

**Name of Work : CSR Fund Under Union Home Minister - Construction of Community Hall /**

**Yoga Center at (1) Pindarda (2) Piplaj & (3) Unava Ta: Gandhinagar Dist:**

**Gandhinagar. CSR Fund/ Community Hall/ Gandhinagar/ PKG No - 01 (2026-27)**

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**ITEM NO: 1 "Excavation for foundation up to 1.5 mt. depth including sorting out and stacking of useful materials and disposing of the excavated stuff up to 50meter lead (B) Dense or Hard soil (S.O.R. 2023-24 P No. 46 item code 04001B)**

1.0 Dense or Hard Soil: Any soil which generally require close application of picks or jumpers or scarifiers to loosen it stiff clay, gravel and rubble stone etc. fall-under this category.

2.0 Workmanship :

General: . Any soil which generally yields to the application of and shovels, phawaras, rakes or any such ordinary excavating implement or organic soil, gravel, silt, sand turf, loam, clay, peat etc., fall under this category.

2.0 Clearing the site : 2.1 The site on which the structure is to be built shall be cleared and all obstructions, loose stone, materials and rubbish of all kind, bush, wood and trees shall be removed as directed: The materials so obtained shall be property of the Government and be conveyed and stacked as directed within 50 M. lead. The roots of the trees coming in the sides shall be cut and coated with a hot asphalt.

2.2 The rate of site clearance is deemed to be included in the rate of earth work for which no extra will be paid.

3.0 Setting out: After clearing the site, the center lines will be given by the Engineer-in-charge. The contractor shall assume full responsibility for alignment, elevation and dimension of each and all parts of the tractor shall assume full responsibility for alignment elevation and dimension of each and all parts of the work. Contractor shall supply labourers, materials, etc. required for setting out the reference marks and bench marks and shall maintain them as long as required and directed.

4.0 Excavation : The excavation in foundation shall be carried out in true line and level and shall have the width and depth as shown in the drawings or as directed. The contractor shall do the necessary shoring and shutting or providing necessary slopes to a safe angle, at his own cost. The payment for such precautionary measures shall be paid separately if not specified. The bottom of the excavated area shall be levelled both longitudinally and transversely as directed by removing and watering as required. No earth filling will be allowed for bringing it to level, if by mistake or any other reason excavation is made deeper or wider than shown on the plan or directed. The extra depth or width shall be made up with concrete of same proportion as specified for the foundation concrete at the cost of the contractor. The excavation up to 1.5 m. depth shall be measured under this item.

5.0 Disposal of the excavated stuff : 5.1. The excavated stuff of the selected type shall be used in filling the trenches and plinth or levelling the ground in layers including ramming and watering etc.

5.2. The balance of the excavated quantity shall be removed by the contractor from the site of work to a place as directed with lead up to 50 M. and all lift.

6.0. Mode of measurement and payment:

2.0. The measurement of excavation in trenches for foundation shall be made according to the sections of trenches shown on the drawing or as per sections given by the Engineer-in-charge. No payment shall be made for surplus excavation made in excess of above requirements or due to slopping and sloping back as found necessary on account of conditions of soil and requirements of safety.

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

**ITEM NO: 2 Excavation for foundation for depth from 1.5 M. to 3.0 M. including sorting out and stacking of useful materials and disposing of excavated stuff up to 50 M. lead in Dense or Hard soil.**

**Workmanship**

The relevant specifications of item No. 4.0 0.(B) shall be followed except that the excavation work shall be carried out with 1.5 M. to 3.0 M. lift in dense or hard soil.

**2.0 Mode of Measurement & Payment**

2.1 The relevant specifications of item No.4.0.0.(A) shall be followed.

2.2. The excavation work from 1.5 to 30M shall be measured under this item

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

**ITEM NO: 3 Carrying out plinth treatment to post construction/ existing structure by spraying chemical solution for termite control treatment including labour and material consistent with I.S.I specification. Using Chlordene and Chiorpurfiles 20 EC. As per 6131\_ part- II Concentration Weight one percent is recommended i.e. one litre 20 EC chemical emulsion dilute with 19 liter give 1 % concentration inclusive of one litre chemical emulsion application at the rate of 5 Litre chemical / Sqmt. of surface is recommended as per I.S. (SOR 2024-25 P.No. 167 Code No. 22007)**

Materials

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

**1.1.Workmanship**

1.2.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.

1.3.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.

**1.4.Mode of measurements and payment**

1.5.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.

3.0. No deduction shall be made nor extra paid for any opening for pipes, etc. up to 0.1 sq. m.

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

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

**ITEM NO: 4 Filling in plinth with sand under floors incl. watering ramming consolidating and dressing etc.comp. (S.O.R. 2024-25 P No. 48 item code 04007A)**

**1.0. Materials**

1.1. Sand shall conform to M 6

**2.0. Workmanship**

The relevant specifications of item No. 4.12 shall be followed except that sand shall be filled in under floors, including watering, ramming, consolidating and dressing etc. complete.

3.0. Mode of Measurements & Payment

3.1. The relevant specifications of item No. 4.12 shall be followed.

3.2. The rate includes cost of collecting, carting sand with all lead and labour for filling the same in plinth under floors.

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

**ITEM NO: 5 Filling available excavated Earth (Excluding Rock) in trench plinth side of foundation . in layer not excluding 20 cm in depth consolidation each deposited layer by ramming and watering etc. complete (SOR P. No.48 It. No 4006)**

**Workmanship**

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

1.7. As soon as the work in foundation has been completed and measured the site of foundation shall be cleared of all debris, brick bats: mortar dropping etc., and filled with earth in layers not exceeding 20 cms. Each layer shall be adequately watered, rammed and consolidated before the succeeding layer is laid. The earth shall be rammed with iron rammers where feasible and with the but ends of crow-bars, where rammer cannot be used.

1.8. The plinth shall be similarly filled with earth in layers not exceeding 20 cms. adequately watered and consolidated by ramming with iron or wooden rammers. When filling reaches finished level the surface shall be flooded with water for at least 24 hours and allowed to dry and then rammed and consolidated.

1.9. The finished level of filling shall be kept to shape intended to be given to floor.

1.10. In case off large heavy duty flooring like factory flooring, the consolidation may be done by power rollers, where so specified. The extent of consolidation required, shall also be as specified.

1.11. The excavated stuff of the selected type shall be allowed to be used in filling the trenches and plinth. Under no circumstances black cotton soil be used for filling the plinth.

1.12. Mode of Measurements & Payment

1.13. The payment shall be made for filling in plinth and trenches. No deduction shall be made for shrinkage or voids, if consolidated as instructed above.

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

**ITEM NO: 6 Filling foundation and plinth with murrum or selected soil in layer of 20 cm in thickness including ramming watering and consolidating etc. complete {S.O.R. 2024-25 P No. 49 It. Code. 4008 A}**

1.0 Materials : 1.1. Murrum shall be clean of good binding quality, and of approved quality obtained from approved pots/quarries of disintegrated rocks which contain silicons materials and natural mixture of clay of calcarions origin. The size of murrum shall not be more than 20 mm.

2.0 Workmanship :

2.1. The relevant specifications of item No. 5 shall be followed except that the murrum or selected soil shall be filled in foundation and plinth in 20 cms. layers including consolidating, ramming, watering, dressing etc. complete.

Mode of measurement and payment:

The relevant specifications of item No. 5 shall be followed.

The rate includes cost of collecting and carting murrum/or selected earth of approved quality with all lead and labour required for filling in trenches and plinth.

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

**ITEM NO: 7 Providing and laying cement concrete 1:4:8 (1 Cement: 4 coarse sand: 8 Machine crushed stone aggregates 40mm nominal size) and curing complete excluding cost of form work in (A) Foundation and plinth (R A No -01)**

**1.0 Materials:-** Water, shall conform to M-I. Sand shall conform to M-6. Cement shall conform to M-3. Stone aggregate 40 mm. nominal size shall conform to M-12.

**1.0 Workmanship:**

**1.1. General:**

2.1.1. Before starting concrete bed of foundation trenches shall be cleared of all loose materials, levelled, watered and rammed as directed.

**1.2. Proportion of Mix :**

2.2.1. The Proportion of cement, sand and coarse aggregate shall be one part of cement, 3 parts of sand, 6 parts of stone aggregates and shall so measured by volume.

**1.3. Mixing :**

2.3.1. The concrete shall be mixed in a mechanical mixer at the site of work. Hand mixing may however be allowed for smaller quantity of work if approved by the Engineer-in-charge. When hand mixing is permitted by the Engineer-in-charge in case of break-down of machineries and in the interest of the work, it shall be carried out on a water tight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency. However such cases 10% more cement than otherwise required shall have to be used without any extra cost. The mixing in mechanical mixer shall be done for a period 1 to 2 minutes. The quantity of water shall be sufficient to produce a dense concrete of required workability for the purpose.

**1.4. Transporting & Placing the concrete :**

1.4.1. The concrete shall be handled from the place of mixing to the final position in not more than 15 minutes by the method s directed and shall be placed into its final position, compacted and finished within 30 minutes of mixing with water i.e. before the setting commences.

1.4.2. The concrete shall be laid in layers of 15 cms. to 20 cms.

1.5. Compacting: 2.5.1. The concrete shall be rammed with heavy iron rammers and rapidly to get the required compaction and allow all the interstices to be filled with mortar.

**1.6. Curing :**

2.6.1. After the final set, the concrete shall be kept continuously wet, if required by ponding for a period of not less than 7 days from the date of placement.

**2.0 Mode of measurement and payment:**

The concrete shall be measured for its length, breadth and depth, limiting dimensions to those specified on plans or directed.

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

**ITEM NO: 8 Providing and laying cement concrete work 1: 1.5 :3 (1 Cement : 1.5- Coarse sand : 3- graded stone aggregates 20 mm nominal size) and curing complete excluding cost of formwork and reinforcement for reinforced concrete work in (A) Foundations, footings, Base or columns and Mass concrete (S.O.R 2024-25 P No. 53 Item No. 05011AA + Cement diff 70x5.234)**

**1.0. Materials**

1.1. Water shall conform to M-1. Cement shall conform to M-3 Sand shall conform to M-6. Stones aggregate 40 mm. nominal size shall conform to M-12.

**2.0. Workmanship**

**2.1. General**

2.1.1. Before stating concrete the bed of foundation trenches shall be cleared of all loose materials, leveled, watered and rammed as directed

**2.2. Proportion of Mix:**

2.2.1. The proportion of cement, sand and coarse aggregate shall be one part of cement. 1.5 parts of sand and 3 parts of stone aggregates and shall be measured by volume.

**2.3. Mixing:**

2.3.1. The concrete shall be mixed in a mechanical mixer at the site of work. Hand mixing may however be allowed for smaller quantity of work if approved by the Engineer-in-charge. When hand mixing is permitted by the Engineer-in-charge in case "of break-down of machineries and in the interest of the work, it shall be carried out on a water tight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency, However in such case 10% more cement than otherwise period 1 1/2 to 2 minutes. The quantity of water shall be just sufficient to produce a dense concrete of required workability for the purpose.

**2.4. Transporting & Placing the Concrete:**

2.4.1. The concrete shall be handed from the place, of mixing to the final position in not more than 15 minutes by the method as directed and shall be placed into its final-position, compacted and finished within 30 minutes of mixing with water i.e. before the setting commences.

2.4.2. The concrete shall be laid in layers of 15 cms. to 20 cms

2.5.1. The concrete shall be rammed with heavy iron rammers and rapidly to get the required compaction and to allow all the interstices to be filled with mortar.

**2.6. Curing:**

2.6.1. After the final set, the concrete shall be kept continuously wet if required by ponding for a period of not less than 7 days from the date of placement.

**2.7. Mode of Measurement & Payment:**

2.7.1. The concrete shall be measured for its length, breadth and depth, limiting dimensions to those specified on plan or as directed.

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

**ITEM NO: 09 Providing & laying Ordinary cement concrete 1:1.5:3 (1cement : 1.5 coarse sand 3 graded stone aggregate 20 mm nominal size) and finishing the smooth with curing etc. complete including the cost of form work but excluding the cost of reinforcement for RCC work in (II) COLUMNS (i) Having cross sectional area more than 0.08 Sq.M and up to 0.18 Sq.M (SOR P. No. 62 It. No. 05031B2 + cement Difference 70x5.234)**

Beams : (I) Having cross sectional area 0.05 to 0.08 Sq. metre (II) Having cross sectional area more than 0.08 Sq. mt. up to 0.12 Sq. mt. (III) Having cross sectional area more than 0.12 Sq. mt. up to 0.18 Sq. mt.

(A) Columns : (I) Having cross sectional area 0.05 to 0.08 Sq. Mt. (II) Having cross sectional area more than 0.08 Sq. mt. and up to 0.12 Sq. mt. (III) Having cross sectional area more than 0.12 Sq.mt. and up to 0.18 Sq. int.

**1.0. Materials & Workmanship:**

1.1. The relevant specification of item No 5.3.13. shall be followed except that the work shall be carried out for reinforced concrete work for work as specified in item 1.2. In addition, the following stipulations shall be followed for:

(a) The bars shall be kept in position by the following methods:

(i) In case of beam and slab construction, sufficient number of precast cover blocks in cement mortar 1:2(1 cement: 2coarse sand) about 4 cms. x 4 cms. section and of thickness equal to the specified cover shall be placed between the bars and shuttering as to secure and maintain the requisite cover of concrete over the reinforcement.

In case of cantilevered or doubly reinforce beams of slabs, the main reinforcing bars shall be held in position by introducing chain spacers or supports bars at 1.0 to 1.2 metres centres

(ii) In case of columns and walls, the vertical bars shall be kept in position by means of timber templates with slots accurately cut in them. The templates shall be removed after concreting has been done below it. The bars may also be suitably tied by means of annealed steel wires to the shuttering to maintain their position during concreting.

1.2. All bars projecting from pillars, columns, beams, slabs, etc., to which other bars and concrete are to be attached or bounded to later on, shall be protected with a coat of thin neat cement grout, if the bars are not likely to be incorporated with succeeding mass of concrete within the following 10

days. This coat of thin neat cement shall be removed before concreting.

2.0. Mode of measurements and payment:

1.1 The relevant specifications of item No. 5.4.1. shall be followed but the form work and centering work shall be included in the item.

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

**ITEM NO: 10 Providing and laying ordinary cement concrete 1:1.5:3 (1 Cement : 1.5 coarse sand : 3 graded stone aggregates 20mm nominal size) and curing complete Including cost of form work in (i) Beam Having cross-sectional area 0.12 Sq.M and up to 0.18 Sq.M (SOR P. No. 61 It. No. 05031A3 + cement Difference 70x5.234)**

Beams : (I) Having cross sectional area 0.05 to 0.08 Sq. metre (II) Having cross sectional area more than 0.08 Sq. mt. up to 0.12 Sq. mt. (III) Having cross sectional area more than 0.12 Sq. mt. up to 0.18 Sq. mt.

(B) Columns : (I) Having cross sectional area 0.05 to 0.08 Sq. Mt. (II) Having cross sectional area more than 0.08 Sq. mt. and up to 0.12 Sq. mt. (III) Having cross sectional area more than 0.12 Sq.mt. and up to 0.18 Sq. int.

1.3. Materials & Workmanship:

1.4. The relevant specification of item No 5.3.13. shall be followed except that the work shall be carried out for reinforced concrete work for work as specified in item 1.2. In addition, the following stipulations shall be followed for:

(b) The bars shall be kept in position by the following methods:

(i) In case of beam and slab construction, sufficient number of precast cover blocks in cement mortar 1:2(1 cement: 2coarse

sand) about 4 cms. x 4 cms. section and of thickness equal to the specified cover shall be placed between the bars and shuttering as to secure and maintain the requisite cover of concrete over the reinforcement.

In case of cantilevered or doubly reinforce beams of slabs, the main reinforcing bars shall be held in position by introducing chain spacers or supports bars at 1.0 to 1.2 metres centres

(ii) In case of columns and walls, the vertical bars shall be kept in position by means of timber templates with slots accurately cut in them. The templates shall be removed after concreting has been done below it. The bars may also be suitably tied by means of annealed steel wires to the shuttering to maintain their position during concreting.

1.5. All bars projecting from pillars, columns, beams, slabs, etc., to which other bars and concrete are to be attached or bounded to later on, shall be protected with a coat of thin neat cement grout, if the bars are not likely to be incorporated with succeeding mass of concrete within the following 10 days. This coat of thin neat cement shall be removed before concreting.

2.0. Mode of measurements and payment:

1.2 The relevant specifications of item No. 5.4.1. shall be followed but the form work and centering work shall be included in the item.

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

**ITEM NO: 11 Providing and laying cement concrete 1:2:4 (1 Cement : 2- Coarse sand : 4- graded stone aggregates 20 mm nominal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth {S.O.R. 2024-25 P No. 53 It. Code. 05010AA}**

**1.0. Materials**

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Grit shall conform to M-8. Graded stone aggregate 20 mm nominal size shall conform to M-12.

**2.0. General**

**2.1.** The concrete mix is not required to be designed by preliminary tests. The proportion of the concrete mix shall be 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) by volume concrete work shall have exposed concrete surface or as specified in the item

**2.2.** The designation ordinary M-100, M-150, M-200, M-250 specified as per I.S. correspond

approximately to 1:3:6, 1:2:4, 1:1.1/2:3 and 1:1:2 nominal mix of ordinary concrete by volume respectively

**2.3.** The ingredients required for ordinary concrete containing one beg of cement of 50 kg. by weight (0.0342 Cu M.) for different proportions of mix shall be as under:

| Grade of concrete | Total quantity of dry aggregate by volume per 50 kgs. of cement to be taken as the sum of individual volume of fine and coarse aggregates, maximum | Proportion of fine aggregate to coarse aggregate               | Quantity of water per 50 of cement maximum |
|-------------------|--|--|--|
| 1                 | 2  | 3  | 4  |
| M-100 (1:3:6)     | 300 Liters   | Generally 1:2 for fine aggregate to coarse aggregate by volume | 34 Liters                                  |
| M-150 (1:2:4)     | 220 Liters   | 160  | 32 Liters                                  |
| M-200 (1:1.1/2:3) | 100 Liters   | but subject to an upper limit of 1:1.1/2 and lower limit 1:3   | 30 Liters                                  |
| M-250 (1:1:2)     |  |  | 27 Liters                                  |

**2.4.** The water cement ratios shall not be more than specified in the above table. The cement content of the mix specified in the table shall be increased if the quantity of water in mix has to be met eased to overcome the difficulties of placements and compaction so that the water-cement ratio specified in the table is not exceeded.

**2.5.** Workability of the concrete shall be controlled by maintaining a water -cement-ratio that is found to give a concrete mix which is just sufficient wet to be placed and compacted without difficulty with the means available.

**2.6.** The maximum size of course aggregate shall be as large as possible within the limits specified but in no case greater than one forth of the minimum thickness of the member provided that the concrete can be placed without difficulty so as to surround all reinforcement thoroughly and to fill the corners of the form.

**2.7.** For reinforced concrete work; coarse aggregates having a nominal size of 20 mm. are generally considered satisfactory.

**2.8.** For heavily reinforced concrete members as in the case of ribs of main beams, the nominal maximum size of coarse aggregate should usually be restricted to 5 mm. less than the minimum clear distance between the main bar or 5 mm. less than the minimum cover to the reinforcement whichever is smaller.

**2.9.** Where the reinforcement is widely spaced as in solid slabs, limitations of size of the aggregate may not be so important, and the nominal maximum size may some times be as great as or greater than the minimum cover.

**2.10.** Admixture maybe used in concrete only with approval of Engineer-in-charge based upon the evidence that with the passage of time neither the compressive strength of concrete is reduced not are other requisite qualities of concrete and steel impaired by the use of such admixtures.

### **3.0. Workmanship**

**3.1.** Proportioning: Proportioning shall be done by volume, except which shall be measured in terms of bags of 50 kg. weight, the volume of one such bag being taken as 0.0342 cu. meter Boxes of suitable size shall be used for measuring sand aggregate. The size of boxes (internal) shall be 35 x 25 cms. and 40 cms deep while measuring the aggregate and sand the boxes shall be filled without shaking ramming or hammering. The proportioning of sand shall be on the basis of its dry volume and in case of damp saner, be made allowances for bulk age shall.

### **3.2. Mixing:**

**3.2.1.** For all work, concrete shall be mixed in a mechanical mixed which along with other accessories shall be. kept in first class working condition and so maintained throughout the construction Measured quantity of aggregate, sand and cement required for each batch shall be poured into the claim of the mechanical mixer while it is continuously running. After half a minute of dry mixing measured quantity of water required for each batch of concrete mix shall be added gradually and mixing continued for another one and a half minute Mixing shall be continued till

materials are uniformly distributed and uniform colour of the entire mass is obtained and each individual particle of the coarse aggregate shows complete coating of mortar containing its proportionate amount of cement. In no case shall the mixing be done for less than 2 minutes after oil ingredients have been put into the mixer.

**3.2.2.** When hand mixing is permitted by the Engineer-in-charge for small jobs or for certain other reasons, it shall be done on the smooth watertight platform large enough to allow efficient turning over the ingredients of concrete before and after adding water. Mixing platform shall be so arranged that no foreign material gets mixed with concrete nor does the mixing water flow out. Cement in required number of bags shall be spread in a layer of uniform thickness on the mixing platform. Dry coarse and fine aggregate and cement shall then be mixed thoroughly by turning over to get a mixture to uniform colour. Specified quantity water shall then be added gradually through a rose can and the mass turned over till a mix of required consistency is obtained. In hand mixing quantity of cement shall be increased by 10 percent above that specified.

**3.2.3.** Mixers which have been out of use for more than 30 minutes shall be thoroughly cleaned before putting in a new batch. Unless otherwise agreed to by the Engineer-in-charge the first batch of concrete from the mixture shall contain only two thirds of normal quantity of coarse aggregate. Mixing plant shall be thoroughly cleaned before changing from one type of cement to another.

### **3.3. Consistency:**

**3.3.1.** The degree of consistency which shall depend upon the nature of the work and methods of vibration of concrete, shall be determined by regular slump tests in accordance with I.S. 1199-193. The slump of 10 mm. to 25 mm shall be adopted when vibrators are used and 80 mm. when vibrators are not used.

### **3.4. Inspection:**

**3.4.1.** Contractor shall give the Engineer-in-charge due notice before placing any concrete in the forms to permit him to inspect and accept the work and forms as to their strength, alignment and general fitness but such inspection shall not relieve the contractor of his responsibility for the safety of men, machinery, materials and for results obtained immediately before concreting. All forms shall be thoroughly cleaned.

**3.4.2.** Centering design and its erection shall be got approved from the engineer-in-charge. One carpenter with helper shall invariably be kept present throughout the period of concreting. Movement of labour and other persons shall be totally prohibited for reinforcement laid in position. For access to different parts suitable mobile platforms shall be provided so that steel reinforcement in position is not disturbed. For ensuring proper cover, mortar blocks of suitable size shall be cast and tied to the reinforcement. Timber, kapachi or metal pieces shall not be used for this purpose.

### **3.5. Transporting and laying:**

**3.5.1.** The method of transporting and placing concrete shall be as approved. Concrete shall be so transported and placed that no contamination, segregation or loss of its constituent material takes place. All work shall be cleaned and made free from standing water, dust, snow or ice immediately before placing of concrete. No concrete shall be placed in any part of the structure until the approval of the engineer-in-charge has been obtained.

**3.5.2.** Concreting shall proceed continuously over the area between construction joints. Fresh concrete proper contraction joint is formed. Concrete shall be compacted in its final position within 30 minutes of its discharge from the mixer. Except where otherwise agreed to by the engineer-in-charge, concrete shall be deposited in horizontal layers to a compacted depth of not more than 0.45 meter when internal vibrators are used and not exceeding 0.30 meter in all other cases.

**3.5.3.** Unless otherwise agreed to by the Engineer-in-charge concrete shall be dropped in to place from a height exceeding 2 meters. When trucking or chutes are used they shall be kept close and used in such a way as to avoid segregation. When concreting has to be resumed on a surface which has hardened, it shall be roughened, swept clean, thoroughly wetted and covered with a 13 mm. thick layer of mortar composed of cement and sand in the same ratio as in the concrete mix itself. This 13 mm. layer of mortar shall be freshly mixed and placed immediately before placing of new concrete. Where concrete has not fully hardened, all laitance shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgement of any particles of coarse aggregate. The surface shall then be thoroughly wetted, all free water removed and then coated with neat cement grout. The first layer of concrete to be placed on this surface shall not



exceed 150 mm. in thickness and shall be well rammed against old work, particular attention being given to corners and close spots.

**3.5.4.** All concrete shall be compacted to produce a dense homogeneous mass with the assistance of vibrators, unless otherwise permitted by the Engineer-in-charge for exceptional cases, such as concreting under water, where vibrators cannot be used. Sufficient vibrators in serviceable condition shall be kept at site so that spare equipment is always available in the even of breakdowns. Concrete shall be judged to be compacted when the mortar fills the spaces between the coarse aggregate and begins to cream up to form an even surface. Compaction shall be completed before the initial setting starts i.e. within 30 minutes of addition of water to dry mixture. During compaction, it shall be observed that needle vibrators are not applied on reinforcement which is likely to destroy the bond between concrete and reinforcement.

### **3.6. Curing:**

Immediately after compaction, concrete weather including rain, running water, shocks, vibration, traffic, rapid temperature charges, frost and drying out process. It shall be covered with wet sacking has Sian or other similar absorbent material approved, soon after the initial set, and shall be kept continuously wet for a period of not less than 14 days from the date of placement. Masonry work over foundation concrete may be started after 48 hours of its laying but curing of concrete shall be continued for a minimum period of 14 days.

### **3.7. Sampling and testing of concrete:**

**3.7.1.** Samples from fresh concrete shall be taken as per I.S. 1199-1959 and cubes shall be made, cured and tested at 7 days and 28 days as per requirements in accordance with I.S. 526-1959. A random sampling procedure shall be adopted to ensure that each concrete batch shall have a reasonable chance of being tested i.e. the sampling should be spread over the entire period of concreting and cover all mixing units. The minimum frequency of sampling of concrete of each grade shall be in accordance with following:

| Quantity of concrete in the work. | No of samples | Quantity of concrete in the works                          | No of samples |
|-----------------------------------|---------------|--|---------------|
| 1-5 cmt.                          | 1             | 16-30 cmt.   | 3             |
| 6-15 cmt.                         | 2             | 31-50 cmt.   | 4             |
| 51 and above                      | 4±            | one additional for each additional 50 mm. or part thereof. |               |

**Note :** At least one sample shall be taken from each shift, Ten test specimens shall be made from each sample, five for testing at 7 days and the remaining five at 28 days. The samples of concrete shall be taken on each day of concreting as per above frequency. The number of specimens may be suitably increased as deemed necessary by the Engineer-in-charge when procedure of tests given above reveals a poor quality of concrete and in other special cases.

**3.7.2.** The average of the group of cubes cast for each day shall not be less than the specified cube strength of 150 K/g Cm<sup>2</sup> at 28 days. 20% of the cubes cast for each day may have value less than the specified strength provided the lowest value is not less than 85% of the specified strength. If the concrete made in accordance with the proportions given for a particular grade does not yield the specified strength, such concrete shall be classified as belonging to the appropriate lower grade. Concrete made in accordance with the Proportions given for a particular grade shall not, however be placed in a higher grade on the ground that the test strength are higher than the minimum specified.

### **3.8. Stripping:**

**3.8.1.** The Engineer-in-charge shall be informed in advance by the contractor of his intention to strike the form work. While fixing the time of removal of form work, due consideration shall be given to local conditions,

character of the structure, the weather and other conditions that influence the setting of concrete and of the materials used in the mix. In normal circumstances (generally where temperatures are above 20°C) and where ordinary concrete is used, forms may be struck after periods specified in item No.9.1 (A) for respective item of form work.

**3.8.2.** All form work shall be removed without causing any shock or vibration as would damage the concrete. Before the soles and struts are removed, the concrete surface shall be gradually exposed, where necessary in order to ascertain that concrete has sufficiently hardened. Centering

shall be gradually and uniformly lowered in such a manner as to permit the concrete to take stresses due to its own weight uniformly and gradually. Where internal metal tiles are permitted, they or their removable parts shall be extracted without causing any damage to the concrete and remaining holes filled with mortar. No permanently embedded metal part shall have less than 25 mm. cover to the finished concrete surface. Where it is intended to re-use the form work, it shall be cleaned and made good to the satisfaction of the Engineer-in-charge. After removal of form work and shutting, the Executive Engineer shall inspect the work and satisfy by random checks that concrete produced is of good quality.

**3.8.3.** Immediately after the removal of forms, all exposed bolts etc. passing through the cement concrete member and used for shuttering or any other purpose shall be cut inside the cement concrete member to a depth of at least 25 mm. below the surface of the concrete and the resulting holes be filled by cement mortar, all fins, caused by form joints, all cavities produced by the removal of form tiles and all other holes and depressions, honeycomb spots, broken edges or corners and other defects, shall be thoroughly cleaned, saturated with water and carefully pointed and rendered true with mortar of cement and fine aggregate mixed in proportions used in the grade of concrete that is being furnished and of as dry consistency as is possible to use. Considerable pressure shall be applied in filling and pointing to ensure thorough filling in all voids. Surface which are pointed shall be kept moist for a period of 24 hours. If rock pockets/honeycombs in the opinion of the Engineer-in-charge are of such an extent or character as to effect the strength of the structure materially or to endanger the life of the steel reinforcement, he may declare the concrete defective and require the removal and replacement of the portions of structure affected.

#### **4.0. Mode of Measurement & Payment**

**4.1.** The consolidated cubical contents of concrete work as specified in item shall be measured. No deduction shall be made for

(a) Ends of dissimilar materials such as joints, beams, posts, girders, gables, purling trusses, corbels and steps etc., up to 500 Sq. Cm. in section.

**4.2.** The rate includes cost of all materials labour, tools and plant required for mixing, placing in position, vibrating and compacting, finishing, as directed, curing and all other incidental expenses for producing concrete of specified strength. The rate excludes the cost of form work.

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

**ITEM NO: 12 Providing and laying ordinary cement concrete 1:1.5:3 (1-Cement 1.5-coarse sand : 3 -graded stone aggregates 20mm nominal size) exposed work with curing etc. complete including the cost of formwork but excluding the cost of reinforcement for R.C.C work in Slabs having more than 13 cm and up to 15 cm. thickness (SOR 2024-25 Pg. No. 60 / item code 05028D + cement diff. 70 x 5.234)**

#### **1.0. Materials & Workmanship**

**1.1.** The relevant specifications for item No. 5.4.1. shall be followed for concrete work and relevant specifications of item No. 9.1. shall be followed for form work and centering. The concrete surface shall be smooth finished with cement mortar 1:3 (1 cement: 3 fine sand) as per item No. 17.59 (I) The thickness shall be as specified in the item.

#### **2.0. Mode of measurement & payment**

**2.1.** The relevant specification for item No. 5.4.1 shall be followed except that item shall include the item providing form work and centering work as directed.

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

**ITEM NO: 13\_Providing and laying ordinary Cement concrete 1:1.5:3 (1 Cement 1.5 coarse sand 3 graded stone agg. 20 mm nominal size) for RCC lintel including finishing smooth with curing etc. complete including the cost of formwork but excluding the cost of reinforcement.( S.O.R 2024-25 P NO.61 item 5030 + Cement diff. 70 x 5.234)**

**1.6. Materials & Workmanship:**

(a) The relevant specification of item No 5.3.13. shall be followed except that the work shall be carried out for reinforced concrete work for work as specified in item 1.2. In addition, the following stipulations shall be followed for:

(c) The bars shall be kept in position by the following methods:

(i) In case of beam and slab construction, sufficient number of precast cover blocks in cement mortar 1:2 (1 cement: 2 coarse

sand) about 4 cms. x 4 cms. section and of thickness equal to the specified cover shall be placed between the bars and shuttering as to secure and maintain the requisite cover of concrete over the reinforcement.

In case of cantilevered or doubly reinforced beams or slabs, the main reinforcing bars shall be held in position by introducing chain spacers or support bars at 1.0 to 1.2 metres centres

(ii) In case of columns and walls, the vertical bars shall be kept in position by means of timber templates with slots accurately cut in them. The templates shall be removed after concreting has been done below it. The bars may also be suitably tied by means of annealed steel wires to the shuttering to maintain their position during concreting.

1.7. All bars projecting from pillars, columns, beams, slabs, etc., to which other bars and concrete are to be attached or bounded to later on, shall be protected with a coat of thin neat cement grout, if the bars are not likely to be incorporated with succeeding mass of concrete within the following 10 days. This coat of thin neat cement shall be removed before concreting.

**2.0. Mode of measurements and payment:**

1.3 The relevant specifications of item No. 5.4.1. shall be followed but the form work and centering work shall be included in the item.

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

**ITEM NO: 14\_Providg & laying cement concrete 1:1.5:3 (1cement : 1.5 coarse sand 3 graded stone aggregate 20 mm nominal size) for reinforced concrete chhajjas not exceeding 10 cm. Thickness upto floor two level including finishing the exposed surfaces with cement mortar 1:3 (1 cement : 3 fine sand) to give a smooth and even surface centering and form work and curing complete excluding cost of reinforcement. ( S.O.R 2024-25 P NO. 54 item code 05012A + cement diff 70 x 5.234)**

**1.0. Materials & Workmanship**

1.1. The cement mortar shall conform to M-11.

1.2. The relevant specification of item No. 5.3.13 and 5.4.1 shall be followed except that the work shall be carried out for reinforced concrete chhajjas not exceeding 10 cms. in thickness.

1.3. The specifications for form work and centering shall be as per item No. 9.1.

1.4. The finishing work in cement mortar 1:3 (1 cement : 3 fine sand) shall be carried out as per specifications of item No. 17.49 (I). Before the plastering is done, the surface of the concrete shall be raked for proper bond.

**2.0. Mode of measurements & payment**

2.1. The relevant specification of item No. 5.3.13 and 5.4.1 shall be followed except that the work of chhajjas up to 10 cms. shall be earned out including centering form work and finishing the surface with cement mortar 1:3 (1 cement : 3 fine sand).

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

**ITEM NO: 15 Providing TMT bar FE 500D reinforcement for R.C.C. work including bending, binding, and placing in position complete up to floor two level. (S.O.R 2024-25 P NO. 54 item No.05014C)**

1.0 GENERAL

This work shall consist of furnishing and placing coated, or uncoated or high strength deformed reinforcement, bars (intentioned) of the shape and dimensions shown on the drawings and conforming to these Specifications or as approved by the Engineer in charge.

2.0 MATERIAL

2.1. H.Y.S.D. Bars

Reinforcements may be either H.Y.S.D 500D. tensile steel, high strength deformed bars. They may be uncoated or coated with epoxy or with approved protective coatings.

2.2. H.Y.S.D. bars reinforcement for R.C.C. work shall conform IS 432 (Part II) 1966 and shall be of tested quality. It shall also comply with relevant part of IS 456-1966.

2.3. All reinforcement shall be clean and free from dirt, paint, grease or oil, all scale or loose or thick rust at the time of placing.

2.4. All steel shall be procured from original producers no re-rolled steel shall be incorporated in the work.

2.5. Only new steel shall be delivered to the site every bar shall be inspected before placing to its position and defective brittle or burnt bar shall be discarded cracked ends of bars shall be discarded.

3.0 Pitch

3.1. Distance between bars shall be as specified in drawings and as directed by the Engineer in Charge all bars shall be placed at an accurate distance from each other and shall be bind tightly to maintain the desired pitch Suitable means shall be provided for holding bars securely in position.

4.0 Binding wire

4.1. Mild steel binding wire shall be of 1.63 mm or 1.22 mm (16 to 18 gauge diameter and shall conform IS 280-1972.

4.2. The use of black wire will be permitted for binding reinforcement bars. It shall be free from dirt, paint, grease or oil, oil scale or loose or thick rust and any other undesirable coating which may prevent adhesion of cement mortar at the time of binding

4.3. Only new binding wire shall be delivered to the site all binding wire shall be inspected before binding to its position and defective brittle, rusted, used wire, shall be discarded

5.0 PROTECTION OF REINFORCEMENT

5.1. Uncoated reinforcing steel shall be protected from rusting or chloride contamination. Reinforcements shall be free from rust, mortar, loose mill scale, grease, oil or paints. This may be ensured either by using reinforcement fresh from the factory or thoroughly cleaning all reinforcement to remove rust using any suitable method such as sand blasting, mechanical wire

brushing, etc. as directed by the Engineer. Reinforcements shall be stored on bricks, racks or platforms and above the ground in a clean and dry condition and shall be suitably marked to facilitate inspection and identification.

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

#### 6.0 Workmanship

6.1. The work shall consist of furnishing and placing reinforcement to the shape and dimensions shown as on the drawings or as directed by The Engineer in charge.

6.2. Reinforcing steel shall conform accurate to the dimensions given in the bar bending schedules shown on relevant drawing

#### 7.0 BENDING OF REINFORCEMENT

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

7.2. Reinforcing steel shall conform to the dimensions and shapes given in the approved bar bending Schedules.

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

Bars shall not be bent or straightened in a manner that will damage parent material or the coating bars bent during transport or handling shall, be straightened before being used on work and shall not be heated to facilitate straightening.

#### 8.0 PLACING OF REINFORCEMENT

8.1. The reinforcement cage should generally be fabricated in the yard at ground level, and then shifted and placed in position. The reinforcement shall be placed strictly, in accordance with the drawings and shall be assembled in position, only when structure is otherwise ready for placing of concrete. Prolonged time gap, between assembling of reinforcements and casting of concrete, which may result in rust formation on the surface, shall not be permitted.

8.2. Reinforcement bars shall be placed accurately in position as shown on the drawings. The bars, crossing one another shall be tied together at every intersection with binding wire (annealed), conforming to IS:280 to make the skeleton of the reinforcement rigid such that the reinforcement does not get displaced during placing of concrete, or any other operation. The diameter of binding wire shall not be less than 1 mm.

8.3. Bars shall be kept in position usually by the following methods:

In case of beam and slab construction, industrially produced polymer cover blocks of thickness equal to the specified cover shall be placed between the bars and formwork subject to

Satisfactory evidence that the polymer composition is not harmful to concrete and reinforcement. Cover blocks made of concrete may be permitted by the Engineer, provided they have the same strength and specification as those of the member.

8.4. In case of dowels for Columns and walls the vertical reinforcement shall be kept in position by means of timber templates with slots in them accurately, or with cover blocks tied to the Reinforcement Timber templates shall be removed after the concreting has progressed up to a level just below their location.

8.5. Layers of reinforcements shall be separated by spacer bars at approximately One meter intervals. The minimum diameter of spacer bars shall be 12 mm or: equal to maximum size of main reinforcement or maximum size of coarse aggregate, whichever is greater. Horizontal reinforcement shall not be, allowed to sag between supports.

8.6. Necessary stays, blocks, metal chairs, spacers, metal hangers supporting wires etc, or other subsidiary, reinforcement shall be provided to fix the reinforcements firmly in its correct position.

8.7. Use of pebbles, broken stone, metal pipe, brick, mortar or wooden blocks etc as devices for positioning reinforcement shall not be permitted.

8.8. Bars coated with epoxy or any other approved protective coating shall be placed on supports that do not damage the coating. Supports shall be installed in a manner such that planes of weakness are not created in hardened concrete. The coated reinforcing steel shall be held in place by use of plastic or plastic coated binding wires especially manufactured for the purpose.

8.9. Placing and fixing of reinforcement shall be inspected and approved by the Engineer before concrete is deposited.

#### 9.0 Lapping

9.1. All reinforcement shall be furnished in full lengths as indicated on the drawing. No splicing of bars, except where shown on the drawing; will be permitted without approval of the Engineer. The lengths of the splice shall be as indicated on drawing or as approved by the Engineer. Where practicable, overlapping bars shall not touch each other, and shall be kept apart by 25 mm or  $1\frac{1}{4}$  times the maximum size of coarse aggregate, whichever is greater, If this is not feasible, overlapping bars shall be bound with annealed steel binding wire, not less than 1 mm diameter and twisted tight in such a manner as to maintain minimum clear cover to the reinforcement from the concrete surface. Lapped splices shall be staggered or located at points, along the span where stresses are low.

#### 10.0. Welding

10.1 Splicing by welding of reinforcement will be permitted only if detailed on the drawing or approved by the Engineer. Weld shall develop an ultimate strength equal to or greater than that of the bars connected While welding may be permitted for H.Y.S.D. reinforcing bars conforming to IS:432, welding of deformed bars conforming to IS: 1786 shall in general be prohibited. Welding may be permitted in case of bars of other than S 240 grade including special. Welding grade of S 415 grade bars conforming to IS:1786, for which necessary chemical analysis has been secured and the carbon equivalent (CE) calculated from the chemical composition using the formula:

$CE = C + Mn + Cr + Mg + V + Ni + Cu \leq 515$   
is 0.4 or less.

10.2. The method of welding shall conform to IS:2751 and IS:9417 and to any supplemental specifications to the satisfaction of the Engineer

10.3. Bars shall be bent cold to the specified shape and dimensions or as directed by Engineer in charge using the proper bender tool, operated by hand or power to attain proper radius of bends. Bars shall not be bent or straightened in a manner that will injure the material. Bars bent during transport or handling shall be straightened before being used in the work. Bars shall not be heated to facilitate bending.

10.4. Unless otherwise specified a 'U' type hook at the end of each bar shall invariably be provided to main reinforcement. The radius of the bend shall not be less than twice the diameter of the round bar and the length of the straight part of the bar beyond the end of the curve shall be at least four times of the diameter of the round bar. In case of bars which are not round and in case of deformed bars, the diameter shall be taken as the diameter of circle having an equivalent effective area. The hooks shall be suitably encased to prevent any spalling of the concrete.

10.5. All reinforcement bars shall be accurately placed in exact position shown on the drawings and shall be securely held in position during placing of concrete by annealed binding wire not less than 1 mm in size and by using say blocks or metal chairs spacers, metal hangers, supporting wires or other approved devices at sufficiently close intervals. Bars shall not be allowed to sag between supports not displaced during concreting or any other operations of the work. All devices used for positioning shall be of non-corrodible material wooden and metal supports shall not extend to the surface of the concrete, except where shown in drawings. Placing bars on layers of freshly laid concrete as the work progresses for adjusting bar spacing shall not be allowed. Pieces of broken stone or brick and wooden blocks shall not be used. Layers of bars shall be separated by spacer bars pre-cast mortar blocks or other approved devices. Reinforcement after bending placed in position shall be maintained in a clean condition until completely embedded in concrete. Special care shall be exercised to prevent any displacement of reinforcement in concrete already placed. To prevent reinforcement from corrosion, concrete cover shall be provided as indicated on drawings. All bars protruding from concrete and to which other bars are to be lapped and which are likely to be exposed for a period exceeding 10 days shall be protected by a thick coat of neat cement grout.

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

As far possible bars of full length shall be used in case this is not possible, overlapping of bars shall be done as directed by the Engineer in charge. When practicable overlapping bars shall not touch each other, but be kept apart by 25 mm. Where not feasible overlapping bars shall be bound with annealed wires not less than 1 mm thick twisted tight. The overlaps shall be staggered for different bars and located at points along the span where neither shear nor bending moments is maximum.

10.7. Whenever indicated on drawing or desired the Engineer in charge bars shall be jointed by coupling which shall have a cross section sufficient to transmit the full stresses of bars. The end of the bars that are jointed by coupling shall be upset for sufficient length so that the

effective cross section at the base of threads is not less than the normal cross section of the bar. Threads shall be standards threads Steel for coupling shall conform to IS 226.

10.8. When permitted or specified on the drawings joints of reinforcement bars shall butt-welded so as to transmit their full stresses Welded joints shall preferably be located at points when steel will not be subject to more than 75 percent of the maximum permissible stresses and welds so staggered that at any one section not more than 20 percent of the rods are welded Only electric arc welding using a process which excludes air from the molten metal and conforms to any or other special provisions for the work shall be accepted Suitable means shall be provided for holding bars securely in position during welding It shall be ensured that no voids are left in welding and when welding is done in two or three stages previous surface shall be cleaned properly Ends of bars shall be cleaned of all loose scale rust stages paint and other foreign matter before welding Only competent welders shall be employed on the work. The M S electrodes used for welding shall conform IS 814 Welded pieces of reinforcement shall be tested. Specimen shall be taken from the actual site and their number shall frequency to test shall be as directed by the Engineer in charge.

#### 11.0 MODE OF MEASUREMENTS & PAYMENT

11.1. For the purpose of payment the bar shall be measured correct up to 10 mm length and weight payable works out at the rate specified below

| Sr. No | Diameter of Steel | Weight of steel Per running meter | Sr. No | Diameter of Steel | Weight of steel Per running meter |
|--------|-------------------|-----------------------------------|--------|-------------------|-----------------------------------|
| 1      | 6 mm              | 0.22 Kg / Rmt                     | 8      | 20 mm             | 2.47 Kg / Rmt                     |
| 2      | 8 mm              | 0.39 Kg / Rmt                     | 9      | 22 mm             | 2.98 Kg / Rmt                     |
| 3      | 10 mm             | 0.62 Kg / Rmt                     | 10     | 25 mm             | 3.85 Kg / Rmt                     |
| 4      | 12 mm             | 0.89 Kg / Rmt                     | 11     | 28 mm             | 4.83 Kg / Rmt                     |
| 5      | 14 mm             | 1.21 Kg / Rmt                     | 12     | 32 mm             | 6.31 Kg / Rmt                     |
| 6      | 16 mm             | 1.58 Kg / Rmt                     | 13     | 36 mm             | 7.99 Kg / Rmt                     |
| 7      | 18 mm             | 2.00 Kg / Rmt                     | 14     | 40mm              | 9.86 Kg / Rmt                     |

11.1. Excess consumption over 5% will be charged at penal rate.

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

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

The unit Rate for coated reinforcement shall be deemed to also include cost of all material, labour, tools and plant, royalty, transportation and expertise required to carry out the work. The



rate shall also cover sampling, testing and supervision required for the work.

11.4. The rate shall be for a unit of per Kg

**ITEM NO: 16 Brick work using common burnt clay building bricks having crushing strength not less than 35 kg./ Sq.Cm. in foundation and plinth in Cement Mortar 1:5. (1- Cement : 5 -fine sand) (B) Conventional (S.O.R 2024-25 P.No.71 Item No. 06001BA)**

1.0 Materials: Water shall conform to M-I, Cement mortar shall conform to M-I1. Bricks shall conform to M-15.

2.0 Workmanship:

2.1. Proportion:

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

2.2. Wetting of bricks : 2.2.1. The bricks required for masonry shall be thoroughly wetted with clean water for about two hours before use or as directed. The cessation of bubbles, when the bricks are wetted with water is an indication of through wetting of bricks.

2.3. Laying:

2.0. .1. Bricks shall be laid in English bond unless directed otherwise. Half or cut bricks shall not be used except when necessary to complete to bond; closers in such case shall be cut to required size and used near the ends of walls.

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

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

2.3.4. The brick shall be laid with frog upwards. A set of tools comprising of wooden straight edges, mason's spirit level,

square half metre rub, and pins, string and plumb shall be kept on the site of work for frequent checking during the progress of work.

2.3.5. Both the faces of walls of thickness greater than 23 cms. shall be kept in proper place. All the connected brick work shall be kept not more than one metre over the rest of the work. Where this is not possible, the work shall be raked back according to bond (and not left toothed) at an angle not steeper than 45 degrees.

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

2.1. Joints:

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

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

2.2. Curing.

2.5.1. Green work shall be protected from rain suitably. Masonry work shall be kept moist on all the faces for a period of seven days. The top of masonry work shall be kept well wetted at the close of the day.

2.3. Preparation of foundation bed : 2.6.1. If the foundation is to be laid directly on the excavated bed, the bed shall be

levelled, cleared of all loose materials, cleaned and wetted before starting masonry. If masonry is to be laid on concrete footing, the top of concrete shall be cleaned and moistened. The contractor shall obtain the Engineer's approval for the foundation bed, before foundation masonry is started. When pucca flooring is to be provided flush with the top to plinth, the inside

plinth offset shall be kept lower than the outside plinth top by the thickness of the flooring.

### 3.0 Mode of measurements and payment:

3.1. The measurements of this item shall be taken for the brick masonry fully completed in foundation up to plinth. The limiting dimensions not exceeding those shown on the plans or as directed shall be final. Battered, tapered and curved portions shall be measured net.

3.2. No deduction shall be made from the quantity of brick work, nor any extra payment made for embedding in masonry or making holes in respect of following items :

- (1) Ends of joints, beams, posts, girders, rafters, purlins, trusses, corbel steps etc. where cross sectional area does not exceed 500 Sq.Cm.
- (2) Openings not exceeding 1000 Sq. Cm.
- (3) Wall plates and bed plates, bearing of slabs, chhajjas and the like whose thickness does not exceed 10 Cms. and the bearing does not extend to the full thickness of wall.
- (4) Drainage holes, and recesses for cement concrete blocks to embed hold fasts for doors, windows etc.
- (5) Iron fixtures, pipes upto 300 mm. dia; hold fasts and doors and windows built into masonry and pipes etc. for concealed wiring.
- (6) Forming chases of section not exceeding 350 Sq. Cm. in masonry.

3.3. Apertures for fire places shall not be deducted nor shall extra labour required to make splaying of jambs, throating and making Arches over the aperture be paid for separately.

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

**ITEM NO: 17 Brick work using common burnt clay building bricks having crushing strength not less than 35 kg./ Sq.Cm. in super structure in Cement Mortar 1:5. (1- Cement : 5 -fine sand) (B) Conventional (S.O.R 2024-25 P NO. 71,72 Item No. 06001BA+06006B)**

### Materials

Bricks shall conform to M-15. Cement mortar shall conform to M-11.

#### 1.0 Workmanship

1.1. The relevant specification of item No. 16 shall be followed except that the masonry work shall be carried out above plinth level to floor two level i.e. for ground floor.

1.2. The frames of doors, windows, cupboards etc. shall be housed into the brick work at the correct location and level as directed. The heavy steel doors, window frames etc. shall be built in with work, but for ordinary steel doors and windows required opening for frames, hold-fast, etc., shall be in the wall and frame embedded later on in order to avoid damage to the frames.

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

1.4. For the face of brick work, where plastering is to be done, joints shall be racked out to a depth not less than thickness of joints. The face of brick work shall be cleaned and mortar dropping removed on very same day that brick work is laid.

#### 2.0 Mode of measurements & payment

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

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

2.3. No deduction shall be made from quantity of brick work nor any extra payment made for embedding in masonry of marking holes in respect of following item.

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

- (2) Opening not exceed in 1000 sq.cm.
- (3) Wall plate sand bed plates bearing of slab, chhajjas, and like whose thickness does not exceed 10 cms. and the bearing does not extend the full thickness of wall.
- (4) Drainage holes and recesses for cement concrete blocks to embed hold fasts for doors, window etc.
- (5) Iron fixtures, pipes up to 300 mm. dia. hold fasts of doors, and window built into masonry and pipes etc. for concealed wiring.
- (6) Forming charges of section not exceeding 350 sq.cm. in masonry.
- (7) Apparatuses for fire places, shall not be deducted nor shall extra labour required to make splaying of jumps, throating and making trenches over the aperture be paid for separately.

#### **2.4. The rate shall be for a unit of one cubic meter**

**ITEM NO: 18\_Half brick masonry in common brunt clay building bricks having crushing strength not less than 35 Kg/ Sq.Cm. in Cement mortar 1:4 (1- Cement : 4 -coarse sand) in superstructure above plinth level up to floor two level(B) Conventional (R & B SOR 2024-25 P. No 73+75, It. Code-06008A2A+06010B)**

#### **1.0. Materials and Workmanship**

**1.1.** The relevant specifications of Item No. 6.30.1 (A) shall be followed for bricks, wetting, laying of bricks, joints, curing, except that the bricks to be used shall be conventional bricks instead of modular bricks.

#### **2.0. Mode of measurement and payment**

**2.1.** The limiting dimensions shall not exceed those shown in the plan or as directed. Any work done extra over specified dimensions shall be ignored.

**2.2** The relevant specifications of item no. 6.12. shall be followed. The length shall be measured nearest to one cm.

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

**ITEM NO: 19 Provoding and fixing flush door shutters, solid core construction with frame of first class hardwood with cross board and face veneer or plywood face panels , including anodised alluminium butt hinges with necessary screws. including Laminated sheet 1 mm thick,S.S. stoper 30cm long ASIS 304 grade,S.S. Aldrap 30cm long ASIS 304 grade,S.S. Handle 15cm long ASIS 304 grade,S.S. Handle Door stop ASIS 304 grade(2) 35 mm thick.( R.A. No -02)**

**1.0.** Materials Flush door shall conform to M-30. Plywood shall conform to M-37. Anodised aluminum butt hinges shall conform to M- 43.

#### **2.0. Workmanship**

**2.1.** The relevant specifications of item No. 10.23 shall be followed except that the shutters be non decorative type and block board core with face veneer or plywood with 35 mm. thickness.

**2.2.** Ready made shutters shall be of correct size and shall fit into the door or other openings without excessive scraping of edges. Adding of battens etc., to make up to the size shall not be allowed.

#### **3.0. Mode of measurement & payment**

**3.1.** The relevant specification of item No. 10.12 A (I) shall be followed.

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

**ITEM NO: 20 Providing and fixing window having extruded aluminum Colour anodized section frame main outer size 63.50 x 38.10 x 1.95 mm,@ Wt 1.094 Kg / Rmt, horizontal two track member size 61.85 mm x 31.75 mm x 1.20mm @ wt.of 0.695 Kg/mt, vertical member of size 61.85 mm x 31.75mm x 1.30 mm @ wt.of 0.659 Kg/mt with sliding shutters of horizontal member size 40mm x 18mm x 1.29mm @ wt.of 0.456Kg/mt, vertical member of size 40mm x 18mm x 1.29mm @ wt.of 0.456Kg/mt, @ Wt. 0.457 Kg/mt with 5 mm thick transparent bronze colour tinted float glass with powder coated aluminum fittings and fixtures and transparent silicon sealant glass fixing to frame as per details etc complete for window. (S.O.R 2024-25 P NO. 114 Item no.11028)**

**Material & Workmanship:-**

Alluminium alloy used in the manufacturing of extruded section for windows shall confirm to HE9-WP of I.S 733 – 1956 and also hollow alluminium section confirm to IS designation HV9 – WP – IS – 1285 – 1958. Alluminium section of approved weight shall be procured at site. Fabrication shall be done as per I.S 1948 – 1961 & drawing or as directed.

Details of the anodized powder coating section shall be as shown in item of work and Tinted float glass shall be 5 mm thick

**Float Glass:**

5 mm thick Tinted float glass as approved by Engineer-in-charge shall be used & shall be conforming to relevant I.S code. Necessary colour anodized alluminium glazing clips shall confirm to relevant IS code. Transparent Silicon Gasket and PVC track rubber shall confirm to quality approved by engineer in charge.

**Fixtures & fastenings:**

Fixtures and fastenings shall be provided as per requirement & as directed by Engineer in charge. Section used shall be single or double type as per requirement. Window - frame without shutter shall be prepared as per drawing or as directed by the Engineer – in – Charge. Whole framework shall be finished and erected in true line and level. The section shall be fixed with necessary screws & wooden peg nails required.

Size of glass for glazing at panels shall be as per drawing and shall be fixed in such a way so as to allow a clearance of 2.50 mm between the edges of glass and alluminium glazing clips surround clearance may be increased if directed. All stains from the surfaces of glass shall be removed and cleaned with thinner or spirit without any extra payment. Working of all hinges shall be smooth and free. If any hinges or locking arrangement found faulty, shall be replaced to the satisfaction of Engineer – in – Charge without claiming any extra charges. The size of mosquitoes proof jali at panels shall be as per drawing or as directed by Engineer-in-charge. The entire work shall be executed to the satisfaction of Engineer – in - Charge. The window shall be fully sliding as per drawing or as directed by Engineer – in – Charge

**CONDITIONS FOR ALUMINUM WORKS**

- a) The glazing shall be fixed with the External finished surface (either stone cladding/external plaster) and hence all the necessary rubber strips, packing and polysulphide polymer (between the frame and concrete or other surface all around) shall be provided within the rate quoted so as to make the junctions fully water tight/air tight.
- b) Approved make selected glass of thickness as specified shall be used in doors. Wired glass louvers shall be provided wherever shown on drawings.
- c) Necessary locking arrangement of approved design (by Architect) shall be provided without any extra cost.

- d) Wherever necessary, PVC lining (silver grey or white only) etc. shall be provided for air/water tightness.
- e) Necessary operating device (as per design) for operation of louvers of windows, ventilators, sky lights, including necessary rods shall be provided without any extra cost.
- f) The rates quoted shall be inclusive of manufacture, supply and installation at Site, and inclusive of all the necessary accessories rubber strips, locks, rods, excise duty, taxes, octroi, transport, labour charges, insurance, storage and safe custody, etc. complete.
- g) The rates shall also be inclusive of providing and applying with gun as per latest I.S., of Dow Corning or equivalent and making the joints around glazing watertight, on the external periphery of the building at the junction of two different materials as directed by the Architect and site engineer.
- h) Necessary provision for rain water disposal shall be done in the bottom guides/frames as directed and approved by Architect.
- i) Work must be in accordance with detailed drawings with dimensions of aluminum sections in frames and shutters as shown in drawing. It shall be accompanied by the detailed drawing if any deviation is proposed.
- j) All the door shutters shall have double action hydraulic floor springs/hinges as per approved shop drawings, of approved make with minimum one year guarantee. The floor springs shall be of least possible thickness.
- k) Details/arrangements for after sales/maintenance services shall be furnished.
- l) Work shall be carried out in co-operation and in coordination with all other agencies working at Site.
- m) The civil work as required for fixing of floor springs, hold fast or other works required for the erection and completion of doors/windows etc. shall be done by the Contractor without any extra cost.
- n) Any damage, if caused to the existing work done by other agencies, shall be reinstated by the Contractor to its original condition without any extra cost.
- o) During the course of work, the Contractor shall pay due care to avoid any stains on the powder coating work and if required, the Contractors shall provide necessary protective arrangement as directed by the Architects for which no extra payments shall be made. After the installation is completed, if required by the Architects, the aluminum work shall be washed with mild solution of non alkali soap and water.
- p) The Contractor shall be responsible for the windows/doors/grills etc. being set straight, in plumb level and for their satisfactory operations after the fixing is completed.
- q) Wherever required and as directed strengthening of members shall be done by providing steel/M.S. concealed members without extra cost.
- r) The door shutters may have hydraulic door closer of approved make with minimum one year guarantee as and where shown in the drawings and as directed.

**Mode of measurement & payment:**

The rate for window shutter with frame shall include the cost of materials & labour involved to finish

the work.

The dimension of the window shall be measured clear size of the frame in closed position of shutter between the two outer edges of the frame.

The payment shall be made on completion of work.

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

**ITEM NO: 21 Providing and fixing standard extruded of aluminium section of size 63mm x 38.10mm x 1.2mm , @ Wt. 0.643 Kg/mt with colour Powder Coated aluminium frame for ventilation with 5 mm thick frosted glass as details etc complete for Ventilation (R&B SOR 2024-25 P. No 116/lt. Code- 11036)**

#### 1.0 Materials

##### 1.1 Aluminium Section

- Extruded aluminium section, standard grade
- Size: 63 mm × 38.10 mm × 1.2 mm
- Weight: 0.643 Kg/mt
- Colour: Powder coated as per approved shade
- ISI / approved make

##### 1.2 Glass

- 5 mm thick frosted / etched glass
- Tempered / standard quality as approved

##### 1.3 Accessories

- Aluminium glazing beads
- Screws, fasteners, brackets
- Sealants / gaskets for fixing glass securely

1.4 All materials shall be of approved make and conform to relevant IS standards.

#### 2.0 Workmanship

##### 2.1 Fabrication

2.1.1 Aluminium sections shall be cut, mitered, and assembled to form frame as per ventilation opening dimensions.

2.1.2 Frames shall be joined using approved mechanical fasteners or welding (where required) to ensure rigidity.

2.1.3 Powder coating shall be uniform, smooth, and scratch-free.

2.1.4 Glass shall be cut accurately to size and fitted into frame using glazing beads and gaskets.

2.1.5 Edges of glass shall be properly sealed to prevent rattling or ingress of dust/water.

##### 2.2 Installation

2.2.1 Aluminium frame with glass shall be securely fixed to the wall / opening as per drawing.

2.2.2 Level and plumb alignment shall be checked before final fixing.

2.2.3 Proper anchoring with screws / fasteners shall be provided for structural stability.

2.2.4 Frame and glass shall be cleaned after installation.

##### 2.3 Precautions

(a) Handle glass carefully to prevent chipping or breakage.

(b) Powder coating shall not be damaged during handling or installation.

(c) Frame shall be installed plumb and level.

(d) All joints and fixing points shall be checked for tightness.

#### 3.0 Mode of Measurement and Payment

3.1 Measurement shall be made on per square meter (Sq.mt.) of aluminium frame with glass.

3.2 The rate shall include:

- Supply of extruded aluminium section and 5 mm frosted glass
- Powder coating
- Fabrication, cutting, assembling, and glazing
- Fixing, sealing, and finishing
- All accessories, labour, tools, and incidental charges

3.3 The rate shall be inclusive of complete supply, fabrication, erection, and finishing as per detailed drawings and specifications.

**ITEM NO: 22 Providing and fixing FRP frame size 125x65 mm and 35mm thick FRP shutter with wood grain raised paneled design finish shutter having extra reinforcement on sides & edges in Gel coat finish. The core of the shutter & frame is to be filled up with injected polyurethane foam done in situ along with embedded wood enpieces for stiffening & also taking hinges & fintures. The whole FRP frame & shutter is to be waterproof weatherproof,termiteproof & resistance to mild acid/alkali.Rates are to be inclusive of S.S hinges with fastener sleeve & alluminium fixtures & fastenings.(R&B SOR 2024-25 P. No 93/ I.Code-10036)**

### **Materials**

1. **FRP Frame and Shutter:**  
The door frame shall be of **FRP (Fibre-Reinforced Polymer)** section 125 mm × 65 mm, and the shutter shall be 35 mm thick. Both shall have a **wood-grain raised-panel design finish and gel-coat exterior surface.**
2. **Core Material:**  
The shutter core shall be filled **in-situ** with **injected fire-retardant-grade polyurethane foam** and shall include **embedded wooden pieces** to provide stiffness and to receive hinges and fixtures properly.
3. **Reinforcement:**  
Extra reinforcement shall be provided along sides and edges to ensure strength and dimensional stability.
4. **Performance Requirements:**  
The entire assembly (frame and shutter) shall be **water-proof, weather-proof, termite-proof, and resistant to mild acids and alkalis.**
5. **Fittings and Fixtures:**  
The rate shall include **stainless-steel hinges, necessary screws, aluminium fixtures and fastenings**, all complete as directed.
6. **Quality and Guarantee:**  
The FRP product shall be manufactured by an **ISO 9001-2000-certified company** and supplied with a **minimum 3-year performance guarantee.**
7. **Water:**  
Water used for any fixing mortar or cleaning (if applicable) shall conform to **M-1** specification for potable construction water.

### **M-2 Workmanship**

1. **Fabrication and Finish:**
  - FRP frames and shutters shall be factory-made to ensure uniform quality and smooth gel-coat finish.
  - The design pattern, colour, and texture shall be approved by the Engineer-in-Charge before installation.
2. **Fixing:**
  - The frame shall be fixed in position **true to line, level, and plumb** using suitable holdfasts, anchor bolts, or screws as specified.
  - The shutter shall be hung on **S.S. hinges** fixed securely with screws of suitable size.
3. **Installation:**
  - All joints shall be tight and properly aligned to ensure smooth operation.
  - The door shall open and close freely without warping or twisting.
  - Necessary sealing at the junction of frame and wall shall be done to prevent water or air leakage.
4. **Finishing and Protection:**
  - The surface shall be cleaned and protected during construction.
  - Any scratch or damage during handling shall be repaired with matching gel coat.
5. **Inspection:**
  - Work shall be carried out under the supervision of the Engineer-in-Charge and shall be subject to inspection for finish, alignment, and strength.

### **M-3 Mode of Measurement and Payment**

1. The item shall be measured **per number (each) or per square metre (m<sup>2</sup>)** of shutter area, as specified in the schedule.

2. The rate shall include the cost of **all materials, labour, fittings, fixing, scaffolding, finishing, and cleaning** complete in all respects.
3. No extra payment shall be made for cutting, alignment adjustments, or sealing.
4. Payment shall be made only after satisfactory completion and approval by the Engineer-in-Charge.

**ITEM NO: 23 Providing 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering up to floor two level and finished even and smooth in. (ii) Cement mortar 1:3 (1-cement :3-sand) up to floor two level. (R&B SOR 2024-25 P.No. 136 /It Code- 17002A)**

**1.0. Materials & workmanship**

- 1.1. The relevant specifications of item No. 24 shall be followed except that the thickness of cement plaster shall be 15 mm. The plastering work shall be in single coat on rough side of half brick wall for interior plastering up to floor two level, finished even and smooth in C.M. 1:3.

**2.0. Mode of measurements & payment**

- 2.1. The relevant specifications of item No. 53 shall be followed.
- 2.2. The rate shall be for a unit of One sq. meter.

**ITEM NO: 24 Providing 10mm thick cement plaster in single coat on ceilings and soffits of stairs for interior plastering up to floor two level and finished even and smooth in (i) Cement mortar 1:3 (1-cement: 3-sand) for Ground Floor (R&B SOR 2024-25 P.No.136+ 137/ It Code-17001A+ 17006)**

**1.0. Materials**

- 1.1. Water shall conform to M-1. The cement mortar of proportion 1:3 shall conform to M-13.

**2.0. Workmanship**

**2.1. Scaffolding:**

Wooden bullies, bamboos, planks, trestles and other scaffolding shall be sound. These shall be properly examined before erection and use. Stage scaffolding shall be provided for ceiling plaster which shall be independent of the walls.

**2.2. Preparation of back-ground :**

**2.2.1.** The surface shall be cleaned of all dust, loose mortar droppings, traces of algae, efflorescence and other foreign matter by water or by brushing. Smooth surface shall be toughened by wire brushing if it is not hard and by hacking if it is hard. In case of concrete surface, if a chemical retarded has been applied to the form work, the surface shall be roughened by wire brushing and all the resulting dust and loose particles cleaned off and care shall be taken that none of the readers if left on the surface. Trimming of projections on brick/concrete surfaces where necessary shall be carried out to get an even surface.

**2.2.2.** Raking of joints in case of masonry where necessary shall be allowed to dry out for sufficient period before carrying out the plaster work.

**2.2.3.** The work shall not be soaked but only damped evenly before applying the plaster. If the surface becomes dry, such area shall be moistened again.

**2.2.4.** For external plaster, the peasting operation shall be started from top floor and carried downwards. For internal plaster, the plastering operations may be-started wherever the building frame and cladding work are ready and the temporary supports of the ceiling resting on the wall of the floor have been removed. Ceiling plaster shall be completed before starting plaster to walls.

**2:3. Application of plaster:**

**2.3.1.** The plaster about 15x15 cms. shall be first applied horizontally and vertically at not more than 2 meters intervals over the entire surface to serve as gauge. The surfaces of these gauges shall be truly in plane of the finished plastered surface. The mortar shall then be applied in uniform surface slightly more than the specified thickness, then brought to a true surface by working a wooden



straight edge reaching across the gauges with small upward and sideways movements at a time. Finally, the surface shall be finished off true with a trowel or wooden float according as a smooth or a smooth or a sandy granular texture is required. Excessive troweling or overworking the float shall be avoided. All corners, arises, angles and junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Hounding or chamfering, corners, arises junctions etc. shall be carried out with proper templates to be size required.

**2.3.2.** Cement plaster shall be used within half an hour after addition of water. And mortar or plaster which is partially set shall be rejected and removed forthwith from the site.

**2.3.3.** In suspending the work at the end of the day, the plaster shall be left out clean to the line both horizontally and vertically, when recommencing the plaster, the edges of the old work shall be scraped clean and wetted with cement putty before plaster is applied to the adjacent areas to enable the two to properly join together. Plastering work shall be closed at the end of the day on the body of the wall and nearer than 15 cm. to any corners or arises. It shall not be closed on the body of features such as plaster bands and cornices not at the corners or arises. Horizontal joints in plaster work shall not also occur on parapet tops and copings as these invariably lead to leakage. No portion of the surface shall be left out initially to be packed up later on.

**2.3.4.** Each coat shall be kept damp continuously till the next coat is applied or for a minimum period of 7 days. Moistening shall commence as soon as plaster is hardened sufficiently. Soaking of walls shall be avoided and only as much water as can be readily absorbed shall be used, excessive evaporation on the sunny or windward side of building in hot air or dry weather shall be prevented by hanging matting or gunny bags on the outside of the plaster and keeping them wet.

### **3.0. Mode of measurements & payment**

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

**3.2.** All plastering shall be measured in square meters unless otherwise specified. Length breadth or height shall be measured correct to a centimeter.

**3.3.** Thickness of the plaster shall be exclusive of the thickness of the key i.e. grooves or open joints in brick work, stone work etc. or space between laths. Thickness of plaster shall be average thickness with minimum 10 mm. at any point on this surface.

**3.4.** This item includes plastering up to floor two level.

**3.5.** The measurement of wall plastering shall be taken between the walls or partition (dimensions before plastering being taken) for length and from the top of floor or skirting to ceiling for height. Depth of cover of cornices if any shall be deducted.

**3.6.** Soffits of stairs shall be measured as plastering on ceilings, following soffits shall be measured separately.

**3.7.** For jambs, soffits, sills etc. for openings not exceeding 0.5 sq. met each in area for ends of joints beams, posts, girders, steps etc. not exceeding 0.5 sq. mt each in area and for openings exceeding 0.5. sq. mt and not exceeding 3.00 sq. mt. in each area deductions and additions shall be made in the following manners.

(a) No deductions shall be made for ends of joints, beams, posts etc. and openings not exceeding 0.5 sq. mt each and no addition shall be made for reveals, jambs, soffits, sills etc. of these openings, for finish to plaster around ends of joints, beams posts etc.

(b) Deduction for openings exceeding 0.5 sq. mt but not exceeding 3 sq.mt. each shall be made as follows and no addition shall be made for reveals, jambs, soffits, sills etc. of these openings, (i) When both faces of all wall are plastered with same plaster, deduction shall be made for one face only, (ii) When two faces of wall are plastered with different types of plasters or if one face is plastered and the other pointed, deductions shall be made from the plaster or pointing on the side of frame for door, window etc. on which width of reveals is less than that on the other side but no deductions shall be made on the other side. Where width of reveals on both faces of all are equal, deductions of 50% of area of opening on each face shall be made from areas of plaster and / or pointing as the case may be.

**3.8.** For openings having door frames equal to or projecting beyond the thickness of wall, full deduction for opening shall be made from each plastered face of the wall.

**3.9.** In case of openings of area above 3 sq. mt. each, deduction shall be made for openings but jambs, soffits and sills shall be measured.

**3.10.** The rate shall be for a unit of One sq. meter.

**ITEM NO: 25\_20mm thick sand faced cement plaster on walls up to height 10 metres above ground level consisting of 12mm thick backing coat of C.M. 1:3 (1-cement : 3-sand) and 8mm thick finishing coat of C.M. 1:1 (1-cement : 1-sand) etc. complete. as directed including cost of 12mm x 12mm size grooves to be created as shown in drawing for completed items of work. ( SOR 2024-25 P.No.137/ It Code-17009)**

#### **1.0. Materials**

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

#### **2.0. Workmanship**

**2.1.** The work shall be carried out in the coats. The backing coat (base coat) shall be 12 mm. thick in C.M. 1:3. The relevant

specifications of item No. 17.58(I) shall be followed except that the thickness of back coat shall be 12 mm. average. Before

the first coat hardens its surface shall be beaten up by edges of wooden tapers and close dents shall be made on the surface.

The subsequent coat shall be applied after this coat has been allowed to set for 3 to 5 days, depending upon the weather

conditions. The surface shall not be allowed to dry during this period.

**2.2** The second coat shall be completed to 8 mm. thickness in C.M. 1:1 as described above, including raising sand facing by

bushing. The sample of sand face shall be got approved before the work is started. The whole work shall be carried out

uniformly as per sample approved.

#### **2.3. Curing :**

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

#### **3.0. Mode of measurement & payment**

**3.1.** The relevant specifications of item No. 17.58 shall be followed except that the sand face plaster on outside up to 10 m. above ground level shall be measured under this item.

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

**ITEM NO: 26\_Wall and ceiling painting (Two Coats) including primer & putty) with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth. ( {SOR P. No.143 +148 It. Code. 18031+19032)**

#### **1.0 Materials**

- **Water:** Shall conform to M-1.
- **Cement-based Putty:** White cement-based wall putty of approved brand such as Birla White, JK, or equivalent, conforming to IS 1477 (Part 1 & 2).
- **Primer:** Interior-grade acrylic primer conforming to IS 109 and suitable for plastic emulsion finish.
- **Paint:** Plastic Emulsion Paint of approved brand (e.g. Asian Paints, Nerolac, Berger, Dulux, or equivalent standard quality) conforming to IS 5411 (Part 1) for interior use.
- **Shade:** As approved by the Engineer-in-Charge.

#### **2.0 Workmanship**

##### **2.1 Surface Preparation:**

- The surface shall be clean, dry, and free from dust, grease, efflorescence, and loose particles.

- Old paint or mortar droppings shall be removed completely.
- Surface shall be sandpapered smooth and dusted off before applying putty.

## 2.2 Application of Putty and Primer:

- One or more coats of white cement-based putty shall be applied evenly to fill minor undulations and hairline cracks.
- After drying, the surface shall be rubbed smooth with fine sandpaper.
- One coat of acrylic primer shall then be applied uniformly over the entire surface and allowed to dry completely as per manufacturer's recommendation.

## 2.3 Painting:

- Three coats of approved plastic emulsion paint shall be applied by brush, roller, or spray, maintaining uniform shade and finish.
- Each coat shall be applied only after the previous coat has dried completely.
- The final surface shall have a smooth, even, and pleasing appearance free from brush marks, patches, or streaks.

## 2.4 Protection and Cleaning:

- Surfaces such as floors, doors, windows, and fittings shall be properly covered during painting.
- After completion, paint stains on floors or fittings shall be cleaned using suitable solvents.

## 3.0 Mode of Measurement & Payment

- The work shall be measured in **square meters** of wall surface actually painted.
- Deductions shall be made for openings exceeding 0.5 m<sup>2</sup>.
- No extra payment shall be made for scaffolding, curing, or protection of adjacent surfaces.
- The rate shall include cost of all materials, labour, primer, putty, paint, and surface preparation complete as directed by the Engineer- in-Charge.

**ITEM NO: 27 Finishing wall with weather proof exterior emulsion paint on wall surface (two coats) to give an required shape even shade after thoroughly brushing the surface to remove all dirt, and remains of loose powdered materials etc complete {SOR P. No.147 It. Code. 19031}**

### 1.0 Materials

Water shall be conform M-1. The plastic emulsion shall conform to I.S.: 5411-1969 (part-I).

### 2.0 Workmanship

2.1. **Scaffolding** : The relevant specifications of item-No. 18.11 Para 2.1 shall be followed.

2.2. **Preparation of surface** : The relevant specification of item No. 18.44 Para 2.2 shall be followed.

### 2.3. Preparation of Mix :

This shall be done as per manufacture's instructions. The thinning of emulsion is to be done with water and not with

turpentine. The quantity of thinner to be added shall be as per manufacturer instructions.

### 2.4. Application :

2.4.1. Before pouring into small containers for use, the paint shall be stirred thoroughly in item container. When applying

also, the paint shall be continuously stirred in the smaller container, so that its consistency is kept uniform.

2.4.2. The paint shall be laid on evenly and smoothly by means of crossing and laying off the crossing and consist of

covering the area over with paint, brushing the surface hard for the first time over and then, brushing alternately in

opposite direction two or three times and then finally brushing lightly in direction at right angles to the same. In this process, no brush Marks shall be left after the laying off is finished. No hair marks from the brush or clogging of paint puddles in the corners of panels, angles of molding s, etc. shall be left on the work. The full process of crossing and laying off will constitute one coat.

2.4.3. The paint shall be applied with brush or rollers. For undecorated surfaces, the surface shall be treated with minimum two coats of cement water proofing paint. The second or subsequent coat shall not be started until the proceeding coat as become sufficiently hard to resist marking by brushing being used.

2.4.4. The surface on finishing shall present a flat velvety smooth finish. It shall be even and uniform in shade without patches, brush marks, paint drops etc.

**2.5. Precautions :**

- (a) Old brushes if they are to be used with emulsion paints, shall be completely dried of turpentine or oil paint by washing in warm soap water. Brushes shall be quickly washed in water immediately after use and kept immersed in water fusing break periods to prevent the paint from hardening on the brush.
- (b) In the preparation of wall for plastic emulsion painting, no oil base petals shall be sued in filling cracks, holes etc.
- (c) Splashes on floors etc. shall be cleaned out without delay as they will be difficult to remove after hardening.
- (d) Washing or surfaces treated with emulsion paint shall not be done within 3 to 4 weeks of application

2.6. **Protective payment :** The relevant specifications of item No. 18.11 shall be followed.

**3.0 Mode of measurements and payment**

3.1. The relevant specifications of item No. 18.11 shall be followed.

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

**ITEM NO: 28 Providing and laying Vitrified tiles 8 to10 mm thick ,36" x36" in flooring treads of step sand landing laid on a bed of 12mm thick cement mortar 1:3 (1 cement : 3-coarse sand) finishing with flush pointing in white cement. (SOR 2024-25 P.No.127 /lt. Code-14008DA)**

**1.0 Materials**

Water shall conform to M-1. Cement mortar shall conform to M-11. 36" x36" vitrified tiles (Kajeria, Asian, Bell ceramic, Somani or equivalent standard quality) 8 to 10 mm thick shall conform to relevant Indian standard. The size & colour of vitrified tiles shall be approved by Engineer in charge.

**2.0 Workmanship**

**2.1. Bedding:**

2.1.1. The sub grade shall be cleaned, wetted and mopped. The bedding shall then be laid evenly over the surface tamped and corrected to desired level and allowed to harden enough to offer a rigid cushion to tiles and to enable the mason to place wooden planks across and squat on it.

2.1.2. The vitrified flooring tiles shall be laid on cement mortar bedding of 10 mm. thick in CM. 1:3. The mortar shall have sufficient plasticity for laying and there shall be no hard lumps that would interfere with the evenness of bedding. The base shall be cleared and well wetted. The mortar shall then be spread in thickness not less than 8 mm. at any place and average 20 mm. thickness. The proportion of the cement mortar shall be as specified in the item.

## 2.2. Fixing tiles :

2.2.1. The tiles before laying shall be soaked in water for at least two hours. Neat gray cement grout at 33 kg/Cement/Sq.mt. of honey like consistency shall be spread over the mortar bedding as directed. The edges of the tiles shall be smeared with neat cement slurry. The tiles shall be well pressed and gently tapped with a wooden mallet till they are properly bedded and in level with the adjoining tiles. There shall be no hollows in bed or joints. The joints between the tiles shall be as thin as possible in straight line or as per pattern.

2.2.2. The tiles shall not have staggered joints. The joints shall be true to centre line both ways. The Nahni trap coming in the flooring shall be so positioned that its grating shall replace only one tile as far as possible. Where full size tiles cannot be

fixed they shall be cut (Swan) to the required size and the edges rubbed smooth to ensure straight and true joints. The joints shall be filled with grey cement grout with wire brush or trowel to a depth of 5 mm. and loose material removed. White cement shall be used for pointing the joints. After fixing the tiles finally in an even plane the flooring shall be kept wet and allowed to nature undisturbed for 7 days. The pattern shall be approved by Engineer in charge.

## 2.3. Cleaning:

2.3.1. The surplus cement grout that may have come out of the joints shall be cleaned off before it sets. Once the floor has set, it shall be carefully washed, cleared by dilute acid and dried. Proper precautions and measures shall be taken to ensure that the tiles are not damaged in any way till the completion of the construction.

## 3.0 Mode of measurements & payment

3.1. The work done shall be measured in sq.mt. for visible area of work done. The length and width of the flooring shall be measured not between the faces of skirting or dados or plastered face of wall as the case may be. The paving under dado or skirting shall not be measured. No deduction shall be made not extra paid for any opening in the floor of area up to 0.1 sq.mt. Nothing extra shall be paid for laying the floors at different levels in the same rooms.

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

**ITEM NO: 29 P & L 24"x24" vitrified 8mm thick tile flooring over 20mm (average) base of cement mortar 1:6 ( 1 cement:6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantling of existing flooring and jointed with color cement slurry including finished with flush pointing & cleaning the surface etc. complete for antiskit {SOR 2024-25 P NO.129 It. Code. 14021A }**

## 1.0. Materials

1.1. Water shall conform to M-1. Cement shall conform to M-3. Lime Mortar shall conform to M-10 cement mortar shall conform to M-1. The vitrified 8mm thick tiles shall be light shade antiskit using white cement and conform to M-47.

## 2.0. Workmanship

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

## 2.2. Bedding :

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

2.2.2. In case; of R.C.C. floors, the top shall be left a little rough, all points of level for the finished surface shall be marked out. The lime mortar of proportion 1:1.5 (1 lime putty: 15 fine sand) or cement mortar of proportion C.M. 1 :6 as directed shall be then evenly and smoothly spread over the base. Bedding layer of mortar shall be not less than 10 mm. and average thickness of bedding shall be 25 mm.

## 2.3. Laying :

2.3.1 Before laying the vitrified 8mm thick tiles, the tiles shall be thoroughly wetted with water.

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

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

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

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

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

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

#### **2.4. Curing :**

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

#### **2.5. Polishing :**

2.5.1. After the tiles are properly cured, first grinding shall be done with carborundum stone of 48.to 60 grade grit fitted in machine. Water shall be properly used during grinding. When the chips show up and the floor has been uniformly rubbed, it shall be cleaned with water, baring all pin holes. It shall then be covered with a thin coat of white cement mixed with or without pigments to match the colour of the topping of the tiles. Pin holes if any shall thus be filled. This grout shall be kept .moist for a week. Thereafter se cond grinding shall be done when other works are finished The machine shall be fitted with carborundum of grit 220 to 350 using water in abundance. The floor shall then be washed clean with water. Oxalic acid powder shall then be dusted at 33 grams per square meter on the surface and the surface rubbed with machine fitted with Hessian bobs or rubbed hard with pad of woolen rags. The floor shall then be washed clean and dried with a soft cloth or linen. The finished floor shall not sound hollow when tapped with mallet.

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

**2.5.3.** Testing of the tiles shall be carried out by the contractor at his own cost as per I.S. requirement for required test.

#### **3.0. Mode of measurements & payment**

3.1. The vitrified 8mm thick tiles flooring shall be measured in sq. meters for visible area of work done.

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

3.3. The treads of stairs and steps paved with tiles without nosing shall also be measured under this item.

3.4. Extra rate shall however be paid for such area where width of treads does not exceed 30 cms.

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

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

**ITEM NO: 30 Providing and laying Vitrified tiles 8 to 10 mm thick, in skirting risers of steps and dado on 10 mm thick cement plaster 1:3 (1-cement :3-coarse sand) and jointed with white cement slurry (R&B SOR 2024-25 P.No.127/lt. Code-14009DA)**

**Materials**

Water shall conform to M-1. Cement mortar shall conform to M-11. Vitrified tiles 8 to 10 mm thick (Kajeria, Asian, Bell ceramic, Somani or equivalent standard quality) 6 to 8 to 10 mm thick shall conform to relevant Indian standard. The size & colour of vitrified tiles shall be approved by Engineer in charge.

**1.0 Workmanship**

**1.1. Bedding:**

1.1.1. The sub grade shall be cleaned, wetted and mopped. The bedding shall then be laid evenly over the surface tamped and corrected to desired level and allowed to harden enough to offer a rigid cushion to tiles and to enable the mason to place wooden planks across and squat on it.

1.1.2. The vitrified flooring tiles shall be laid on cement mortar bedding of 10 mm. thick in CM. 1:3. The mortar shall have sufficient plasticity for laying and there shall be no hard lumps that would interfere with the evenness of bedding. The base shall be cleared and well wetted. The mortar shall then be spread in thickness not less than 8 mm. at any place and average 20 mm. thickness. The proportion of the cement mortar shall be as specified in the item.

**1.2. Fixing tiles :**

1.2.1. The tiles before laying shall be soaked in water for at least two hours. Neat gray cement grout at 33 kg/Cement/Sq.mt. of honey like consistency shall be spread over the mortar bedding as directed. The edges of the tiles shall be smeared with neat cement slurry. The tiles shall be well pressed and gently tapped with a wooden mallet till they are properly bedded and in level with the adjoining tiles. There shall be no hollows in bed or joints. The joints between the tiles shall be as thin as possible in straight line or as per pattern.

1.2.2. The tiles shall not have staggered joints. The joints shall be true to centre line both ways. The Nahni trap coming in the flooring shall be so positioned that its grating shall replace only one tile as far as possible. Where full size tiles cannot be

fixed they shall be cut (Swan) to the required size and the edges rubbed smooth to ensure straight and true joints. The joints shall be filled with grey cement grout with wire brush or trowel to a depth of 5 mm. and loose material removed. White cement shall be used for pointing the joints. After fixing the tiles finally in an even plane the flooring shall be kept wet and allowed to nature undisturbed for 7 days. The pattern shall be approved by Engineer in charge.

**1.3. Cleaning:**

1.3.1. The surplus cement grout that may have come out of the joints shall be cleaned off before it sets. Once the floor has set, it shall be carefully washed, cleared by dilute acid and dried. Proper precautions and measures shall be taken to ensure that the tiles are not damaged in any way till the completion of the construction.

**2.0 Mode of measurements & payment**

2.1. The work done shall be measured in sq.mt. for visible area of work done. The length and width of the flooring shall be measured not between the faces of skirting or dados or plastered face of wall as the case may be. The paving under dado or skirting shall not be measured. No deduction shall be made not extra paid for any opening in the floor of area upto 0.1 sq.mt. Nothing extra shall be paid for laying the floors at different levels in the same rooms.

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

**ITEM NO: 31 Providing and fixing machine cut, free edges, mirror polished Granite stone slab 18 mm thick for vertical wall/ Doors/ Windows Sill, Jams for cladding as per design including full moulded round inside edge and laid on 10 mm thick cement mortar 1:3 (1 cement: 3 coarse sand) jointed with grey cement slurry including rubbing and polishing finishing etc. complete. (RA NO-03)**

Granite shall confirm Specification no. M-52 from specification booklet for Building works.

Cement mortar shall confirm Specification no. M-11 of specification booklet for Building works.

Other all specifications for workman ship and laying shall be same as 14.43(B) of specification booklet on page no. 99 for kotah stone flooring.

Workmanship: The work should be carried out as per drawing and as per direction of Engineer in charge. The joints shall be cleaned and flush pointed filled with white / coloured cement matching to granite stone, The surface shall be kept wet for 7 days. After curing the surface shall be washed clean.

Mode of Measurement & Payment:

The unit rate for P/F granite provided, tools and plant required mix, placing in position, finishing as per direction of the Engineer-in- charge, curing and finishing all other incidental expenses to complete the structure or its components as shown on the drawings and according to these specifications. They shall also include the cost of making, fixing and removing of all scaffolding and forms required for the work.

The granite shall be measured for its length and width of granite provided, dimensions to those specified on plan or as directed. The rate shall be for a unit of one square meter.

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

**ITEM NO: 32\_ Providing and laying broken china mosaic flooring for Terrece using 12mm to 20mm of broken piece of glazed tiles to be laid over cement mortar bedding of CM (1:3) to plain or slope & to be tempered to bring Mortar cream out up to surface using white cement including rounding off junction and extending them up to 15 cm along the wall clearing water and oxalic acied etc. as directed (S.O.R 2024-25 P NO. 130 item no. 14035)**

**1.0 MATERIAL - WATER** 1.1 Water shall not be salty brackish and shall be clean, reasonably clear and free objectionable quantities of silt and traces of oil injurious alkalis salts organic matter and other deleterious material which will either weaken the mortar of concrete or cause efflorescence or attack the steel in R.C.C. container for transport storage and huddling of water shall be clean. Water shall confirm to the Standard Specification in I.S. 455 - 1978.

1.2 If required by the Engineer in charge, it shall be tested by comparison with distilled water compression shall be made by means of standard cement tests for soundness, time of setting and mortar strength as specified in I.S. 269 - 1976. Any indication of unsoundness charge in time of setting by 50 minutes or more or decrease of more than 10 percent strength of mortar prepared with distilled water sample when compared with the result obtained with mortar prepared with distilled water shall be sufficient cause for rejection of water under test.

1.3 Water for curing, mortar concrete or masonry should not be too acidic/ too alkaline

1.4 It shall be free of elements which significantly affect the hydration reaction or otherwise interface with the hardening of mortar or concrete during curing or those which produce objectionable stains or other unsightly deposits on concrete or mortar surfaces.

1.5 Hard and bitter water shall not be used for curing.

1.6 Potable water will generally found suitable for curing mortar or concrete.



## **2.0 CEMENT**

2.1 Cement shall be ordinary Portland slag cement as per I.S. 1624 - 1974 or Portland slag cement as per I.S.455-1976.

2.2 Cement shall be stored above the ground level in perfectly and dry and water tight sheds. Wherever bulk storage containers are used, there capacity should be sufficient to cater to the requirements at site and should be cleaned at least once every 3 to 4 months. The aggregate shall be stored in such a way as to prevent admixture of foreign materials. Different size of fine or coarse aggregate shall be stored in separate stock piles sufficiently away from the each other to prevent inter mixing the materials.

## **3.0 SAND**

3.1 Sand shall be natural sand, clean, well graded, hared, strong, durable and gritty particular free from immures amounts of dust, clay, kankar, modules, soft or flaky particles shall alkali salts, organic matter, learn mica or other deleterious substance and shall be got approved from the Engineer in charge. The sand shall not contain more than 8 percent of slit as determined by field test if necessary, the sand

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

I.S. Sieve Designation % by wt. passing

|         |           |
|---------|-----------|
| 4.75 mm | 100       |
| 2.36 mm | 90 to 100 |
| 1.18 mm | 70 to 100 |
| 600 MC  | 30 to 100 |
| 300 MC  | 85 to 70  |
| 150 MC  | 00 to 50  |

3.2 FINE SAND : The fineness modules shall not exceed 1.0 the sieve analysis of fine sand be as under:

I.S. Sieve Designation % by wt. passing

|         |           |
|---------|-----------|
| 4.75 mm | 100       |
| 2.36 mm | 100       |
| 1.18 mm | 70 to 100 |
| 600 MC  | 40 to 85  |
| 300 MC  | 05 to 50  |
| 150 MC  | 00 to 10  |

3.3 Materials shall be stored as to prevent their deterioration of their quality and fitness for the work. Any material which has deterioration or has been damaged or is otherwise considered defective by the Engineer in charge shall not be used in the work.

## **1.4 WATER PROOFING COMPOUND**

Water proofing compound shall be of approved quality and make as approved by Engineer in charge.

1.5 BRICK BATS Brick bat aggregates shall be broken from well burnt or slightly over burnt and dense bricks it shall be homogeneous in texture roughly cubical in shape clean and free from dirt or any other foreign material brick bats shall be of 40 to 50 mm nominal size unless otherwise specified in the item the under burnt or over burnt bricks bats shall not be used.

1.6 CHINA MOSAIC TILE PIECES China mosaic tiles pieces shall be of 50 mm to 90 mm nominal size, tiles pieces shall be made from hard and good quality of tiles

1.7 WHITE CEMENT White cement shall be of approved make it shall confirm definition of I.S. 8042-E-1978 the sample of white cement shall be approved by Engineer in charge.

## **WORKMANSHIP**

First of all surface of the entire terrace shall be cleaned by thoroughly brooming and then by wire brushes. All the loose material, dust and debris shall be removed thoroughly from the entire surface of the terrace.

All joints and cracks shall be raked off and cut in trench which shall be filled by neat cement slurry admixed with water proofing compound. The joints with parapet shall be raked up to 30 cm height and shall be applied by neat cement slurry admixed with water proofing compound.

Neat cement slurry shall be prepared and a water proofing compound of approved make shall be mixed with the slurry in proportion specified by the manufacturer of the compound and shall be laid throughout the surface of the terrace by the use

of brushes mala etc. Cement slurry shall be prepared by adding adequate quantity of water so as to spread it uniformly on the surface.

Cement concrete 1:5:10 (Using 50% of cement mortar 1:5, 1 part of cement and 5 part of coarse sand by volume admixed with water proofing compound of approved make in specified proportion). Of specified thickness shall be laid (Specification of C.C. 1:5:10 shall be followed for the execution of this layer) all over the surface of the terrace in true level and required slope including rounding of junctions of walls and slabs.

After two days of proper curing applying a second coat of cement slurry on entire surface of the terrace..

The entire surface shall be finished with 20 mm thick C.M. 1:4 and China mosaic tiling in true level and slope as directed by Engineer in charge and finally finishing the surface with trowel with white cement slurry (Specification of white glazed tiles flooring shall be followed for the execution of this item)

Finishing the surface with 20 mm thick C.M. 1:4 and China mosaic tiling and finally finishing the surface with trowel with white cement slurry

After two days proper curing the terrace shall be flooded for 15 days.

## **MODE OF MEASUREMENT AND PAYMENT**

The unit rate of flooring shall include the cost of all materials, tools and plant required for mixing, laying of base layer in true level and slope as required applying and placing broken pieces of china mosaic tile in position, compacting, finishing, curing, providing treatment of 30 cm high all over the length of parapets and corners and sill of doors etc. and all other incidental expenses for producing flooring work to complete the structure of its components as shown on the drawings and according to these specifications. They shall also include the cost of making, fixing of all scaffolding and forms required for the work.

The rate of plastering shall include the cost of all labour, materials, tools and plants, scaffolding and all incidental expenses as described herein above.

The plaster work shall be measured for its length and width, limiting dimensions to those specified on plan or as directed. The rate shall be for a unit of one Square Meter.

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

**ITEM NO: 33 Providing laying and jointing in true line and level 40mm dia. U.P.V.C. Pipe ( SCH- 40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials. {SOR 2024-25 P.No. 181 It. Code. 23064}**

- A) = 15 mm dia
- B) = 25 mm dia
- C) = 32 mm dia
- D) = 40 mm dia

1.0 Materials :

2.0 1.1. The low density polythene pipe of specified diameter with 6 Kg./F. Sq. Cm. working pressure shall conform to I.S. 3076-1968. The specials and fillings required shall be of best quality.

3.0 Workmanship:

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

3.2. 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.

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

3.4. P.V.C. pipes shall be supported at the followings intervals :

20 mm. dia. 500 mm.

25 mm. dia. 750 mm.

32mm. dia. 900mm.

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

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

3.7. P.V.CV. pipes shall be fixed on wall with wooden plugs and suitable clamps.

3.8. Jointing the pipes :

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

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

3.9. Laying pipes in trenches :

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

3.9.2. 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 stresses due to reflection. Any deviation required shall be obtained by using proper type of rubber ring joints.

4.0 Mode of measurements & payment:

4.1. 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. **For 40mm dia. pipe**

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

**ITEM NO: 34 Providing laying and jointing in true line and level 25mm dia. U.P.V.C. Pipe ( SCH- 40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials {SOR 2024-25 P.No. 180 It. Code- 23061+ 23062 + 23063 + 23064}**

- A) = 15 mm dia
- B) = 25 mm dia
- C) = 32 mm dia
- D) = 40 mm dia

1.0 Materials : 1.1. The low density polythene pipe of specified diameter with 6 Kg./F. Sq. Cm. working pressure shall conform to I.S. 3076-1968. The specials and fillings 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 allowance shall be made particularly in over ground pipe lines for any change in length of pipe line which may occur during installation or when pipe line is in service.

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. pipe lines should not be kept exposed above ground when it passes through public place, railway lines, roads, road side and footpaths.

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

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

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

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

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

2.8. Jointing the pipes :

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

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 soil found to be free of presence of hard objects 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 stresses due to reflection. Any deviation required shall be obtained by using proper type of rubber ring joints.

3.0 Mode of measurements & payment:

4.3. 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. . **For 25mm dia. pipe**

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

**ITEM NO: 35 Providing laying and jointing in true line and level 15mm dia. U.P.V.C. Pipe ( SCH- 40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials {SOR 2024-25 P.No. 180 It. Code- 23061+ 23062 + 23063 + 23064}**

- A) = 15 mm dia
- B) = 25 mm dia
- C) = 32 mm dia
- D) = 40 mm dia

4.0 Materials : 1.1. The low density polythene pipe of specified diameter with 6 Kg./F. Sq. Cm. working pressure shall conform to I.S. 3076-1968. The specials and fillings required shall be of best quality.

5.0 Workmanship:

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

5.2. 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.

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

5.4. P.V.C. pipes shall be supported at the followings intervals :

20 mm. dia. 500 mm.

25 mm. dia. 750 mm.

32mm. dia. 900mm.

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

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

5.7. P.V.CV. pipes shall be fixed on wall with wooden plugs and suitable clamps.

5.8. Jointing the pipes :

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

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

5.9. Laying pipes in trenches :

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

5.9.2. 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 stresses due to reflection. Any deviation required shall be obtained by using proper type of rubber ring joints.

6.0 Mode of measurements & payment:

4.4. 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. . **For 15mm dia. pipe**

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

**ITEM NO: 36 Providing and fixing to wall ceiling and floor 10.0 Kg. /Kcm2 working pressure polythene pipes of the following outside Dia. Low density, complete with special flange compression type fittings, wall clips etc. including making good the wall ceiling and floor.(G) 110mm (R&B SOR 2024-25 P.No.174, It. Code-23004G)**

- A) = 75mm**
- B) =110mm**

**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 under taken 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 foot 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 pf 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 of after jointing. Empty solvent cement tins, brushes, rags, or paper impregnated with cement should not be buried in the trenches. They should be gathered not left scattered about, as-they can prove to be a hazard to animals, which may chew them.

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

**2.9. Laying pipes in Trenches :**

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

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

**3.0. Mode of measurements & payment**

3.1. The 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 meter**

**ITEM NO: 37 Providing, laying and jointing in true line and level 160 dia U.P.V.C (Type B) conforming to IS 13592-1992 with one end plain and other end socketed with rubber ring, & fittings conforming to ISI 14735-1999 of approved make for drainage system pipe line, pipe shall be jointed with each other with rubber lubricant, pipe shall be fixed on wall using of PVC clamp of the size 160 mm diameter x 210 mm length x 196 mm height at every 2000 mm center to center or shall be concealed in walls as directed including necessary fittings such as bends, shoes etc. including testing of pipes and joints and jointed with adhesive solvent cement including cost of all materials. (R&B SOR 2024-25 P.No.181/ I.No. 24.1,lt. Code-23066)**

**A) = 160 mm dia**

7.0 Materials : 1.1. The low density polythene pipe of specified diameter with 6 Kg./F. Sq. Cm. working pressure shall conform to I.S. 3076-1968. The specials and fillings required shall be of best quality.

8.0 Workmanship:

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

8.2. 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.

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

8.4. P.V.C. pipes shall be supported at the followings intervals :

20 mm. dia. 500 mm.

25 mm. dia. 750 mm.

32mm. dia. 900mm.

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

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

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

8.8. Jointing the pipes :

8.8.1. The pipes and sockets shall be accurately cut. The ends of the pipes and filling should be absolutely free from dirt and dust. The outside surface of the pipes and the inside of the fillings shall then be roughened with emery paper, and then solvent cement shall be applied to the matching surface and pushed home and joint. Since solvent cement is aggressive to P.V.C. care must be taken to avoid applying excessive cement to the inside of pipe sockets as any surplus cement cannot be wiped off after jointing. Empty solvent cement tins, brushes, rags, of paper unimpregnated 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.

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

8.9. Laying pipes in trenches :

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

8.9.2. 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 stresses due to reflection. Any deviation required shall be obtained by using proper type of rubber ring joints.

9.0 Mode of measurements & payment:

4.5. 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. **.For 160mm dia. pipe**

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

**ITEM NO: 38 Providing and fixing cast iron (Spun) Nahni trap of the following nominal diameter of self cleaning design with C.I. screaed down or higned grating including cost of cutting and making good the walls and floor 100mm inlet and 50mm outlet. (C) 100mm (R&B SOR 2024-25 P.No.175/ I.No.23.857, It. Code-23008)**

**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

**ITEM NO: 39 Providing and fixing wash down water closet (European type, W.C. Pan) with integral P or S trap including jointing the trap with soil pipe in Cement Mortar 1:1 (1-Cement : 1-fine sand) including Seal and cover (A) Vitreous China (RA NO-04)**

**Materials**

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

**1.0 Workmanship**

1.1. 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 ho made with C M. 1:1 (1 cement : 1 fine sand).

**2.0 Mode of measurements and payment**

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

2.2. The rate includes cost of all labour for fixing pans and sent and cover, inlet, connections etc. complete including testing the  
same. The payment of seat and cover shall be made separately.

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

**ITEM NO: 40 Providing and fixing wash basin with single hole for pillar tap with C.I. Or M.S. brackets painted with including cutting holes and making good the same including fittings, (fixing C.P brass waste 32 mm dia),( fixing M.I. fisher union 32 mm dia),(fixing pillar tap,cap stan head , screw down high pressure with screws, shank sand back nuts. 15mm dia), (fixing brass screw down stop tap15mm dia), (fixing Rubber plug) (A) Vitreous China (ii) Flat back wash Basin 550mm x 400mm size (i) in white colour (RA NO - 05)**

**Materials**

1.0. The white glazed earthenware wash basin shall be 550 mm. x 400mm. 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, tool3 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.

**ITEM NO: 41 Providing and fixing Urinal or approved quality including conecting the Urinal with waste pipe trap etc. complete. (A) White earthenware flat back or corner type size 430mm x 260mm x 350mm. (R&B SOR 2024-25 P.No.178 / It Code- 23033)**

1.0 **Materials:** The white earthenware flat back or comer type urinal of size 4'30 mm. x 260 mm. x 350 mm. shall conform to M- 64.

**2.0 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 Moor 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 tapering 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.

**ITEM NO: 42 Providing and fixing 600mm x 450mm bevelled edge mirror of superior glass mounted on 6mm thick A.C. sheet or plywood sheet and fixing to wooden pluge with C.P.brass screws and washers. (R&B SOR 2024-25 P.No.177/I.No. - 23024)**

**Materials**

1.0. The 600 mm. x 450 mm. size mirror snail be of superior glass with edge rounded offer beveled as specified. It shall be free from flaws specks, or bubbles and its thickness shall riot 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 load paint. The 6 mm thick ply wood 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..

**ITEM NO: 43 Providing erecting fixing double coated Syntex of Equivalent PVC (ISI) Mark Water Tank of Required Capacity each with all necessary fitting & connection etc. complete on Terrace. (R&B SOR 2024-25 P.No.168 / It. Code- 22014)**

**MATERIALS:**

- 1.1 Polythene water storage tanks shall be as per IS: 12701 this material should be light weight, non-toxic all fittings material shall be H.D.P.E./ brass.
- 1.2 The PVC tank shall be of ISI mark and approved quality and brand like Infra or Sintex or equivalent. Contractor should provide tank of different capacity as per actual requirement at each portion of building.
- 1.3 The thickness of PVC materials shall be as per companies' specification. The size of tank shall be decided by engineer in- charge.

**2) WORKMANSHIP:**

Before commence of work information shall be given to EIC. Work shall be carried out as per instruction received by EIC

- 2.1 Water tank shall be installed on perfectly plained and smooth surface.
- 2.2 Outlet pipe shall be 7.5cm high than bottom surface.
- 2.3 Diameter of overflow pipe shall be bigger than inlet pipe diameter.
- 2.4 Unions shall be used in inlet and outlet pipe.
- 2.5 For connection in water tank required vicer and check nut shall be used.
- 2.6 Fitting shall be done by G.I. /PVC pipe as per instruction of engineer in-charge in each tank. All joints shall be of leak proof.
- 2.7 Fixing shall be done with suitable material suggested / instructed by EIC.

**3) .MODE OF MEASUREMENT AND PAYMENT:**

- 3.1 The rate includes for all labour, materials, tools and equipment required to complete the work in satisfactory manner.
- 3.2 The rates shall be on a unit of "Ltr" basis for completed item to the satisfaction of EIC.

**ITEM NO: 44 Providing and fixing C.P. brass shower rose with 15mm or 20mm inlet. (A) 100mm dia. Each (R&B SOR 2024-25 P.No.177/ It. Code-23023)**

**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 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 one number. 23.143. Providing and fixing 600 mm. x 450 mm. beveled 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 over beveled as specified. It shall be free from flaws specks, or bubbles and its thickness shall not be less than 6 mm. The glass for the mirror shall be uniformly silver plated at the back and shall be free from silvering defects Silvering shall have a protective uniform covering of red lead paint. The 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.

**ITEM NO: 45 Providing and fixing C.P. brass towel rail complete with C.P.brass brackets fixed to wooden plugs with C.P. brass screws. (B) 600mm x 20mm size. (R&B SOR 2024-25 P.No.177/I.No. It. Code-23025)**

**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.

**ITEM NO: 46 Providing and fixing C.P. Bib cock 15 mm Heavy duty with cap (R&B SOR 2024-25 P.No.27 / It. Code- M719)**

**16.1 SCOPE**

16.1.1 The item pertains for providing chromium plated Bib Tap/ Stop cock/ Angular Stop cock/ Angle Valve type (i.e. Pressmatic or threaded) & size as specified in the schedule or as directed by Architect including all accessories & fixing, testing & commissioning.

**16.2 MATERIAL**

16.2.1 It shall be 15 mm. dia. brass screw-down type, with chromium plating, and shall conform to I.S. 781-1977. The taps shall be quarter or full threaded. The bib cock shall be best Indian make and quality as specified in item and approved by Architect/ Engineer in Charge.

16.2.2 A bib cock (stop tap) is a draw off tap with a horizontal inlet and free outlet and stop cock (stop tap) is a valve with a suitable means of connections for insertion in a pipeline for controlling or stopping the flow. They shall be of specified size and shall be of screw down type. The closing device should work by means of shuts against water pressure on a non-metallic washer, which shuts against water pressure on a seating at right angles to the exit of the threaded spindle, which operates it. The handle shall be either crutch or butterfly type securely seated pattern. The cocks (taps) shall open in anti-clockwise direction.

16.2.3 Brass bib taps and stop cocks and angle stop cocks shall conform to IS 781, they shall be polished bright. The minimum finished weight of different sizes of bib tap weight of 15 mm size bib tap and stop cock shall be as per table given below. They shall be sound and free from taps, blow-holes and fittings. Internal & External surface shall be clean, smooth and free from sand and neatly dressed. Taps shall be nickel chromium plated and thickness of coating shall not be less than service grade No.2 of IS 4827 and plating shall be capable of taking high polish which shall not be easily tarnished.

#### 16.2.4 Minimum finished mass of Bib Taps and Stop Valves as per IS: 781:1984 (Reaffirmed 2001).

| Size     |       | MINIMUM FINISHED MASS |                     |                |
|----------|-------|-----------------------|---------------------|----------------|
| Bib Taps |       | Stop valves           |                     |                |
|          |       | Internally threaded   | Externally threaded | Mixed threaded |
| MM       | KG    | KG                    | KG                  | KG             |
| 8.0      | 0.250 | 0.220                 | 0.250               | 0.235          |
| 10.0     | 0.330 | 0.330                 | 0.350               | 0.325          |
| 15.0     | 0.400 | 0.330                 | 0.400               | 0.365          |
| 20.0     | 0.750 | 0.675                 | 0.750               | 0.710          |
| 25.0     | 1.250 | 1.180                 | 1.300               | 1.250          |
| 32.0     | -     | 1.680                 | 1.800               | 1.750          |
| 40.0     | -     | 2.090                 | 2.250               | 2.170          |
| 50.0     | -     | 3.700                 | 3.850               | 3.750          |

#### 16.3 FIXING

16.3.1 The body of stop cock of 15mm diameter with adjustable flange shall be as specified above shall be fixed on water supply line keeping the arrow in the direction of flow as per drawing or as directed.

16.3.2 Transition male/ female adapter with shall be used on either side for PVC pipes.

16.3.3 The threaded portion shall be smeared with white or red lead and around with a few turns of fine spun yarn/ Teflon tape round the screwed end of the cock.

16.3.4 On completion the of tiling work, the outer part of stop cock shall be fixed to the brass body

16.3.5 Every tap completed with its component shall withstand an internally applied hydraulic pressure of 2 MPa (20 kg/sq.cm) maintained for a period of 2 minutes during the period it shall neither leak nor sweat. Leaky joint shall be remade to make it leak proof without any extra cost from contractor.

#### 16.4 THE RATES ARE INCLUSIVE OF:

16.4.1 Bib Tap/ Angle Valve/ Stop cock as specified in Schedule of Quantities.

16.4.2 Wall flanges & Hardware.

16.4.3 Jointing & fixing material. Title – Technical Specification – Plumbing Works Sheet 17 OF 78

16.4.4 Cutting/ drilling hole– cut out in floor/ wall wherever required and making all damage good to original condition after completion of work.

16.4.5 Painting all the metallic parts with two coats of flat oil paint over a coat of primer.

16.4.6 Testing the entire system and rectification of defects if any.

16.4.7 All necessary materials, labour and use of tools.

#### 16.5 MODE OF MEASUREMENT

16.5.1 The measurement shall be for each unit of Bib tap/Stop Cock/Angle Valve fixed. For C.P Bib Cock 15mm

#### 16.6 MODE OF PAYMENT

16.6.1 The contract rate shall be for each unit of Bib tap/Stop Cock/Angle Valve fixed.

**ITEM NO: 47 Providing and fixing C.P. Angle stop cock 15 mm Heavy duty with cap (R&B SOR 2024-25 P.No.27 / It. Code- M718)**

**16.1 SCOPE**

16.1.1 The item pertains for providing chromium plated Bib Tap/ Stop cock/ Angular Stop cock/ Angle Valve type (i.e. Pressmatic or threaded) & size as specified in the schedule or as directed by Architect including all accessories & fixing, testing & commissioning.

**16.2 MATERIAL**

16.2.1 It shall be 15 mm. dia. brass screw-down type, with chromium plating, and shall conform to I.S. 781-1977. The taps shall be quarter or full threaded. The bib cock shall be best Indian make and quality as specified in item and approved by Architect/ Engineer in Charge.

16.2.2 A bib cock (stop tap) is a draw off tap with a horizontal inlet and free outlet and stop cock (stop tap) is a valve with a suitable means of connections for insertion in a pipeline for controlling or stopping the flow. They shall be of specified size and shall be of screw down type. The closing device should work by means of shuts against water pressure on a non-metallic washer, which shuts against water pressure on a seating at right angles to the exit of the threaded spindle, which operates it. The handle shall be either crutch or butterfly type securely seated pattern. The cocks (taps) shall open in anti-clockwise direction.

16.2.3 Brass bib taps and stop cocks and angle stop cocks shall conform to IS 781, they shall be polished bright. The minimum finished weight of different sizes of bib tap weight of 15 mm size bib tap and stop cock shall be as per table given below. They shall be sound and free from taps, blow-holes and fittings. Internal & External surface shall be clean, smooth and free from sand and neatly dressed. Taps shall be nickel chromium plated and thickness of coating shall not be less than service grade No.2 of IS 4827 and plating shall be capable of taking high polish which shall not be easily tarnished.

16.2.4 Minimum finished mass of Bib Taps and Stop Valves as per IS: 781:1984 (Reaffirmed 2001).

| Size     |       | MINIMUM FINISHED MASS |                     |                |
|----------|-------|-----------------------|---------------------|----------------|
| Bib Taps |       | Stop valves           |                     |                |
|          |       | Internally threaded   | Externally threaded | Mixed threaded |
| MM       | KG    | KG                    | KG                  | KG             |
| 8.0      | 0.250 | 0.220                 | 0.250               | 0.235          |
| 10.0     | 0.330 | 0.330                 | 0.350               | 0.325          |
| 15.0     | 0.400 | 0.330                 | 0.400               | 0.365          |
| 20.0     | 0.750 | 0.675                 | 0.750               | 0.710          |
| 25.0     | 1.250 | 1.180                 | 1.300               | 1.250          |
| 32.0     | -     | 1.680                 | 1.800               | 1.750          |
| 40.0     | -     | 2.090                 | 2.250               | 2.170          |
| 50.0     | -     | 3.700                 | 3.850               | 3.750          |

**16.3 FIXING**

16.3.1 The body of stop cock of 15mm diameter with adjustable flange shall be as specified above shall be fixed on water supply line keeping the arrow in the direction of flow as per drawing or as directed.

16.3.2 Transition male/ female adapter with shall be used on either side for PVC pipes.

16.3.3 The threaded portion shall be smeared with white or red lead and around with a few turns of fine spun yarn/ Teflon tape round the screwed end of the cock.

16.3.4 On completion the of tiling work, the outer part of stop cock shall be fixed to the brass body

16.3.5 Every tap completed with its component shall withstand an internally applied hydraulic pressure of 2 MPa (20 kg/sq.cm) maintained for a period of 2 minutes during the period it shall neither leak nor sweat. Leaky joint shall be remade to make it leak proof without any extra cost from contractor.

16.4 THE RATES ARE INCLUSIVE OF:

16.4.1 Bib Tap/ Angle Valve/ Stop cock as specified in Schedule of Quantities.

16.4.2 Wall flanges & Hardware.

16.4.3 Jointing & fixing material. Title – Technical Specification – Plumbing Works Sheet 17 OF 78

16.4.4 Cutting/ drilling hole– cut out in floor/ wall wherever required and making all damage good to original condition after completion of work.

16.4.5 Painting all the metallic parts with two coats of flat oil paint over a coat of primer.

16.4.6 Testing the entire system and rectification of defects if any.

16.4.7 All necessary materials, labour and use of tools.

16.5 MODE OF MEASUREMENT

16.5.1 The measurement shall be for each unit of Bib tap/Stop Cock/Angle Valve fixed. For C.P Bib Cock 15mm

16.6 MODE OF PAYMENT

16.6.1 The contract rate shall be for each unit of Bib tap/Stop Cock/Angle Valve fixed.

**ITEM NO: 48 Providing and fixing Gun metal check or non-return fullway wheel valve.(C) 25mm dia. (R&B SOR 2024-25 P.No.178/ I.No. It. Code-23031C)**

**A) = 25mm dia.**

**B) = 32mm dia.**

**C) = 40mm 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 of 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 For 25mm dia.**

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

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

**ITEM NO: 49 Providing and fixing Gun metal check or non-return fullway wheel valve.(E) 40mm dia. (R&B SOR 2024-25 P.No.178/I.No.It. Code-23031E)**

**A) = 25mm dia.**

**B) = 32mm dia.**

**C) = 40mm 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 of 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 For 40mm dia.**

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

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

**ITEM NO: 50 Providing and constructing soak pit of size 2.46mt. outer and 6.0mt. deep including 23cm thick brick masonry for top 0.75mt. height solid masonry in cement mortar 1:6 and remaining honey combed masonry in cement mortar 1:6 and covered with jodhpuri patti C.I. pipe 100mm dia 1.8mt. long etc. comp. as directed including 15mm plaster in C.M. 1:4 over jodhpuri patti. (RA No 06.)**

**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.**

**1.0 Workmanship**

- 1.1. 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:
- 1.2. The excavation shall be done true to dimensions and level shown in one the plans or as directed.
- 1.3. 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 waifs shall be 7.5 cms.
- 1.4. Masonry walls and plaster work shall be carried out as per relevant specifications of item
- 1.0. Materials :** Water shall conform to M-1. Cement shall conform to M-3. Sand shall confirm 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(8).
- 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 meter 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
- 2.8. pipe the length shall not be cement plaster on the bed concrete.
- 2.9. **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.

**1.0 Mode of measurements and payment**

- 1.1. The cost of connection pipes is not included in the item and shall be paid separately. However, fixing the connection pipes in the walls of gully chamber is included in the rate for gully chambers and nothing extra shall be paid for this separately.
- 1.2. The rate shall be for a unit of One number.

- 1.5. The cover slab shall be constructed as per relevant specifications of 89

**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.

**ITEM NO: 51 Providing and fixing ball cock of approved. Quality as directed. (A) Copper Metal (ii) 50mm dia. (R&B SOR 2024-25 P.No.179/ It. Code- 23037A2)**

**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.

**ITEM NO: 52 Providing and fixing S.W. gully trap with C.I. grating brick masonry chamber and 300mm x 300mm size (inside) with standard weight. (i) Square mouth traps. (B) 150mm x 100mm size P of R type (R&B SOR 2024-25 P.No.184/ I.No.24.19 (i) (B), It. Code-24006B)**

**Materials :** (t) 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. Galley trap of 150 mm. x 100 mm. size shall confirm to .M-70.

**1.0 Workmanship**

- 1.1. 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.

**1.2. Fixing:**

- 1.2.1. 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 a<sup>c</sup>; described in item No. 24.1 (A).

- 1.3. **Brick masonry chamber:** After fixing and testing gully and branch drain, a brick masonry 300 x 330 mm. inside with bricks in CM 1:5 (1 cement : 5 sand) shall be built with a 100 mm. brick work round OH; gully trap from the top of bed concrete up to 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 of so as to slope towards the grating.

- 1.4. 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 lent : 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 gully trap.

**2.0 Mode of measurements & payment**

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

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



**ITEM NO: 53 Constructing brick masonry chamber for underground C.I. Inspection chamber and bends with bricks having crushing strength not less than 35Kg. Cm<sup>2</sup> in C.M. 1:5 C.I. cover with frame (Light duty) 455mm x 610mm internal dimensions, total weight of cover with frame to be not less than 38 Kg. (Wt. of cover 23 Kg) (R.C.C. top slab with '1:2:4 mix (1-cement :2- coarse sand :4-graded stone aggregate 20mm size) foundation concrete 1:5:10 inside plaster 15mm thick with cement mortar 1:3 finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete. (i) Inside dimensions 455mm x 610mm and 450mm deep for single pipe line. (R&B SOR 2024-25 P.No.189/ I.No. 24.44(i), It. Code-24016AA)**

**2.0 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.

**3.0 Workmanship**

3.1. 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:

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

3.3. 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.

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

**1.1. 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.

**2.10. Workmanship**

2.11. 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.

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

2.13. 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).

2.14. 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(8).

2.15. 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.

2.16. The gully grating cover shall be hinged to frame to facilitate its opening for cleaning and repairs. The frames of the gully grating 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..

2.17. The chamber shall have connection pipe, the length of which in meter 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

2.18. pipe the length shall not be cement plaster on the bed concrete.

2.19. **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.

**2.0 Mode of measurements and payment**

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

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

3.5. The cover slab shall be constructed as per relevant specifications of 89

**3.3. Mode of measurements and payment**

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

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

**ITEM NO: 54 Providing and fixing 90 cm high Stainless Steel railing made from anticorrosive 304 grade S.S. pipe of 50 mm dia (16 gauge) as hand rail with S.S. 304 grade baluster of 32 mm dia (16 gauge) as a vertical support fixed in RCC slab / steps of stair at 1.2 Mt. c/c including three horizontal S.S. pipes of 16 mm dia (16 Gauge) at equal distance fixed by 16 mm dia (16 Gauge) S.S. pipe with baluster including accessories as per detailed drawing as directed etc. complete. (RA NO-07)**

**Scope of Work: Stainless Steel Railing Fabrication and Installation**

- **Material:** Anticorrosive 304-grade stainless steel (S.S.)
- **Railing Height:** 90 cm above finished floor / stair level
- **Handrail:** 50 mm diameter × 16-gauge S.S. pipe
- **Balusters (Vertical Supports):** 32 mm diameter × 16-gauge S.S. pipe
- **Baluster Spacing:** Fixed at 1.2 m center-to-center in RCC slab/steps
- **Intermediate Rails:** Three horizontal S.S. pipes of 16 mm diameter × 16-gauge at equal spacing
- **Connections:** Fixed with 16 mm diameter × 16-gauge S.S. pipe brackets and appropriate accessories
- **Accessories:** As per detailed drawing and as directed by site engineer/architect
- **Work Included:** Supply, fabrication, fitting, and installation of railing complete, including cutting, welding, grinding, finishing, and fixing in position

The payment shall be made on Rmt basis

**ITEM NO: 55 Providing and fixing Safety Grills of required pattern for windows/ door using M.S. polished bars, Rectangular CRC Pipes of size 50mm x 30mm x 2mm or Required at required spacing as per design and hold fast with coach bolts including one coat of primer and two coats of matt finished oil painting etc. complete. (RA NO-08)**

**1.0. Materials & Workmanship**

1.1. The relevant specification of item no. 10.100 (A) shall be followed except that the work is for of ornamental grill.

**2.0. Mode of measurements & payment**

2.1. The relevant specifications of item No. 10.100 (A) shall be followed. For Safety Grills

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

**ITEM NO: 56** Construction of an under ground masonry water tank of size 2.00 m X 2.00 m X 1.50 m = 6000 litre capacity as per the approved drawing & design etc. complete. (RA No 09)

**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. 1:4:8 (1 cement : 4 coarse sand : 8 graded brick bat aggregates). The projection of bed concrete beyond the masonry waifs shall be 10 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.

2.3. The rate shall be for a unit of One Litre.

**ITEM NO: 57 Providing, Fixing, Installation of Self Supported Galvalume Roofing with proper overlapping and seaming between different sheets without making holes or preventing the overturning of roof by wind addition made up from superior quality, structural grade steel. Base metal width 912 mm with tolerance of +/- 4 mm, Steel Grade : Grade D Regular Modified Polyster Imported Color Coated Galvalume Steel having Profiled width of 625 mm +/-10 mm. Design, supply, & fabrication of self supported single span arch roof fabricated from mechanically seamed to profiles of Galvalume Cold Rolled Structural Steel coils as per standard ASTM A792, Steel Sheet, Aluminum-Zinc Alloy Coated by Hot-Dip Process. The work should be carried out by specialize and approved agency only. The rate of item is including fitting as per standard specification. (MR)**

|   |  |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|--|
| <b>Technical specifications &amp; Additional conditions for galvalume steel sheets:</b>         |  |  |  |  |  |  |  |  |  |  |
|   |  |  |  |  |  |  |  |  |  |  |
| <b>(a) Technical specifications for galvalume steel sheets:</b>                                 |  |  |  |  |  |  |  |  |  |  |
| · Steel grade: D  |  |  |  |  |  |  |  |  |  |  |
| · Standard: Colour coated galvalume steel sheets complying to ASTM A792                         |  |  |  |  |  |  |  |  |  |  |
| · Coil width: 912 mm, tolerance $\pm 4.00$ mm Profiled width : 625 mm, tolerance $\pm 10.00$ mm |  |  |  |  |  |  |  |  |  |  |
| · Base metal thickness (BMT): 1.10 mm (tolerance as $\pm 0.02$ mm) for 21 mtr Span              |  |  |  |  |  |  |  |  |  |  |
| · Alloy coating: AZ150 (150 gram/Sqm) minimum (Aluminium 55%, Zinc 43.5%, Silicon 1.5%)         |  |  |  |  |  |  |  |  |  |  |
| · Yield strength: 350 MPa   |  |  |  |  |  |  |  |  |  |  |

|  |  |
|--|--|
| ·  | Paint coating: Regular modified polyester  |
| ·  | Top coat of painting: 25 micron minimum (colour 20 micron and primer 5 micron)   |
| ·  | Bottom coat of painting: 12 micron minimum (colour 7 micron and primer 5 micron) |
| ·  |  |
| <b>(b) Make of Galvalume Steel Sheets:</b>   |  |
| Any of the following from the International Market.  |  |
| ·  | JSW, India   |
| ·  | Dongbu Steel Co. Limited, Korea  |
| ·  | Corus Steels, U.K.   |
| ·  | Dofasco Steels, Canada.  |
| ·  | Bethlehem Steels, U.S.A.   |
| ·  | Tata Blue Scope, Australia   |
| ·  | Any other licensed manufacturer/producer, who is the member of Zinc              |
| ·  | Aluminium coaters (ZAC) Association.   |
| The manufacturer shall be ISO certified and follow international standards for Galvalume sheet roofing.  |  |
| <b>(c) Inspection &amp; Testing:</b>   |  |
| Once the material reaches at work site samples shall be drawn from the same for testing, before the sheet is used for roofing at site, these samples can be tested at a reputed laboratory for the following:-   |  |
| ·  | Base metal thickness   |
| ·  | Coating mass (AZ150)   |
| ·  | Yield/tensile strength   |
| ·  | Top & bottom coat thickness  |
| Charges for the same, if any, shall be borne by the contractor. Besides this, the contractor also needs to submit the material test report from the steel mill supplier for each steel coil.   |  |
| Additional conditions  |  |
| a) Contractor shall be responsible for any leakage across laps, from roof, through fasteners etc. complete for a period of two years from the date of completion of work. He shall rectify all the leakage points at his own cost during this period. Security deposit to be deducted at the rate mentioned in the clause 1 of Contract Conditions, for the item of Galvalume sheet roofing, shall be released after two years of completion of the work.                                |  |
| b) Contractor needs to submit warranty for a minimum period of 10 years from the date of supply of Galvalume sheets at site from the principal Galvalume steel manufacturer. The steel mill should have an experience of minimum 5 years in manufacturing this type of Galvalume Steel and document substantiating the same should be submitted with the warranty at the time of supply of sheets at site.   |  |
| c) The Contractor needs to submit a self-certification that the Galvalume Coils to be used by them would be suitable for Self Supported Roofings.  |  |
| d) If any defect in Galvalume sheets is noticed during warranty period, same would be set right by the contractor within 10 (Ten) days after its reporting to the contractor, failing which Competent Authority in reserves the right to get the work executed and amount so incurred would be recovered from the contractor from this contract as well as from any of the amount available from any other contract of the contractor and no claim on this account shall be entertained. |  |
| e) Contractor shall make his own arrangement of generator / electric supply for the  |  |

|   |
|---|
| <p>machinery to be used in fabrication and installation of roofing etc. at site. If electric supply is available complex than contractor can use this electricity and he has to make the payment to on market rates for the actual electric units consumed by him/them as decided by , exclusively for the work of roofing.</p>   |
| <p>f) All safety precautions should be taken by the contractor during the execution of work for ensuring the safety to the laborers/workers.</p>  |
| <p><b>Eligibility Criteria</b></p>  |
| <p>(a). It is a must that the agency should have a turnover of minimum 50 Crores (Plus) per Year in the same business in last 03-Years. Agency should also have an experience of minimum 10-Years in similar type of work and to supplement that, audited balance sheets for last 03-Years may be submitted. Vendor is required to submit the copy of the Invoice (03-Years Old) - Un-priced, And, Copy of Purchase Order (03-Years Old) - Un-priced, to justify their existence in the similar business since last 03 Years.</p> |
| <p>(b). Agency should have the experience of handling minimum three orders in the Government Sector for similar type of work in last 03 – Years. Copy of purchase order received from such Government agency may be enclosed with the tender documents.</p>   |
| <p>(c). Agency should have executed minimum 10 Orders, value more than One crore each in the open market for similar type of work in last 03 – Years. Copy of purchase order received along with the satisfactory performance certificate from the clients must be enclosed to prove their bonafide in undertaking the similar work.</p>  |
| <p>(d). Vendor needs to submit the guarantee/warranty certificates from the principal GALVALUME steel mill supplier. The Steel Mill to have an experience of minimum 5-Years in manufacturing this type of GALVALUME steel and document substantiating the same may please be enclosed with the tender documents.</p>   |

**ITEM NO: 58 Providing and fixing of approved type hangers / clamps / suspension accessories as per site requirement for laying of electrical cables, conduits and for hanging of light fittings / bulbs from Self Supported Proflex Systems Roofing, complete as per specification and directions of Engineer-in-Charge.**

**1. Scope of Work**

The work shall include:

Supply and installation of:

MS/GI hangers, Adjustable rod hangers, C-clamps / beam clamps, U-clamps, Perforated strips, Threaded rods with nuts & washers, Angle supports or trapeze supports

Fixing supports for:

Electrical conduits (PVC / MS / GI)

Cable trays / cable runs, Light fittings, fixtures, LED lights

Junction boxes and accessories

Installation below Self Supported Proflex Roofing / PEB roofing system

**2. Materials**

All materials shall be ISI marked / approved make and shall conform to relevant IS standards.

**2.1 Hangers & Supports**

Made from Mild Steel (MS) / Galvanized Iron (GI)

Minimum thickness:

MS flats / angles: 3 mm

Threaded rods: 8 mm / 10 mm dia (as required)

Properly straight, free from rust, bends or defects

**2.2 Fasteners**

Nuts, bolts, washers of GI / MS Anchor fasteners / dash fasteners wherever required

Anti-vibration rubber gaskets where required for lighting fixtures

2.3 Corrosion Protection Hot dip galvanized or Red oxide primer + two coats of enamel paint

In corrosive or external areas: fully galvanized accessories mandatory

### 3. Installation & Workmanship

Hangers and supports shall be:

Firmly fixed to roofing members / purlins

Properly aligned and leveled

Adequately spaced to avoid sagging

Spacing shall be as per:

IS standards

Manufacturer's recommendation

Engineer-in-Charge instructions

No welding on roofing sheets unless specifically permitted

Drilling shall be neat and shall not damage roofing sheets Rubber washers/grommets to be used where required to prevent leakage

All exposed metal surfaces shall be painted after installation

### 4. Load & Safety Requirements

Supports shall be designed to carry:

Dead load of fixtures

Cable load

Future maintenance load Factor of safety shall be maintained

No sagging or vibration permitted after installation

### 5. Measurement

Measurement shall be: Per number (Each) for hangers/clamps

OR

Per running meter for continuous support systems

(as specified in BOQ)

Rate shall include:

Material supply Fixing accessories Cutting, drilling, welding if required Labour, tools, scaffolding

Painting and finishing

Complete installation

### 6. Rate Includes

✓ Cost of all materials

✓ Labour charges

✓ Tools & tackles

✓ Scaffolding / staging

✓ Testing and alignment

✓ All leads & lifts

✓ Complete in all respects

### 7. Exclusions (if any – unless specified)

Cost of light fittings

Cost of cable trays / conduits

Electrical wiring

Special structural modifications

### 8. Compliance

IS 732 – Electrical wiring installations IS 3043 – Earthing

Manufacturer's installation guidelines  
CPWD / State PWD specifications Direction of Engineer-in-Charge

**ITEM NO: 59\_Providing & fixing number plate of marble stone of required size set in C.M. 1:4 Including finishing and engraving letter etc. complete (S.O.R 2024-25 P NO. 56 item code 26087)**

1.0 Materials

1.1 Marble Stone

- Type: Natural marble / slate of approved quality
- Size: As required per site / drawing
- Thickness: As per design specification

1.2 Cement Mortar

- Mix: 1:4 (Cement : Sand)
- For fixing marble plate securely

1.3 Engraving Material / Tools

- Tools for lettering / numbering
- Paint / enamel for engraved letters (if required)

1.4 All materials shall be of approved make and conform to relevant standards.

2.0 Workmanship

2.1 Installation

2.1.1 Marble plate shall be cut and finished to the required size and shape.

2.1.2 Plate shall be fixed in position using cement mortar (1:4) ensuring proper alignment and level.

2.1.3 Edges shall be neatly finished.

2.1.4 Lettering / numbering shall be engraved on the marble surface as per instructions / design.

2.1.5 Engraved letters shall be clean, uniform, and legible. Paint / enamel may be applied inside engraving for better visibility (if specified).

2.2 Precautions

- (a) Marble shall be handled carefully to avoid chipping or damage.
- (b) Engraving shall be done accurately as per approved pattern.
- (c) Fixing mortar shall be fully set before applying finishing touches.
- (d) Plate shall be perfectly plumb and level.

### 3.0 Mode of Measurement and Payment

3.1 Measurement shall be per number of marble plates installed.

3.2 The rate shall include:

- Supply of marble / slate plate
- Cement mortar (1:4) fixing
- Cutting, finishing, and engraving of letters / numbers
- Painting / enamelling (if applicable)
- Labour, tools, and incidental charges

3.4 The rate shall be inclusive of complete supply, fixing, and finishing as directed.

Deputy Executive Engineer  
Road Project Sub Division  
Jilla Panchayat Gandhinagar

Executive Engineer  
R & B Panchayat Division  
Gandhinagar