

1.0. Workmanship

1.1. The relevant specifications of item No. 20.1 (i) shall be followed except that the wood work, wrought framed and fixed in frames, trusses etc. shall be dismantled.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 20.1 (i) shall be followed.

2.2. The materials shall be stacked as and where directed with all leads and lifts.

2.3. The rate shall be for a unit of one cubic metre.

20.39. Dismantling expanded metal or I.R.C. fabric with necessary battens and beading including frame work and stacking the serviceable materials with all lead and lift.**1.0. Workmanship**

The relevant specifications of item No. 20.1 (i) shall be followed except that the dismantling of expanded metal or I.R.C. fabric shall be done

2.0. Mode of measurements & payment

2.1. The relevant specifications of in item No. 20.1 (i) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

20.43. Dismantling steel work including dismembering and stacking the materials with all leads and lifts.**1.0. Materials**

1.1. The relevant specifications of item No. 20.1 (i) shall be followed except that the dismantling of steel work shall be carried out.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 20.1 (i) shall be followed.

2.2. The weight of the member shall be computed from standard table unless the actual weight can be readily determined.

2.3. Riveted works where rivets are required to be cut, the same shall be carried out under this item and nothing extra shall be paid.

2.4. In framed still gate, the weight of any covering material or filling such as iron sheets and expanded metal shall be added to the weight of the main articles if such covering is not ordered to be taken out separately.

2.5. The rate includes stacking the materials as and where directed with all leads and lifts.

2.6. The rate shall be for a unit of one Kg.

20.49 (i) Dismantling doors, windows, ventilators etc. (wood or steel) shutters including chowkhats, Architraves, hold fasts and other attachments etc. complete and stacking them within all leads & lift. No exceeding 3 sq. metres in area.**1.0. Workmanship**

The relevant specifications of item No. 20.1 (i) shall be followed except that the door, windows, ventilators etc. (wood or steel) shutters including chowkhats, architraves, hold fasts and other attachments etc. are to be dismantled.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 20.1 (i) shall be followed.

2.2. The doors, windows, ventilator etc. not exceeding 3 sq. mt. in area (each) including shutters and chowkhats. Architraves, hold fasts and other attachments to frames etc. will be dismantled and measured under this item.

2.3. The rate includes stacking the serviceable materials as and where directed with all leads and lifts.

2.4. The rate shall be for a unit of One number.

20.49 (II) Dismantling doors, windows, ventilators etc. (wood or steel) shutters including chowkhats. Architrves, hold fasts and other attachments etc. complete and stacking them within all leads and lift : Exceeding 3 sq. metres in area.**1.0. Workmanship**

The relevant specifications of item No. 20. 49 (I) shall be followed except that the area of doors, windows, ventilators, exceeding 3 sq. metres are to be dismantled under this item.

2.0. Mode of measurements of payment

2.1. The relevant specifications of item No. 20.49 (i) above shall be followed.

2.2. The rate shall be for a unit of One number.

20.51. Dismantling barbed wire fencing including making rolls and also including dismantling facing posts including all earth work, concrete in the base and making good the disturbed ground stacking useful materials as directed and disposing all the unserviceable materials with all leads and lifts.

1.0. Workmanship

The relevant specifications of item No. 20.1 (i) shall be followed, except that the dismantling of barbed wire fencing shall be carried out.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 20.1. (i) shall be followed.

2.2. The rate includes making rolls of dismantled wires and including dismantling fencing posts, concrete work, in base and making good the disturbed ground etc. complete.

2.3. The serviceable materials shall be stacked as and where directed and end unserviceable materials shall be disposed with all leads and lifts.

2.4. The rate shall be for a unit of One running metre.

20.56. Dismantling (C.I. Pipes, G.S.W. Pipes and A.C. rain water pipes with fittings and clamps, including stacking the materials with all lead and lift. (for any dia. of pipe).

1.0. Workmanship

The relevant specifications of item No. 20.23 shall be followed except that the dismantling work of pipes lines of C.I., G.S.W. & A.C. Pipes with fitting shall be carried out.

2.0. Mode of measurements and payment

2.1. The relevant specifications of No. 20.1 (i) shall be followed.

2.2. Water pipe lines, including rain water pipes, with clamps and specials, sewer pipe lines, (Salt glazed ware or concrete) etc. shall be measured in running metre inclusive of joints. (The measurements shall be taken along the centre line of pipe and fittings).

2.3. The rate shall be for a unit of One running metre.

20.00.1. Dismantling sanitary fittings like wash basin, W.C. Pan, Indian & European Type flushing tank, etc. including stacking the materials with all lead lift.

1.0. Workmanship

The relevant specifications of item No. 23.23 shall be followed except that the dismantling work of sanitary fittings such as wash basin, W.C. Pan (all type of pans), Flushing tanks etc. shall be carried out.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 20.1 (i) shall be followed.

2.2. The rate shall be for a unit of one number.

20.00.2. Scraping oil paint steel and other metal surfaces and making the surface even (with hand scraping).

1.0. Workmanship

The old paint from steel and other surface shall be scraped thoroughly with hand scraper followed by wire brushing (first with coarse and then with fine brushes) and finally sand papering with coarse and paper (No.3) steel wood (No.2) or emery paper (No.3) or with emery clothes. This shall then be wiped finally with mineral turpentine to remove grease and perspiration of hand marks etc. and allowed to dry. The surface shall be made even and smooth.

2.0. Mode of measurements and payment

2.1. The work shall be measured in actual area of work done.

2.2. The rate shall be for a unit of one sq. metre.

SECTION-21

Repairs to Buildings

- 21.8. Providing and fixing M.S. fan clamps of shape and size as specified in existing R.C.C. slab including cutting chase and making good.**

1.0. Materials

- 1.1. M.S. Bar shall conform to M-18.

2.0. Workmanship

- 2.1. The shape and size of fan clamp shall be directed.

2.2. The fixing M.S. fan clamp in existing R.C.C. slab a chase of size 150 mm. x 75 mm. shall be cut from the ceiling so as to expose the reinforcement and upto 25 mm. clear round the reinforcement bar. This shall be done without any damage to adjoining portion of ceiling. The two arms of the ends of the clamp shall be passed through the space over reinforcement bar from the bottom of the slab. Then the two arms shall be bent down about 15 mm. by means of crow bar. The clamp shall be held in position and the chase in ceiling filled with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size). The ceiling shall be then finished to match the existing surface and properly cured.

3.0. Mode of measurements and payment

- 3.1. The rate includes cost of all materials and labour required for satisfactory completion of this item as described above.

- 3.2. The rate shall be for a unit of One number.

- 21.23. Cutting our cracks, of roof terrace to V. section, Cleaning out, wetting, grouting with cement and sand slurry 1:3 (1 cement : 3 sand)**

1.0. Materials

- (1) Water shall conform to M-1. (2) Cement shall conform to M-3. (3) Sand shall conform to M-6.

2.0. Workmanship

2.1. The cracks shall be cleaned out and trimmed to V shaped cuts at least 6 mm wide on top. The cracks shall be cleaned off and then cracks shall be thoroughly flooded with water, water allowed to a soak in cracks, and then grouted with cement and sand slurry in proportion 1:3. The required cracks shall be cured atleast 7 days.

3.0. Mode of measurements and payment

- 3.1. The rate shall includes cost of all materials and labour required for satisfactory completion of item as described above.

- 3.2. The rate shall be for a unit of One running metre.

- 21.24. Cutting out cracks of roof terrace to V-Section out, and filling solidly with a hot mixtures of bitumen and clean dry sand (1:1 weight).**

1.0. Materials

- (1) Bitumen shall be 85/25 penetration (2) Sand shall conform to M-6.

2.0. Workmanship

2.1. The relevant specifications of item No. 21.23 shall be followed for opening cracks and cleaning.

2.2. The cracks shall be absolutely dried and cleaned and filled solidly with a hot mixtures of 85/25 penetration and sand in ratio of 1:1 by weight. The filler shall be well filled into cracks with the edges of a trowel and left flush with surface of roof. Repaired cracks shall cause no ridges the direction of the slope of roof.

3.0. Mode of measurements & payment

- 3.1. The relevant specifications of item No. 21.23 shall be followed.

- 3.2. The rate shall be for a unit of One running metre.

SECTION-22

Misc. Building Items

- 22.20. Providing and fixing 1.20 metre fencing with 2 metre long M.S. angle posts 40 mm. x 40 mm. x 6 mm. and oil painting 3 coats fixed at 2.5 M C/C with five horizontal lines, and two diagonals of galvanised steel barbed wire weighing 9.38 Kg. per 100 metre. (Min.) stained and fixed to posts with G.I. staples including fixing the posts in ground with 0.5 x 0.5 x 0.5 M block in C.C. 1:5:10 (cement : 5 sand : 10 graded brick aggregate 40 mm. nominal size) etc. complete.

1.0. Materials

(1) Water shall conform to M-1. (2) Cement shall conform to M-3. (3) Sand shall conform to M-6. (4) Brick bats aggregate shall conform to M-14. (5) Oil paint shall conform to M-44. (6) Barbed wire shall conform to M-78.

2.0. Workmanship

2.1. The pits of the size 0.5 x 0.5 m. x 0.5 shall first be excavated, true to line and level to receive the post at 2.5 C/C. The relevant specifications of item 4 00.1 shall be followed for excavation work.

2.2. The pits shall be filled with a layer 0.15 m. thick with lean concrete 1:5:10 (1 cement : 5 sand : 10 graded brick bat aggregate 40 mm. nominal size). The M.S. angles 40 mm. x 40 mm. x 6 mm shall be filled in with lean concrete 1:5:10 and rammed properly so as to form total 0.5 m. x 0.5 m. x 0.5 m. concrete block. The concrete shall be cured for 7 days to allow it to set.

2.3. The barbed wire shall be stretched and fixed in 5 horizontal rows and two diagonals. The bottom row shall be 140 mm. above ground and the rest at 125 mm. centre to centre. The diagonal shall be stretched between adjacent post from top wire of one post to the bottom wire of 2nd post. The wires shall be fixed to posts by means of staples. The M.S. Angle posts shall be painted with 3 coats of oil paint of approved tint and shade.

3.0. Mode of measurements and payment

3.1. The work shall be measured for the finished work from centre to centre of the posts.

3.2. The rate shall include the cost of labour and materials involved in the operations described above.

3.3. The rate shall be for a unit of One running metre.

- 22.00.1. Constn. of B.B. masonry paniara 23 cm x 75 mm wall including fixing precast R.C.C. marble Mosaic (Terrazzo) slab of 75 mm. thickness on top and smooth finishing to walls in cement plaster in C.M. 1:3 curing etc. complete including drainage out, waste water arrangements.

1.0. Materials

(1) Water shall conform to M-1. (2) Cement shall conform to M-3. (3) Sand shall conform to M-6. (4) Burnt bricks shall conform to M-15. (5) Precast marble mosaic terrazzo paniara of 75 mm thickness shall be of best quality. The width of paniara shall be directed.

2.0. Workmanship

2.1. The brick masonry shall be constructed for paniara for the size as directed in C.M. 1:6. The thickness of wall shall be 23 cms. thick and height shall be 75 cms. The relevant specifications of B.B. masonry at item 6.13 (b) shall be followed for B.B. masonry work.

2.2. The B.B. masonry shall be covered with precast marble terrazzo paniara at top, of width and length as specified or as directed. The terrazzo mosaic paniara shall be 75 mm. thickness.

2.3. The whole masonry work shall be finished smooth with C.M. 1:3 on both sides. The relevant specifications of item No. 17.59 (i) shall be followed.

2.4. The drainage outlet and water arrangement shall be made as directed.

3.0. Mode of measurements and payment

3.1. The work shall be measured for the finished work.

3.2. The rate shall include the cost of labour and materials involved in the operations described above.

3.3. The rate shall be for a unit of One Running metre.

- 22.00.2. Constructing a chowkadi with C.C. over 12 cm. thick B.B. masonry in front and dwarf wall 1 M high and 23 cms. thick cement plaster to masonry in C.M. (1:3) and cement concrete flooring in 1:2:4 with 5 cm. dia. A.C. Drain pipe etc. complete.

1.0. Materials

1.1. Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Burnt bricks shall conform to M-15. Stone aggregate 20 mm. nominal size shall conform to M-2. (a) A.C. Drain pipe of 5 cms. dia shall conform to M-74.

2.0. Workmanship

2.1. The chowkadi shall be constructed of specified size and as directed. The slab shall be cast on B.B. masonry wall 12 cms. thick and dwarf wall 1 M high and 23 cms. thick shall be constructed in proportion of C.M. 1:6. The relevant specifications of item 6.3. (I) shall be followed for masonry partition work and 5.4.1. (c) shall be followed for reinforced concrete work.

2.2. The whole masonry work shall be finished with cement mortar 1:3 and finished smooth. The relevant specifications of item No. 17.59 (I) shall be followed for plastering work.

2.3. The A.C. pipe of 5 cms. dia shall be fixed as drainage pipe. The bottom shall be finished with C.C. 1:2:4 finished with cement slurry.

3.0. Mode of measurements and payment

3.1. The work shall be measured for finished work.

3.2. The rate includes cost of all materials, labour etc. required for carrying out satisfactory completion of work.

3.3. The rate shall be for a unit of one square metre.

22.00.3.(I) Constructing cooking platform 60 cm. width and 70 cm. height resting on B.B. Masonry wall 23 cms. thick in C.M. 1:6 with fixing of precast 1:2:4. R.C.c. 0.0 M. thick slab with marble mosaic chips set in GM. (Terrazzo) with plastering on exposed faces to wall in C.M. 1:4 etc. complete.

1.0. Materials

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Burnt brick shall conform to M-15. Marble Mosaic chips shall conform to M-46. Stone aggregate 20 mm. nominal size shall conform to M-12. (a) M.S. Bars shall conform to M-18.

2.0. Workmanship

2.1. The cooking platform of size as directed shall be constructed in 60 cms. width and 70 cms. height. The brick masonry wall in C.M. 1:6 shall be constructed in 23 cms. thickness upto full depth. The relevant specifications of item 6.13 (B) shall be followed for masonry work.

2.2. The R.C.C. slab of 8 cms. thickness and of adequate design and size shall be precast and the same shall be put up on the B.B. masonry work.

2.3. The top and exposed sides of the R.C.C. slab shall be finished with marble mosaic terrazzo 8 mm. thick with required colour pigment. The work of terrazzo shall be carried out as per relevant specifications of item 14.4 (E).

2.4. The whole masonry work shall be finished with cement mortar in C.M. 1:4. The relevant specification of item 17.59 (II) shall be followed.

3.0. Mode of measurements and payments

3.1. The work of cooking platform shall be measured for finished work.

3.2. The rate includes cost of all labour and materials, etc. required for satisfactory completion of this item as described above.

3.3. The rate shall be for a unit of One running metre.

22.00.3.(II) Constructing cooking platform of 60 cm. width and 70 cms. height resting on B.B. masonry walls 23 cm thick in C.M. 1:1 with fixing black kapada stone surface laid on precast R.C.C. slab 1:2:4 with plastering on exposed faces to wall in C.M. 1:4 etc. complete.

1.0. Materials and Workmanship

1.1. The relevant specification of item No. 22.00.3 (I) shall be followed except that the cooking platform shall be constructed by providing black kapada stone of 25 mm. to 30 mm. thickness on precast R.C.C. 1:2:4 slab 8 cms. thick. The black stone shall be provided in single piece upto 1.8 M in length and specified width. All the exposed edges of stone shall be machine cut.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item 22.00.3.(I) shall be followed.

2.2. The rate includes providing machine cut edges on exposed face of kapada stone.

2.3. The rate shall be for a unit of One running metre.

22.00.4. Providing and fixing Rajula stone 75 mm. thick 60 cm x 45 cms. size including fixing in cement mortar as directed.

1.0. Materials

Water shall conform to M-1. Cement mortar shall conform to M-11. Rajula stone of specified size shall be of best quality and free from any defects. The stone shall not be less than 75 mm in thickness.

2.0. Workmanship

2.1. The Rajula stone of size 60 x 45 cms. size shall be fixed as and where directed in cement mortar in 1:3. All the edges of the stone shall be fixed with cement mortar in C.M. 1:3 and sloped at 45° and finished smooth. The work shall be cured for 7 days after fixing.

3.0. Mode of measurements and payment

3.1. The work shall be measured for finished work.

3.2. The rate includes cost of all labour and materials required for satisfactory completion of this item.

3.3. The rate shall be for a unit of one number.

22.00.5. Providing and laying Bilimora type brick facing in C.M. 1:1 laid over bedding of cement mortar 1:3 (13 mm. thickness) including cleaning, watering, scaffolding etc. complete.**1.0. Materials**

1.1. Water shall conform to M-1. Cement mortar of specified proportion shall conform to M-11. Bilimora type bricks shall be approved before collection the same on site.

2.0. Workmanship

2.1. The surface on which the Bilimora type bricks is to be provided shall be cleaned of all dust, dirt, etc. and finished with CM 1:3 in 13 mm. thickness. The relevant specifications of item 17.59 (I) shall be followed except that the thickness of finishing shall be 13 mm. The top surface shall be roughened by wire brushes to give proper grip to the tiles to be fixed.

2.2. The Bilimora type bricks shall be fixed with CM 1:1. The tiles shall be properly wetted before fixing. The horizontal and vertical joints shall be maintained in true line and level by providing 12 mm or 20 mm. sq. bars as directed. The tiles shall be tamped by trowel so that there shall not be any hollows left behind the tiles.

2.3. The tiles shall be cut to the required size on ends of at top bottom of beams in best workman like manner.

2.4. The whole work shall be cured for 7 days.

3.0. Mode of measurements and payment

3.1. The work shall be measured as per relevant specification of item No. 17.58(I)

3.2. The rate includes cost of all materials, wastage etc. occurring due to cutting of tiles and ends as top and bottom of beams etc. including base coat.

3.3. The rate shall be for unit of One sq. metre.

22.00.6. Providing and fixing teakwood rail of 60 mm. x 20 mm. size and 50 cms. length incl. 3 coats of oil paint to wood work with set of 3 pegs.

1.0. **Materials :** Teak wood battens of specified size shall conform to M-29. Oil paint shall conform to M-44. Wall pegs of aluminium 3 Nos. of approved quality and make shall be provided.

2.0. Workmanship

2.1. The teakwood battens of size 60 mm. x 20 mm. and 50 cms. long be planed on all sides. The anodised aluminium wall pegs of approved make shall be fixed on wooden batten prepared with screws as directed. The wall pegs unit shall be fixed on wall with wooden gutties and screws as directed. The wooden battens shall be painted with 3 coats of ready mix paint of approved colour and shade.

3.0. Mode of measurements and payment

3.1. The work shall be measured for finished work.

3.2. The rate shall be for a unit of one number.

22.00.7. Treating the bottom and sides (upto a height of 300 mm.) of the excavations made for the masonry foundations and basement with chemical emulsion at the rate of 5 liters per Sq. metre of the surface area.

1.0. **Materials :** The chemicals used for the soil treatment shall be only one of the following with concentration shown against each in aqueous emulsion.

	Chemicals	Concentration
1.	Aldrin	0.50% (by weight)
2.	Heptachlor	0.50% (by weight)
3.	Chlordane	1.00% (by weight)

2.0. Workmanship

- 2.1. The chemicals barrier shall be complete and continuous under whole of the structure to be protected.
- 2.2. The bottom and the sides of foundations upto a height of 30 cms. from the bottom of excavation made for masonry foundation and for basement column pits shall be treated with the chemical emulsion at the rate 5 liters/ sq. metre of the surface area.
- 2.3. The chemical treatment shall be carried out when the surfaces is quite dry. Chemical treatment shall not be carried out when it is raining or when the soil wet with rain or sub soil water.
- 2.4. Once formed, treated soil berries shall be not disturbed. If by chance, treated soil barriers are disturbed, immediate steps shall be taken to restore the continuing and compactness of the barrier system
- 2.5. The treatment against termite infection shall remain fully effective for a period not less than 10 years from date of issue of the final certificate fo completion of work. If at any time during this period, any defects in treatment are revealed or any evidence of infection in any part of the building or structure is noticed, the contractor shall be rectify the concerned defects within 14 dayss on receipt of notice from Engineer-in-charge. On contractor's failure to do so, the Engineer-in-charge amy get the same rectified through any other agency at controactor's rissk and cost, and decision of Engineer-in-charge as to the cost payable by contractor for the same shall be final and binding to the contractor.
- 2.6. Aguarantee bond on appropriately stamped paper shall be given by the contractor to the department in the manner and form prescribed below :

FORM OF GUARANTEE BOND

I/We (Contractor) hereby guarantte that work will remain uneffected an will not be innay way damaged by termite or any other germs of similar types, for a period fof 10 years after completion of the work of anti-termite as per the terms and conditions of the contract and or damage that might be caused on account of termite and or other similar type of germs and hereby Guarantees to make good any loss of damages suffered by the Government of Gujarat and further guarantee to redo effective work without claiming any extra cost."

2.7. This guarantee shall remain in force for the period of 10 years from the completion of the work under the contract and it shall remain binding to the contractor for period of 10 years.

2.8. The deposit at the rate of 50% of the cost of this item from the running and final bills shall be recovered and retained for the first one year after completion of the work and 10% shall be retained for the balance of guarantee period and shall be refunded only after the completion of the guarantee period.

3.0. Mode of measurements & payment

3.1. The length and breadth shall be measured correct to a cm. as per the dimensions of sanctioned plans. No deduction shall be made nor extra paid for any opening for pipes etc. upto 0.1.sq. mt. The rate shall include the cost of all labour and materials required for the operation involved for satisfactory completion of this item. The sides of the trenches 30 cms, each side and bottom shall be measured under this item.

3.2. The rate shall be for a unit of One sq. metre.

22.00.8. Treating the backfill immediately in contact with foundation structure with chemical emulsion at the rate 7.5 liters per sq. mt. of vertical surface of the sub structure of each side (In case of R.C.C. columns, beams and R.C.C. basement walls, treating the sides of 50 cms. from ground level with chemical emulsion at the rate of 7.5 Liters/sq. metre).

1.0. Materials

1.1. The specifications of the item 22.00.7. shall be followed.

2.0. Workmanship

2.1. After masonry foundations and retaining walls of basement come up , the backfill immediate in contact with foundation shall be treated with the chemical emulsion at the rate of 7.5 liters per sq. m. of the vertical surface of the sub structure for each side. The filling of earth is usually carried out in layers and the treatment shall be directed towards the concrete or masonry surfaces of the columns and walls so that the earth contact with these surfaces is well treated with chemical.

2.2. In case of R.C.C. framed structure with columns and plinth beams and R.C.C. basements the treatments shall start at the depth of 50 cms. below ground level from this depth backfill around the columns, beams, and R.C.C. basement walls shall be treated at 7.5 lit/sq. m. of vertical surface. The relevant specifications shall be followed same as item 22.00.7.

3.0. Mode of measurements and payment

3.1. The area of substructure in contact with backfill to be measured. The length and breadth shall be measured correct to a cm. dimension of sanctioned plans for the surfaces in contact with backfill.

- 3.2. No deduction shall be made nor extra paid for any opening for pipes, etc. upto 0.1 sq. m.
- 3.3. The rate includes cost of all labour, materials required for satisfactory completion of this item.
- 3.4. The rate shall be for a unit of One sq. metre.

22.00.9. Treating the top surface of the plinth filling with chemical emulsion at rate of 5 liters sq. metre. before the sand bed or sub grade is laid.

- 1.0. **Materials** : The relevant specifications of item 22.00.7. shall be followed.

2.0. Workmanship

- 2.1. The relevant specifications of item 22.00.7 shall be followed that the top surface of the consolidated earth within the walls, shall be treated with the chemical emulsion at the rate of 5 liters/sq. metre of the surface before the sand bed or sub-grade is laid. If the filled earth has been well rammed and the surface does not allow the emulsion to seep through, holes upto 50 to 75 mm. deep at 150 mm. centers both ways may be made with 12 mm. dia. M.S. rod on the surface to facilitate absorption of the emulsion.

3.0. Mode of measurements & payment

- 3.1. The length and breadth shall be measured clean for the area actually treated.
- 3.2. No deduction shall be made nor extra paid for any opening for pipes, etc. upto 0.1 sq. m.
- 3.2. The rate shall be for a unit of One sq. metre.

22.00.10. Treating the junctions of wall and floor area with chemical emulsion at the rate of 7.5 liter/sq. mt. by making holes at junction of walls, and columns, with the floor before laying sub grade to a depth to 15 cms. by making holes.

- 1.0. **materials** : The relevant specifications of item 22.00.7 shall be followed.

2.0. Workmanship

- 2.1. The relevant specifications of item 22.00.7 shall be followed except that the junction of walls columns with floor shall be treated with the chemical emulsion at the rate 7.5 liters/sq. metre. Special care shall be taken to establish continuity of the vertical chemical barrier on inner wall surface from the ground level be taken to establish continuity of the vertical chemical barriers on inner wall surfaces from the ground level upto the level of filled earth surface. To achieve this, a small channel 3 x 3 cm. shall be made at the junctions of the wall and columns with floor (before laying the sub 2 grade) and road holes made in the channels upto the ground level 15 cms. apart and the rod moved backwards ward and forward to breakup the earth an chemical emulsion poured along the channel at the rate of 7.5 liters per sq. m. of the vertical wall or column surfaces of sub-structures so as to soak the soil right to the bottom. The soil should be tamped back into place after this operation.

3.0. Mode of measurements and payment

- 3.1. The relevant specifications of the item 22.00.7. shall be followed.
- 3.2. The vertical area of sub-structure in contact with filled up earth above ground level to top filled up earth shall be measured for payment.
- 3.3. The rate shall be for a unit of One sq. metre.

22.00.11. Treating the earth along the external perimeter of the building by making holes 15 cms., apart upto a depth of 30 cms. with chemical emulsion at the rate of 7.5 liters per sq. metre along the wall.

- 1.0. **Materials** : The relevant specification of item 22.00.7 shall be followed.

2.0. Workmanship

- 2.1. The relevant specifications of the item 22.00.7. shall be followed except that the external perimeter of the building shall be treated with chemical emulsions. After building is complete, the earth along the external perimeter of the building should be rodded at intervals of 15 cms. and to a depth of 30 cms. The rods shall be moved backward and forward parallel to the wall to breakup the earth and chemical emulsion poured along the wall at the rate of 7.5 liters per sq. metre of vertical surfaces. After the treatment the earth shall be tamped back into place the earth outside of the building should be graded on compaction of building, this treatment shall be carried out on the completion of such grading. In event of filling being more than 30 cms. the external perimeter and treatment shall be extended to the full depth of filling upto ground level so as to ensure continuity of the chemical barrier.

3.0. Mode of measurements and payment

- 3.1. The relevant specifications of item No. 22.00.7 shall be followed.
- 3.2. The vertical surfaces area so sub-structure 30 cms. in depth from finished ground level in external periphery only shall be measured and paid under this item. The depth of wall treated under back filled shall not be included in this item.

3.3. The rate shall be for a unit of One sq. metre.

22.0.12. Providing treatment along outside of foundation using chemical emulsion at 7.5 liters per sq. m. of vertical surface (for each side) of sub-structure.

1.0. **Materials :** The chemical used for the soil treatment shall be any one of the following with concentration shown against each in aqueous emulsion :

	Chemicals	Concentration
1.	Aldrin	0.50% (by weight)
2.	Heptachlor	0.50% (by weight)
3.	Chlordane	1.0% (by weight)

2.0. Workmanship

2.1. The surface of consolidated earth around the existing building shall be treated with chemical emulsion at the rate 7.5 liters/sq. m. of vertical surface of sub-structure. The minimum height to sub-structure shall be considered 60 cms. for treatment. If the earth along the perimeter does not allow emulsion to seep through, holes upto 300 mm. deep at 150 mm. centers both ways be made by 12 mm. dia. mild steel rod on the surface to facilitate saturation of the soil with chemical emulsion.

2.2. The chemical barrier shall be complete and continuous under whole on the structure to be protected.

2.3. The chemical treatment shall be carried out when the surface quite dry. Chemical treatment shall not be carried out when it is raining or when the soil is wet with rain or sub soil water.

3.0. Mode of measurements and payment

3.1. The length shall be measured along the periphery of the sub-structure. The depth shall be taken 0.60 m.

3.2. No deduction shall be made not extra paid for any opening for pipes etc. upto 0.1 sq. m.

3.3. The rate includes cost of all labour and material required for the operations involved for satisfactory completion of this item.

3.4. The rate shall be for a unit of One sq. metre.

22.0.13. Providing treatment along external wall perimeter below concrete or masonry apron using chemical at 5. lit/linear including drilling and plugging etc.

1.0. **Materials :** The relevant specifications of item No. 22.0.12 shall be followed.

2.0. Workmanship

2.1. The relevant specification of item No. 22.0.12 shall be followed except that the treatment shall be carried out along external wall perimeter below concrete or masonry apron, using chemical at rate of 5 lit/ running metre.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 22.0.12 shall be followed.

3.2. The rate including drilling and plugging holes in apron etc. complete.

3.3. The rate shall be for a unit of One running metre.

22.0.14 Treatment of soil below existing floor using chemical at 1 liter per hole at 300 mm. a part including drilling plugging holes etc.

1.0. **Materials :** The relevant specifications of item No. 22.0.12. shall be followed.

2.0. Workmanship

2.1. The relevant specifications of item No. 22.0.9. shall be followed except that the termite control treatment shall be carried out in soil below existing floors.

2.2. The holes of 12 mm. dia rod shall be drilled in floor upto 150 mm. depth at 300 mm. part both ways. The chemical shall be then injected with pressure at the rate of 1 liters/hole of the surface area.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item 22.0.9 shall be followed.

3.2. The rate shall includes cost of drilling holes and plugging.

3.3. The rate shall be for a unit of One sq. metre.

22.0.15. Treatment of voids in masonry using chemical at 1 Lit/hole at 300 mm. apart including drilling holes and plugging.

1.0. **Materials :** The relevant specifications of item 22.0.12 shall be followed.

2.0. Workmanship

2.1. The walls affected by termite shall be cleaned off all live forms binding inside and the holes of voids in masonry wall surface shall be treated by chemical emulsion at rat 1 Lit. hole. The holes in cracks in surface of wall shall be drilled at 300 mm. apart.

3.0. Mode of measurement & payment

3.1. The rate shall be for a unit of One number of voids treated.

22.0.16. Treatment to wood work by chemical emulsion in oil or kerosine based including 6 mm. dia downward slanted holes 150 mm. C/C. and plugging the same with cement mortar.

1.0. Materials : The relevant specifications of item No. 22. 00.7 shall be followed.

2.0. Workmanship

2.1. The wood work effected by Ants shall be cleaned of lives form hindng inside. The whole wood surface shall be then treated with oil or kerosene based chemical emulsion. The holes in 6 mm. dia. shall be drilled slanted downwards at 150 mm. centres to centres and chemical emulsion shall be poured into holes by means of funnels specifically prepared for the same and allowed to seep. After finales become empty, another dose of chemicals shall be poured in them. This process shall be done repetately till the whole wood work is fully saturated with chemical.

2.2. The holes drilled in wood work shall be filled in with putty and other similar materials as directed and the whole wooden surface shall be made good as before.

3.0. Mode of measurements & payment

3.1. The work shall be measured for the finished work in sq. metre. including frame.

3.2. The out of frame shall be measured as width ad form top of flooring to top of frame shall be as height. This area includes for treating frame and shutters both.

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

3.4. The rate includes drilling holes plugging the same after treatment completed and making good as before.

3.5. The rate shall be for a unit One sq. metre.

SECTION-23

Water Supply, Plumbing and Sanitary Fittings

- 23.2.** Providing and fixing to wall, ceiling and floor galvanised mild steel tube (Medium grade) of the following nominal bore, tube fittings and clamps including making good the wall ceiling and floor (A) 15 mm. dia (B) 20 mm. dia (C) 25 mm. (D) 32 mm. (E) 40 mm. (F) 50 mm.

1.0. Materials

- 1.1.** Galvanised mild steel tubes of specified dia nominal bore shall conform to I.S. 1239-1968.
1.2. The galvanised fittings, clamps, etc. required for specified dia. bore pipes shall be of best quality and makes as approved by the Engineer-in-charge.

2.0. Workmanship

2.1. Curring, Laying & Jointing

2.1.1. When the tubes are to be cut or rethreaded, the ends shall be carefully filed out so that no obstruction to bore is offered. The ends of the tubes shall then be threaded conforming to the requirements of I.S. 554-1955 with pipe dies and taps carefully in such a manner so as will not result in slackness of joints when the two pieces are screwed together.

2.1.2. The taps and dies shall be used only for straightening screw threads which have become bent or damaged and shall not be used for turning of the threads so as to make them slack as the latter procedure may not result in the water tight joint. The screw threads for tube and fitting shall be protected from edge until they are fitted.

2.1.3. In jointing the tubes, the inside of the socket and the screwed end of the tubes shall be oiled and smeared with white or red lead and wrapping around with a few turns of fine spun yarn round the screwed end of the tube. The end shall then be tightly screwed in the socket, tees, etc. with a pipe wrench. Care shall be taken that all times free from dust, and dirt during fixing. Burr from the joints shall be removed after screwing. After laying the open ends of the pipes shall be temperately plugged to prevent access of water, soil, or any other foreign matter.

2.1.4. Any threads exposed after jointing shall be painted or in the case of underground piping thickly coated with approved anti-corrosive paint to prevent corrosion.

2.2. Fixing of tube fittings to wall ceiling & floors.

2.2.1. In case of fixing of tubes and fittings to the walls or ceilings, these shall run on the surface of the wall, or ceiling (not in chase) unless otherwise specified. The fixing shall be done by means of standard pattern, holder clamps keeping the pipes about 15 mm. clear of the wall. When it is found necessary to conceal the pipes and when specified so, chasing may be adopted or pipe fixed in ducts or recesses etc. provided that there is sufficient space to work on the pipe with usual tools. The pipe shall not ordinarily be buried in walls or solid floors, where unavoidable, pipe may be buried for short distances provided that adequate protection is given against damage and where so required joints are not buried. Where required M.S. tube sleeve shall be fixed at a place a pipe is passed through a wall or floor for expansion and contraction and other movements. In case the pipe is embedded in walls or floors, it should be painted with anti-corrosive bitumastic paint of approved quality. The pipe should not come in contact with lime mortar or lime concrete as the pipe is affected by lime. Under the floors, the pipe shall be laid in layer of sand filling.

2.2.2. All pipes and fittings shall be fixed truly vertical and horizontal unless unavoidable. The pipes shall be fixed to walls with standard pattern clamps of required size and shape, one end of which shall be properly plugged or cemented into walls with cement mortar 1:3 (1 cement : 3 coarse sand) and the other tightened round the pipes to hold it securely. These clamps shall be spaced at regular intervals in straight lengths at 2 MC/C interval in horizontal run and 2.5 m. interval in vertical run. For pipe of 15 mm. dia. upto 25 mm. dia the holes in the walls and floors shall be made by drilling with chisel or jumper and not by dismantling the brick work or concrete. However for bigger diameter pipes the holes shall be carefully made cement : 3 coarse sand) and properly finished to match the adjacent surface.

2.3. Testing of joints :

2.3.1. After laying and jointing, the pipes and fittings shall be inspected under working conditions of pressure and flow. Any joints found leaky shall be redone, and all leaking pipes removed and replaced without extra cost.

2.3.2. The pipes and fittings after they are laid shall be tested to hydraulic pressure of 6 Kg/sq. cm. The pipe shall be slowly and carefully charged with water allowing all air to escape and avoiding all shock and water hammer. The draw off takes and stop cock shall then be closed and specified hydraulic pressure shall be applied gradually. The pressure gauge must be accurate. The pipes and fittings shall be tested in sections as the work laying proceeds, veeping the joints exposed for inspection during the testing.

3.0. Mode of measurements and payment

3.1. The description of each 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 metre 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 metre.

(ii) Area shall be worked out to the nearest 0.01 sq. metre.

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. Testing of pipe lines, fittings, and joints include for providing all plant appliances necessary for obtaining access to the work to be tested an carrying out the tests.

3.7. The rate includes galvanised steel tubing with screwed socket joints, together with all fittings (such as bends, sockets springs, elbows, test, crosses, short pieces, clamps and plugs unions etc.) and fixing complete with clamping wall hooks, wooden plug etc. and also curring, screwing and waste and for making forged (or hand made) bends on piping as required. Connector shall be inserted, where required or directed. The rate also includes cutting through walls, floors etc. and their making good and painting exposed threads with anti-corrosive paint as above and testing. Where tubes are to be fixed to wall, ceiling and flooring, the rate shall not include painting of pipes, providing sleeves and sand filling under floor for which separate payment shall be made.

3.8. The rate shall be for a unit of one running metre.

23.4. Providing and laying in trenches galvanised mild steel tubes (Medium grade) of the following nominal bore and tube fittings-earth work in trenches to be measured and paid for separately : (A) 15 mm. dia. (B) 20 mm. (C) 25 mm. (D) 40 mm. (E) 60 mm. (F) 80 mm.

1.0. Materials

1.1. Galvanised mild steel tube of specified dia. nominal bore and fittings shall conform to I.S. 1239-1968.

2.0. Workmanship

2.1. The relevant specifications of item 23.2 (A) shall be followed for cutting, laying and jointing testing of joints except that the fixing of tube shall be done in trenches,

2.2. The width and depth of the trenches for different diameters of the tubes shall be as under :
For 15 to 80 mm. dia tube width of trenches shall be 30 cms. and depth of trenches 60 cms.

2.3. At joints, the trench width shall be widened where necessary. The work of excavation and refilling shall be done true to line, and gradient in accordance with general specifications of earth work in trenches.

2.4. The pipes shall be painted with two coats of anti-corrosive bitumastic paint of approved quality. The pipe shall be laid on a layer of 75 mm. sand filled upto 150 mm. above the pipe of so specified. The remaining portion of trench shall be then filled with excavated earth. The surplus shall be disposed of as directed.

2.5. When the excavation is done in rock the bottom shall be cut deep enough to permit the pipe to be laid and cushion of sand 75 mm. In case of bigger diameter of tube where the pressure is very high, thrust block of cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 grade stone aggregate of 20 mm. nominal size) shall be constructed on all bends to transmit the hydraulic thrust without impairing the ground and spreading it over a sufficient area if so specified.

3.0. Mode of measurement

3.1. The relevant specifications of item No. 23.2 (A) shall be followed. The authorised quantities shall be measured.

3.2. For purpose of calculating cubic content cross section shall normally be taken at suitable intervals i.e. at manhole or wall chamber intervals except in abnormal cases like sudden change in strata or undulating ground etc., when they may be taken at closer intervals as approved by the Engineer-in charge whose decision shall be final, conclusive and binding.

3.3. Authorised width :

(a) Upto the metre depth, the width of the trenches for the purpose of measurements of excavation shall be arrived at by adding 40 cms. to the external diameter of the tube (not the socket) where a pipe is laid on concrete bed/cushioning layer, the authorised width shall be the external diameter of tube plus 40 cms. or the width of the concrete bed cushioning layer whichever is more.

(b) For depths exceeding one metre an allowance of 5 cms. per metre of depth for each side of the trench shall be added to the authorised width (i.e. external diameter of pipe of plus 40 cms) This allowance shall apply to the entire depth of the trench. The authorised width in such cases shall therefore be, equal to the depth of trench, plus external diameter or tube plus 40 cms.

(c) Where more than one tube is laid, the diameter shall be reckoned as the horizontal distance of outside to outside of the outermost pipes.

(d) Where sheeting etc. has been provided the authorised width of the trenches at bottom shall be increased to accommodate for sheeting etc. so that the clear width available between faces of sheeting is as per previousness of (a), (b) & (c) above.

(e) If the sides of the trench are not vertical, the tones of side slopes shall end at the top of the pipe and vertical sided trench of authorised width as per (a), (b), (c) and (d) above shall be excavated from these down to the bed of trenches.

3.4. Where the tubes are laid in trenches, the work of excavation and refilling and round tubes for which separate payment shall be made, the length shall be measured on running metre. basis.

3.5. The rate shall be for a unit of One running metre.

23.6. Marking connection of galvanised M/S. distribution branch with galvanised mild steel main 80 mm. nominal bore by providing and fixing tee including, cutting and threading the pipes etc. complete.

1.0. Materials

The fittings required of specified dia. of pipe shall conform to I.S. 1237-1986.

2.0. Workmanship

2.1. A pit of suitable dimensions shall be dug at the point where the connection is to be made with the main and earth removed upto 150 mm. below the main. The flow of water in water main shall also be disconnected by closing the sluice or wheel valves on the main. The main shall first be cut. Water if any, collected in the pit shall be bailed out and ends of the pipe threaded.

2.2. The connections of distribution pipe shall be made by fixing malleable galvanised mild steel tee of the required size and fitting such as jam nut, socket, connecting piece etc.

2.3. The testing of the joints shall be done as per relevant specifications of item No. 23.2 (A).

3.0. Mode of measurements and payment

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

3.2. The rate shall be for a unit of One number.

23.8. Providing and fixing to wall ceiling and floor 6 Kgs/Sq. Cm. working pressure polythene pipes of the following outside diameter, low density complete with special flag compression type fittings wall clips etc. including making good the wall/ceiling and floor.
(A) 20 mm. dia. (B) 25 mm. dia (C) 32 mm. dia. (D) 40 mm. dia. (E) 50 mm. dia.

1.0. Materials

1.1. The low density polythene pipe of specified diameter 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 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 P.V.C. pipe should be undertaken after preparations are observed for their protection against direct sun rays and mechanical damage.

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

2.4. 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.

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. 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 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 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.

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 metre 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 relevant specifications of item 23.2. (A) shall be followed except that the P.V.C. pipes of specified dia. shall be paid under this item.

3.2. The unit rate shall be for a unit of One running metre.

23.111.(A) (I) Providing and fixing water closet squatting pan (Indian type W.C. Pan) size 580 mm. (Earth work, bed concrete, foot-rests and trap to be measured and paid for separately). Vitreous china. Long pattern white colour.

1.0. Materials

1.1. Water closet squatting pan (Indian type W.C. Pan) shall conform to M-62. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. The pan shall be sunk into the floor and embedded in a cushion of average 15 cm. cement concrete 1:5:10 (1 cement : 10 graded stone aggregate or brick aggregate 40 mm. nominal size) or and its bed concrete. the floor should be left 115 mm. below the top level of the pan so as to allow for flooring and its bed concrete. The floor should be suitably stopped so that the waste water is drained into the pan. The shall be provided with 100 mm. 'P' or 'S' trap as specified in the item No. 23.113 with approximately 50 mm. seal. The joints between the pan and the trap shall be made leak - proof with cement mortar 1:1 (1 cement : 1 fine sand).

3.0. Mode of measurements and payment

3.1. The rate shall include the cost of all materials and labours involved in the operations described under workmanship.

3.2. The rate shall be for a unit of One number.

3.3. The 'P' or 'S' trap unit of One number.

23.79. Providing and fixing cast spigot and sockets soil, waste, and ventilating pipes of the following normal size (B) 75 mm. dia. (C) 100 mm. dia.

1.0. Materials

1.1. The specified dia. C.I. Spigot and socket soil or waste pipe shall conform M-68.

2.0. Workmanship

2.1. The fixing of C.I. spigot and sockets soil, waste and ventilating pipe shall be carried out as per relevant specifications of item 15.93 (B) except the C.I. spigot and socket shall be fixed. The joints shall be filled with cement mortar 1:2 (1 cement : 2 sand) and spun yarn. The joints shall be filled with cement mortar 1:2 (1 cement : 2 sand) and spun yarn. The pipes without care shall be fixed to wall with M.S. clamps. The pipes will earn shall be secured with 40 mm. before steel or iron barrel distance pieces or bolts and stout galvanised iron nails 10 cms. long into hand wool plug fixed in walls. Access doors to fittings shall be provided with 3 mm. rubber insertion packings and secured without screws to made air and water tight.

2.2. All soil pipes shall be carried up above the roof and shall have a wire ballon guarded or a cowl.

2.3. The ventilating pipe or shaft shall be carried out to a height of at least one metre above the outer covering of the roof of the building or in the case of windows in a gable wall or a dormer windows, it shall be carried upto a ridge of the roof or atleast tow metres above the top of the windows. In case of flat roof to which access for use is provided, it shall be carried out upto a height of atleast on metre above the parapet or two metres measured vertically from the top of any windows or opening which any exist upto a horizontal distance of five metres from the vent pipe into such building and in no case shall be carried out to a height less then three metres.

2.4. Where ventilating pipes are carried in pipe shafts, the shaft shall be of a minimum size of one metre. If the shafts are also used to give light and air to rooms, the ventilating pipes must be carried out to a horizontal distance at roof level not less than five metre from the site of the shaft.

2.5. The sand cast iron pipes above parapet shall be fixed with M.S. clamps and stays. The clamps shall be made from 1.5 mm. thick M.S. flat or 3 mm. width band to the required shape and size to fit tightly one the sockets when tightened with screw bolts. It shall be formed of two semi circular pieces with flanged ends on both sides, with holes to fit in the screw bolts and nuts 40 mm. dia. M.S. Bars. One end of the stay shall be bent to form a hook to be fixed with clamps by means of bolts and the other end shall be bent for embedding in wall in cement concrete block of size 200 mm. x 100 mm. x 100 mm. in 1:2:4 mix. The concrete shall be finished to match the surrounding surfaces.

2.6. The connection between the main pipe and branch pipes shall be made by using branches and bends with access doors for cleaning.

2.7. The waste from lavatories, kitchens basins, sinks, baths and other floor traps shall be separately connected to respective stacks of upper floor. The waste stack of lavatories shall be connected directly to main hole while the waste stack of other shall be separately discharged over gulley trap.

3.0. Mode of measurements and payment

3.1. The length of pipe shall be measured including all fittings along its length in running metres correct to a centimeter. No allowance shall be made for the portion of pipe length entered in the sockets of the adjacent pipe or fittings.

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

3.3. The rate shall be for a unit of One running metre.

23.87. Providing and fixing cast iron (spun) Nahni trap of the following nominal diameter of self cleaning design with C.I. Screwed down or hinged grating including cost of cutting and making good the walls and floors : 100 mm. Inlet and 50 mm. outlet.

1.0. Materials

1.1. The cast iron (spun) Nahni trap shall conform to M-69. The C.I. hinged or screwed down cover shall be of best quality.

2.0. Workmanship

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

2.2. 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.

3.0. Mode of measurements and payment

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

3.2. The rate shall be for a unit of one number.

23.112.(A)(I) 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 C.M. 1:1 (1 cement : 1 fine sand) (seat and cover to be measured and paid for separately) : Vitreous china pattern : In white colour.

1.0. Materials

Wash down water closet (European type W.C. Pan) shall conform to M-60. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. The 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 before 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).

3.0. Mode of measurements and payment

3.1. The rate shall include the cost of all materials and labour involved in all the operations described under workmanship.

3.2. The rate includes 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.

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

23.113.(A) Providing and fixing 100 mm. size 'P' or 'S' trap for water closet squatting pan including jointing the trap with the pan and soil pipe in cement mortar 1:1 (1 cement : 1 fine sand) Vitreous China.

1.0. Materials : The 100 mm. size 'P' or 'S' trap for water closet shall conform to M-62. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. The 'P' or 'S' trap shall be fixed with pan cast iron pipe with C.M. 1:1. The pan shall be provided with a 100 mm. 'P' or 'S' trap as specified in the item with an approximately 50 mm. seal. The joint between the pan and the trap shall be made leak-proof with cement mortar 1:1 (1 cement : 1 fine sand).

3.0. Mode of measurements and payment

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

3.2. The rate shall be for a unit of one number.

23.114. Providing and fixing in C.M. 1:3 (1 cement : coarse sand) a pair of white vitreous china 250 mm. x 130 mm. 30 mm. foot rest for long pattern squatting pan water closet.

1.0. Materials : 1.1. The pair of white vitreous china foot-rests shall conform to M-62. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. After laying the floor, the floor shall be suitably sloped so that the waste water is drained into the pan. A pair of foot-rests of size 250 mm. x 130 mm. x 30 mm. of white vitreous china shall be set in cement mortar 1:3 (1 cement : 3 coarse sand). The foot-rests shall be fixed at a distance of 175 mm. from the inner edge of the back side of the pan and shall be fixed at convenient angle.

3.0. Mode of measurements & payment

3.1. The rate shall include the cost of all materials and labours involved in all the operations described under workmanship.

3.2. The rate shall be for a unit of One pair.

23.115.(A) (I) Providing and fixing 12.5 liters low level flushing cistern with a pair of C.I. or mild steel brackets complete with fittings such as lead valveless syphoe, 15 mm. nominal size brass ball valve with polythene float, C.P. brass ball handle, unions and couplings for connections with inlet, outlet and overflow pipes, 40 mm. dia. porcelain enameled flush bend including cutting holes in walls and making good the same and connecting the flush bend with cistern and closet (overflow pipe to be measured and paid for separately) : Vitreous China. In white colour.

1.0. Materials

1.1. The low level vitreous china (Enameled) flushing tank shall conform to M-65 except that the flushing cistern shall be 12.5 liters low level type as mentioned in the item.

2.0. Workmanship

2.1. The low level cistern shall be firmly fixed on two C.I. or mild steel brackets which shall be firmly embedded in the wall in C.M. 1:4 (1 cement : 4 fine sand).

2.2. The height of the bottom of the cistern from the top of the pan shall be 30 cms of low level flushing cistern shall be connected to the closet by means of 40 mm. dia. white porcelain enameled flush bend using Indian rubber adapts joints. The flush pipe shall be securely connected to the cistern outlet by means of coupling nut made of any non-corrosive materials, non-ferrous metal or galvanised steel. The flush pipe from the cistern shall be connected to the closet by means of cement of red-lead.

3.0. Mode of measurements & payment

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

3.2. The rate shall be for a unit of One number.

23.116. Providing and fixing 12.5 liters level C.I. flushing with a pair C.I. or mild steel brackets, complete with fittings such as syphonic arrangement, 15 mm. nominal size brass ball valve with polythene flat, lever. G.I. China (60 cms.) and pull unions and couplings for connections with inlet, outlet and overflow pipes etc. including cutting holes in walls and making good the same (overflow pipe to be measured and paid for separately).

1.0. Materials

1.1. The high level C.I. flushing cistern shall conform to M-66, except that the flushing cistern shall be of 12.5 liters high level C.I. cistern as mentioned in the item.

2.0. Workmanship

2.1. The cistern 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).

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

2.3. The W.C. Pan shall be connected to the cistern by galvanised steel flush 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 of red-lead. The flush pipe shall be securely connected to the cistern outlet by means of coupling nut made of any non-corrosive materials non-ferrous metal or galvanised steel.

2.4. The chain and the pull union shall be fixed to the protruding level arm of the flushing cistern.

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

3.0. Mode of measurements & payment

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

3.2. The rate shall be for a unit of One number.

23.117. Providing and fixing in position with clamps etc. 32 mm. nominal internal dia. galvanised steel tube flush pipe for high level flushing cistern including connecting the flush pipe with cistern and closet and making good the walls and floors.

1.0. Materials

1.1. The 32 mm. nominal internal dia, galvanised steel tube flush pipe shall conform to M-56.

2.0. Workmanship

2.1. The W.C. pan shall be connected to the cistern by galvanised steel flush pipe of 32 mm. nominal internal diameter. The flush pipe shall be fixed to wall by using clamps.

2.2. The flush pipe from the cistern shall be connected to the closet by means of cement or red-lead.

2.3. The flush pipe shall be securely connected to the cistern outlet by means of coupling nut made of any non-corrosive materials, non-ferrous metal or galvanised steel.

3.0. Mode of measurements and payment

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

3.2. The rate shall be for a unit of One running metre.

23.120. Providing and fixing G.I. inlet connection for flush pipe with W.C. Pan.

1.0. Materials

1.1. The G.I. inlet connection for flush pipe shall conform to M-56.

2.0. Workmanship

2.1. The flush pipe from the cistern shall be connected to the closet by means of cement or red-lead.

3.0. Mode of measurements & payment

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

3.2. The rate shall be for a unit of One number.

23.127. Providing and fixing wash basin with single hole for pillar top white C.I. or M.S. brackets painted white including cutting holes, and making good the same but excluding fittings, vitreous china flat back wash basin 550 mm. x 400 mm. in white colour.

1.0. Materials

1.1. The white glazed earthenware wash basin shall be 550 mm. x 400 mm. of 1st quality and make as approved by the Engineer-in-charge. The wash basin shall conform to M-59.

2.0. Workmanship

2.1. The washbasin 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 washbasin. After fixing the basing, plaster shall be made good and surface finished to match the existing one.

2.2. The brackets shall be painted white with ready-mixed paint.

2.3. 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 in to 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 in to vertically.

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

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

2.6. The payment of fittings shall be made separately under separate items.

3.0. Mode of measurements & payment

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

3.2. The rate shall be for a unit of One number.

23.130 (C) 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 600 mm. x 450 mm. x 150 mm. size.

1.0. Materials

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

2.0. Workmanship

2.1. 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.

2.2. 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.

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

3.0. Mode of measurements & payment

3.1. 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.

3.2. The rate shall be for a unit of One number.

23.135 (A) Providing and fixing 32 mm. dia. C.P. brass waste for wash basin or sink.

1.0. Materials

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

2.0. Workmanship

2.1. C.P. brass waste trap and union shall be connected to 32 mm. dia. waste pipe which shall be suitably bent towards the wall 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.

3.0. Mode of measurement & payment

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

3.2. The rate shall be for a unit of One number.

23.135 (B) Providing and fixing 40 mm. dia. C.P. Brass waste for wash basin or sink.

1.0. Materials & Workmanship

1.1. The relevant specifications of item 23.135 (A) shall be followed except that the diameter of C.P. brass waste is 40 mm. dia.

2.0. Mode of measurements & payment

2.1. The rate shall be for a unit of One number.

23.136 (A) Providing and fixing 32 mm. dia. M.I. union for wash basin or sink.

1.0. Materials

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

2.0. Workmanship

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

3.0. Mode of measurements and payment

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

23.136.(B) Providing and fixing 40 mm. dia. M.I. fisher union for wash basin or sink.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 23. 136 (A) shall be followed except that the diameter of M.I. fisher union shall be 40 mm. dia.

2.0. Mode of measurements of payment

2.1. The rate shall be for a unit of One number.

23.139. Providing and fixing 100 mm. dia, sand cast iron grating for gulley, floor or Nahni trpa.

1.0. Materials

1.1. The 100 mm. dia. sand cast iron gratings for gulley, floor or Nahni trap shall be of best quality and make as approved.

2.0. Workmanship

2.1. The cast iron grating shall be provided to gulley trap floor or Nahni trap as the case may be in best workman like manner.

3.0. Mode of measurements and payment

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

3.2. The rate shall be for a unit of One number.

23.141.(A) Providing and fixing 100 mm. dia, C.P. brass shower rose with 15 mm or 20 mm. inlet.

1.0. Materials

1.1. 100 mm. dia. C.P. brass shower rose shall conform to I.S. 2556-1972 part -XI and of best quality and makes as approved by the Engineer-in-charge. The inlet of shower rose shall be 15 mm. dia. or 20 mm. dia as directed.

2.0. Workmanship

2.1. The C.P. brass shower rose shall be fixed as directed with 15 mm. dia. or 20 mm. dia. G.I. inlet pipe as the case may be.

3.0. Mode of measurements and payment

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

3.2. The rate shall be for a unit one number.

23.143. Providing and fixing 600 mm. x 450 mm. bevelled edge mirror of superior glass mounted on 6 mm. thick A.C. Sheet or plywood sheet and fixed to wooden plugs with C.P. brass screws and washers.

1.0. Materials

1.1. The 600 mm. x 450 mm. size mirror shall be of superior glass with edge rounded offer bevelled 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 6 mm. thick plywood shall conform to M-37. The 6 mm. thick A.C. sheets shall conform to M-24.

2.0. Workmanship

2.1. The mirror of 600 mm. x 450 mm. size mounted on A.C. Sheet or plywood 6 mm. 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.

3.0. Mode of measurements & payment

3.1. The rate includes cost of all labour and materials, tools and plant etc. required for satisfactory completion of this item. The rate shall be for a unit of One number.

23.144(B) Providing and fixing 600 x 20 mm. C.P. brass towel rail complete with C.P. brass brackets fixed to wooden plugs with and C.P. brass screws.

1.0. Materials

1.1. 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.

2.0. Workmanship

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

3.0. Mode of measurements and payment

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

3.2. The rate shall be for a unit of One number.

23.145 Providing and fixing 600 mm. x 120 mm. glass shelf with C.P. brass brackets and guard rail complete, fixed to wooden plugs with C.P. brass screws.

1.0. **Materials :** The glass shelf of 600 mm. x 120 mm. size shall be of 5 mm. thick plate glass. The edge of the glass shall be grounded. The C.P. over brass guard rail shall be best quality and make.

2.0. Workmanship

2.1. The C.P. brass brackets of the glass shelf shall be fixed with C.P. screws to wooden plug firmly embedded in the wall C.M. 1:3 (1 cement : 3 coarse sand). The C.P. guard rail shall be fixed to glass shelf as directed.

3.0. Mode of measurement and payment

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

3.2. The rate shall be for a unit of One number.

23.146(A) Providing and fixing C.P. brass toilet paper holder.

1.0. **Materials :** The toilet paper holder shall be of best quality and make. chromium plating shall be of grade 'B' type conforming to I.S. 1068-2958.

2.0. Workmanship

2.1. The toilet paper holder shall be fixed in position by means of screws and wooden plugs embedded in wall with cement 1:3 (1 cement : 3 coarse sand).

3.0. Mode of measurements and payment

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

3.2. The rate shall be for a unit of One number.

23.92.(A)(I) Providing and fixing brass screw down bib taps of following size. Polished bright : 14 mm. dia.

1.0. **Materials :** 15 mm. dia. brass screw down with bright polished finished shall conform to I.S. 781-1977. The bib cock shall be best Indian make and quality.

2.0. Workmanship

2.1. The screw down bib cock 15 mm. 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.

3.0. Mode of measurements and payment

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

3.2. The rate shall be for a unit of One Number.

23.92.(A)(II) Providing and fixing brass screw down bib taps of following size : Polished bright : 20 mm. dia.**1.0. Materials and Workmanship**

The relevant specifications of item 23.92 (A) (i) shall be followed except that the bib taps of 20 mm. dia shall be fixed.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item 23.92 A(i) shall be followed.

2.2. The rate shall be for a unit of One number.

23.92 (B) (I) Providing and fixing chromium plated brass screw down bib taps of the following size : 15 mm. dia.**1.0. Materials and workmanship**

The relevant specification of item No. 23.92 (A) (I) shall be followed except that the brass chromium plated screw down tap of 20 mm. dia. shall be fixed.

2.0. Mode of measurements & payment

2.1. The rate of shall be for a unit of One unnumber.

23.92 (B) (II) Providing and laying chromium plated brass screw down bib taps of following size : 20 mm. dia.**1.0. Materials and workmanship**

The relevant specifications of item No. 23.92 (A) shall be followed except that the brass chromium plated screw down tap of 20 mm. dia. shall be fixed.

2.0. Mode of measurements & payment

2.1. The rate shall be for a unit of One number

23.92(C)(I) Providing and fixing gun metal screw down bib taps of the following size : 15 mm. dia.**1.0. Materials and workmanship**

1.1. The relevant specification of item No. 23.93 (A) (I) shall be followed except that the 15 mm. dia. gun metal screw down bib tap shall be fixed.

2.0. Mode of measurements & payment

2.1. The rate shall be for a unit of One number.

23.92(C)(II) Providing and fixing gun metal screw down bib taps of following size : 20 mm. dia.**1.0. Materials & Workmanship**

1.1. The relevant specifications of item 23.92 (A) (i) shall be followed except that the 20 mm. dia. gun screw down bib tap shall be fixed.

2.0. Mode of measurements & payment

2.1. The rate shall be for a unit of One number.

23.95(A) Providing and fixing boiler tap capstan head screw down high pressure with screw shank and back nuts : (A) 14 mm. dia. (B) 20 mm. dia.

1.0. **Materials :** The capstan head boiler tap of specified dia. of C.P. over brass shall be best quality and shall conform to I.S. : 1975 - 1951. The boiler taps shall be tested quality.

2.0. Workmanship

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

3.0. Mode of measurements and payment

3.1. The rate shall be for a unit of one number.

23.96(A) Providing and fixing brass screw down stop cock (A) 15 mm. dia. (B) 20 mm. dia. (C) 25 mm. dia.

1.0. **Materials :** The brass screw down stop cock of specified dia shall conform to I.S. : 781 -1977. The stop cock shall be of tested quality.

2.0. Workmanship

2.1. The stop cock shall be fixed in position by means of Jam nut and socket. The stop cock shall be fixed near the inlet of the water meter or as directed. The joints shall be done with white zinc and spun yarn. The joint shall be tested for leak proofing.

3.0. Mode of measurements and payment

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

23.99. Providing and fixing gunmetal check or non-return valve. (A) 15 mm. dia. (B) 20 mm. dia. (C) 25 mm. dia. (D) 32 mm. dia. (E) 40 mm. dia.

1.0. **Materials :** The gun metal check or not return full way wheel valve or specified dial, shall conform to I.S. : 778-1964. The non-return valve shall be tested quality.

2.0. Workmanship

2.1. The gun metal check or non return valve shall be fully cleared of all foreign matter before fixing. The fixing of shall be done by means of bolts nuts and 3 mm. rubber insertions with flags of spigot and socketed tail pieces, drilled to the same specifications as in case of socket and spigot flanges in case of flanged pipes. The joining shall be done leak proof.

3.0. Mode of measurements and payment

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

32. The rate shall be for a unit of One number.

23.00. Providing and fixing chromium plated brass half turn flush cock of approved quality including fixing in pipe line etc. complete (I) 20 mm. dia. (II) 25 mm. dia. (III) 32 mm. dia.

1.0. **Materials :** Chromium plated brass half turn flush cock shall conform to M-67.

2.0. Workmanship

The hall turn flush cock of specified diameter shall be fixed as directed. The flush cock shall be fixed in G.I. pipe line with necessary fittings. The joints shall be made leak proof by using spun yarn and white zink. The fixing work shall be carried out as per relevant specifications of item No. 23.2(4).

3.0. Mode of measurements and payment

3.1. The rate includes cost of all materials and labour required for satisfactory completion of this item including fittings.

3.2. The rate shall be for a unit of One number.

23.00.4. Providing and fixing chromium plated bottle trap with necessary coupling of approved quality for wash basin.

1.0. **Materials :** The chromium plated bottle trap shall be approved make and of best quality. The bottle trap shall be provided wit coupling.

2.0. Workmanship

The bottle trap shall be fixed on wash hand basin with wooden gullies and screws as directed. The work shall be carried out in best workman like manner.

3.0. Mode of measurements and payment

- 3.1. The rate includes cost of all materials and labour involved for satisfactory completion of this item.
- 3.2. The rate shall be for a unit of One number.

23.122.(A) Providing and fixing urinal of approved quality including connecting the urinal with waste pipe trap etc. complete : whit earthenware flat back or corner type size 430 mm. x 260 mm. x 350 mm.

- 1.0. **Materials:** The white earthenware flat back or corner type urinal of size 430 mm. x 260 mm. x 350 mm. shall conform to M-64.

2. Workmanship

- 2.1. 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 of urinal, unless otherwise directed. The wooden plugs shall be of 50 mm. x 50 mm. at base lapping to 38 mm. x 38 mm. at top 50 mm. in length shall be fixed in wall in steel waste pipe which shall discharge in the channel or floor a tap. The connection between the urinal and flush or waste pipe shall be made by means of putty or white lead mixed with chopped hemp.

3.0. Mode of measurements and payment

- 3.1. The rate shall includes cost all labours, materials, tools and plants etc. required for satisfactory completion of this item.
- 3.2. The rate shall be for a unit of One number.

23.124 (A) Providing and fixing urinal of approved quality including connection with trap and with integral longitudinal flush pipe squatting plate pattern white earthenware 550 mm. x 300 mm.

- 1.0. **Materials :** The squatting plate pattern, white glazed earthenware urinal of 550 mm x 300 mm shall conform to I.S. 771-1063. It shall be best India make.

2.0. Workmanship

- 2.1. The squatting plate urinal shall be fixed as directed.
- 2.2. The top edge of the squatting plate shall be flush with the finished floor level adjacent to it. It shall be embedded on a layer of 25 mm. thick cement mortar 1:8 (1 cement : 8 fine sand) laid over a bed of burnt brickbat cement 1:5 : 10 (1 cement : 5 fine sand, 10 graded brick aggregate 20 mm. nominal size). There shall be 100 mm. dia. glazed earthenware or vitreous china channel as specified with stop and outlet pieces suitably fixed in floor in cement mortar 1:3 (1 cement : 3 coarse sand) and joint finished with white cement. The earthenware vitreous china shall discharge into 65 mm. C.P. brass outlet grating. The trap and fitting shall be fixed as directed.

3.0. Mode of measurements and payment

- 3.1. The rate includes cost of all materials, tools and plants and labour required for satisfactory completion of this item.
- 3.2. The rate shall be for a unit of One number.

23.134 Providing and fixing rubber plug for sink or wash basin.

- 1.0. **Material :** The rubber plug for sink or wash hand basin shall be best quality and make as approved by the Engineer-in-charge.

2.0. Workmanship

- 2.1. The rubber plug with plain shall be fixed in wash basin or sink as directed.

3.0. Mode of measurements and payment

- 3.1. The rate shall be for a unit of One number.

23.00.5.(A) Providing and fixing ball cock of approved quality as directed (Copper metal) : (I) 25 mm. dia. (II) 50 mm. dia.**1.0. Materials :**

The ball cock of specified diameter shall conform to M-75.

2.0. Workmanship

The ball cock of specified diameter shall be fixed as directed. The fixing of ball cock shall be carried out as per relevant specification of item No. 23. (A) for joints etc.

3.0. Mode of measurement & payment

- 3.1. The rate includes cost of all materials and labour involved for carrying out satisfactory work.
- 3.2. The rate shall be for a unit of One number.

23.00.5.(B) Providing and fixing ball cock of approved quality as directed : Abonite. (I) 25 mm. dia. (II) 50 mm. dia.)

- 1.0. **Materials & Workmanship** : The relevant specifications of item No. 23.00.5 (A) shall be followed except that the ball cock of specified dia of Abonite shall be fixed.

2.0. Mode of measurements & payment

- 2.1. The relevant specifications of item NO. 23.00.5 (A) shall be followed.
- 2.2. The rate shall be for a unit of One number.

23.00.6. Providing and fixing C.I. Manhole cover 0.60 C.M. x 0.45 C.M. size having weight not less than 35 kg.**1.0. Materials**

C.I. Manhole cover of 0.60 x 0.45 Cms. size shall be of best quality. The weight of C.I. cover and frame shall be less than 35 Kg. The C.I. manhole cover shall be of light duty and conform relevant I.S.

2.0. Workmanship

- 2.1. The C.I. Manhole cover shall be fixed as per relevant specifications of item No. 24.44 except that the C.I. cover shall be fixed as and where directed.

3.0. Mode of measurements and payment

- 3.1. The rate includes cost of all labour and materials required for satisfactory completion of this item.
- 3.2. The rate shall be for a unit of One number.

23.00.7. Providing and fixing G.I. water spout of 50 mm. dia. and 30 cms length.

- 1.0. **Materials** : G.I.M.S. type of 50 mm. dia. shall conform to M-56.

2.0. Workmanship

- 2.1. The G.I. pipe of 30 cms. fixed as rain water pipe as directed. The pipe shall be fixed about 1/4 dia. below the floor level so as to make approach of water easy. The inlet of pipe shall be rounded off for easy entry of rain water pipe. The pipe shall be fixed in C.M. 1:3.

3.0. Mode of measurements & payment

- 3.1. The rate includes of all labour and materials required for satisfactory completion of this item.
- 3.2. The rate shall be for a unit of One number.

23.8. Providing and fixing to wall ceiling and floor 6 Kg/ F/Sq. cm. working pressure outside diameter, low density completion with special flange compression type fittings wall clips etc. including making good the wall, ceiling and floor. (A) 20 mm. dia. (B) 25 mm. dia. (C) 32 mm. dia. (D) 40 mm. dia. (E) 50 mm. dia.

- 1.0. **Materials** : The low density polythene pipe of specified diameter with 56 Kg/f. Sq. Cm. working pressure shall conform to I.S. 3076-1968. The special and fittings required shall be of best quality.

2.0. Workmanship

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

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

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

- 2.4. P.V.C. pipe shall be supported at the following intervals ;

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

- 2.5. Close support spacing shall be provided if recommended by the manufacturer.

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

2.8. Jointing the pipes :

2.8.1. The pipes and socket s 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 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.

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 grained solid found to be free of presence of hard object such as large fints, 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 metre from the ground level. The pipe shall be positioned in the trenches so as to avoid any inducted stresses due to retraction. Any deviation required shall be obtained by using proper type of rubber ring joints.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item No. 23.2. (A) shall be followed except that the P.V.C. pipes of specified dia. shall be paid under this item.

3.2. The unit rate shall be for a unit of One running metre.

SECTION -24

- 24.1.(A) Providing any laying (two level or slopes) and jointing with stiff mixture of cement mortar in proportion 1:1 salt glazed stone-ware pipes, following nominal internal diameters including testing of pipes and joints complete : 100 mm. dia.**

1.0. Materials

- (i) Water shall conform to M-1(2) Cement mortar of proportion 1:1 shall conform to M-11. (3) 100 mm. dia. glazed stoneware pipe shall conform to M-71.

2.0. Workmanship

- 2.1.** The trenches for stoneware pipe drains shall be carried out as per relevant specifications of item No. 23.4 (A) except that the work is for stoneware pipes of 100 mm. dia.

2.2. Laying :

- 2.2.1.** The pipes shall be laid accurately and perfectly true to line, levels and gradients, Great care shall be taken to prevent sand etc. from entering the pipes. The pipes between two manholes shall be laid truly in a straight line without vertical or horizontal undulation. All junctions and changes in direction and diameter shall be made inside manholes by means of curved tapered channels formed in Cement concrete finished smooth and benched on both sides. The body of the pipe shall rest for its entire length, on a even level bed grips being made or left on the bed to receive the sockets of the pipes.

2.3. Jointing :

- 2.3.1.** Tarred gask in or yarn soaked in neat cement slurry shall first be placed around the spigot to each pipe and the spigot shall then be placed well home into the socket of the pipe previously laid. The pipe shall then be adjusted and fixed in the correct position and gaskin caulked home so as to fill not more than 1/4th of the total depth or (13 mm. in depth) of the socket.

- 2.3.2.** The remainder of the sockets shall be filled with stiff mixture of cement mortar in proportion of one part of cement and one part of sharp sand. When the socket is fillet, a filled shall be formed round the joints with a trowel, forming an angle of 45° with the barrel of the pipe.

- 2.3.3.** The mortar shall be mixed as necessary for immediate use.

- 2.3.4.** After the joint is made, any extraneous materials shall be removed from the inside of the joints with a suitable scraper or "badger". The newly made joints shall be protected, until set, from the sun, dry winds, rain or frost, sacking or other suitable materials which shall be used for the purpose.

- 2.3.5.** The mortar shall be cured for 10 days.

2.4. Testing of Joints :

- 2.4.1.** If any leakage is visible the defective part of the work shall be made good at no extra cost. The pipe line shall be tested as directed.

- 2.4.2.** A slight amount of sweating which is uniform may be overlooked, but excessive sweating from a particular pipe or joints shall be watched for and taken as indicating a defect to be made good.

3.0. Mode of measurements and payment

- 3.1.** Pounding or bottering of the fit trenches bed to the lower part of the pipe and " Grips" dug to take socket, collars etc. are included in the rate of laying the pipes.

- 3.2.** The measurements shall be net without any allowance for cutting, and waste. The length of bends, junctions, and other connections shall be included in the total length of the drain pipes. Nothing extra shall be paid for the same. The rate includes necessary excavation refilling trenches etc. complete.

- 3.3.** The rate shall be for a unit of One running metre.

- 24.1.(B) Providing and laying and jointing salt glazed stoneware pipes with lime concrete 1:2:4 (1 lime : 2 fine sand : 4 graded brick aggregate 40 mm. nominal size) bedding with necessary form work and curing etc. complete : 150 mm. dia.**

1.0. Materials & Workmanship : The relevant specifications of item 24.1. (A) shall be followed except that the diameter of pipe shall be 150 mm. dia.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 24.1. (A) shall be followed.

2.2. The rate shall be for a unit of One running metre.

24.2.(A) Providing and laying cement concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone : aggregate 40 mm. nominal size) bedding for stoneware pipe of following internal diameter with necessary form work and curing complete : 100 mm. dia. 300 mm. width (112 mm. average bed thickness).

1.0. Materials : (1) Water shall conform to M-1 (2) Cement shall conform to M-3. (3) Sand shall conform to M-6. (4) Stone aggregate 40 mm. nominal size shall conform to M-12.

2.0. Workmanship

2.1. The relevant specifications of item 5.3.4. shall be followed except that the concrete work shall be carried out in trenches as bedding for stoneware pipes. The width of concrete shall be 300 mm. and average thickness of bedding shall be 112 mm. The concrete shall be brought up at least to the invert level of the pipe to form a cradle and to avoid line contact between the pipe and the bed.

3.0. Mode of measurements & payment

3.1. The rate includes cost of all labour and materials required for satisfactory completion of this item.

3.2. The rate includes cost of necessary form work required if any.

3.3. The rate shall be for a unit of One running metre.

24.2.(B) Providing and laying cement concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone : aggregate 40 mm. nominal size) bedding for stoneware pipe of following internal diameter with necessary form work and curing complete : 150 mm. dia. 450 mm. width (166 mm. average bed thickness).

1.1. Materials & Workmanship : The relevant specifications of item 24.2 (A) shall be followed except that the cement concrete work shall be carried out for bedding of stoneware pipe of 150 mm. dia. The average thickness of bedding shall be 166 mm. and width shall be 450 mm.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item 24.2 (A) shall be followed.

2.2. The rate shall be for a unit of One running metre.

24.19(i) Providing and fixing S.W. gully trap with C.I. grating brick masonry chamber and watertight C.I. cover with frame of 300 mm. x 300 mm. size (Inside) with standard weight : (A) square mount taps 100 mm. x 100 mm. size P. type

1.0. Materials : (1) Water shall conform to M-1. (2) Cement mortar of proportion 1:5 shall conform to M-11. (3) Burnt brick shall conform to M-15. (4) The S.W. Gully trap of 100 mm. x 100 mm. size shall conform to M-70.

2.0. Workmanship

2.1. Excavation for gully trap shall be done true to dimensions and levels as indicated on plans or as directed. The excavation work shall generally be done as per relevant specifications of item 4.0.0. of earth work.

2.2. Fixing :

2.2.1. The gully trap shall be fixed over cement concrete 1:5:10 (1 cement : 5 sand : 10 graded brick bats aggregate, 40 mm. nominal size) foundation. 650 square and 100 mm. thick. The depth of top of concrete below the ground level shall be 675 mm. The jointing of gully outlet to the branch drain shall be done similar to jointing of S.W. pipe as described in item No. 24.1(A).

2.3. Brick masonry chamber : After fixing and testing gully and branch drain, a brick masonry 300 x 300 mm. inside with bricks in CM 1:5 (1 cement : 5 sand) shall be built with a 100 mm. brick work round the gully trap from the top of bed concrete upto ground level. The space between the chamber walls and

the trap shall be filled with cement concrete 1:5:10. The upper portion of the chamber i.e. above the top level of the trap shall be plastered inside with cement mortar 1:3 (1 cement : 3 sand) finished with floating coat of neat cement. The corners and bottom of the chamber shall be rounded off so as to slope towards the grating.

2.4. C.I. cover with frame 300 mm. x 300 mm. (inside) size shall then be fixed on the top of the brick masonry with C.c. 1:2:4 (1 cement : 2 coarse sand : 4 graded aggregate 20 mm. nominal size) 40 mm. thick and rendered smooth. The finished top of the cover shall be left about 40 mm. above the adjoining ground level so as to exclude the surface water from entering the gulley trap/

3.0. Mode of measurements & payment

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

3.2. The rate shall be for a unit of one number basis.

24.22. Providing and laying (to level or slopes) and jointing reinforced concrete light duty non-pressure pipes I.S. class N.P. 2 of the following internal diameters with collars and butt ends prepared for collar joints including testing of joints etc. complete. (B) 150 mm. (C) 250 mm. (D) 300 mm. (E) 450 mm. (F) 500 mm. (G) 600 mm. (H) 900 mm. (K) 1000 mm. (M) 1200 mm.

1.0. **Materials :** The reinforced concrete light duty non-pressure pipes of specified diameter shall conform to I.S. 458-1971.

2.0. Workmanship

2.1. The relevant specifications of item No. 24.1. A shall be followed for work of trenches except that the excavation in trenches shall be for reinforced concrete pipes of specified diameter.

2.2. Laying :

2.2.1. The pipes shall be lowered into the trenches carefully. Mechanical appliances may be used. Where necessary pipe shall be laid in straight lines or with easy curves and true to line and gradient as specified. The laying of pipe shall proceed up grade of a slope. In the pipe spigot and socket joints, the socket ends shall face upstream. In case of pipes with joints to be made with loose collars, the collars shall be slipped on before the next pipe is laid.

2.2.2. In case where the foundation conditions are unusual such as the proximity of trees or holes, under existing or proposed around in 150 mm. thick cement concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm. nominal size) or compacted sand or gravel.

2.2.3. In case where the natural foundation is inadequate the pipes shall be laid either in concrete cradle, supported on proper foundations or on any other suitably designed structure. If concrete bedding is used, the depth of concrete below bottom of the pipe shall be atleast 1/4th of the internal diameter of the pipe subject to a minimum of 100 mm. and a maximum 300 mm. The concrete shall be extended up the sides of the pipe atleast to a distance of 1/4th of the outside diameter for pipes 300 mm. and over in diameter.

2.2.4. The pipes shall be laid in the concrete bedding before the concrete has set. Pipes laid in trenches in earth shall be bedded evenly and firmly and as far as upto the haunches of the pipe as to safely transmit the load expected from the back fill through the pipe to the bed. This shall be done either by excavating the bottom of the trenches to fit the curve of the pipe or by compacting the earth under a round curve of the pipe to form an even bed. Necessary provision shall be made for joints wherever required.

2.3. Jointing :

2.3.1. The joints shall be done by slipping the collar over and clear of the end of the pipe. The recess of the end of the pipe shall be filled with jute braiding in hot bitumen. The new pipe shall then be brought forward until the bitumen ring in recess of first pipe is set into the recess of the second pipe. The process shall be repeated for two or three pipes which shall then jacked up so as to thoroughly compress the bitumen. The quantity of jute and bitumen shall be just enough to fill the recess when pressed hard by jacking, care being taken that no offset of the jute braiding shall be visible either outside or inside of pipe. The collar shall then be set up over the joints covering equally both the pipe and leaving an even caulking space all round. Cement and sand mortar : 1 : 1.1/2 shall then be well punched or pressed home with a caulking tool within this caulking space. Care shall be taken that the underside of the joints is properly filled with mortar.

2.4. Curing :

2.4.1. Every joints shall be kept wet for about 10 days for maturing. The section of the pipe line laid and jointed shall be covered immediately to protect from weather effects. Minimum bore of 100 mm. is considered adequate.

2.4.2. The joints shall be left exposed for observation.

2.5. Testing of Joints :

2.5.1. The testing of joints shall be done as per relevant specifications of item No. 24.1 (A) except that the testing of reinforced concrete pipes shall be done.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item 24.1.(A) shall be followed except that the rate includes for laying to level or slope in trenches etc. (measured separately), making the joints as indicated and testing to stand the water test.

3.2. The measurements shall be net without any allowance for cutting and waste. The length of bends, junctions and other connections (measured along the centre line) shall be included in the total length of the pipes, the connections being numbered after wards and paid for extra over pipes.

3.3. The size of bend, junctions, etc. shall suit the size of pipe. The bore (internal diameter of pipe) shall be the criterion for payment.)

3.4. Nothing extra shall be paid separately for the use of mechanical appliances, where necessary, as described above.

3.5. The rate shall be for a unit of One running metre.

2.4.27. Costing Manhole with R.C.C. Top slab in 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 bricks bats 40 to 50 mm. size) inside plastering 15 mm. thick with C.M. 1:5 (1 cement : 5 coarse sand) finished with floating coat of neat cement and making channels in C.C. 1:2:4 mix (1 cement : 2 coarse sand : 4 stone aggregate 20 mm. nominal size) finished smooth complete including curing and testing (i) inside size 900 mm. x 120 mm. and 1.5 mm. deep, including C1 cover with frame size 560 mm. diameter, total weight of cover and frame to be not less than 128 Kgs. (Wt. of cover 64 Kg. and Wt. of frame 64 Kg.) (A) with 230 mm. thick walls of brick masonry using bricks having crushing strength not less than 35 kg/sq. cm. in C.M. 1:5 (1 cement : 5 coarse sand)

i	A type depth	0.90 metre for	150 mm. sewer
ii	B type depth	1.50 mete for	150 mm. sewer
iii	C type depth	2.25 metre for	150 mm. sewer
iv	D type depth	3.15 metre for	150 mm. sewer

1.0. **Materials :** Water shall conform to M-1. Cement shall conform to M-6. Burnt bricks shall conform to M-15. Brick bats of 40 to 50 mm. size shall conform to M-14. Stone coarse aggregate of 20 mm. nominal size shall conform to M-12. Grit shall conform to M-8. Cement mortar of specified proportion shall conform to M-11. The cast iron manhole cover of 560 mm. dia. with frame shall conform to I.S. 1726-1966.

2.0. Workmanship

2.1. The manholes of different types and sizes as specified shall be constructed in sewer line at such places and to such levels and dimension as shown in drawings of as directed.

2.2. The manholes shall be built on a bed of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 brick bats) (40) to 50 mm. nominal size) to the thickness of the bed concrete shall be 15 cms. for manhole upto 1. M. depth and 20 cms. for manholes over metre and upto over metre and upto 2 metres, depth and 30 cms. for manholes o greater depth.

2.2.2. Projection of bed concrete beyond the masonry wall shall be 15 cms.

2.3. Walls

2.3.1. The walls of manhole shall be carried out with burnt bricks using having bricks,crushing strength not less than 35 Kg/Cms in C.M. 2 in C.M. 1:5 (1 cement : 5 coarse sand). The thickness of brick masonry wall shall be 230 mm. The jointing face of such brick shall be well buttered with cement mortar before laying so as to ensure a full joints.

2.4. Palster

2.4.1. The inside of walls shall be plastered 15 mm. thick with C.M. 1:5 (1 cement : 5 coarse sand) and finished with floating coat of neat cement. All angles shall be rounded to 7.50 cms. radius and all rendered internal surfaces shall have hard impervious finish obtained by using a steel trowel. The external joints of masonry shall be finished smooth.

2.5. Channels & Benching :

2.5.1. Channels shall be semicircular in the bottom half and of diameter equal to the sewer. Above the horizontal diameter, the sides shall be extended vertically to the same level as the crown of the out going pipe and the top edge shall be suitably rounded off. The branch channels shall also be similarly constructed with respect to the benching but at their junction with the main channel an appropriate fall suitably rounded off in the direction of flow in the main channel shall be given.

2.5.2. The channel and benching shall be done in C.C. 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) rising at a slop in line from edges of channel. The channels of the bottom of the chamber shall be plastered with C.M. 1:2 (1 cement : 2 coarse sand) and steel troweled smooth.

2.6. Cover slab :

2.6.1. The cover slab of R.C.C. 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) 15 cms. thick reinforced with 10 mm. bars at 15 cms. C/C both ways, surface and edges finished fair. Full bearing equal to the width to the width of wall shall be given to the slab on all sides. The frame of manhole cover shall be embedded firmly in R.C.C. slab so that the top of the frame remains flush with the top of R.C.C. slab.

2.7. Testing :

2.7.1. Manhole shall be tested by filling with water to a depth not exceeding 1.2 M. as directed.

2.7.2. After completion of work, manhole cover shall be sealed by means of thick grease.

3.0. Mode of measurements and payment

3.1. The depth of manholes shall be distance between the top of the manhole cover and the invert level of the main drain. The rate includes all labours, materials, tools, and plant etc. required for satisfactory completion of this item as directed above.

3.2. The rate shall be for a unit of the One number.

24.28.(I) Extra rate for constructing B.B. masonry for every additional depth of 0.1 M. or part thereof over item 24.47 (I) for depth from 0.90 to 1.5 M.

1.0. Materials and Workmanship

The relevant specifications of item No. 24.27 (I) shall be followed for excavation same, except that the depth of manhole shall be done 0.1 M. or part thereof of more then 0.90 meter upto 1.5 M. The extra payment shall be made for additional depth of 0.1 M. or part thereof manhole done over and above the depth 0.90 metre.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 24.27 (I) shall be followed except that the extra rate shall be paid for every additional depth of 0.1 M. and part thereof shall be paid over and above the rate of item No. 24.27 (I)

2.2. The rate shall be for a unit of One number.

24.28.(II) Extra rate for constructing B.B. masonry for every additional depth of 0.1 M. and Part thereof over item 24.27 (II) for depth from 1.5 M. to 2.25 M.

1.0. Materials and Workmanship : The relevant specifications of item No. 24.27 (II) shall be followed except that the depth of manhole shall be done 0.1 M. or part thereof more than 1.5 M. upto 2.25 M. The extra payment shall be made for additional depth of 0.1 M. or part thereof manhole done over and above the depth 1.50 M. upto 2.25 M.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 24.27 (II) shall be followed except that the extra rate shall be paid for 0.1 M. or part thereof additional depth of manhole provided over and above item 24.27 (II).

2.2. The rate shall be for a unit of One number.

24.28.(III) Extra rate for constructing B.B. masonry for every additional depth of 0.1 M. or part thereof over item 24.27 (III) for depth from 2.25 to 3.15 M.

1.0. Materials and Workmanship : The relevant specifications of item No. 24.27 (III) shall be followed except that the depth of manhole shall be done 0.1 M. or part thereof more than 2.25 M. upto 3.15 M. Extra payment shall be made for additional depth of 0.1 M. or part thereof manhole done over and above depth 2.25 M. upto 3.15 M.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 24.27 (III) shall be followed except that the extra rate shall be paid for every addition 0.1 M. or part thereof depth provided over and above item 24.27 (III).

2.2. The rate shall be for a unit of One number.

24.28(IV) Extra rate for constructing B.B. masonry for every additional depth of 0.1 M. or part thereof over item 24.27 (IV) for depth above 3.15 M.

1.0. Materials and Workmanship : The relevant specifications of item No. 24.27 (IV) shall be followed except that the depth of manhole shall be done 0.1 M. or part thereof more than 3.15 M above.

1.2. Extra payment shall be made for additional depth of manhole 0.1 M. or part thereof done above 3.15 M. and above depth.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item 24.27 (IV) shall be followed except that extra rate shall be paid for every additional 0.1 M. or part thereof depth provided for an above item 24.27 (IV).

2.2. The rate shall be for a unit of One number.

24.33. Providing and fixing C.I. steps of sizes 500 x 150 mm, 22.5 mm, and painting with two coats of anti-corrosive paint etc. complete.

1.0. Materials : The C.I. steps of size 500 x 150 x 22.5 mm. size shall conform I.S. 5455-1969. Paint shall conform to M-44.

2.0. Workmanship

2.1. The C.I. steps of size 500 x 150 x 22.5 mm. size shall be fixed in manhole as and where directed. The steps shall be staggered in vertical runs 380 mm. apart horizontally. The top step shall be 450 mm. below the manhole cover and lowest not more than 300 mm. above the benching. The steps shall be embedded in wall of manhole with C.C. : 1:3:6 upto 200 mm. depth and the surface finished with cement plaster 15 mm. thick in C.M. 1:5. The steps shall be painted with two coats of anti-corrosive paint.

3.0. Mode of measurements & payment

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

3.2. The rate shall be for a unit of One number.

24.39. Providing and erecting at the site of work steel ventilating column of 150 mm. internal dia. and 12.20 M. high from G.L. to bottom of top grill, including C.I. grill and base plate, bolts and nuts etc. and excavation in foundation of size 120 x 120 x 165 cms. and filling the pit with 1st layer of cement concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm. nominal size) of size 120 x 120 x 90 cm. and remaining pit with B.B.C.C. 1:3:6 mix (1 cement : 3 coarse sand : 6 brick bats 40 to 50 mm. size) and providing filled in cement concrete : 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) at G.L. and 3 coats of silver paint etc. complete.

1.0. Materials :

The steel ventilating column internal dia. 150 mm. 12.20 m. high shall be of standard many and best quality as approved. Stone aggregate of 20 mm. nominal size shall conform to M-12. Brick-bats 40 to 50 mm. nominal size shall conform to M-4. Cement shall conform to M-3. Water shall conform to M-1. Silver (Aluminum) paint shall conform to I.S. 2339-1963.

2.0. Workmanship

2.1. The vent shaft shall be provided at the starting point of main sewer and at such points where the flow of sewerage is disturbed i.e. at falls, syphons etc. As far as possible, the location shall be at such a place where it receive sunrays for the maximum period of the day.

2.2. A pit of 120 x 120 x 165 ms. size shall be dug. The cement concrete of 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm. nominal size) shall be first laid in the pit to form 90 cms. thick

concrete foundation which shall be allowed to set for 24 hours. The vent shaft shall then be erected at the centre of the pit truly in plumb by means of such as shear legs, pulleys, backless and rope etc.

2.3. The connection with sewer man-hole shall be made using 150 mm. diameter cement concrete pipe. After the connection is completed, the pit shall be filled with cement concrete : 1:3:6 (1 cement : 3 coarse sand : 6 brick bats 40 to 50 mm. nominal size) round the vent shaft upto ground level except top 150 mm. which shall be filled with C.C. 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) and rendered smooth. The junction of vent shaft with cement concrete shall be grouted with cement mortar 1:1 (1 cement : 1 sand). The concrete work shall be cured for 7 days.

2.4. The steel shaft shall be painted with silver paint (aluminum paint) 3 coats. The relevant specifications of item of painting shall be followed for painting.

3.0. Mode of measurements and payment

3.1. The rate shall include the cost of all labours and materials, tools and plant etc. required for satisfactory completion of this item as directed above.

3.2. The rate shall be for a unit of One number.

24.00.1(A) Providing and laying lime concrete 1:2:4 (1 Lime Putty : 2 fine sand : 4 graded brick aggregate 40 mm. nominal size) bedding for stoneware pipes of following internal diameters with necessary form work and curing complete : 100 mm. dia (112 mm. average bed thickness).

1.0. **Materials :** Water shall conform M-1. Lime mortar shall conform to M-10. Brick aggregate 40 mm. nominal size shall conform to M-14.

2.0. Workmanship

The relevant specifications of item No. 5.1.8 shall be followed except that the proportion of mix shall be 1:2:4 (1 Lime Putty : 2 fine sand : 4 graded brick bats aggregate 40 mm. nominal size) and the concrete work shall be done in trenches for bedding of stoneware pipes of 100 mm. dia. The width of concrete shall be 300 mm. and the thickness of bedding shall be 112 mm. average.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item 24.2 (A) shall be followed.

3.2. The rate shall be for a unit of One running metre.

24.00.1(B) Providing and laying lime concrete 1:2:4 (1 Lime Putty : 2 fine sand : 4 graded brick aggregate 40 mm. nominal size) bedding for stoneware pipes of following internal diameters with necessary form work and curing complete :150 mm. dia. (166 mm. average bed thickness).

1.0. **Materials and workmanship :** The relevant specifications of 24.00.1 (A) shall be followed except that the concrete bedding shall be carried out for 150 mm. dia. stoneware pipe. The width of concrete bedding shall be 450 mm. and the average thickness shall be 166 mm.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 24.2 (A) shall be followed.

2.2. The rate shall be for a unit of One running metre.

24.27(ii) Extra over item 24.1 for providing salt glazed stoneware fittings : Bends of required degree (Any Radius) of following internal diameters : A-100 mm. dia. B-150 mm. dia.

1.0. Materials & Workmanship

The relevant specifications of item 24.1 (A) shall be followed that the salt glazed stoneware bends of any degree of specified diameter shall be provided.

2.0. Mode of measurement & payment

2.1. The relevant specifications of item No. 24.1 (A) shall be followed except that extra payment shall be made for providing salt glazed stoneware bend of specified diameter or required degree of any radius over above the of item No. 24.1

2.2. The rate shall be for a unit of One number.

24.17(I)(A) Extra over item 24.1 for providing salt glazed stoneware fittings : Taper bend of required degree of following internal diameter. 100 mm. x 150 mm.

1.0. Materials & Workmanship : The relevant specifications of item 24.1 (A) shall be followed except that the salt glazed stoneware taper bend of required degree of 100 mm. x 150 mm. shall be fixed.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 24.1 (A) shall be followed except that extra payment shall be made for providing salt stoneware taper bend of required degree of 100 mm. x 150 mm. size over and above the rate of item No. 24.1.

2.2. The rate shall be for a unit of One number.

24.17.(III) Extra over item 24.1 for providing salt glazed stoneware fittings : Single junction of required angle of following internal diameter (A) 100 mm. dia. (B) 150 mm. dia.

1.0. Materials & Workmanship

The relevant specification of item 24.1 (A) shall be followed except that the salt glazed stoneware single of junction required angle of specified diameter shall be fixed.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item 24.1 (A) shall be followed except that the extra rate shall be paid for providing salt glazed stoneware single junction of required angle for specified diameters over and above the rate of item 24.1.

2.2. The rate shall be for a unit of One number.

24.18. Providing and laying, jointing and jointing and pointing with stiff mixture of C.M. 1 : 1 (1 cement : 1 fine sand) 150 mm. internal diameter salt glazed stoneware half round channels.

1.0. Materials and Workmanship : The relevant specifications of item 24.1 shall be followed except that the half round channels of 150 mm. internal diameters shall be fixed in cement mortar 1:1.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item 24.1.(A) shall be followed.

2.2. The rate shall be for a unit of One running metre.

24.35. Supplying and fixing C.I. cover 300 x 300 mm. without frame for gully trap (Standard pattern). weight of cover shall not be less than 4.53 Kg.

2.0. Workmanship

The C.I. cover 300 x 300 mm. size without frame shall be fixed on top of the brick masonry with cement concrete : 1:2:4 (1 cement : 2 sand : 4 graded stone aggregate 20 mm. nominal size) 40 mm. thick and rendered smooth. The finished top of the cover shall be left about 40 mm. above the adjoining ground level so as to exclude the surface water from entering the gully trap.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 24.19 shall be followed.

3.2. The rate shall be for a unit of One number.

24.40. Constructing brick masonry road gully chamber 500 mm. x 450 mm. x 600 mm. including 500 mm. x 450 mm C.I. horizontal grating with frame complete.

1.0. Materials : Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Brick shall conform to M-15. C.I. Grating of 500 x 450 mm. size of standard make shall be of approved quality. Stone aggregate 40 mm. nominal size shall conform to M-12. coal tar shall conform to relevant M-5.

2.0. Workmanship

2.1. The chamber shall be of size 500 mm. x 450 mm. internal clear dimensions between the masonry wall faces. The height of 500 mm. shall be measured from the top of the bed concrete to the top of the C.I.

frame. The size of grating indicate the clear internal dimensions of the C.I. frame of the grating.

2.2. The excavation shall be done to true dimensions and levels.

2.3. The foundation concrete shall consist of 150 Cms x 100 Cms x 15 cms thick C.C. 1:5:10 (1 cement : 5 sand : 10 graded stone aggregate 40 mm. nominal size).

2.4. The wall of the chamber shall be constructed in brick work C.M. 1:5 and 23 Cms. thick as per relevant specifications of item 6.12(B).

2.5. The walls and the bed concrete of chamber shall be plastered inside with 12 mm. thick cement plaster 1 : 3 (1 cement : 3 coarse sand) finished smooth.

2.6. The gully grating cover shall be hinged to frame to facilitate its opening for cleaning and repairs. The frames of the gully grating g shall be fixed on the top of masonry wall of the chamber in 15 cms. thick C.C. 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) laid over the full thickness of walls..

2.7. The chamber shall have connection pipe, the length of which in metre between the road gully chamber and the manhole of the drain shall not be less than 1/40 times the nominal diameter of the pipe in MM. i.e. for 150 mm. connection pipe the length shall not be cement paster on the bed concrete.

2.8. Painting . After the completion of the work of exposed surface of the grating of the frame shall be painted with a thick coat of coal tar.

3.0. Mode of measurements and payment

3.1. The cost of connection pipes is not included in the item and shall be apid separately. However, fixing the connection pipes in the walls of gully chamer is included in the rate for gully chambers and nothing extra shall be paid for this separately.

3.2. The rate shall be for a unit of One number.

24.41. Constructing brick masonry road gully chamber 450 mm. x 450 mm. x 775 mm. with vertical grating complete.

1.0. **Materials and Workmanship :** The relevant specifications of item 24.40 shall be followed except size of road gully chamber is 450 mm x 775 mm. with vertical grating complete.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item 24.40 shall be followed.

2.2. The rate shall be for a unit of one number.

24.42. Constructing brick masonry road gully chamber 1100 mm. x 500 mm. x 775 mm. including 500 mm. x 450 mm. C.I. horizontal grating with frame and vertical grating complete.

1.0. **Materials and Workmanship :** The relevant specifications of item 24.40 shall be followed except that the size of road gully chamber shall be 1100 mm. x 500 mm. x 775 mm. including 500 mm x 450 mm. C.I. horizontal grating with frame and vertical grating complete.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 24.40 shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

24.44(l) Constructing brick masonry chamber for underground C.I. inspection chamber and bends with brick having crushing strength not less than 35 Kg/ Cm. 2 in C.M/ 1:5 C.I. cover with frame (light duty) 455 x 610 mm. internal dimensions, total weight of cover with frame to be not less than 38 Kg. (Wt of cover 23 Kg. and Wt of frame 15 Kg.) R.C.C. top slab C.C. 1:2:4 mix (1 cement : 2 coarse sand : 4 graded aggregate 20 mm. size) foundation concrete 1:5:10, inside plater 15 mm. thick with C.M. 1:3 finished smooth with a finishing coat of neat cement on walls and bed concrete etc. complete : Inside dimensions 455 mm. x 610 mm. and 450 mm. deep for single pipe-line.

1.0. Materials : Water shall conform to M-1. Cement shall conform to M-3. Coarse sand shall conform to M-5. Brick shall conform to M-15. Stone aggregate shall conform to M-12. Brick bat shall conform to M-14. M.S. bar shall conform to M-18.

2.0. Workmanship

2.1. C.I. inspection chamber with provision of C.I. bends of specified size with bolts, nuts and felt washers for underground drain shall be enclosed in masonry chamber which shall be constructed as under :

2.2. The excavation shall be done true to dimensions and level shown in one the plans or as directed.

2.3. Bed concrete shall be 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.

2.4. Masonry walls and plaster work shall be carried out as per relevant specifications of item 24.40.

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

3.0 Mode of measurements and payment

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

3.2 The rate shall be for a unit of One number.

24.44.(II) Constructing brick masonry chamber for underground C.I. inspection chamber and bends with brick having crushing strength not less than 35 Kg/ Cm. 2 in C.M/ 1:5 C. cover with frame (light duty) 455 x 610 mm. internal dimensions, total weight of cover with frame to be not less than 38 Kg. (Wt of cover 23 Kg. and Wt of frame 15 Kg.) R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. size) foundation concrete 1:5:10, inside plaster 15 mm. thick with C.M. 1:3 finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete : Inside dimensions 500 mm. x 700 mm. and 450 mm. deep for pipe the with one or two inlets.

1.0. Materials and Workmanship : The relevant specifications of item 24.24 (I) shall be followed except that the inside dimension of brick masonry chamber shall be 500 mm. x 700 mm. and 450 mm. deep for pipe the with on two inlets.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item 24.44 (I) shall be followed. **2.2.** The rate shall be for a unit of one number.

24.44.(III) Constructing brick masonry chamber for underground C.I. inspection chamber and bends with brick having crushing strength not less than 35 Kg/ Cm. 2 in C.M/ 1:5 C.I. cover with frame (light duty) 455 x 610 mm. internal dimensions, total weight of cover with frame to be not less than 38 Kg. (Wt of cover 23 Kg. and Wt of frame 15 Kg.) R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. size) foundation concrete 1:5:10, inside plaster 15 mm. thick with C.M. 1:3 finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete : Inside dimensions 600 mm. x 850 mm. and 450 mm. deep for pipes line with three or more inlets.

1.0. Materials and workmanship : The relevant specifications of item No. 24.44 (I) shall be followed except that the inside dimensions of chamber shall be 600 mm. x 850 mm. and depth 450 mm. for pipe lines with three or more inlets.

2.0. Mode of measurements & payments

2.1. The relevant specifications of item 24.44 (I) shall be followed.

2.2. The rate shall be for a unit One number.

- 24.46.** Extra over item 24.44 for every additional depth of 1 M. or part thereof beyond 450 mm. depth for brick masonry chamber. (i) For 455 mm. x 610 mm. size (ii) For 500 mm. x 700 mm. size (iii) For 600 mm. x 850 mm. size.

1.0 Materials & Workmanship : The relevant specifications of item 24.44 (i),(ii), (iii) shall be followed same except that extra depth of 0.1 M. or part thereof shall be constructed over and above the depth of respective items.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item 24.44 (I) shall be followed except that the extra shall be paid for providing additional depth of 0.1 M. or M. or part thereof over and above the item No 24.44. (I) 24.44 (II) 24.44 (III) as the case may be.

2.2. The rate shall be for a unit of One number.

- 24.00.2. (A) Providing soak pit of 2 cum. volume including excavating and filling brick bats with dry masonry work at top for 450 cms. height including covering, the top with stone including providing Vatas in C.M. 1:3 with finishing curing etc. complete as directed.**

1.0. Materials : Water shall conform to M-1. Cement mortar conform to M-11. Burnt Bricks shall conform to M-15. Rough stone slab 40 x 50 mm. thick shall conform to M-48. Brick bat shall conform to M-14.

2.0. Workmanship

2.1. The excavation for soak pit shall be carried out as per relevant specifications of item. 4.00.1 (A) except that the size of soak pit such that the clear volume shall remain 2 cum. The diameter and depth shall be as directed.

2.2. The periphery of the soak pit shall be provided with dry masonry wall with burnt bricks in 23 cms. thick. The masonry wall shall be done with best workman like manner in true line and plumb.

2.3. The soak pit shall be filled in with brick bats of burn brick 40 mm. nominal size in 45 cms. height. The work of filling brick-bats shall be done in such a way that no dry masonry shall be damaged during filling of brick bats.

2.4. The top of the soak pit shall be covered with rough kotah stone slab 40 to 50 mm. thickness. The length of the stone shall be in single piece in length.

2.5. The cement mortar 1:3 shall be used to fill up the joints and preparing vata as directed.

2.6. The cement work shall be cured for 4 days.

3.0. Mode of measurements and payment

3.1. The rate includes costs of all labour and material required for satisfactory completion of this item as described above.

- 24.00.2.(B) Providing soak-pit of 5 cum. volume inc. excavating and filling brick bat with dry masonry work at top for 45 cms. height including covering the top with stone including providing vatas in C.M. 1:3 with finishing curing etc. complete as directed.**

1.0. Materials and workmanship : The relevant specifications of item 24.00.2 (A) shall be followed except that the volume of soak pit shall be 5 cum. clear.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item 24.00.2 (A) shall be followed.

2.2. The rate shall be for a unit of One number.

EQUIVALENT PLAIN AREAS OF UNEVEN SURFACES
(Vide specifications for items relating to : Painting & Polishing)

Sr. No.	Description of work	How measured	Multiplying Factor
1.	Panelled or framed and barced on ledged and battened or ledged and braced joinery.	Measured flat (not girthed) including chowkat or frame edges, chocks clients etc. shall be deemed to be included in item.	1.30 (For each said)
2.	Flush joinery	Measured flat (not girthed) including chowkat or frame. Edges, Chocks, cleats, etc. shall be deemed to be included in the item.	1.20 (Foreach side)
3.	Fully glazed or gauzed joinery	Measured flat (not girthed) including chowkat or frame. Edges, Chocks, cleats, etc. shall be deemed to be included in the item.	0.80 (For each side)
4.	Partly panelled and partly glazed or gauzed joinery	Measured flat (not girthed)including chowkat or frame. Edges, Chocks, cleats, etc. shall be deemed to be included in the item.	1.00 (For each side)
5.	Fully venetioned or louvered joinery.	Measured flat (not girthed) including chowkat or frame. Edges, Chocks, cleats, etc. shall be deemed to be included in the item.	1.80 (For each side)
6.	Weather boarding	Measured flat (not girthed) supporting frame work shall not be measured separately.	1.20.(For each side)
7.	Wood single roofing	Measured flat (not girthed)	1.10 (For each side)
8.	Boarding with cover fillets at match boarding	Measured flat (not girthed)	1.05 (For each side)
9.	Tile and Slate battening	Measured flat, overall, no deduction shall be made for open space over	0.80 (For painting over)
10.	Trellis (or Jafri) work one way or two way	Measured flat, over all, no deduction shall be made for the open spaces supporting members shall not be measured separately).	1.00 (For painting all over)

11.	Guard, bars, balustrades, gates, grating, grills, expanded metal and railings.	Measured flat over all, No deduction shall be made for the open spaces, over) supporting members shall not be measured separately.	1.00 (For painting all over)
12.	Gates and open palisade fencing including standards	Measured flat over all No. deduction shall be made of open spaces : supporting members shall not be measured separately, (see note).	1.00 painting all over
13.	Curved or enriched work	Measured flat	2.0 (For each side).
14.	Steel roller shutter	Measured flat (size of opening) over all jamb, guides bottom rails and locking arrangement etc., shall be included in the item (top cover shall be measured separately).	1.10 (For each side)
15.	Plain sheet door and windows	Measured flat (not including) frame	1.10 (For each side)
16.	Full glazed or gauze steel door and windows	Measured flat (not girthed) including Frame edges etc.	0.50 (For each side)
17.	Partly panelled and partly glazed or gauzed steel doors	Measured flat (not girthed) including frame edges etc.	0.08 (For each side)
18.	Collapsible gate	Measured flat (size of opening) no separate measurements shall be taken for the top and bottom guide rails, rollers, fittings, etc.	1.50 (For painting all over)

Note : The height shall be taken from the bottom of the lowest of rail if the palisades do not go below it (or from the lower end of palisades, if they protect below the lower rail) up to the top of palisades, but not upto the top of standards if they are higher than the palisades.

Sr.No.	Particulars of fixtures & fastenings	size in mm	Da. S.1:B-900-T-38	Da. S.1:B-900-T-38	Da. S.1:B-900-T-38	Da. S.1:B-900-T-38	Da. S.2:B-900-T-38	Da. S.2:B-900-T-38	Da. S.2:B-900-T-38
1.	Hold fast	300x 40 x 3	6	6	6	6	6	6	6
2.	Hold Fasts	200 x 40 x 36	-	-	-	-	-	-	-
3.	Coach \screws (Hexagonal Head)		-	-	-	-	-	-	-
4.	Butt Hinges	125	-	-	-	3	-	-	6
5.	Butt Hinges	100	3	3	3	-	6	6	6
6.	Butt Hinges	75	-	-	-	-	-	-	-
7.	Butt Hinges	75-A	-	-	-	-	-	-	-
8.	Butt Hinges	50	-	-	-	-	-	-	-
9.	Nonprojecting type Hinges (Box type)	22	-	-	-	-	-	-	-
10.	Tee & Strap Hinges	300	-	-	-	-	-	-	-
11.	Tee & Strap Hinges	200	-	-	-	-	-	-	-
12.	Sliding Door Bolts	250 x 16	1	1	1	1	1	1	1
13.	Tower Bolts (Barrel Type)	200 x 10	1	1	1	1	2	2	2
14.	Tower Bolts (Barrel Type)	150 x 10	-	-	-	-	-	-	-
15.	Tower Bolts (Barrel Type)	100 x 10	-	-	-	-	-	-	-
16.	Tower Bolts (Barrel Type)	75 x 10	-	-	-	-	-	-	-
17.	Tower Bolts (Barrel Type)	50 x 6	-	-	-	-	-	-	-
18.	Door Latch	200x16x 5	1	1	1	1	1	1	1
18.	A Hooks and Eye	20 mm	-	-	-	-	-	-	-
19.	Bathroom Latches	60 x 12	-	-	-	-	-	-	-
20.	Casement window fastner	-	-	-	-	-	-	-	-
21.	Casement Stays (Straight Peg StayO	-	-	-	-	-	-	-	-
22.	Ventilator Catch Lug.	-	-	-	-	-	-	-	-
23.	Handles	100	2	2	2	2	2	2	2
24.	Handles	75	-	-	-	-	-	-	-
25.	Door Stopper	75	1	1	1	1	2	2	2
26.	WoodenDoor Stop with Hinges	-	-	-	-	-	-	-	-
27.	Continuous Piano Hinges 30 width	30 width	-	-	-	-	-	-	-
28.	Haps and Staples (Safety types)	115 x 40	-	-	-	-	-	-	-
29.	Haps and Staples (Safety types)	90 x40	-	-	-	-	-	-	-
30.	Cupboard Lock (6 Levers)	-	-	-	-	-	-	-	-
31.	Cupboard Knob	-	-	-	-	-	-	-	-

St. No.	Db : S.1	Dc : S.1 : 900	Dc : S.1 : B : 900	Dd : S.1 : B : 900	Dd : S.1 : B : 900	De : S.1 : B : 900	De : S.1 : B : 900	Wa : S.1 : H 1200	Wa : S.1 : B : 1200	Wa : S.2 : H 1200	Wa : S.2 : H 1200	Va : Ind.	S.W.	Sv-Ind	Wardrobe-S.2	Showcase : CC : S.2	General -CB : S-2	Kitchen : CB-S.2	Platform : CB-S.2.	Countersunk Wood Screw	Size of Screws in mm	No. of Screws per unit of fixture fastenings
1.	6	6	6	-	6	6	6	4	6	4	6	-	-	-	-	-	-	-	-	2	-	-
2.	-	-	-	-	-	-	-	4	-	-	-	4	4	4	-	-	-	-	-	2	-	-
3.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	8	6	8	4	-	-
4.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-
5.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-
6.	-	-	-	-	-	-	-	2	3	4	6	2	-	-	-	-	-	-	-	-	6	-
7.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	8	-	-	6	-
8.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	4	-
9.	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-
10.	-	-	3	-	3	-	3	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-
11.	-	3	-	3	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-
12.	-	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-
																					12	-
13.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-
14.	-	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-
15.	-	-	-	-	-	-	-	2	2	3	3	-	-	-	-	-	-	-	-	-	6	-
16.	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	6	-
17.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	4	-	-	6
18.	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
18.A	-	-	-	-	-	-	-	1	1	2	2	1	2	1	-	-	-	-	-	-	-	-
19.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6/4
20.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
21.	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
22.	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
23.	2	2	2	2	2	2	2	-	-	-	-	-	-	-	2	-	-	2	-	-	4	-
24.	-	-	-	-	-	-	-	1	1	2	2	1	-	-	-	-	-	2	4	2	-	4
25.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-
																					4	-
26.	-	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-
27.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	-	2
																						Per 75 mm. length
28.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	7
29.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	7
30.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
31.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-

CODE OF PRACTICE C-13 (B)

SCHEDULE OF FIXTURES AND
FASTENINGS FOR DOORS,
WINDOWS, VENTILATORS,
WARDROBES AND CUPBOARDS

NOTATIONS

Da.....	Teakwood doors fully panelled or fully glazed or partly panelled and glazed
Db.....	Bathroom and W.C. door with single shutter
Dc.....	Doors plying planked
Dd.....	Doors battenned framed and braced
Wa.....	Teakwood windows fully panelled or fully glazed or partly panelled and glazed
Va-Ind.....	Teakwood ventilator (independent)
S.W.....	Steel Windows
SV-Ind.....	Steel ventilators (independent)
CB.....	Cupboard
S.1.....	Single shutter
S.2.....	Double shutter
S.4.....	Four shutter
B.....	Breadth of door shutter
T.....	Thickness of door shutter
H.....	Height of winsow shutter
900.....	900 mm & below
900.....	above 900 mm
1200.....	1200 mm & below
1200.....	above 1200 mm.

NOTE : PLEASE READ CAREFULLY :

- (1) Where detailed specification of an item provides for specific size of any fixture or fastening that shall prevail over the provisions in this schedule.
- (2) Fixtures and fastenings (except hold fasts which shall be of M.S. plate only) shall be of Brass, copper, oxidised brass, chromium plated brass, Iron, copper oxidised iron, or chromium plated iron as specified in the item of the work or allied specifications.
- (3) External door and door failing in staircase excepting the door in balcony shall have sliding door bolt of size 300 mm. x 18 mm. in place of 250 mm. x 16 mm. as shown in this schedule.
- (4) The length of tower old shown is for a door having shutter height upto 2100 mm. only. For door having shutter height more than 2100 mm. the length of tower bolts to be increased to the extent of increase of door shutter height beyond 2100 mm.
- (5) 150 mm. x 150 mm. size glass vision panel shall be provided in the doors of Officer's chamber in addition to the scheduled provision if so directed by the Engineering in charge.
- (6) Diamond shape chromium plated brass peeping plate of approved quality shall be provided in one entrance door in residential building in addition to the scheduled provisions.
- (7) Drawer up a wardrobe shall be provided with one furniture handle and one drawer lock (4 levers) in addition to its scheduled provision.
- (8) For door and window with steel frame, 75 mm. size screws, shall be provided both in top bottom frame for fixity as shown below :
 - (a) For width upto 1200 mm..... 2 Nos.
 - (b) For width above 1200 mm. and upto 1800 mm..... 3 Nos.
 - (c) For every additional width of 500 mm. over and above 1800 mm. 1 No.
- (9) When the mortise lock (6 levers) and latch is specified to be provided to a door either in the item of work itself or by a separate amity, the requirement of providing sliding door bolt, door latch and handles as per his schedule shall be dispensed with.
- (10) For door/window with ventilator at top, fixtures and fastenings of door/window plus those of ventilator (excluding hold fasts) shall be used.
- (11) Where the item of the work, or its specification provides for anodised aluminum fixtures, all the fixtures except hinges and screws will be of anodised aluminum and chromium plated iron hinges and screws shall be used.
- (12) For door, window, or cupboard frame abutting concrete section, instead of hold fasts as shown in the schedule, coach screws of size mentioned below shall be used :
 - (a) Teak wood frame..... 125 mm.
 - (b) Steel frame..... 75 mm.
- (13) The locking etc. in the door latch shall be so positioned that the can be properly locked even if part of the latch, when fully slid, remains in the frame or masonry.
- (14) Showcase cupboards having single shutter shall be provided with all catcher instead of tower bolt (barrel type) as per schedule.
- (15) The size of the handle shown in the schedule indicates grip length.
- (16) Door stopper shall be shown in the schedule indicates grip length.
- (17) Piano hinges shall be for the full height of the shutter.
- (18) shutter with pivot arrangements shall be pivot arrangement shall be provided with two pivots of approved size instead of hinges as per the schedule.
- (19) For butt hinges, only lengths are indicated in the schedule. The width of each flap being 5 mm. less than the thickness of the shutter to which they are to be fixed and the thickness of the flap shall be as specified in the relevant I.S.s. for heavy, medium or light as specified in the detailed specifications of the item of work.

Schedule for Testing of Materials

For ensuring quality control and workmanship, various test prescribe below corresponding to the material concerned shall be taken as periodic intervals as stipulated below be taken.

The Material shall be got tested Govt. recognised Laboratory (R & B) or feild Laboratory of GERI (R & B) for which 1% of the estimated amount to tender shall be recovered from the contractor from the R.A.Bill and Final Bills as the testing charges shall be paid by the Govt. to the GERI. However if the charged increase over 1% no excess recovery shall be made from the contractor as per resolution of B&C department dated 10th May 1985, vide TNC/1085 (4) S.

Item No. as per Sch.B	Brief Description of Materials to be tested	Qty. of Material	Prescription of test which shall be carried out	Frequency @ which test shall be carried out	Total No. of test to be taken
1.	Kapchi		- Gradation test - Impact Value - Flakiness Index of aggregate	CMT 1 to 100 - 1 test 100 to 500 - 3 tests 500 to 1500 - 5 tests 1500 to 5000 - 7 tests	
2.	Grit		- Stripping Value		
3.	Sand		- Special gravity - Water absorption - Fineness Modulus - Silt-Content - Soundness		
4.	Tiles		- Dimansion Test - Transverse strength - Water Absorption - Abrasion Test		
5.	Teakwood		- Anatomy Test - Density Test - Moisture content Test		
6.	Bricks		- Water Absorption - Efflorence - Sizw - Comprehensive Srength	1 test @ 50,000 Bricks	
7.	Cement		- Consistancy - Setting Time - Compressive Strength	1 test @ 10.0 M.T.	
8.	Steel		- Tensile strength - Yeld Stress - Elongation - Size	As per manual of Quality Control	
9.	C.C.Cube test 1:2:4		- Cornpressive Strength	1 to 5 Cum. 1 No. 6 to 15 Cum. 2 Nos. 16 to 20 Cum. 3 Nos. 21 to 50 Cum. 4 Nos. 51 & Above Cum 4+ 1 for each Cum or part thereof	

The contractor shall have to pay 1% of the estimate cost put to tender towards all testing of materials & same shall be deducted from their bills for the works. The testing of various materias shall be carried out in GERI and result received shall be binding to all. ie. contractor and Govt.

Testing Charges of GERI shall be born by Govt. No refund be made or exrtta charge over 1% shall be recoverable form the contractor.

SIGN OF CONTRACTOR