 17.58(I) shall be followed except that the thickness of back coat shall be 12 mm. average. Before the first coat hardens its surface shall be beaten up by edges of wooden tapers and close dents shall be made on the surface. The subsequent coat shall be applied after this coat has been allowed to set for 3 to 5 days, depending upon the weather conditions. The surface shall not be allowed to dry during this period.

The second coat shall be completed to 8 mm. thickness in C.M. 1:1 as described above, including raising sand facing by bushing. The sample of sand face shall be got approved before the work is started. The whole work shall be carried out uniformly as per sample approved.

Curing :

The curing shall be started overnight after finishing of plaster. The plaster shall be kept wet for a period of 7 days. During this period, it shall be protected from all damages.

Mode of measurement & payment

Mode of measurement & payment shall be done on the basis of One sq. meter(Sqmt).

Item No. 09 - Providing and Fixing Urinal of Approved Quality including connection with trap and with integral longitudinal flush pipe (A) Squating Plate Pattern White Earthenware 550mm x 300mm

The white earthenware flat pack or comer type urinal of size 550 mm. x 300 mm.

The urinals shall be fixed in position by using wooden plugs and screws and shall be at a height 65 cms. from the floor level to the top of the lip or urinal, unless otherwise directed.

The wooden plugs shall be 50 mm. x 50 mm. at base lapping to 38 mm. x 38 mm. at top and

50 mm. in length shall be fixed in wall in cement mortar 1: 3 (1 cement : 3 coarse sand). The urinal shall be connected to 32 mm, dia. galvanised mild steel waste pipe which shall discharge in the channel or-floor trap. The connection between the urinal and flush or waste pipe shall be made by means of putty or whitelead mixed with chopped hemp.

Mode of measurements & payment:

The rate includes cost of all labours, materials, tools and plants etc. required for satisfactory completion of this item.

The measurement shall be for a unit of each.

The rate shall be for a unit of each.

Item No. 10 - Providing and fixing wash down water closet European type W.C. pan with integral "P" or "S" trap including jointing the trap with soil pipe in cement mortar 1 : 1 (1 cement : 1 fine sand) (seat and cover to be measured and paid for separately) (A) Vitreous china pattern - I (i) in white colour

Closet shall be fixed to the floor by means of 75 mm. long 6.5 mm. diameter counter sunk bolts and nuts embedded in the floor concrete using rubber or fibre washers so as not to allow any lateral displacement. The joint between the trap of W. C. and soil pipe shall be made with C.M. 1:1 (1 cement: 1 fine sand).

Mode of measurements & payment:

The rate shall include the cost of all labour for fixing pans and seat and cover, inlet, connections etc. complete including testing the same.

The payment of seat and cover shall be made separately.

The measurement shall be for a unit of each

The rate shall be for a unit of each

Item No. 11 - Providing and fixing plastic seat and cover for wash down water closet with C.P. brass hinges and rubber buffers.(B) Black plastic seat and cover pattern - I (i) in white colour.

The solid plastic seat and cover shall be of the best Indian make conforming to I.S. 2548-1980. They shall be made of moulded syntactic materials which shall be tough and hard with high resistance to solvents and shall be free from blisters and other surface defects and shall have chromium plated brass hinges and rubber buffer of suitable size.

The measurement shall be for a unit of each

The rate shall be for a unit of each

Item No. 12 - Providing and fixing PVC SWR Nahni trap IS 14735 for drain - 100 mm diameter with jali of the following nominal diameter of self cleansing design with C.I. screed down or hinged grating including the cost of cutting and making good the walls.

Materials: The cast iron (spun) Nahni trap shall be conform to Material specifications. The C. I. hinged or screwed down cover shall be of best quality.

Workmanship:

The Nahni trap with 100 mm. dia. inlet and 50 mm. dia. outlet shall be fixed as per drawing or as directed.

The Nahni trap shall be jointed with C. I. Pipe, 75 mm. dia. with lead joints. The lead joints shall be done in conformation with I.S. 782-1976.

Mode of measurements & payment:

The rate includes cost of all labour, materials, tools and plants etc. required for satisfactory completion of this item including lead jointing and testing.

The measurement shall be for a unit of each.

The rate shall be for a unit of each.

Item No. 13 - Providing and fixing 12.5 litres low level flushing cistern with a pair of C.I. or mild brackets, complete with fittings such as lead valve less syphon, 15 mm nominal size brass ball valve with polythene float C.P. brass handle unions and couplings for connection with inlet, outlet and overflow pipes. 40 mm dia porcelain enamelled flush bend including cutting holes in walls and making good the same connecting the flush bend with cistern and closet (overflow pipe to be measured and paid for separately) (A) Vitreous China (i) IN white colour.

The cistern of 12.5 Liters shall be fixed on two C. I. or mild steel brackets which shall be firmly embedded in the wall in cement mortar 1 : 4 (1 cement, 4 fine sand).

The height of the bottom of the cistern from the top of the pan shall be two metres.

The W.C. Pan shall be connected to the cistern by galvanised steel flushed pipes of 32 mm. nominal internal diameter.

The flush pipe shall be fixed to wall by using clamps. The flush pipe from the cistern shall be connected to the closet by means of cement or red-lead. The flush pipe shall be securely connected to the cistern outlet by means of coupling out made of any corrosive material non-ferrous metal or galvanised steel.

The china and the pull union shall be fixed to the protruding lever arm of the flushing cistern.

The whole installation shall be tested for leak-proof joints and satisfactory functioning.

Mode of measurements & payment:

The rate shall include the cost of all materials, fillings and labour involved in all operations, described under workmanship including testing.

The measurement shall be for a unit of each

The rate shall be for a unit of each

Item No. 14 - P & L 24" x 24" vitrified 8mm thick tile flooring over 20mm (average) base of cement mortar 1:6 (1 cement:6coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantling of existing flooring and jointed with color cement slurry including finished with flush pointing & cleaning the surface etc complete for antiknock (upto 10 ton)

The Vitrified Tiles shall be antiskid type of size 24" x 24" & 8 mm thickness shall be quality of I.S.I. brand or any specific I.S.I brand as suggested by Engineer-in charge

Each slab shall be cut to the required size and shape and fine chisel dressed at all the edges.

The sides thus dressed shall have a full contact if a straight edge is laid along. The sides shall be table rubbed with coarse sand and before paving. All angles and edges of the slabs shall be true square and free from clippings and giving a plane surface.

The thickness shall be 20 mm. (Average) as specified in the item but not less than 20 mm. at any place of the slab.

Bedding for the vitrified tile shall be cement mortar 1 : 6 (1 cement; 6 coarse sand). of average thickness 20 mm. as given in the description of the item. Sub grade shall be cleaned, wetted and mopped. Mortar of the specified mix and thickness shall be then be spread on an area sufficient to receive one vitrified tile. 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 lapped with wooden mallet till it is properly pedded 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 wall shall enter not less than 10 mm. under the plaster, skirting or dado. The junction between the wall floor shall be finished neatly. The finished surface shall be ture to levels and slopes as directed.

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

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 polish machine fitted with bobs shall be run over it.

The holes required for Nahni traps, pipes any other fittings shall be made without any extra cost.

Mode of measurements & payment:

The rate shall include the cost of all materials and labour involved in all the operations described above. The vitrified tile flooring shall be measured in square metres correct to, two places of decimal, length and breadth shall be measured correct to a centimeter and between the finished face of skirting dado or wall plaster and no deduction shall be made nor extra paid for any opening in floor of areas upto 0.1sq. mt.

The rate shall be for a unit of Sqmt.

Item No. 15 - Providing and fixing Machine cut with rounded moulding mirror polished (1 side polished) selected color and shade granite stone frame for Door/Window Sills & Jambs having thickness of 16 to 18 mm granite slab on 10 mm thick cement plaster 1:3 and jointed with white/matching pigment cement slurry mixed pigment to match shed of stone with half round mould edge including polishing, making holes for hinges and other fittings etc. complete for all floor level as directed by Engineering in Charge

Each slab shall be cut to the required size and shape and fine chisel dressed at all the edges.

The sides thus dressed shall have a full contact if a straight edge is laid along. The sides shall be table rubbed with coarse and before paving. All angles and edges of the slabs shall be true square and free from clippings and giving aplane surface.

The thickness shall be 16-18 mm. (Average) as specified in the item at any place of the slab.

Bedding for the Granite stone slabs shall be cement mortar 1 : 3 (1 cement; 3 coarse sand) or

L.M. 1 : 1.5. of average thickness 10 mm. as given in the description of the item. Sub grade shall be cleaned, wetted and mopped. Mortar of the specified mix and thickness shall be then be spread on an area sufficient to receive one granite 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 lapped with wooden mallet till it is properly pedded 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 wall shall enter not less than 10 mm. under the plaster, skirting or dado. The junction between the wall floor shall be finished neatly. The finished surface shall be ture to levels and slopes as directed.

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

The holes required for Nahni traps, pipes any other fittings shall be made without any extra cost.

Mode of measurements & payment:

The rate shall include the cost of all materials and labour involved in all the operations described above. The granite flooring shall be measured in square metres correct to, two places of decimal, length and breadth shall be measured correct to a centimeter and between the finished face of skirting dado or wall plaster and no deduction shall be made nor extra paid for any opening in floor of areas upto 0.1sq. mt.

The rate shall be for a unit of one Sqmt.

Item No. 16 - Providing and laying white glazed tiles 6mm thick in skitring risers of steps and dado on 10 mm thick cement plaster 1 : 3 (1 cement : 3 coarse sand) and pointing in white cement jointed with white cement slurry.

MATERIALS:

wherever skirting work is to be carried out, tiles shall be same as that of flooring tiles and for dado and elevation wall tiles shall be of 6mm thick glazed type.

In case of brick masonry wall, the joints shall be raked out to adepth of least 15mm. while the masonry is being laid. In case of concrete wall the surface shall be chiseled and roughed with wire brush. The surface shall be cleaned and wetted thoroughly before commencing the laying work.

The wall surface shall be covered with 10mm thick plaster of cement mortar 1:3 mix and allowed to harden. The plaster shall be roughened with wire brushes both way. The back of tiles shall be floated with grey cement slurry set and edges with cement slurry in bedding mortar. The tiles shall be gently tapped in position on after the other keeping the joints as thin as possible.

Where full sizes tiles cannot be fixed they shall be cut to required size and the edges be smoothened.

The joints shall be cleaned and flush pointed with white cement. The surface shall be kept wet for seven days. After curing the surface shall be washed clean.

The rate shall include the cost of all materials and labour required for various operations described above.

The measurement shall be for unit of Sqmt.

The rate shall be for unit of one Sqmt.

Item No. 17 - Providing and fixing Wash Basin single hole for pillar tap with C.I or M.S. brackete painted white including sutting holes and making good the same but excluding fittings. (A) Vitreous chaina :(ii) Flat back wash basin 550mm x 400mm size (i)in white colour.

The white glazed earthenware wash basin shall be 550 cm. x 400 mm. of 1st quality and make as approved by the Engineer-in-charge.

The wash basin shall be fixed on the wall as and where directed. The wash basin shall be supported on a pair of M.S. or C.I. brackets fixed in C.M. 1 : 3 (1 cement: 3 sand). The bracket shall conform to I. S.: 775-1962. The wall plaster on the rear shall be cut to rest the top edge of the wash basin. After fixing the basin, plaster shall be made good and surface finished to match with the existing one.

The bracket shall be painted white with ready-mixed paint.

The C.I. brass trap and union shall be connected to 32 mm. dia. waste pipe which shall be suitably bent towards the wall and which shall discharge into an open drain leading to a gully trap or direct into the gully-trap on the ground floor and shall be connected to a waste pipe through a floor trap-on the upper floors. C.P. brass trap and union may not be provided where the surface drain or a floor trap is placed directly under the basin and the waste is discharged into vertically.

The height of the front edge of the wash basin from the floor level shall be 80 cms.

The necessary inlet, outlet connections and fittings such as pillar cocks. C.P. dress waste trap waste pipe, stop cock, chain wish rubber plug etc. shall be fixed.

The payment of fittings shall be made separately under separate item.

Mode of measurements & payment:

The rate includes cost of all labour, materials; tools and plant etc. required for satisfactory completion of this item as specified in workmanship.

The measurement shall be for a unit of each.

The rate shall be for a unit of each

Item No. 18 - Providing and fixing C.P. brass waste for washbasin or sink. (A) 32mmdia.

The C.P. brass waste trap and unions shall be of 32 mm. dia. and of best quality and make as approved by the Engineer-in-charge.

C. P. brass waste trap and union shall be connected to 32 mm. dia. waste pipe which shall be suitably bent towards the wall and which shall discharge into drain through a floor trap. The C. P. brass waste trap shall be provided for wash basin or sink as the case may be.

Mode of measurements & payment:

The rate includes all labors and providing C. P. brass waste trap and union including waste coupling of 32 mm. dia. The rate excludes the cost of waste pipe of 32 mm. dia.

The measurement shall be for a unit of each.

The rate shall be for a unit of each.

Item No. 19 - Providing and fixing M.I. fisher union for wash basin or sink (A) 32mm dia.

The 32 mm. dia. M. I. Fisher union shall be of best quality and make as approved by the Engineer-in-charge.

The 32 mm. dia. M. I. Fisher union shall be fixed to wash basin or sink in best workman like manner.

Mode of measurements & payment:

The rate includes all labors and materials, tools & Plants etc. required for satisfactory completion of the item.

The measurement shall be for a unit of each.

The rate shall be for a unit of each.

Item No. 20 - Providing and fixing Pillar tap capstan head, screw down high pressure with screws, shanks and back nuts. (i) 15mm dia.

The capsten head pillar tap of specified dia. of C.P. over brass shall be of best quality and shall conform to I.S.: 1795-1961. The pillar taps shall be of tested quality.

The capstan head pillar tap of specified dia. shall be fixed as directed with required washwer of selected leather or rubber asbestos composition or of plastic as directed. The cock shall fixed with pipe line with white zink end spun yarn to make joint water light. The work shall be carried out in best workman like manner.

Mode of measurements & payment:

The rate includes cost of all labour, materials lolls and plant etc. required for satisfaction completion of this item.

The measurement shall be for a unit of each.

The rate shall be for a unit of each.

Item No. 21 - Providing and fixing C.P. brass towel rail comlete with C.P. brass brackets fixed to wooden plugs with C.P. brass scews.(B) 600mm x 20mm size.

The C. P. brass towel rail shall be 600 x 20 mm. of best quality as approved by the Engineer-in- charge. The brackets shall be of C. P. brass. The rail shall conform to I.S. 1068-1958.

The brackets of the towel rail shall be fixed by means of C.P. brass to screws wooden plugs finely embedded in the wall with C.M. 1 : 3 (1 cement: 3 coarse sand). The towel rail shall be fixed as and where directed.

Mode of measurements & payment:

The rate includes cost of all labour and materials, tools and plant etc. required for satisfactory completion of this item.

The measurement shall be for a unit of each.

The rate shall be for a unit of each.

Item No. 22 - Providing and fixing 600mm x 450mm bevelled edge mirror of superior glass mounted on 6mm thick A.C. sheet or plywood sheet and fixing to wooden plug with C.P. brass screws and washers.

The 600 x 450 mm. size mirror shall be of superior glass with edge rounded off or beveled as specified. It shall be free from flaws specks, or bubbles and its thickness shall not be less than 6 mm. The glass for the mirror shall be uniformly silver plated at the back and shall be free from silvering defects. Silvering shall have a protective uniform covering of red-lead paint.

The plywood for general purpose shall conform I.S. 303- 1975.

Plywood is made by cementing together thin boards or sheets of wood into panels. There are always an odd number of layers 3, 5, 7, 9 ply etc. The plies are placed so that grain of each layer is right angle to the grain in the adjacent layer.

The chief advantages of plywood over a solid board of the same thickness is the more uniform

strength of the plywood, along the length and width of the plywood and greater resistance to cracking and splitting with change in moisture content,

Usually synthetic resins are used for gluing, phenolic resins are usually cured in a hot press which compresses and simultaneously heats the plies between hot plates which maintain a temperature of 90 degree C. to 140 degree C. and a pressure of 11 to 14 Kg/Sq. Cm. on the wood. The times of heating may be anything from 2 to 60 minutes depending upon thickness.

When water glue are used, the wood absorbs so much water that the finished plywood must be dried carefully. When synthetic resins are used as adhesive finished plywood must be exposed to an atmosphere of controlled humidity until the proper amount of moisture, has been absorbed.

According to I.S. 303-1975 the plywood for general purpose shall be of three grades namely BWR, WWR and CWR, depending upon the adhesives used for bonding and veneers, and it will be further classified into six types namely AA, AB, AC, BB, BC and CC based on the quality of the two faces, each face being of three grades namely, A, B. and C. After pressing, the finished plywood should be reconditioned to a moisture content not less than 8 percent and not more than 16 percent.

Asbestos cement sheets plain, corrugated or semi corrugated shall conform to I.S. 459-1970. The thickness of these sheets shall be as specified in the item. The sheets shall be free from all defects such as cracks, holes deformities, chipped edges or otherwise damaged.

Ridged-& Hips

Ridges and hips shall be of same thickness as that of A.C. sheets. The types of ridges suitable for the type of sheets and location's.

Other accessories to be used in roof such as flashing pieces, gable filler pieces, valley gutters, north light and ventilator curves, barge boards etc. shall be standard manufacture and shall be suitable for the type of sheets and location.

The mirror of 600 mm.x450mm. size mounted on A.C. sheet or plywood 6mm. thick with C.P. brass clips shall be fixed as directed, by fixing wooden plugs in wall and C. P. brass screws and washers. The work shall be carried out in best workman like manner.

Mode of measurements & payment:

The rate includes cost of all labour and materials, tools and plant etc. required for satisfactory completion of this item.

The measurement shall be for a unit of each.

The rate shall be for a unit of each.

Item No. 23 - Providing and fixing screw down bib taps of following size (A) Brass screw down bib tap polished bright.20 mm dia.

20 mm. dia. brass screw down with bright polished finish shall conform to I.S. 781-1977. The bib cock shall be best Indian make and quality.

The screw down bib cock 20 mm. dia. as specified above shall be fixed as directed. The threaded portion shall be smeared with white or red lead and around with a few turns of fine spun yarn round the screwed end of the pipe. The bib cock shall be then screwed and fixed to water tight position.

Mode of measurements & payment:

The rate includes cost of all labour, materials, tools and plant etc. required for satisfactory completion of this item.

The measurement shall be for a unit of each.

The rate shall be for a unit of each.

Item No. 24 - Providing laying and jointing in true line and level 25mm dia. U.P.V.C. Pipe (SCH- 40) for cold water including fittings make PRINCE / SUPREME / ASTRAL / FINOLEX or equivalent as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.**1.0. Materials**

1.1. The U.P.V.C pipe of specified brand and specified diameter in item with 6 Kg/Sq. Cm, working pressure shall conform to I.S. 3076-1968. The specials and fittings required shall be of best quality.

2.0. Workmanship

2.1. The U.P.V.C. pipes of specified diameter shall be fixed as directed. Due to thermal expansion of rigid P.V.D. pipes, due allowance shall be made particularly in over ground pipe lines for any change in length of pipe line which may occur during installation or when pipe line which may occur during installation or when pipe line is in service.

2.2. Above ground installation of rigid U.P.V.C. pipe should be under taken after preparations are observed for their protection against direct sun rays and mechanical damage.

2.3. The rigid U.P.V.C. pipe lines should not be kept exposed above ground when it passes through public places, railway lines, road side and foot paths.

2.4. U. P.V.C. pipes shall be supported at the following intervals :

-20 mm. dia 500 mm. -25 mm. dia 750.mm. -32 mm. dia.900 mm.

2.5. Closer support spacing shall be provided if recommended by the manufacture or engineer in charge.

2.6. The guide lines indicated by the manufacturer regarding handling, transportation, storing, laying and jointing of pipes shall be kept in view during execution.

2.7. U.P.V.C. pipes shall be fixed on wall with wooden plugs and suitable plastic clamps.

2.8. Jointing the pipes :

2.8.1. The pipes and sockets shall be accurately cut. The ends of the pipes and fittings should be absolutely free from dirt and dust. The outside surface of the pipes and the inside of the fittings shall then be roughened with emery paper, and then solvent cement joint. Since solvent cement is aggressive to U.P V.C. care must be taken to avoid applying excessive cement to the inside of pipe sockets as any surplus cement cannot be wiped off after jointing. Empty solvent cement tins, brushes, rags, or paper impregnated with cement should not be buried in the trenches. They should be gathered not left scattered about, as they can prove to be a hazard to animals, which may chew them.

2.8.2. If any manufacturer recommends its own methods of jointing the same shall be adopted after necessary approval from the Engineer-in-charge.

2.9. Laying pipes in Trenches :

2.9.1. The pipes shall be laid over uniform relatively soft fine trained soil found to be free of presence of hard object such as large flints, rocky projections, large tree roots etc. The width of the trenches shall be minimum width required for working.

2.9.2. The pipes laid underground shall not be less than one meter from the ground level. The pipe shall be positioned in the trenches so as to avoid any induced stress due to deflection. Any deviation required shall be obtained by using proper type of rubber ring joints.

3.0. Mode of measurements & payment

3.1. The description of item shall, unless otherwise stated be held to include where necessary. Conveyance and delivery, handling, unloading, storing fabrication, hoisting, all labour for finishing to required shape and size, setting, fitting in position straight, cutting and waste return of packing etc.

3.2. The length shall be measured on running meter basis of finished work. The length shall be taken along the centre line of the pipe and fittings. The pipes fixed to wall, ceiling, floors etc shall be measured and paid under this item.

3.3. All the work shall be measured in decimal system as fixed in its place, subject to tolerance given below unless otherwise stated.

(i) Dimension shall be measured to the nearest 0.01 meter. (ii) Area shall be worked out to the nearest 0.01 sq. meter.

3.4. All measurements of cutting shall unless otherwise stated be held to include the consequent waste

3.5. In case of fitting of unequal bore, the target bore shall be measured for the test.

3.6. The rate includes all the necessary joints, bends, T- points and other requirements as directed by engineer in charge.

3.8. The rate shall be for a unit of RMT(Running meter) basis.

Item No. 25 - Providing laying and jointing in true line and level 15mm dia. U.P.V.C. Pipe (SCH- 40) for cold water including fittings make PRINCE / SUPREME / ASTRAL / FINOLEX or equivalent as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be cancelled as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.

1.0. Materials

1.1. The U.P.V.C pipe of specified brand and specified diameter in item with 6 Kg/Sq. Cm, working pressure shall conform to I.S. 3076-1968. The specials and fittings required shall be of best quality.

2.0. Workmanship

2.1. The U.P.V.C. pipes of specified diameter shall be fixed as directed. Due to thermal expansion of rigid P.V.D. pipes, due allowance shall be made particularly in over ground pipe lines for any change in length of pipe line which may occur during installation or when pipe line which may occur during installation or when pipe line is in service.

2.2. Above ground installation of rigid U.P.V.C. pipe should be under taken after preparations are observed for their protection against direct sun rays and mechanical damage.

2.3. The rigid U.P.V.C. pipe lines should not be kept exposed above ground when it passes through public places, railway lines, road side and foot paths.

2.4. U. P.V.C. pipes shall be supported at the following intervals :

-20 mm. dia 500 mm. -25 mm. dia 750.mm. -32 mm. dia.900 mm.

2.5. Closer support spacing shall be provided if recommended by the manufacture or engineer in charge.

2.6. The guide lines indicated by the manufacturer regarding handling, transportation, storing, laying and jointing of pipes shall be kept in view during execution.

2.7. U.P.V.C. pipes shall be fixed on wall with wooden plugs and suitable plastic clamps.

2.8. Jointing the pipes :

2.8.1. The pipes and sockets shall be accurately cut. The ends of the pipes and fittings should be absolutely free from dirt and dust. The outside surface of the pipes and the inside of the fittings shall then be roughened with emery paper, and then solvent cement joint. Since solvent cement is aggressive to U.P V.C. care must be taken to avoid applying excessive cement to the inside of pipe sockets as any surplus cement cannot be wiped of after jointing. Empty solvent cement tins, brushes, rags, or paper impregnated with cement should not be buried in the trenches. They should be gathered not left scattered about, as-they can prove to be a hazard to animals, which may chew them.

2.8.2. If any manufacturer recommends its own methods of jointing the same shall be adopted after necessary approval from the Engineer-in-charge.

2.9. Laying pipes in Trenches :

2.9.1. The pipes shall be laid over uniform relatively soft fine trained soil found to be free of presence of hard object such as large flints, rocky projections, large tree roots etc. The width of the trenches shall be minimum width required for working.

2.9.2. The pipes laid underground shall not be less than one meter from the ground level. The pipe shall be positioned in the trenches so as to avoid any induced stressed due to deflection. Any deviation required shall be obtained by using proper type of rubber ring joints.

3.0. Mode of measurements & payment

3.1. The description of item shall, unless otherwise stated be held to include where necessary. Conveyance and delivery, handling, unloading, storing fabrication, hoisting, all labour for finishing to required shape and size, setting, fitting in position straight, cutting and waste return of packing etc.

3.2. The length shall be measured on running meter basis of finished work. The length shall be taken along the centre line of the pipe and fittings. The pipes fixed to wall, ceiling. floors etc shall be measured and paid under this item.

3.3. All the work shall be measured in decimal system as fixed in its place, subject to tolerance given below unless otherwise stated.

(i) Dimension shall be measured to the nearest 0.01 meter. (ii) Area shall be worked out to the nearest 0.01 sq. meter.

3.4. All measurements of cutting shall unless otherwise stated be held to include the consequent waste

3.5. In case of fitting of unequal bore, the targets bore shall be measured for the test.

3.6. The rate includes all the necessary joints, bends, T- points and other requirements as directed by engineer in charge.

3.8. The rate shall be for a unit of RMT(Running meter) basis.

Item No. 26 - Providing, laying and jointing in true line and level 110 diameter U.P.V.C (Type B) conforming to IS 13592-1992 with one end plain and other end socketed with rubber ring, & fittings conforming to ISI 14735-1999 of approved make for drainage system pipe line, pipe shall be jointed with each other with rubber lubricant, pipe shall be fixed on wall using of PVC clamp of the size 110 mm diameter x 149 mm length x 145 mm height at every 2000 mm center to center or shall be concealed in walls as directed including necessary fittings such as bends, shoes etc. including testing of pipes and joints and jointed with adhesive solvent cement including cost of all materials.

The U.P.V.C. Pipes of specified diameter shall be fixed as directed. Due to thermal expansion of rigid U.P.V.C. Pipes, due allowance shall be made particularly in over ground pipe lines for any change in length of pipe line which may occur during installation or when pipe line is in service.

Above ground installation of rigid U.P.V.C. pipe should be undertaken after precautions are observed for their protection against dirt sun rays and mechanical damage.

The rigid U.P.V.C. pipe lines should not be kept exposed above ground when it passes through public place, railway lines, roads, road side and footpaths.

U.P.V.C. pipes shall be supported at the 1000mm of interval:

Closet support spacings shall be provided, if recommended by the manufacturer.

The guide line indicated by the manufacturer regarding handling, transportation, storing, laying and jointing of pipes shall be kept in view during execution.

U.P.V.C. pipes shall be fixed on wall with wooden plugs and suitable clamps.

Jointing the pipes :

The pipes and sockets shall be accurately cut. The ends of the pipes and filling should be absolutely free from dirt and dust. The outside surface of the pipes and the inside of the fillings shall then be roughened with emery paper, and then solvent cement shall be applied to the matching surface and pushed home and joint. Since solvent cement is aggressive to P.V.C.

care must be taken to avoid applying excessive cement to the inside of pipe sockets as any surplus cement cannot be wiped off after jointing. Empty solvent cement tins, brushes, rags, of paper unpregnated with cement should not be buried in the trenches. They should be gathered, not left scattered about, as they can prove to be a hazard to animals which may chew them.

If any manufacturer recommends its own methods of jointing the same shall be adopted after necessary approval from the Engineer-in-charge.

Mode of measurements & payment:

The measurement shall be for a unit of RMT(Running meter)

The rate shall be for a unit of RMT(Running meter).

Item No. 27 - Constructing brick masonry chamber for underground C.I. Inspection chamber and bends with bricks having crushing strength not less than 35Kg. Cm² in C.M. 1:5 C.I. cover with frame (Light duty) 455mm x 610mm internal dimensions total weight of cover with frame to be not less than 38Kg. (Wt. of cover 23 Kg.) and Wt. of frame 15Kg.) (R.C.C. top slab with 1:2:4 mix (1-cement :2- coarse sand :4-graded stone aggregate 20mm size) foundation concrete 1:5:10 inside plaster 15mm thick with cement mortar 1:3 finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete.(i) Inside dimensions 455mmx 610mm and 450mm deep for single pipe line (upto 10 ton).

Materials:

Water shall conform to Material specification I. Cement shall conform to Material specification. Coarse sand shall conform to Material specification. Brick shall conform to Material specification. stone aggregate shall conform to Material specification. Brick bat shaft shall conform to Material specification. M.S. bar shall conform to Material specification.

Workmanship:

C.I. inspection chamber with provision of C.I. bends of specified size with bolts, nuts and left washers for underground drain shall be enclosed in masonry chamber which shall be constructed as under: The excavation shall be done true to dimensions and levels shown on the plans or as directed.

Bed concrete shall be of 15 cms. thick C.C. 1 : 5 : 10 (1 cement: 5 coarse sand : 10 graded brick bat aggregates). The projection of bed concrete beyond the masonry walls shall be 7.5 cms.

Masonry walls and plaster work shall be carried out as per relevant specifications.

The cover slab shall be constructed as per relevant specifications of 24.27(1).

Mode of measurements & payment:

The earth work in excavation providing and laying C.I. inspection chamber and bends shall be measured and paid for separately.

The measurement shall be for a unit of each.

The rate shall be for a unit of each

Item No. 28 - Providing and laying broken chine mosaic flooring for terrace using 12 mm to 20 mm broken pieces of glazed tiles to be laid over cement mortar 1:3 to plain or slope and to be tempered to bring mortar creme out upto surface using white cement including rounding off junctions and extending them upto 15 cm along the wall, clearing with water and oxalic acid etc. as directed.

Materials

Water shall conform to Material specification. Cement shall conform to Material specification. cement mortar shall conform to Material specification. The broken terrazzo tiles of 12mm to 20 mm thick shall be light shade using white cement and conform to Material specification.

Workmanship

The work shall be carried out as per I.S. 1443-1972.

Bedding :

Before spreading the mortar, the sub-base of the floor shall be cleaned of all dirt, scum and loose materials and then well wetted without forming any pools of water on the surface.

In case; of R.C.C. floors, the top shall be left a little rough, all points of level for the finished surface shall be marked out. The cement mortar of proportion C.M. 1 :3 as directed shall be then evenly and smoothly spread over the base. Bedding layer of mortar shall be not less than 10 mm. and average thickness of bedding shall be 25 mm.

Laying :

Before laying the terrazzo (Marble/Mosaic) tiles, the tiles shall be thoroughly wetted with water. Neat cement grout of required-consistency at 4.4. Kg. cement/sq. mt. shall be spread on the mortar bed. The tiles shall be laid on the neat cement float and shall be evenly and firmly bedded to the required level and slope, There shall be no hollows left. The joints shall be uniform thickness and in straight line as per the pattern.

The surface of flooring shall be checked frequently with a straight edge at least two meters long so as to obtain a true surface with required slope.

The tiles which are fixed in the floor adjoining the wall shall go about 10 mm. under plaster. Skirting or dedo shall be left unfinished for about 50 mm. above finished floor level and unfinished strip then left earlier shall be finished.

In places where full tiles cannot be fixed, the tiles shall be cut to the size and smoothened at edges to give straight and true joints.

After the tiles have been laid, the surplus cement slurry and the joints shall be cleaned and washed fairly deep before cement hardens.

The day after tiles have been laid, the joints shall be cleaned or gray cement grout with a wire brush to a depth of about 5 mm. and then grouted with white cement with or without pigment to match the shade of the topping of tiles. The same cement slurry shall then be spread over the whole surface in a thin coat to protect the surface from abrasive damage and to fill pin holes that may exist on the surface.

Curing :

The flooring shall be kept wet with damp sand or water for seven days. It shall be kept undisturbed at least for 14 days. The grinding shall normally be commenced after 14 days.

If any tile is disturbed or damaged it shall be refitted or replaced properly jointed and polished.

Testing of the tiles shall be carried out by the contractor at his own cost as per I.S. requirement for required Test or as per instruction given by Engineer in charge.

Mode of measurements & payment

The terrazzo tiles flooring shall be measured in sq. meters for visible area of work done.

No deductions shall be made nor extra paid for any opening in the floor area up to 0.1 sq. mt. Nothing extra shall be paid for use of cut tiles or for laying the floors at different levels in the same room or court yard. Mosaic tiles laid in floor borders and bands etc.-shall be measured in the same item and nothing extra shall be payable on account of these or similar bonds formed of half or multiples of half size, standard tiles or other uncut tiles.

The rate shall include the cost of all materials, labour involved in all the operations as described above.

The measurement and payment shall be done for a unit of Sqmt

Item No. 29 - Providing erecting and fixing double coated Syntex or equivalent PVC. (ISI) mark water tank of reqd capacity each with all necessary fittings & connection etc. comp on terrace.

Scope of Work:

This specification covers the requirements for the supply and erecting double coated Syntex or equivalent PVC (ISI) mark tank of 1000 Lit Capacity with all necessary fittings and connections on terrace

The warranty of the supplied and erected water tank should be same as that of defect liability period mentioned in the approved tender document.

Double Coated Water Tank shall conform to the requirements and drawings and to the applicable requirements of the standard specifications. The contractor shall furnish materials of the higher standard commercial quality suitable for the intended use.

All work shall be performed and completed in a good workman like manner equal to the best modern practice in the manufacture. The Double Coated Water Tank be installed with proper accuracy, with proper workmanship and fitments and shall suit in all respects.

The contractor shall have to take proper care of their labour/workers for any damage, injury or any other fatal accident. The contractor will be responsible to pay compensation to the concern as per prevailing labour act and no claim shall be entertained in this regard.

Any damage caused during the work or transportation or any other component of Government property shall be borne by the contractor. It shall be repaired or rectified by the contractor at his own cost.

100 % payment will be made on completion of work in all respect & after satisfactory work completion

Mode of Measurement:

The mode of measurement shall be Number of successfully supplying and erecting Double Coated Water Tank of 1 liter

The mode of payment shall be Number of successfully supplying and erecting Double Coated Water Tank of 1 liter

Item No. 30 - Providing and fixing 35mm thick shutters for doors, window and clearstory window including Indian teak wood frames 12cm x 7cm size including anodized aluminum fixtures and fastening including primer coat of approved quality and two coats of oil painting etc. complete.

The item covers the requirement of preparation of shutters for doors, windows, clerestory windows, their supply and fixing.

Paneled shutters shall be constructed in the form of timber frame work of non decorative type and block board core with face veneer or plywood with 35 mm. thickness.

All members of the shutters shall be straight without any warp or bow and shall have smooth, well planed faces at right angles to each other.

The size of styles and rails shall be as per drawings or as directed. Styles and rails of shutters shall be made of one piece only.

Timber paneling:

Thickness of the panel shall be 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.

Fixtures and Fastenings:

The rate shall include anodised butt hinges including fixing with iron screws.

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.

Mode of measurement & payment

The rate for shutter includes cost of providing block and cleat for keeping the shutter in open position if directed. The dimension of the shutter shall be measured clear size of the shutter in close position between the grooves of the frame.

The measurement shall be done for a unit of Sqmt.

The payment shall be done for a unit of Sqmt.

Item No. 31 - Providing and fixing window having extruded aluminum Colour anodized section frame main outer size 95mm x 24mm x 1.17mm (of Jindal Section no:2459 @ wt.of 0.738 Kg/mt), horizontal Three track member size 92mm x 31.75mm x 1.30mm (of Jindal Section no:8688,@ Wt.1.07 Kg/mt), vertical member of size 92mm x 31.75mm x 1.50mm (of Jindal Section no:8933,@ Wt. 1.06 Kg/mt) with sliding shutters of horizontal member size 40 mmx18mm x1.29mm (of Jindal Section no:8947@ wt.of 0.456 Kg/mt), vertical member of size 40mm x 18mm x 1.29 mm (of Jindal Section no:8949 @ wt.of 0.456Kg/mt/ with 5 mm th transparent bronze colour tinted float

**glass with powder coated aluminum fittings & fixtures and transparent silicon sealant
glass fixing to frame as per details etc**

General

The contractor shall submit shop drawing of fabrication and erection for approval of the Engineer-in-charge.

No fabrication work shall be undertaken prior to the approval of the Engineer-in-charge

The contractor shall submit samples of all materials/aluminum sections to be used for manufacturing of windows for approval of the Engineer-in-charge.

Material

The frames of all the windows shall be fabricated from extruded aluminum sections of standard JINDAL or other approved equivalent sections

Aluminum alloy used in the manufacture for extruded sections for this work shall correspond to IS 733 and shall be anodized before incorporating in the work. The rate quoted for these items is deemed to include the cost of anodizing also.

The frame work, mullions, beadings, transom and handles etc. shall be of aluminum anodized sections as shown in the detailed drawing.

All sections and hardware shall have minimum anodic film of thickness not less than 15 microns.

Stainless steel or cadmium plated brass counter sunk screw; nuts, bolts, washer's rivets and other miscellaneous fastening devices shall be of approved brass cadmium plated or stainless steel as specified in the drawing.

Each window leaf shall be prepared to receive glass panel of required thickness of special selected quality of Hindustan Pilkington or other approved equivalent as specified in the schedule.

Glazing shall be done with neoprene dry set glazing gasket of best quality and approved make with snam-in beveled white anodized matt aluminum metal glazing stops inside and outside.

All aluminum surfaces in contact with masonry or concrete shall be given a heavy coat of bitumastic paint.

After fabrication aluminum metal shall be protected from construction hazards that may damage their appearance or finish therefore all exposed surfaces of all aluminum members shall be protected by masking tape during the shipment and erection.

Fabrication

The frames shall be square and flat and the corners of the frames shall be fabricated to a true right angle. All the fixed, sliding, opening frames shall be fabricated with sections which have been cut to length metered and mechanically fixed at the corners.

In case welded joints are used anodizing shall be done after fabrication as whole unit is completed. All welding shall be on unexposed sides in order to prevent pitting, discoloration of other surfaces, imperfection after fixing etc.

Necessary allowances shall be made while manufacturing the frames of windows for receiving plaster.

Thick layer of clear transparent lacquer based on methacrylate or cellulose butyrate shall be applied on the finished sections of the aluminum work by the supplier to protect the surfaces from wet cement, lime, dirt, dust etc. during installation.

Hardware

All the hardware, accessories shall be of best approved types and of anodized finish same as for the frames and other sections.

The contractor shall guarantee for all hardware that they shall remain free from defects of any kind of material and workmanship for a period of one year from date of delivery.

The contractor shall repair or replace any and all defective work and damage caused thereby at any time or times during that period within 3 days from the written notice. This shall be done without any cost to the department and to the complete satisfaction of the Engineer-in-charge.

In case the same are not replaced immediately after the receipt of the notice, the department shall do so at the cost of the contractors. The cost as certified by the Engineer-in-charge shall be final and binding on the contractor.

All hardware shall be free from defects which may affect appearance and serviceability.

All hardware shall be fixed after obtaining the prior approval of the Engineer-in-charge.

Fixing in position

The frames shall be accurately fixed to the brick masonry or concrete member in accordance with IS 1081

The screws, nuts, washers, bolts, rivets and other miscellaneous fastenings, devices shall be of approved brass cadmium plated or stainless steel as specified in the drawings or as directed by engineer-in-charge.

No field fabrication of the frame shall be permitted. All aluminum and glazing work shall be fixed in position as per relevant Indian Standard Specifications and code of practices.

All joints between metal and masonry shall be fully caulked with mastic in order to ensure water tightness.

The joints shall be neatly pointed with matching cement and excess material shall be removed.

Mode of Measurement and Payment

The unit of measurement shall be Sqmt. of Completed item

The unit of payment shall be Sqmt. of Completed item

Item No. 32 - Providing and Fixing Glazed Louvered Glass windows and ventilators with teak wood frame 10cm x 7cm size including 3 coats of oil painting to wood work etc complete with wooden louvers plank 12mm thick (upto 10 Ton)

Unless otherwise specified all timber shall be of best quality C.P. teak wood well seasoned and free from cracks, sap wood, knots, sags, wraps etc. and shall have uniform grains of good pattern.

All timber shall be kept dry and well protected from rain and moisture during construction and shall be stored in dry go down approved by the engineer-in-charge to protect from fungi insects and marine borers.

Timber shall be wrought and brought to correct dimensions as shown in the drawings. All joints shall be true of proper fit and of the kind specified by the engineer-in-charge.

Timber embedded in or in contact with the masonry or concrete shall be painted with two coats of approved wood preservative as directed.

The rate of wood work shall include the cost of all labour, tools and materials including wood preservative paint nails, pins, keys, wedges, screws, holdfasts etc. and erecting the same in position and for painting with no. of coat as specified or directed.

The rate shall also include for wastage if any.

Glass

The glass shall be free from bubbles, flaws specks, waves, air holes, distortion, scratches or other defects.

The glass shall be of required thickness as mentioned in the items of schedule of quantities and / or drawing or as directed by engineer-in-charge.

The contractor shall submit the sample of the glass which he proposes to use on the work and only such approved quality of glass shall be used in work.

The glass shall be cut to the required sizes of panels where it is to be fitted, and it shall be so cut that it fits properly in the frame without rattling. Pre measurement of each panel prior to the cutting of glass essential

Mode of measurement and payment

The measurement shall be done for a unit of Sqmt.

The payment shall be done for a unit of Sqmt.

Item No. 33 - Applying two coats of Birla or Asian acrylic lapi (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.

Material

Birla white ready mixed lapi, sand paper of standard quality and of required smoothness. Steel scrapping / Plate.

Workmanship

All loose piece and scales shall be removed by sand papering and surface shall be cleaned by old paint and of all greasery, dust, dirt etc. from wall surface. On clean surface of wall ready mixed Birla white lapi shall be applied with the help of steel plate in true line and level from both the direction i.e. vertical & horizontal. After dried the lapi, the surfaces shall be lifghtly sand papered to make the surface smooth for receiving the paint, taking care not to rub cut the lapi, coat, all loose particles shall be dusted off after rubbing. The furnished surfaces shall be even and uniform without patches, steel plate or sand paper marks.

Protective Measure.

The surface of door, windows, floors, articles of furniture etc. and such other parts of the building as are no to be applied lapi shall be protected from being aplashed upon. Such surfaces shall be cleaned of lapi aplashes if any.

Mode of Measurements and payments

Item includes removing nails, making good the holes cracks, patches with materials similar in composition to the paint to be applied.

The rate includes cost of all materials labour, scaffolding, protective measure etc. involved in all the operations described above. This shall also include conveyance, delivery, loading, unloading etc.

The rate shall be for a unit of Sqmt.

Item No. 34 - Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand pappered smooth.

This shall be polyvinyl based Acrylic/plastic emulsion paint of approved manufacture of the required shade, confirming to IS 5411-1969.

Primer:

The Primer to be used for the painting with acrylic emulsion on cement concrete surfaces, plastered surfaces, AC sheets, timber and metal surfaces, if necessary, shall be of approved base and as per recommendations of the manufacturers.

Putty:

Plaster filler to be used for filling up uneven surfaces, small cracks and holes etc. shall be of approved compound and as per recommendations of the manufacturers. No oil based putty shall be used. The putty should be made from a mixture of whiting and plastic emulsion paint or as per manufacturer's recommendations.

Finishing coats:

All the finishing coats shall be of matt finish or any other finish as required by the Engineer-In-Charge. The number of finishing coats shall be as specified in the item.

MODE OF MEASUREMENT AND PAYMENT

Mode of Measurement shall be Square Meter

All the measurement for payment shall be taken on net surface area actually painted, unless otherwise specified. Acrylic emulsion paint is required to be provided on plastered and concrete surfaces in portions of the building. The Department shall reserve the option to delete or increase quantities in full or part from the scope of contract during progress of work.

Mode of payment shall be Sqmt.

ITEM NO.35 - Finishing wall with water proofing cement paint of an undecorated wall surfaces (two coats) to give an approved brand and manufacture and of required shape, even shade after thoroughly brushing the surface to remove.

Materials

The water shall conform to M-1. Cement water proofing paint shall conform to I.S. 5410-1969.

Workmanship

Preparation of white wash solution Surface already white or colour. The fat lime shall be slaked as site and shall be mixed and stirred with about five liters of water for 1 kg. of unslaked lime to made a trim cream This shall be allowed to stand for d period of 24 hours and then shall be screened through a clean coarse cloth, 4 Kg. of gum dissolves in hot water shall be added to each cubic meter of lime cream Small quantity of ultramarine blue (Up to 3 gins, per kg. of lime) shall also-be added

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

Preparation of surface:

The surface shall be thoroughly cleaned of all dust, dirt, mortar cropping and other foreign matter before white wash is to be applied.

The surface spoiled by smoke soot shall be scrapped with steel wire brushes or steel scrapers. It 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.

Oil or grease spots shall be removed by suitable chemical and smooth surface shall be rubbed with wire brushes.

All unsound portion of the surface plaster shall be removed to full depth of plaster in 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.

All unnecessary nails shall be removed. The holes, cracks, patches etc. shall be made good with material similar in composition to the surface to be prepared.

Preparation of paint

Portland cement paint shall be prepared by adding paint powder to water and stir ring to obtain a thick paste, which shall then be diluted to a brush able consistency. Generally, equal volumes of paint powder and water make a satisfactory paint. In all cases, The manufacturer's instructions shall be followed. The paint shall be mixed in such quantities as can be used up within an hour of mixing as otherwise the mixture will set and thicken, affecting flowing and finish. The lids of cement paint drums shall be kept tightly when not in use.

Application of Paint:

No painting shall be done when the paint is likely to be exposed to a temperature of below 7°C within 48 hours after application.

When weather conditions are such as to cause it to be carried out in the shade as far as possible. This helps the proper hardening of the paint film by keeping the surface moist for a longer period. To maintain the uniform mixture and to prevent segregation, the paint shall be stirred frequently in the bucket.

For undecorated surfaces, the surface shall be treated with minimum two coats of water proof cement paint. Not less than 24 hours shall be allowed between two coats. Next coat shall not be started until the preceding coat has become sufficiently hard to resist marking by the brush being used. In hot dry weather, the preceding coat shall be slightly moistened before applying the subsequent coat.

The finished surface shall be even and uniform in shade, without patches, brush marks, paint drops etc.

The cement paint shall be applied with a brush with relatively short stiff hog or fiber bristles. The paint shall be brushed in uniform thickness and shall be free from excessively heavy brush marks. The lamps shall be brushed out.

Water proof cement paint shall not be applied on surface already treated with white wash, colour wash, distemper dry or oil bound varnishes, paint etc. It shall not be applied on gypsum, wood and metal surfaces.

Curing : Painted surfaces shall be sprinkled with water two or three times a day. This shall be done between coats and for at least two days following the final coat. The curing shall be started as soon as the paint has hardened so as not to be damaged by the sprinkling of water say about 12 hours after the application.

Protective measure :

The surface of doors, windows, floors, articles, of furniture etc. and such other parts of the building not to be white washed shall be protected from being splashed upon. Such surfaces shall be cleaned of white wash splashed if any.

Mode of measurements and payment

The rate shall be for a unit of Sqmt.

Item No. 36 - Providing and Fixing 110 mm diameter PVC Pipe (6 Kgf/sqcm) water spout with necessary iron grating as per design

Rainwater down comers shall be of standard PVC Pipes of 6 kgf/sqcm

Rainwater down comers shall run along and be secured to walls, columns etc. where desired by the Engineer-In-Charge.

All pipes shall be well secured and supported by inadequately strong brackets. The brackets may be wrought iron clevis type, split rung type or perforated strap iron type as approved by Engineer-In-Charge. For vertical runs each pipe shall hang freely on its brackets fixed just below the socket. Suitable spacer blocks shall be provided against the vertical surface to which the pipe is fixed.

All bends and junctions shall be supplied with watertight cleanouts.

All measurement shall be done on the basis of Meter

All payment shall be done on the basis of Meter

Item No. 37 - Providing and fixing pre-cast concrete kerb stone of gray cement based concrete block 30cm length,30cm height and 15cm thick of M200 grade concret as per approved design and including excavation for fixing in proper line and level,filling the joint with C:M 1:3 (1cement:3fine sand) etc complete..

General

This work shall consist of providing and laying 60 mm thick Rubber Dyed interlocking concrete block specification & samples over a base layer of 75 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.

1.0 MATERIAL

Water shall conform to M-1. Cement shall conform to M-2

1.0 Rubber Dyed interlocking concrete block

Rubber Dyed interlocking concrete block shall be of approved size brand and make as approved by Engineer in charge.

1.1 The size shape and design of rubber Dyed interlocking concrete block shall generally be as per manufacturers product or as directed by the Engineer in charge and Architect.

1.2 The rubber Dyed interlocking concrete block shall satisfy the tests as regards compress strength transverse strength resistance to wear and water absorption.

1.3 The colour size shape and design of the rubber Dyed interlocking concrete block shall be directed by Engineer or Architect.

1.4 The rubber Dyed interlocking concrete block shall be of best quality 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.

2.0 SAND

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

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

2.3. 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.

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

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

IS. Sieve Designation	% by wt. passing		
	Zone I	Zone II	Zone III
10 mm	100	100	100
4.75 mm	90-100	90-100	90-100
2.3 6mm	60-95	75-100	85-100
1.18 mm	30-70	55-90	75-100
600 MC	15-34	35-59	60-79
300 MC	5-20	8-30	12-40
150 MC	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 wt. passing
4.75 mm	100
2.36mm	90 to 100
1.18 mm	70 to 100
600 MC	30 to 100
300 MC	85 to 70
150 MC	00 to 50

3.0 WORKMANSHIP

3.1 The rubber Dyed interlocking concrete block shall be laid on a layer 7.5 cm 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 so as to allow the sub grade concrete to rest on it.

3.2 Rubber Dyed 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 75mm thick sand layer.

3.3 Laying: The rubber Dyed interlocking concrete block paving tiles shall be laid in plain, diagonal or other pattern as directed. The cement concrete blocks shall be laid properly and set home by gentle taping.

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

4.0 MODE OF MEASUREMENT AND PAYMENT

4.1 The unit rate rubber Dyed 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.

4.2 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, dado or wall plaster and no deduction shall be made nor extra paid for any opening in floors or areas up to 0.1 Sqmt.

4.3 The rate shall be for a unit of one Sqmt.

Item No.38 - Providing, Fitting and Fixing up partition walling OEL aluminum anodized section No. 9210 and 9207 as single groove and double groove respectively as horizontal and vertical member and OEL section 4660 as Tapered clip for fixing up 12mm thick pre laminated board and jointing angle No. 1855 etc.

1.0 MATERIALS

1.1 Standard extruded anodized aluminium section for ventilation allows used in the manufacture of extruded section shall confirm to I.S. designation HEA - WP of IS 733 - 1983 and also designation WVG - WP of IS 1285 - 1975 section shall be as specified in the drawing a design or as directed by Engineer-in-charge. All section shall be free from scratches holes or any damages on surface. All section shall have finished plaster surface on all sides.

1.1.1. The work includes standard extruded of Aluminium section of size 63mm x 38.10 mm x 1.95mm (@wt. 1.094 Kg/mt.) with colour powder coated aluminium frame for ventilation as directed by Engineer in charge.

1.2 Glass : The frosted glass of louvers fixed to aluminium strip blades shall be of approved make having thickness of 5mm. The glass shall be clear and free from scratches and cracks. The glass shall be provided on wall panel and fixed with tinted silicon gasket.

1.2.1 The glass shall be of the brief quality, free from specks, bubbles, smoken veins, air holes distress and other defects. The kind of glass to be used shall be as mentioned in the item or as shown in detailed drawing or as directed by Engineer-in-charge.

1.3. Glazing clips: Glazing clips shall be colour marble jambs all around the ventilator shall be free from any scratches or holes or any damage of on surface all section shall have finished luster surface on all sides.

1.4 Rubber Gasket : Rubber gasket shall be approved make shall be free from any scratches or holes or any damage on surface and shall have finished luster surface on all sides.

1.5. Fixtures

1.5.1. Hinges shall be of approved make shall be free from any scratches or holes or any damage on surface and shall have finished luster surface on all sides.

WORKMANSHIP

The work of standard extruded of Aluminium section for ventilation shall be done with extreme finishing. The inclined blades shall be fixed as directed by Engineer-in-charge. 5mm thick frosted glass as details as details etc. complete.

MODE OF MEASUREMENT & PAYMENT

The unit rate of standard extruded of Aluminium section for ventilation shall include the cost of all labours, materials, anodizing charges, tools, plants, cost of necessary fixtures & fastenings.

The rate shall be for a unit of Sqmt.

Item No. 39 - Providing and fixing M.S. grills of required pattern to wooden frames of windows etc. with M.S. flats at required spacings and frame around, square or round bars with round headed bolts and nuts or by screws (A) Plain Grill. (upto 10 ton)

1.0. Materials : The structural steel shall conform to M-22.

2.0. Workmanship:

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

2.2. The grin shall be fabricated to the designs and patterns shown in the drawings and the weight shall be as directed, and the joints shall be rivetted 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 a minimum of 2 Nos. on each side of the frame or as indicated in the drawings 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 frame strips.

3.0. Mode of measurements & payment:

3.1 No payment shall be made for weight of screws, bolts, nuts etc. Only weight of grill shall be paid.

3.2. The rate shall be for unit of one Kg.

Item No. 40 Providing sock pit of 5.00 Cu.M. Volume including excavating and filling brickbats with dry masonry work at top for 45cm. height including covering the top with stone including providing vatas in C.M. 1:3 with finishing curing etc. complete as directed. (upto 10 ton)

Construction of Soak Pit as per given drawing including inside clear dimension 2.0 m including excavation.

Brick work shall be done in C.M. 1:6, Top R.C.C. slab 10 cm. thick.

Excavation for the Soak Pit shall be done as per the directives of the Engineer in charge.

Bottom of the trench shall be leveled .

Material.

Water shall confirm to M- 1, cement shall confirm to M- 2, Sand shall confirm to M- 3, Course aggregate shall confirm to M- 4 and concrete shall confirm to M-6.

Testing of material

The contractor shall provide satisfactory facilities for easy and quick collection of adequate test samples.

Initial height of soak pit shall be carried out with honeycomb brick masonry as directed by the Engineer in charge.

The brick masonry work should be carried out in general as per general description of the brick work. The specification for water, cement, sand, bricks etc. shall confirm to specification or materials including general specification concerned. For preparation of cement mortar one bag of cement will taken in account of 0.0342 cm. Sand & cement shall be mixed to specified proportion. It shall be thoroughly mixed dry on clean impervious water tight platform by running over at least three times or more till a homogeneous mixture of uniform color is obtained. Mixing platform shall be so arranged that neither deleterious materials shall get mixed with mortar nor it shall flow, out, tile mixing the required water in to the dry mixed cement and sand. Water shall be gradually added and thoroughly form a film of wet cement.

The bricks to be used for masonry work shall first well water and shall not be dry in any case. The horizontal layers to the required thickness shall be first laid and necessary care shall be taken for another layer over first layer that vertical joints shall not continue. The outer faces of joints shall be well racked up to 10 to 15 mm. deep. The entire work shall be carried out in line and levels and as directed by Engineer-in – charge or his agents. The masonry shall be kept well and shall be well cure while in progress for at least 7 days after completion.

In case the contractor fail to do so it shall be got done by the department at the contractors risk and cost.

Top slab of required thickness shall be cast as directed by the Engineer in charge.

(d) Steel reinforcing bars shall be placed in concrete where shown on the drawings or as directed by the Engineer-in-Charge.

(e) Contractor's drawings shall show necessary details for checking the bars during placement and for use in establishing payment quantities. Reinforcement bars shall conform to requirements shown on the drawings or as directed by the Engineer-in-Charge. The approval of the Engineer-in-Charge to the Contractor's reinforcement detailed drawings shall not absolve the Contractor of his responsibility for the correctness of details or for conformance with the requirements of these specifications.

(f) As far as possible, high yield strength deformed bars, conforming to IS: 1786-1985 will be supplied by the contractor which shall be used as reinforcement.

Cutting, Bending and Binding

(a) The Contractor shall be responsible for the accuracy of the cutting, bending and placing of the reinforcement. Reinforcement shall be inspected for compliance with the requirements as to placed. No concreting shall be started unless the reinforcement as placed in the work in finally checked recorded and certified by the Engineer-in-Charge.

(b) Before the reinforcement in placed, the surface of the bars and the surfaces of any metal bar supports shall be cleaned of the rust, loose mill scale, dirt grease and other objectionable foreign substances. After being placed, the reinforcing bars shall be maintained in a clean condition until they are completely embedded in the concrete.

(c) Reinforcing bars shall be accurately placed and secured in positions so that there will be a clear distance of at least 25 mm between the bars and any adjacent embedded metal work and the bars and the bars and fabric shall not be displaced during the placing of concrete.

The Contractor shall also ensure that there is no disturbance of the reinforcing bars in concrete that has already been placed.

(d) Wire for binding reinforcement shall be of soft and annealed mild steel and shall conform to IS: 280-1978. Binding wire shall have tensile strength of not less than 56 kg/mm². The wire shall have minimum diameter of 1 mm. Chairs hangers, spacers and other supports for reinforcement may be of concrete, metal or other approved material. The minimum allowable clearance between parallel round bars shall not be less than 1.1/2 times the diameter of the larger bars and for square bars shall not be less than twice the side of aggregate whichever is greater. Bars crossing each other, where required, shall be secured by binding wire in such a manner that they do not slip over each other at the time of fixing and concreting. Wire used for binding reinforcement shall not be measured for payment.

Back filling with earth shall be done up to original ground surface.

The earth to be used for filling shall be free from salts, organic or other foreign matter. All clods of earth shall be broken.

Mode of measurement and payment:

The measurement shall be for the completed of Soak Pit as per the drawing or as per the instructions of the Engineer in charge and unit of payment shall be on the basis of each.

ITEM No. - 41 Providing and fixing at all height on all floors , false ceiling of 12.5 mm thick tapered edge gypsum board conforming to IS :2095 including providing and fixing of frame work made of special sections and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener with 6mm dia bolts to the angle hangers of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick As per the site condition size can vary, the entire job is to be carried out as per the instruction and satisfaction of engineer in charge complete in all aspects.

MATERIALS

Necessity workers to be executing the approved design false ceiling with all required stands to execute at the height of minimum 3mt from finish floor level with providing the drill machine, required hardware the specific material should be delivered directly on site place without any transportation charges and should be placed properly so not get wet or disturb in others work.

WORKMANSHIP

All the required hardware and section should be of approved and specified gauges and metal the line and level should not be very it should be perfect 0 level slope maintain no sheets of pop should be less then 12.5 mm thick the hardware, screws, nail set should be of ISI make

corrosion resistant. The worker executing false ceiling should be well trained for designer false ceiling refer CPWD specification for workmanship only

MODE OF MEASUREMENTS AND PAYMENT

The rate shall be for a unit of Sqmt. in plan area. In reference to floor dimension no extra payment shall be made for any curve, Arch, opening light bost for wastages and levels.

Item No. 42. Providing and fixing kitchen sink with C.I. or M.S. brackets painted white including cutting holes in walls and making good the same of but excluding fittings. Vitreous china sink 600mm. x 450 mm. x 150 mm. size.

Materials

White glazed vitreous china sink 600 mm. x 450 mm. x 150 mm. size shall conform to M-63.

Workmanship

The kitchen sink shall be supported on a pair of M.S. or C.I. brackets fixed in cement mortar 1:3 (1 cement : 3 coarse sand). The M.S. or C.I. brackets shall conform to I.S. 775-1962. The wall plaster on the rear shall be cut to rest over the top edge of the sink. After fixing the sink, plaster shall be made good and the surface finished to match with the existing one. The C.P. brass trap and union shall be connected to 40 mm. nominal bore galvanised mild steel waste pipe which shall be suitably bent towards the wall and which shall discharge into an open drain leading to gully-trap or direct into the gully-trap on the ground on floor and shall be connected to a waste pipe through a floor trap on the upper floors. C.P. brass trap and union may not be provided where surface drain or a floor trap is placed directly under the sink and the waste is discharged to it vertically. The height of front edge of the wash basin from the floor, level shall be 80 cms.

Mode of measurements & payment

The rate includes cost of all labour, materials, tools and plant and other equipment required for satisfactory completion of this item as described in workmanship.

The rate shall be for a unit of Each.

Item No 43

Applying general insecticide pest control treatment to floors, cupboards etc including labour materials etc. complete. Using Imidacloprid 30.5 SCas Per IS 6313 part -II((0.075% concentration by mass) is recommended 10.5ml chemical diluted with 5 liters of water application 0.5 litre chemical /Sqm of surface is recommended as per I.S.

Chemical Used:

Imidacloprid 30.5 SC (Systemic insecticide)

Dilution Ratio:

10.5 ml of Imidacloprid 30.5 SC diluted in 5 litres of water

Yields a working solution with 0.075% concentration by mass (as per IS 6313 Part-II)

Application Rate:

0.5 litre of the prepared emulsion per square meter of surface area

Application Areas:

Internal surfaces such as flooring, cupboards, baseboards, and wall junctions Application must ensure thorough coverage in cracks, crevices, and corners where pests typically reside

Method of Application:

Use low-pressure spray equipment for uniform application

Ensure surface is clean and dry prior to treatment Avoid washing or wiping treated surfaces for at least 24 hours

Mode of Measurement

The front face of length and width of area shall be measured.

The rate shall be for a unit of **Sqmt.**

Item No.44 Dismantling the R.C.C. work and disposing off the stuff including stacking of the useful materials etc. complete as directed.**a) Light Weight Reinforcement (Main bar upto 16 mm. dia.)**

The work of dismantling the reinforced concrete shall be carried out very carefully and true to line. The damages due to additional dismantling done to any adjoining work by contractor shall have to be made good at the cost of the contractor and to the entire satisfaction of the Engineer-in-charge. The dismantling shall be done by chipping, Chiseling & Hammering, and if required controlled blasting shall be carried out under the supervision of Engineer-in-charge. Due care shall be taken to prevent any damage to adjoining canal section.

The dismantled materials shall be sorted out and neatly stacked as & where directed by the Engineer- in-Charge. The R.C.C. With steel having reinforcement main bar of diameter less than 16 mm shall considered as light reinforcement Steel and with main bars of having dia. more 16 mm. shall be considered as heavy reinforcement steel obtained shall be handed over fully to the Department immediately and for any pilferage or loss, the contractor shall be responsible and recovery at the market rate shall be made from the contractor.

Mode of measurement and Payment:

The payment shall be made on **Cum** basis for the quantity actually required to be dismantled.

Item No. 45 - Dismantling the existing brick masonry including sorting out and stacking the useful material and removing the debris and making good the damages etc. complete as directed. In Cement Mortar

The work of dismantling the existing damaged brick masonry shall be carried out manually with very carefully. First of all the contractor shall dismantle the scoured / damaged brick / stone pitching/ masonry. Due care shall be taken that during the dismantling operation the nearby existing work shall not be damaged. The useful material shall be stacked separately as directed by the Engineer-in-charge and shall be handed over to the department. The debris / materials shall be broken down & dumped as directed by the Engineer-in-charge. Only the marked & required portion shall be dismantled & any additional damage shall be made good by the contractor at his own cost and to the entire satisfaction of the Engineer-in-charge of the work.

Mode of Measurements & Payments:

(a) Payment shall be made on Cum basis of quantity actually required to be dismantled at the rate quoted under relevant items of work.

(b)The rates quoted cover all the activities specified for relevant items of work.

Item No. 46 - Point wiring for Light / Fan/ Bell/ Primary Point with 2-1.5 sq. mm & earthwire of 1.5 sq. mm (green) both are of ISI marked 1.1 kv grade FRLS PVC insulated multistrand copper wires, in following type of pipe to be erected concealed in /flushed on wall/ceiling , complete with 6A Tissino Type ISI marked flush type switch / bell push and accessories erected on Metal / PVC Box covered with 3 mm thick PC(Polycarbonet) /Acrylic sheet. with necessary Lamp holder/ceiling rose / H.D.Connector as directed.(b) with 16 swg(1.6 mm thick) HGS metal conduit pipe and

accessories painted black.

This item includes point Wiring for Light/Bell with 2-1.5 sq.mm. & earth wire of 1.5 sq.mm. (green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multistrand copper wires, in following type of pipe tube erected concealed in/on wall/ceiling complete with 6A modular type switch/bell push & accessories and earth continuity of following type, erected on PVC/metallic box single mounting base frame covered with textured/metallic front plate modules erected on/in wall/ceiling as per pipe erected, with necessary lamp holder/ceiling rose/HD connector as directed. (a) with medium class rigid PVC pipe and accessories. cat III

These specifications indicate the General requirements for internal electrical work including wiring system, panel boards, cable laying, earthing protection and other related works.

These specifications are drawn to indicate essential requirements and precautions to be taken regarding internal electrical installation for ensuring efficient, safe, economical and practicable use of electrical materials and equipment, in conformity with statutory regulations and easy maintainability of the installations.

Point wiring shall include all works necessary for complete wiring of a switch circuit of any length from the tapping point on the distribution circuit to the following through the switch.

- a) Ceiling rose or connector (in the case of ceiling/exhaust fan point).
- b) Ceiling rose (in the case of pendant except stiff pendant point).
- c) Back plate (in the case of stiff pendants and fittings with down rods)
- d) Socket and Outlets (in the case of socket outlets points)
- e) Lamp Holder (in the case of wall brackets, batten points, bulk head and similar fittings).
- f) Call Bell/ Buzzer (in this case the works Via the switch shall be red as "Via ceiling rose, socket outlet or bell push where no ceiling rose/socket outlets is provided").

The following shall be deemed to be included in the point wiring.

- a) Switch.
- b) Ceiling rose or connector as required
- c) Any special and suitable M. S. box for neatly housing the connector and covering the fan hook in case of fan point.

The rate shall include the cost of all materials and labour required for various operations described above. The measurement shall be for unit of Point

The rate shall be for unit of Point

Item No. 47(A) - Providing following type of Modular Type Accessories mounted with pvc / metallic box, single mounting base frame covered with textured/ metallic front plate, modules erected with necessary connection as desired by Engineer In charge. (A) Electronic hum Free four or more steps EME Fan regulator

SCOPE OF WORK:

This item includes providing electronic hum free four or more steps EME Fan regulator type of modular type accessories mounted with PVC / metallic box, single mounting base frame covered with textured / metallic front plate, modules erected with necessary connections as desired by Engineer in Charge or his representative.

Electronic hum Free four or more steps EME Fan regulator shall conform to the requirements applicable requirements of the standard specifications. The contractor shall furnish materials of the higher standard commercial quality suitable for the intended use.

All work shall be performed and completed in a good workman like manner equal to the best modern practice in the manufacture. Electronic hum Free four or more steps EME Fan regulator shall be installed with proper accuracy, with proper workmanship and fitments and shall suit in all respects.

The contractor shall have to take proper care of their labour/workers for any damage, injury or any other fatal accident. The contractor will be responsible to pay compensation to the concern as per prevailing labour act and no claim shall be entertained in this regard.

Any damage caused during the work or transportation or any other component of Government property shall be borne by the contractor. It shall be repaired or rectified by the contractor at his own cost.

100 % payment will be made on completion of work in all respect & after satisfactory work completion

Mode of Measurement & Payment

The Measurement shall be for a unit of each.

The rate shall be for a unit of each.

Item No. 47(B) - Providing following type of Modular Type Accessories mounted with pvc / metallic box, single mounting base frame covered with textured/ metallic front plate, modules erected with necessary connection as desired by Engineer In charge. (B) 6A/ 10A/ 16A/ 20A/ 25A/ 32A Double Pole Modular MCB Switch.

SCOPE OF WORK:

This item includes providing 6A/ 10A/ 16A/ 20A/ 25A/ 32A Double Pole Modular MCB Switch. type of modular type accessories mounted with PVC / metallic box, single mounting base frame covered with textured / metallic front plate, modules erected with necessary connections as desired by Engineer in Charge or his representative.

6A/ 10A/ 16A/ 20A/ 25A/ 32A Double Pole Modular MCB Switch shall confirm to the requirements applicable requirements of the standard specifications. The contractor shall furnish materials of the higher standard commercial quality suitable for the intended use.

All work shall be performed and completed in a good workman like manner equal to the best modern practice in the manufacture. 6A/ 10A/ 16A/ 20A/ 25A/ 32A Double Pole Modular MCB Switch. shall be installed with proper accuracy, with proper workmanship and fitments and shall suit in all respects.

The contractor shall have to take proper care of their labour/workers for any damage, injury or any other fatal accident. The contractor will be responsible to pay compensation to the concern as per prevailing labour act and no claim shall be entertained in this regard.

Any damage caused during the work or transportation or any other component of Government property shall be borne by the contractor. It shall be repaired or rectified by the contractor at his own cost.

100 % payment will be made on completion of work in all respect & after satisfactory work completion

Mode of Measurement & Payment

The Measurement shall be for a unit of each.

The rate shall be for a unit of each.

Item No. 48 - Supplying & erecting approved make low noise decorative exhaust fan having size 200 mm with 1350 RPM with square frame ABS body with inbuilt lowers & square frame.

Scope of Work:

This specification covers the requirements for the supply, installation, testing and commissioning of low noise decorative exhaust fan having size of 200mm with 1350 RPM with square frame ABS body with inbuilt lowers & square frame.

The warranty of the installed exhaust fan should be same as that of defect liability period mentioned in the approved tender document. While installing the exhaust fan, damaged made to adjacent surface should be repaired by contractor at his own cost no extra payment shall be made for the same. Exhaust Fan shall confirm to the requirements and drawings and to the applicable requirements of the standard specifications. The contractor shall furnish materials of the higher standard commercial quality suitable for the intended use.

All work shall be performed and completed in a good workman like manner equal to the best modern practice in the manufacture. The exhaust fan shall be installed with proper accuracy, with proper workmanship and fitments and shall suit in all respects. The contractor shall have to take proper care of their labour/workers for any damage, injury or any other fatal accident. The contractor will be responsible to pay compensation to the concern as per prevailing labour act and no claim shall be entertained in this regard. Any damage caused during the work or transportation or any other component of Government property shall be borne by the contractor. It shall be repaired or rectified by the contractor at his own cost.

100 % payment will be made on completion of work in all respect & after satisfactory work completion.

Mode of Measurement and Payment

The mode of measurement shall be each of successfully installed, tested and commissioned exhaust fan. The mode of payment shall be Number of successfully installed, tested and commissioned exhaust fan

Item No. 49 - Supplying and erecting approved make of tube fitting with One no T-5 tube 24/ 28 W with Electronic ballast with each tube separately THD less than 10 & built in adaptors, GI / PVC housing & mirror optic reflector, suitable to work on 120V - 300V, A.C. supply with connector and adapter if required. [Make of fitting & tube may be differ& fitting shall be providing with tube] Cat III

The Box type flu. fitting should be have sheet metal stove enameled /PVC grey housing with gear tray, open type HFFC Electronic ballast, rotary tube holders & Mirror optic reflector . All accessories should be pre-wired up to terminal block. The fitting should be equipped with earth terminal & shall be suitable for mounting on surface or down rod as per requirement on site. The fitting should be suitable for one tube of 14/24/28/40 watt – 60/120 cms T-5 tube. The T-5 fittings should capable to work on 120 V-300V, A.C supply without affecting any of the tube circuits.The T-5 tubes should have THD less then 10.

The general specifications given in the tender booklet shall also be considered under agreement. The fitting shall be of approved make as per category specified in the tender booklet.

Mode of Measurement & Payment

The Measurement shall be for a unit of each.

The rate shall be for a unit of each.

Item No. 50 - Providing & erecting Approved make Ceiling Fan with double ball bearing ISI mark with Condenser 230 volt A.C.50 Hz. 1200 mm sweep complete having 4 blades Aluminium body and blade sets having ornamental design shanks, canopy & 30 cms. down rod erected with 24/0.2 ,3 core flexible wire with earthing [Make shall be approved by Engineer in Charge]

General :

Fans, Regulators and Clamps:

Ceiling fans :

Ceiling fans including their suspension shall conform to *IS 374-1960 specification for electric ceiling fans and regulators (Revised) & to the following requirements:

(a) All ceiling fans shall be wired to ceiling roses or to special connector boxes, to which fans rod wires shall be connected and suspended from hooks or shackles with insulators between hooks and suspension rods. There shall be no joint in the suspension rod, but if joints be avoidable then such joints shall be screwed to special couplers of 5 minimum length and both ends of pipes shall touch together within couplers, and shall in addition be secured by means of split pins; alternatively, the two pipes may be welded.

(b) Fans clamps shall be of suitable design according to the nature of construction of ceiling on which these clamps are fitted. In all cases fan clamps shall be fabricated from tested new metal of suitable sizes and they shall be as close fitting as possible. Fan clamps for reinforced concrete roots shall be buried with the casting and due care shall be taken that they shall serve the purpose. Fan clamps for wood beams shall be of suitable flat iron fixed on two sides of the beam and according to the size and section of the beam one or two mild steel bolts passing through the beam shall hold both flat irons together. Fan clamps for steel joint shall be fabricated from test~ flat iron to fit in rigidly to the bottom flange of the beam. Care shall be taken during fabrication that the metal does not crack while hammering to shape. Other fan clamps shall be made to suit the position, but in all cases care shall be taken to see that they are rigid, and safe.

Note: All fan clamps shall be so fabricated that fans revolve steadily.

(c) Canopies on top and bottom of suspension rod shall effectively hide suspensions and connections to fan motors, respectively.

(d) The lead-in-wire shall be of nominal cross-sectional area not less than 1.0 mm² with copper and 1.5 mm² with aluminium and shall be protected from abrasion.

(e) Unless otherwise specified, the clear distance between the ceiling fan and the floor shall be less than 2.75 m.

Exhaust Fans : For fixing of an exhaust fan, a circular hole shall be provided in the wall to suit the size of the frame which shall be fixed by means of rag-bolts embedded in the wall. The hole shall be neatly plastered with cement

and brought to the original finish of the wall. The exhaust fan shall be connected to exhaust fan point which shall be wired as neat to the hole as possible by means of a flexible, cord, care being taken that the blades rotate in the proper direction.

Mode of measurements & payment

The rate shall include the cost of all materials fitting and labour involved in all the operations described under item description. .

The rate of item no. shall be for a unit of each.

Annexure-I

Material Testing : Sampling Frequency and Strength Requirements.				
Sr No.	Material to be Tested	Sample frequency	Parameters to be Tested	Min. Requirement
1	Cement	1 bag per 50 M.T.	Comp. Strength (for 53 grade) Initial setting time Final setting time	For 7 day >350 kg/cm ² For 28 day > 530 kg/cm ² Not less than 30 min. Not more than 10 hrs.
2	Bricks	1 sample per 50000 No.	Size Crushing Strength Absorption	22.25 x 10.50 x 7.0 cm 35 kg / sq.cm ² less than 20 %
3	Sand	One for each source	F.M	2.2 to 3.0 for Masonry 2.2 to 3.0 for Concrete subject to gradation shall not be in zone-IV 2.0 for Plaster
4	Coarse Aggregate	As above	Gradation	As per Tender
5	Cement Concrete	1 for 1 to 5 Cum. 2 for 6 to 15 Cum. 3 for 16 to 30 Cum 4 for 31 to 50 Cum. 1 sample for additional 50 Cum concrete or part there of plus 1 sample = 6 cubes.	Compressive Strength at 28 days Proportion shall be as per IS – 456-2000	Nominal Mix M10 100 kg. /sq.cm. Nominal Mix M15 150 kg. / sq.cm Nominal Mix M20 200kg / sq.cm. On 7 days 70 % of above strength shall be achieved
6	Cement Mortar	1 sample per 30 cum. of Masonry work	Comp. Strength For 1 : 3 C.M. 1 : 5 C.M.	110 kg. / sq.cm. 75 kg. / sq.cm.

Note :

(1) The sample cube size for testing concrete shall be **15.0 x 15.0 x 15.0** cm.

(2) The sample cube size for testing mortar shall be **5.0 x 5.0 x 5.0** cm.

Signature of Contractor

Signature of Executive Engineer

Schedule for testing of materials

For ensuring quality control and workmanship, various tests prescribed below corresponding to the material concrete shall be taken as periodic intervals as stipulated bellow.

The material/CC Cubes shall be got tested at GERI (10% Samples) , Govt. recognized Laboratory (10% Samples) & field Laboratory(Remaining)also the testing charges shall be born by the contractor.

Item No. as per Sch-B	Brief Description of materials to be tested.	Prescription of test which shall be carried out	Frequency @ which test shall be carried out	Qty. of material	Total No. of test to be carried out
	Granular materials	Gradation Atterberg : Limits	One test per 200 m3		
	Lime/cement	Quality of lime/Cement	One test for each consignment subject to a minimum of the test per 5 tonnes.		
	Coarse aggregate	Impact value Grading Flakiness & Elongation Abrasion Crushing test	One test per 200 m3 (MOST) : I.S.D. 100 m3 1 test : 2430/ 101 M3 -500 M3 3 test: 19-1 86 501 M3 -1500 M3 5 test: 1501 M3 -5000 M3 7 test: (Minimum one test per work)		
	Binding materials For paving quality concrete	Atterberg limit			
1	Cement	Physical Chemical test	One for each for source of supply and occasionally when called for in case of long/improper storage.		
2	Coarse aggregate	Impact value Los angels Abrasion Value	One for each source of supply and subsequently on monthly basis.		
3	Concrete	Strength of concrete	2-Cubes and 3 beams per 150 M3 or part there of (one for 7 days and other for 28 days strength) or minimum 6 cubes per day's work whichever is more.		
4	Water	Chemical test	One for approval of source of supply		
5	Asphalt	1) Penetration test as per I.S. 1203 2)Ductility test	No.of Tanker Test 1to10 1 11to20 2 21 to50 3 51to100 4 Remaining every 50 tanker 1 As per I.S. 1208		
	Binding materials	3) Specification gravity test 4) Softening point test 5) Viscosity Test Atterberg limit	As per I.S. 1202 As per I.S. 1204 As per I.S. 1206 Remaining every 50 tanker		
6	Sand Quarry Spaul CBR	Silt content	One test per work		

Item No. as per Sch-B	Brief Description of materials to be tested.	Prescription of test which shall be carried out	Frequency @ which test shall be carried out	Qty. of material	Total No. of test to be carried out
	1 test per work CBR-1 test per work	Gradation	One test per 200 cmt.		
7	Bricks	Water absorption Effluence Size Compressive Strength	1 test per 50,000 bricks		
8	Steel	Tensile Strength Yield stress Elongation size	1 test/40 tonnes/per category		
9	Cement	Consistency setting time Compressive Strength Fineness Chemical Analysis soundness	Upto 50 T 1 test (As per 100 T 2 test GERI 200 T 3 Test Manual 300 T 4 Test 2002) 500 T 5 Tests 800 T 6 tests 1300 T 7 tests And 8 test for larger consignment		
10	Cement concrete	Compressive strength (I.S. 516-1959)	Qty. C. C. M3 No. Of test 1 to 5 1 No. 6 to 15 2 No. 16 to 30 3 No. 31 to 50 4 No. 51 & above 4 +1 (For each additional 50 M3 or part thereof).		

Deputy Executive Engineer
Drainage Sub Division
Mahudha

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