

DETAIL SPECIFICATION

GIDC 2025-26

Name of Work : GIDC 2025-26 Construction of Sarvajanik
Hall at Dehri Kamarvad & Smasan Gruh at Dehari
Ramvadi and Dehari Javaharvadi Ta Umargam Dist
Valsad

SPECIFICATION

Item No. 1	Excavation for foundation up to 1.5 M depth including sorting out and stacking of useful materials and disposing of the excavated stuff up to 50 meter lead.(B) Dence or hard soil.
	<p>1.0. General</p> <p>1.1. Any soil which generally yields to the application of pickaxes 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</p> <p>2.0. Clearing the site</p> <p>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 remove! as directed The materials so obtained shall be property of the Government and shall be conveyed und 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</p> <p>2.2. The rate of side clearance is deemed to be included in the rate of earth work for which no extra will be paid.</p> <p>3.0. Setting out After clearing the site the centre 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 work. Contractor shall supply labours materials, etc. required for setting out the reference marks and bench 'marks and shall maintain them as long as required and directed.</p> <p>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 it not specified. The bottom of the excavated area shall be leveled both longitudinally and transversely as directed by removing and watering as required No. earth filling will be allowed for brining it to level If by mistake or any excavation is made deeper or wider than, that 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.</p> <p>5.0. Disposal of the excavated stuff</p> <p>5.1. The excavated stuff of the selected type shall be used in filling the trenches and plinth or leveling the ground in layers including ramming and watering etc.</p> <p>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.</p> <p>6.0. Mode of measurements & payment</p> <p>6.1. 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-m-charge. No payment shall be made for surplus excavation made in excess of above requirements or due to stopping and sloping back as found necessary on account of conditions of soil and requirements of safety</p> <p>6.2. The rate shall be for a unit of one cubic meter</p>

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 off the excavated stuff upto 50 Meter lead.(B) Dense and Hard Soil
	The item shall be executed as per the relevant specification of General Technical Specification for Building works Booklet It. No. 4.0 . 0. 2 (B)/ Page No. 32. The Item shall be measured & paid as finished work in Cum.
Item No. 3	'Filling available excavated earth (Including rock in trenches plinth, sides of foundations etc. in layers not exceeding 20 cm. in depth consolidating each deposited layer by ramming and watering)
	<p>1.0. Workmanship</p> <p>1.1. The earth to be used for filling shall be free from salts, organic or other foreign matter. All clods of earth shall be broken.</p> <p>1.2. 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.</p> <p>1.3. 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.</p> <p>1.4. The finished level of filling shall be kept to shape intended to be given to floor.</p> <p>1.5. 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.</p> <p>1.6. 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.</p> <p>2.0. Mode of Measurements & Payment</p> <p>2.1. 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.</p> <p>2.2. The rate shall be for a unit of one cubic meter.</p>
Item No. 4	'Providing & filling in plinth with murrum or yellow soil or selected soil in layers of 20 cm. Thickness. Incl. watering, ramming & consolidation etc. complete.
	The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.4.0.0.4 P.No.35
Item No. 5	'Providing and laying cement concrete 1:3:6 (1-Cement : 3- coarse sand : 6-grade brick bats aggregates 40 mmnominal size) and curing complete including cost of formwork in (A) PCC
	<p>The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.5.3.14(A) P.No.38.</p> <p>For form work the relevant specification shall be followed as per General Technical specification for Building work booklet It.No.9.1 (A) P.No.63.</p>
Item No. 06	'Providing and laying cement concrete 1:2:4 (1-Cement : 2- coarse sand : 4-hand Machine crushed stone aggregates 40 mmnominal size) and curing complete including cost of formwork in (A) PCC

	<p>The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.5.3.14(A) P.No.38. except Cement concrete 1:2:4</p> <p>For form work the relevant specification shall be followed as per General Technical specification for Building work booklet It.No.9.1 (A) P.No.63. except Cement concrete 1:2:4</p>
Item No. 07	<p>'Providing and laying ordinary Laid cement concrete M.250 and curing complete including the cost of formwork but Excluding the cost of reinforcement for reinforced concrete work in foundation, footings base of column and mass concrete. (A) Footing/ Raft</p>
	<p>1.0. Materials & Workmanship</p> <p>1.1. The relevant specifications 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 : 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 shattering as to secure and maintain the requisite cover of concrete over the reinforcement. In case of cantilevered or doubly reinforce beams or slabs, the main reinforcing bars shall be held in position by introducing chain spacers or supports bars at 1.0 to 1.2 meter centers. (ii) In case of columns and walls, the vertical bars shall be kept in position by means of timber tempthes with slots accurately out in them, the tempthes shall be removed after concreting has been done below it. The bars may be also be suitably tied by means of annealed steel wires to the shuttering to maintain their position during concreting.</p> <p>1.2. AH 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 mort, 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.</p> <p>2.0. Mode of Measurement & Payment</p> <p>2.1. The relevant specifications of item No. 5.3.13 shall be followed.</p> <p>2.2. The volume Occupied by reinforcement shall not be deducted from R.C.C. work.</p> <p>2.3. The rate shall be for a unit of one cubic meter.</p>
Item No. 08	<p>'Providing and laying ordinary Laid cement concrete M.250 and curing complete including the cost of formwork but Excluding the cost of reinforcement for reinforced concrete work in All Types of Column D) Column, Pillers, posts and struts , upto Plinth</p>
	<p>1.0. Materials & Workmanship</p> <p>1.1. The relevant specifications of item No. 5.4.1. shall be followed for concrete work and item No. 9.1. shall be followed for form work and centering work. The finishing shall be done in cement mortar 1:3 (1 cement: 3 fine sand) as per item No. 17.59(1). The cross sectional area of beam shall be specified in item.</p> <p>2.0. Mode of measurement & payment</p> <p>2.1. The relevant specification of item No. 5.4.1. shall be followed but the form work and centering work shall be included in the item.</p> <p>2.2. The rate shall be for a unit of one cubic meter.</p>
Item No. 09	<p>'Providing and laying ordinary Laid cement concrete M.250 and curing complete including the cost of formwork but Excluding the cost of reinforcement for reinforced concrete work in All Types of Column D) Column, Pillers, posts and struts, upto Ground Floor</p>
	<p>The Item shall be executed as per the relevant specifications of general technical specification for building work booklet Item No. 5.4.1 + 9.1(G)(i)/ Page 65 except para 2.0</p> <p>The Item shall be measured & paid as finished work in Cum.</p>

Item No. 10	'Providing and laying ordinary Laid cement concrete M.200 and curing complete including the cost of formwork but Excluding the cost of reinforcement for reinforced concrete work in All Types of Column D) Column, Pillers, posts and struts, upto Ground Floor
	The Item shall be executed as per the relevant specifications of general technical specification for building work booklet Item No. 5.4.1 + 9.1(G)(i)/ Page 65 except para 2.0 & cement concrete M 200 The Item shall be measured & paid as finished work in Cum.
Item No. 11	"Providing and laying ordinary Laid cement concrete M.200 and curing complete including the cost of formwork but Excluding the cost of reinforcement for reinforced concrete work in All Types of Column D) Column, Pillers, posts and struts, upto First Floor
	The Item shall be executed as per the relevant specifications of general technical specification for building work booklet Item No. 5.4.1 + 9.1(G)(i)/ Page 65 except para 2.0 cement concrete M200 The Item shall be measured & paid as finished work in Cum.
Item No. 12	'Providing and laying ordinary Laid cement concrete work M250 and curing complete including the cost of form work but excluding the cost of reinforcement of reinforced concrete work in Beams. (E) Beam, upto Plinth
	1.0. Materials & Workmanship 1.1. The relevant specifications of item No. 5.4.1. shall be followed for concrete work and item No. 9.1. shall be followed for form work and centering work. The finishing shall be done in cement mortar 1:3 (1 cement: 3 fine sand) as per item No. 17.59(1). The cross sectional area of beam shall be specified in item. 2.0. Mode of measurement & payment 2.1. The relevant specification of item No. 5.4.1. shall be followed but the from work and centering work shall be included in the item. 2.2. The rate shall be for a unit of one cubic meter.
Item No. 13	'Providing and laying ordinary laid cement concrete work M250 and curing complete including the cost of form work but excluding the cost of reinforcement of reinforced concrete work in Beams Ground Floor
	The Item shall be executed as per the relevant specifications of general technical specification for building work booklet Item No. 5.4.1+ 9.1(G)(i)/ Page 65 except para 2.0 The Item shall be measured & paid as finished work in Cum
Item No. 14	'Providing and laying ordinary Laid cement concrete M.200 and curing complete including the cost of formwork but Excluding the cost of reinforcement for reinforced concrete work in All Types of Beams,(E) Beam, Ground Floor
	The Item shall be executed as per the relevant specifications of general technical specification for building work booklet Item No. 5.4.1+ 9.1(G)(i)/ Page 65 except para 2.0 The Item shall be measured & paid as finished work in Cum
Item No. 15	'Providing and laying ordinary Laid cement concrete M.200 and curing complete including the cost of formwork but Excluding the cost of reinforcement for reinforced concrete work in All Types of Beams,(E) Beam, First Floor
	The Item shall be executed as per the relevant specifications of general technical specification for building work booklet Item No. 5.4.1+ 9.1(G)(i)/ Page 65 except para 2.0 The Item shall be measured & paid as finished work in Cum
Item No. 16	'Providing and laying ordinary Laid cement concrete work M250 and curing complete including the cost of form work but excluding the cost of reinforcement of reinforced concrete work in Lintel. upto Ground Floor

	<p>The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.5.00.5 P.No.48.</p> <p>For form work the relevant specification shall be followed as per General Technical specification for Building work booklet It.No.9.1 (A) P.No.63</p>
Item No. 17	'Providing and laying ordinary Laid cement concrete work M250 and curing complete including the cost of form work but excluding the cost of reinforcement of reinforced concrete work in Chajja. Upto Ground Floor
	<p>The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.5.4.4 P.No.44.</p> <p>For form work the relevant specification shall be followed as per General Technical specification for Building work booklet It.No.9.1 (A) P.No.63.</p>
Item No. 18	'Providing and laying ordinary Laid cement concrete M.200 and curing complete including the cost of formwork but Excluding the cost of reinforcement for reinforced concrete work in Chajja. Upto Ground Floor
	<p>The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.5.4.4 P.No.44.</p> <p>For form work the relevant specification shall be followed as per General Technical specification for Building work booklet It.No.9.1 (A) P.No.63.</p>
Item No. 19	'Providing and laying ordinary Laid cement concrete M.200 and curing complete including the cost of formwork but Excluding the cost of reinforcement for reinforced concrete work in All Types of Slab,All Thickness (C) Slab - Ground Floor
	<p>1.0. Materials & Workmanship</p> <p>1.1. The relevant specifications of item No. 5.4.4. shall be followed except the grading of concrete shall be controlled concrete M-200 grades for the works as specified in the item.</p> <p>2.0. Mode of measurements & payment</p> <p>2.1. The relevant specifications of item No. 5.8.1. shall be followed.</p> <p>2.2. The rate shall be for a unit of one cubic meter.</p>
Item No. 20	'Providing and laying ordinary Laid cement concrete M.200 and curing complete including the cost of formwork but Excluding the cost of reinforcement for reinforced concrete work in All Types of Slab,All Thickness (C) Slab First Floor
	<p>1.0. Materials & Workmanship</p> <p>1.1. The relevant specifications of item No. 5.4.4. shall be followed except the grading of concrete shall be controlled concrete M-200 grades for the works as specified in the item.</p> <p>2.0. Mode of measurements & payment</p> <p>2.1. The relevant specifications of item No. 5.8.1. shall be followed.</p> <p>2.2. The rate shall be for a unit of one cubic meter.</p>
Item No. 21	'Providing and fixing TMT bars Fe-500D steel reinforcement for R.C.C. work including binding, bending and placing in position complete upto floor two level ,Ground Floor , First floor , Terrace Floor All Floor Level.
	<p>1.0. GENERAL</p> <p>This work shall consist of furnishing and placing TMT Fe-500D Conforming to IS 1786 2008 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.</p>

2.0. MATERIAL

2.1. TMT Bars

Reinforcements may be either **TMT Fe-500D** tensile steel, high strength deformed bars. They may be uncoated or coated with epoxy or with approved protective coatings.

2.2. T.M.T. 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 steelbinding 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 1 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.

10.2. While welding may be permitted for T.M.T. 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

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

is 0.4 or less.

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

10.4. 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

10.5. 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 spilling of the concrete

10.6. 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

10.7. 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 no 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 sheer not bending moments is maximum.

10.8. 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

10.9. 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 steelwill 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 are welding using a process which excludes air form 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 form the actual site and their number shall frequency to test shall be as directed by the Engineer in charge

11.0 MODE OF MEASUREMENTS and PAYMENT

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	Diamete r 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

Excess consumption over 5% willbe charged at penal rate.

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..

	<p>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.</p> <p>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. <u>No Payment shall be given for Lap.</u></p> <p>The rate shall be for a unit of One Kg.</p>
Item No. 22	'Brick work using common brunt clay building bricks having crushing strength not less than 35 kg/sqcm. in foundation and plinth in cement mortar 1:5 (1 cement :5 fine sand) etc.comp. (B) Conventional Ground floor upto Plinth
	<p>The Item shall be executed as per the relevant specifications of general technical specification for building work booklet Item No. 6.13 [A] / Page No.51.</p> <p>The Item shall be measured & paid as finished work in Cum.</p>
Item No. 23	'Brick work using common brunt clay building bricks having crushing strength not less than 35 kg/sqcm. in superstructure above plinth level upto floor two level in cement mortar 1:5 (1 cement :5 fine sand) etc.comp. (B) Conventional Ground Floor
	<p>1 The Item shall be executed as per the relevant specifications of general technical specification for building work booklet Item No. 6.13 [A] / Page No.51.</p> <p>The Item shall be measured & paid as finished work in Cum.</p>
Item No. 24	'Providing 15mm thick cement plaster in single coat on Rough (Similar)side of single or Full/half brick walls for interior plastering upto floor two level and finished even and smooth in (ii) Cement mortar 1:3 (1-cement :3-sand) Ground Floor
	<p>General</p> <p>This work shall consist of providing 15 mm thick cement plaster in Two coat on brick/concrete wall for interior plastering of the shape and dimensions shown on the drawings and conforming to these Specifications or as approved by the Engineer in charge</p> <p>Material</p> <p>CEMENT</p> <p>Cement shall confirm Specification No M-3,</p> <p>SAND</p> <p>Sand shall confirm specification no M-6,</p> <p>WATER</p> <p>Water shall confirm specification no M-1</p> <p>WORKMANSHIP</p> <p>specification no 17.61 (II) and 17.95 shall be applied for this item</p> <p>The surface shall be Mala troweled finish</p> <p>The plaster shall then be finished off with a trowel The straight edge shall be worked on screeds with a small upward and side way motion 50mm or 75mm at a time. Finally, the surface shall be finished off with a plaster's wooden float.</p>

	<p>Mode of Measurement & Payment :</p> <p>The Item shall be measured for its breadth and height limiting dimensions to those specified on plan or as directed. The rate shall be for a unit of one square meter.</p> <p>The payment will be made on square Meter basis of the finished work.</p> <p>The rate shall be for a unit of one square meter.</p>
Item No. 25	<p>'20mm thick sand faced cement plaster on walls upto 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. Upto Ground Floor to Second Floor</p>
	<p>The item shall be executed as per the relevant specifications of General Technical specifications for Building works Booklet It. No.17.95 / Page 122. The Item shall be measured & paid as finished work in Sqm.</p>
Item No. 26	<p>'Providing and fixing M.S. grill of required pattern of windows etc. with M.S.. flats at required spacing and frame around square or round headed bolts and nuts or by screws.including applying a priming coat of red lead paint and two coats of oil painting etc complete (A)Plain grill</p>
	<p>The Item shall be executed as per the relevant specifications of general technical specification for building work booklet Item No.10.100 [A]./ Page No.75</p> <p>The Item shall be measured & paid as finished work in Kg.</p>
Item No. 27	<p>'Wall painting (two coats) with plastic emulsion like Asian paints Apcolite or equivalent of brand and manufacture on undecorated wall primer surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.</p>
	<p>The item shall be executed as per the relevant specifications of General Technical specifications for Building works Booklet It. No.18.57/ Page 136. The Item shall be measured & paid as finished work in Sqm.</p>
Item No. 28	<p>'Finishing wall with weather proof exterior emulsion paint like Asian Paint Apex or Equivalent on wall surface (two coats) after appliaction of Asian Paint or equivalent exterior Primer to give an required shape even shade after thoroughly brushing the surface to remove all dirt, and remains of loose powdered materials.etc complete</p>
	<p>The item shall be executed as per the relevant specifications of General Technical specifications for Building works Booklet It. No.18.57/ Page 136. The Item shall be measured & paid as finished work in Sqm.</p>
Item No. 29	<p>'Providing and laying polished Granite Slab 18mm thick in Risers of steps Dedo, window sill, jembs and pillars laid 10 mm thick Cement Mortar 1:4 (1-Cement : 4-Coarse Sand) and jointed with Grey Cement Slurry including full molded round edges , rubbing and polishing etc. complete.</p>
	<p>1.0 MATIRIAL</p> <p>WATER</p> <p>1.1 Water shall not be salty brackish and shall be clean reasonably clear and free objectionable quantities of silt and traces of oil j\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 specified in I S 455 -1978</p> <p>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</p>

	<p>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 30 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.</p> <p>1.3 Water for curing mortar concrete or masonry should not be too acidic or too alkaline</p> <p>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</p> <p>1.5 Hard and bitter water shall not be used for curing</p> <p>1.6 Potable water will generally found suitable for curing mortar or concrete</p> <p>2.0 CEMENT</p> <p>2.1 Cement shall be ordinary Portland slag cement as per IS 1624 -1974 or Portland slag cement as per IS 455-1976</p> <p>2.2 Cement shall be stored above the ground level in perfectly dry and water tight sheds. Wherever bulk storage containers are used, their 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 intermixing the materials.</p> <p>3.0 SAND</p> <p>3.1 Sand shall be natural sand, clean well graded, hard 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.</p> <p>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: _</p> <p>I. S. Sieve Designation % by wt. passing 4.75 mm 100 2.36mm 90 to 100 1.18 mm 70 to 100 600 MC 30 to 100 300 MC 85 to 70 150 MC 00 to 50</p> <p>3.2 FINE SAND: The fineness module shall not exceed 1.0 the sieve analysis of fine sand be as under: _</p> <p>IS. Sieve Designation % by wt. passing 4.75 mm 100 2.3 6mm . 100 1.18 mm 75 to 100 600 MC 40 to 85 300 MC 05 to 50 150 MC 00 to 10</p> <p>3.3 Materials shall be stored as to prevent their deterioration of their quality and fitness for the work. Any material which has deteriorated or has been damaged or is otherwise considered defective by the Engineer-in-charge shall not be used in the work.</p> <p>4.0 Machine polished Granite stone slab 18mm thick (Single place not more than 150 cm) as per design</p> <p>The Item shall be measured & paid as finished work in Sqm</p>
Item No. 30	<p>Providing and laying polished Granite Slab 18mm thick in Risers of steps Dedo, window sill, jembs and pillars laid 10 mm thick Cement Mortar 1:4 (1-Cement : 4-Coarse Sand) and jointed with Grey Cement Slurry including full molded round edges , rubbing and polishing etc. complete.</p>
	<p>The item shall be executed as per the relevant specifications of General Item No- 29. The Item shall be measured & paid as finished work in Sqm.</p>

Item No. 31	'P & L 24" x 24" vitrified 8 mm thick tile flooring over 20 mm (average) base of cement mortar 1:6 (1 cement: 6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantling of existing flooring and jointed with color cement slurry including finised with flush pointing & cleaning the surface etc. complete for light shade
	<p>The item shall be executed as per the relevant specification of General Technical Specification for Building works Booklet It. No. 14.29 /Page No. 96. except that the 24" x 24" vitrified 8 mm thick tile flooring over 20 mm (average) make Johnson kajaria, bell as 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 finised with flush pointing & cleaning the surface etc. complete for diff shed as directed by the Engineer in charge.</p> <p>The payment will be made on square Meter basis of the finished work.</p>
Item No. 32	'Providing and laying Vitrified tiles 8 to 10 mm thick , 24" x 24" in skirting risers of steps and dedo on 10mm thick cement plaster 1:3 (1-cement : 3-coarse sand) and jointed with white cement slurry
	<p>The item shall be executed as per the relevant specification of General Technical Specification for Building works Booklet It. No. 14.29 /Page No. 96. except that the 24" x 24" vitrified 8 mm to 10 mm thick tile flooring over 10 mm (average) make Johnson kajaria, bell as base of cement mortar 1:3 (1 cement: 3 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 finised with flush pointing & cleaning the surface etc. complete for diff shed as directed by the Engineer in charge.</p> <p>The payment will be made on square Meter basis of the finished work.</p>
Item No. 33	'Providing and laying polished Kota stone slab flooring over 20mm (Average) thick base of cement mortar 1:6 (1-cement : 6-coarse sand) or L.M. 1.1.5 (1-Lime putty :1.5 - coarse sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of slab including rubbing and polishing etc. complete. (A) 25mm thick
	<p>The item shall be executed as per the relevant specification of General Technical Specification for Building works Booklet It. No. 14.29 /Page No. 96. 'Providing and laying polished Kota stone slab flooring over 20mm (Average) thick base of cement mortar 1:6 (1-cement : 6-coarse sand) or L.M. 1.1.5 (1-Lime putty :1.5 - coarse sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of slab including rubbing and polishing etc. complete. (A) 25mm thick. new surface or fixing on existing flooring by adhesive material including dismantling of existing flooring and jointed with color cement slurry including finised with flush pointing & cleaning the surface etc. complete for diff shed as directed by the Engineer in charge.</p> <p>The payment will be made on square Meter basis of the finished work.</p>
Item No. 34	'Providing and fixing flush door both sides laminated and shutter fabricated from 35 mm thick solid core +malemine faced three layered pre laminated flat pressed wood based exterior grade bonded BWP/BWR synthetic resin having stamped IS 12823 grade I type II including three coats of lacquer polishing to exposed wooden surfaces and Stainless steel decorative type designs fixtures / fastening 2Nos. Handles, 2Nos. Aldropes, towerbolt etc. as per architectural detailed drawing and as directed by engineer in charge..

	<p>The Item shall be executed as per the relevant specifications of general technical specification for building work booklet Item No. 19.12 [A] II / Page No.69.</p> <p>The Item shall be measured & paid as finished work in Sqm.</p>
Item No. 35	<p>'Applying two coats of Birla (white cement based) or (acrylic lappy-putty) or equivalent & two coats of primer of approved brand and manufacture on new wall surface to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth.</p>
	<p>Birla Lappy Putty Birla Lappy Putty shall be of Approved brand and quality as approved by Engineer in charge Mode of Measurement & Payment : The Item shall be measured for its breadth and height 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. The rate shall be for a unit of one square meter.</p>
Item No. 36	<p>'Providing and Fixing 0.6 x 0.3m Granite Plate or Write painting figuring and lettering on Plate (ii) indian (letters/ figures) with appropriate background of appropriate paint or Fixing Plate C:M 1:4 Cement Moratar on Wall Suraface complete as directed by Engineer in charge (School Name, Yojan)</p>
	<p>Write painting figuring and lettering on Plate Mode of Measurement & Payment : The Item shall be measured for its No limiting dimensions to those specified on plan or as directed. The rate shall be for a unit of one No. The payment will be made on No basis of the finished work. The rate shall be for a unit of No.</p>
Item No. 37	<p>'Providing and fixing shed using G.I Pipes and G.I. Sheets in required shape and design including bending, fixing it in CC 1:2:4 foundation of required size with GI Roofing Sheets of 6 mm thick roofing including one coat of primer and two coats of oil painting all the pipes and with all fixtures, fastenings and labour complete as directed by Engineer in-charged.</p>
	<p>GI Roofing Mode of Measurement & Payment : The Item shall be measured for its breadth and Legth 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. The rate shall be for a unit of one square meter.</p>
Item No. 38	<p>'Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc. consisting of following operations. (a) Applying and grouting a slurry coat of neat cement u ',brick bats is finally covered by jointless cement plaster 20mm th. in C.M. 1:4 added with special water proofing compound confirming to IS:2645 & top smooth finished with trowel with false chequered marking of 300 mm.size.The treatment is carried along</p>
	<p>The item shall be executed as per the relevant specifications of General Technical specifications for Building works Booklet It. No.18.57/ Page 136. The Item shall be measured & paid as finished work in Sqm.</p>

Item No. 39	'Providing laying and jointing in true line and level 50mm 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.
	The item shall be executed as per the relevant specifications of General Technical specifications for Building works Booklet Section 23 / Page 166. The Item shall be measured & paid as finished work in Rmt.

Deputy Executive Engineer
Panchayat (R&B) Sub Division
Umargam

Executive Engineer
Panchayat (R&B) Division
Valsad

SCHEDULE FOR TESTING OF MATERIALS :-

For ensuring quality control and workmanship Various tests prescribed below for materials shall be taken at periodical intervals as stipulated below. The materials shall be got tested at Government recognized Laboratory (R&B) or field Laboratory of GERI (R&B) for which 1% of the estimated amount put to tender shall be recovered from the contractor from the RA bills and final bills and the testing charges shall be paid to the GERI by the Government . However if the charges increase over 1% no excess recovery shall be made from the contractor as per resolution of B & C department dated 10th May 1985 vide TNC/ 1085/ (4)/ S

It. No. as per schedule "B"	Brief description of materials to be tested	Qty of material	Prescription of test which shall be carried out	Frequency at which test shall be carried out	Total No of test to be taken.
1]	Coarse Aggregate		- Gradation test - Impact value - Flakiness and elongation	1 to 100 cm 1 test 100 to 500 cm 3 test 500 to 1500 cm 5 test 1500 to 5000 cm 7 test Minimum 1 test/ work	
2]	Grit		- Stripping value	As above	
3]	Granular materials		- Gradation - Atterbeg limits	As above	
4]	Murum		- P I Value	One test per 50 cum.	
5]	Sand/ quarry spall		- Silt content - Gradation - CBR test	One test per work/ season One test per 200 cmt. One test per work	
6]	Asphalt		1 Penetration test as per IS 1203 2 Ductility test as per IS 1208 3 Specific gravity test as per IS 1202 4 Softening point test as per IS 1204 5 Viscosity test as per IS 1206	1 to 10 tanker 1 test 11 to 20 tanker 2 test 21 to 50 " 3 test 51 to 100 " 4 test Remaining every 50" 1 test	
7]	Cement		- Consistency - Setting time - Compressive strength - Fineness - Chemical analysis - Soundness	Up to 50 MT 1 test 100 MT 2 test 200 MT 3 test 300 MT 4 test 500 MT 5 test 800 MT 6 test 1300 MT 7 test and 8 test for larger consignment	
8]	CC Cubes		- Compressive Strength (I.S. 519 – 1959)	1 to 5 cms 1 No 6 to 15 cms 2 No 16 to 20 cms 3 No 21 to 50 cms 4 No 51 and above 4 + 1 (For each additional 50 m ³ or part thereof)	
9]	Water		- Chemical test	Once for approval of source of supply	
10]	Steel		- Tensile Strength - Yield Stress - Elongation - Size	1 test/ 40 tonnes/ per category	
11]	Bricks		- Water absorption - Efflorence - Size	1 test per 50,000 bricks	

			- Compressive Strength		
12]	Prime coat/ Tack coat		<ul style="list-style-type: none"> - Quality of binder - Binder temperature for application - Rate of spread of binder 	<p>Number of samples per lot and test as per IS:73 At regular close intervals</p> <p>Two test per 500 m² and not less than two test per day</p>	
13]	Carpet and Seal coat mix/ B.M/ M.S.S.		<ul style="list-style-type: none"> - Quality of binder - Grading - Temperature of binder - Binder content vide 45 IMD 2172 - Rate of spread of mix materials 	<p>Number of samples per lot and test as per IS:73 1 test on individual contents and mix aggregate from the dryer for each 100 tonnes of mix subject to minimum of two test per plant per day At regular close intervals</p> <p>One test for each 100 tonnes of mix subject to mini. of Two per day Regular control through checks on layer thickness</p>	
14]	Granular Sub-base	*****	<ul style="list-style-type: none"> - Gradation - Atterberg limits - Moisture content prior to compaction - Density of compacted layer - Deleterious constituents - C.B.R. 	<p>As mentioned under serial number 3</p> <p>As mentioned under serial number 3</p> <p>As mentioned under serial number 3</p> <p>One test per 500 m²</p> <p>As required</p> <p>As required</p>	
15]	Wet Mix Macadam		<ul style="list-style-type: none"> - Aggregate Impact Value - Grading - Flakiness and Elongation Index - Atterberg limits of portion of aggregate passing 425 micron sieve - Density of compacted layer - 	<p>As mentioned under serial number 1</p> <p>As mentioned under serial number 1</p> <p>As mentioned under serial number 1</p> <p>As mentioned under serial number 3</p> <p>One test per 500 m²</p>	
16]	Water Bound Macadam		<ul style="list-style-type: none"> - Aggregate Impact Value - Grading - Flakiness Index and Elongation index - Atterberg limits of binding material - Atterberg limits of portion of aggregate passing 425 micron sieve 	<p>As mentioned under serial number 1</p> <p>As mentioned under serial No.1 As mentioned under serial number 1</p> <p>As mentioned under serial number 1</p> <p>As mentioned under serial number 1</p>	
17]	Earthwork		<ul style="list-style-type: none"> - Sand Content [IS: 2720 (Part-4)] - Plasticity Test[IS:2720 (Part-5)] - Density Test 	<p>2 tests per 3000 cubic metres of soil</p> <p>2 tests per 3000 cub. metres of soil.</p> <p>2 tests per 3000 cubic metres of soil.</p> <p>One test for every 250 cubic meters</p>	

			[IS:2720 (Part-8)] - Moisture Content Test [IS :2720 (Part-2)] - CBR Test	of soil. One CBR test for every 3000 cum. at least or closer as and when required by the Engineer.	
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The Number of tests will be as per Manual of quality control or latest Govt. G.R./Circular and it will be considered final

The contractor shall have to pay 1% of the estimated cost put to tender towards all testing of materials and the same shall be deducted from their bills for the works.

Testing charges of GERI shall be borne by Govt. No refund be made nor extra charges over 1% shall be recoverable from the contractor.

If directed by the Engineer in charge, the materials intended to be used for the work but not included in the above schedule shall also be got tested at Government recognized Laboratory or field Laboratory.

Deputy Executive Engineer,
Panchayat (R&B) Sub Division
Umargam

Executive Engineer,
Panchayat (R&B) Division
Valsad

Signature of the contractor