

TECHNICAL SPECIFICATION OF CIVIL PORTION OF WORK

Materials of following specification are to be used in work. The Tenderer are expected to possess and be well conversant with the following IS standard and code of practice.

1.	Cement	Will be as per I.S. 269/455 (However the grade of cement to be selected by the Engineer-in-Charge of work and complex cube test before commencement of work in eachbatch).
2.	Steel	I.S. 432 (Plain) and 1786 (Tor)
3.	Vibrator	I.S. 7246
4.	Aggregate	I.S. 383, I.S. 515
5.	Water for mixing and curing	Shall be clean, free from injurious amount of oil, salt, acid, vegetable materials and other substances and harmful to concrete in conformity to I.S. 456 and I.S.3025.
6.	Sand / Fine Aggregate	I.S. 2116, 383
7.	Binding wire	I.S. 280 (galvanised minimum 1 mm)
8.	Rain water pipe	I.S. 2527
9.	Construction joints	I.S. 3414
10.	Steel Window Frame	I.S. 1038/83
11.	Steel Door Frame	I.S. 4351/75
12.	Fitting & Fixtures for journey works	Conforming to I.S. 7452/82 strictly conform to I.S. specification and as per direction of Engineer-in-Charge.

Note: For road work (Approach Road) specification as per road and bridges (latest edition) published by I.R.C & M.O.S.T. shall be followed. In case of any doubt and absence of provision, regarding specification I.S. shall be referred (Indian standard).

ITEM OF WORK

- Concrete shall be with conformity to I.S.456.
- Foundation shall be with conformity to I.S.1080.
- Stone masonry (R.R.) shall be with conformity to I.S.1597(Part-I)
- C.R. Masonry shall be with conformity to I.S.1597.
- Brick masonry shall be with conformity to I.S.2212.
- Cement plastering shall be with conformity to I.S.9103 &6925.
- Mortar shall be with conformity to I.S.2250
- White and colour washing shall be with conformity to I.S.6278.
- CC in foundation shall be with conformity to I.S.2571.
- Anti-Termite Treatment shall be with conformity to I.S.6813. (Part – I & Part –II)
- Painting to all surfaces shall be with conformity to I.S.2395 (Part – I & Part –II)
- DPC shall be with conformity to I.S.3067
- Tarfelt treatment shall be with conformity to I.S.1346
- Mosaic flooring with conformity to I.S.2114
- Steel painting shall be with conformity to I.S. 1477 (Part -I Part – II) I.S. 1661
- Pile Foundation Shall be conformity to I.S. 2911 (Part I & Part 2)

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TECHNICAL SPECIFICATION OF ELECTRIFICATION INSTALLATION WORKS

PART-II (EI)

The details of internal wiring, the position of fittings, fans, switches and plug sockets etc. are indicated in the layout drawings. The position of light fittings, fans, switchboards etc. indicated in these drawings are only for the guidance of the supplier and the actual position of these shall be mutually decided between the supplier and the purchaser. The supplier shall submit the purchaser of his consideration and approval all runs of wiring and the exact position of all the points and the switch boxes first marked on the points buildings.

All internal wiring shall be done in conformity to the latest Indian standard specification/Rules, code of practice adopted by CPWD and other standard practices prevalent in the part of the country. For the purpose of the specification the terminology used shall be as defined in IS:732 and IS:1356 of the definition of points wiring. The installation shall be carried out in conformity to all requirements of IE Act,1910 and IE Rules 1956.

- a) Ceiling rose in (in case of ceiling and exhaust fan).
- b) Ceiling rose or connector (in case of pendants except stiff pendant points)
- c) Bank plate (in case of stiff pendant).
- d) Socket outlet (in case of socket outlet points)
- e) Lamps holder (in case of wall Bracket, batten holder bulk head fitting and similar other fittings)
- f) Call bell / buzzer (in case words 'via' the switch shall be read 'via' the ceiling rose / socket outlet for bell push, where no ceiling rose / socket outlet its provided.

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

- a) Switch and ceiling rose are required
- b) In case of wall brackets, bulk head fittings, cables as required up to the lamp holders]
- c) Bushed conduit for porcelain tubing where cables pass through walls.
- d) All wood or metal blocks, boards and boxes, R.J. Boxes sunks or surface type including those required for fan regulator but excluding those under the distribution board and main control switch.
- e) Earth wire from 3 pin socket point to the common earth including connection to the earth dolley.
- f) Earth wire of 18SWG/H.D.B.C. wire for loop earthing of the fixture
- g) All fixing accessories such as clips, nails, screw, plug, rawl plug, wooden plug, round blocks etc. as required
- h) Joint for junction boxes and connecting the same as required
- i) Connections to ceiling rose or connection socket outlet, lamp holders, switch, fan regulators etc

The point wiring in case of fan and light points shall mean the distance between the control switch and ceiling rose, connect or back plate, socket outlet or lamp holder depending upon the fittings measured along the runs of wiring irrespective of the number of wires in run. In the case of socket outlet points, the length shall mean the distance between the socket outlet and the tapping point of live wire on the nearest switchboard or junction box, as the case may be.

In the case of exclusive socket outlet circuits wired on 'Joint Box' system of wiring, any junction provided for extending the wiring beyond the point referred to, shall be treated as the nearest tapping point. In case of call bell / buzzer points the length shall mean the distance between the call bell and the ceiling rose / socket outlet or the bell push (when the ceiling rose / socket outlet is not used).

Sub main shall include the earth wire of adequate size main distribution Board up to sub distribution board B.B. such wiring has been classified on the basis of length. For the internal lighting, either surface conduct wiring system or recessed conduit or batten wiring system shall be provided as specific in the bill of quantities and working drawings.

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Conduit wiring

For recessed conduit wiring system the conduit shall be placed in the ceiling / columns etc. before the casting of the slab or column. The conduit pipes shall be properly positioned and fixed so that it will not be displaced at the time of concreting. The junction boxes provided shall be so arranged that its cover will be flushed with the finished surface of the ceiling or column.

For placing the conduits in the walls, chases of ample dimension shall be made neatly to fix the conduit in a desired manner. The conduit pipe shall be fixed by means of staple or saddles not more than 600mm apart. Fixing of standard bends or elbows shall be avoided and all curves maintained by bending the conduit itself with a long radius will permit easy drawing of the conductors. Suitable inspection boxes shall be provided to permit periodical inspection and removal or replacement of wires if necessary. There shall be mounted flush with the wall with holes in the cover of the box.

The switch or regulator box shall be made of metal on all sides except on the front where backlight sheet or Perspex cover painted to match the colours of the wall shall be used, in case of surface wiring system. For recessed wiring system, these boxes shall be made flush with the conduit of each conduit or section shall be completed before conductors are drawn in. The entire system of conduit after installation shall be tested for mechanical strength and electrical continuity throughout the earthing of the entire installation shall be carried out in accordance with I.E. Rules and standards.

The number of wires drawn in the conduits shall not exceed the numbers those specified in Indian standard specification No.732.

Main and Sub distribution Boards:

The position of main boards for lighting and sub distribution board for different buildings are approximate and the exact location shall be given to the successful tenderer at the time of installation.

The scope of this specification includes installation of the panel boards and distribution boards and making necessary connections. The installation of the boards shall be done strictly in accordance with the details supplied with the specifications; the instructions supplied by the switchgear manufacturer, Indian standard specifications and H.E. rules.

The supplier shall submit the details of installations to the purchaser for his consideration and approval, prior to installation.

When the switchboards are wall / column mounted top, they shall, be mounted on a suitable angle iron framework. All the metal supports etc. shall be protected against corrosion. The mounting height for such switchboards shall be such that it can be conveniently operated.

Earthing

Earthing shall generally be carried out in accordance with the requirements of Indian Electricity Rules and the relevant rules and regulations of electrical supply authorities. The complete earthing work for the installation covered by these specifications shall also be provided taking into account Indian Standard Specification No.IS:732 and IS:3043. The earthing system adopted shall also have adequate mechanical strength.

The work shall include earthing of noncurrent carrying metallic parts of all the equipment, light fittings, conduit pipes, cable and cable supports and earth strips (the design to be approved by the purchaser) and all the inter connection between the earthing system to a value mutually agreed upon between the purchasers and the supplier.

Installation, testing and commissioning:

The supplier shall be responsible for the installation testing the commissioning of all the equipment and materials supplied by him against this specification. This shall also include the provision of miscellaneous wiring and supports and earthing in compliance with Indian Electricity rules and to the full satisfaction of the Government Electrical Inspector. All small items such as clamps, bolts, nuts, racks, supports, miscellaneous wiring etc. required to make the installation complete, shall constitute the part of major items specified in the bill of quantities and the tenderer should quote for each item taking these into consideration.

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The responsibility of the supplier shall include receiving all the equipment and materials at site, storage for required period, handling the same at the site of erection, final execution, erections, revisions of equipment, if any, testing and commissioning and handing over the installation complete in all respect to the entire satisfaction of the purchaser's authorized representative. The supplier shall make good of all the damaged equipment and materials during this period at his own expense.

The supplier shall submit sample of each and every equipment and materials for the final approval of the purchaser's representatives immediately after the acceptance of offer. All the equipment's and materials shall be supplied exactly as per to the approved samples. If at any stage the purchaser brings to the notice of the supplier any discrepancy or defect the supplier shall replace the same at his own expense.

The supplier shall render all reasonable assistance to the purchaser in getting the installation approved by the Government Electrical Inspector prior to the energisation and supply necessary drawings, test certificates and both for tests carried out at the factory and site as well as the tests which the inspector may demand. In case any addition of alternations is required, to be made in the installation or in the equipment as per the directive of the Government Electrical Inspector / Local Authorities, he same will have to be carried out by the supplier, at his own expense.

The position of light fittings, main board, switches, sockets and routes of pipes and cables shown in the drawings are only indicative. The actual position of these shall be decided at site at the time of execution joints by the supplier and the purchaser's authorized representative. The position of light fittings, pipes and board if required, to be changed / shifted due to the change in the building design etc by the purchaser's authorized representative, the same shall be carried out at no extra cost.

All the materials supplied to the contractor according to the Contract condition will be subject to inspection and approval of the officer or his representative from time to time. The contractor will provide all facilities of such inspections free of cost. At the time of inspection, the owner of his representative will have full liberty to reject any such materials, which does not conform to the specification / requirement. No claim for any rejected materials will be entertained by the owner. The contractor will remove all rejected materials from site at his own cost.

No surplus materials procured by the contractor will be accepted by the owner. The contractor will be responsible to get the Electric installations cleared by the Electrical Inspector of Orissa Government. Only the inspection fee will be reimbursed by Department on production of challan copy

Installation and Maintenance Tools:

The supplier along with the tender shall furnish a complete list of tools, appliances and accessories required for the installations of switch grass, light fittings, pipes cables and wires.

Drawings:

All drawings, test certificates, instructions manuals etc. shall be in English Language and all dimensions and weights shall be in metric units.

The tenderer shall submit with the tender general arrangement drawings for the installations work, typical methods and cabling and cables supports pipe work and pipe supports, typical methods of earthing and fixing of light fittings earthing etc. as offered by him in the tender.

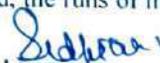
The contractor shall submit for the purchaser's approval all layout, the general arrangement drawings as well as the typical details of all types of installation work in three sets before commencing the manufacture and the site installations work well in advance so that the site work shall not suffer.

After obtaining approval of the above drawings the contractor shall supply three sets of the following drawings.

- (a) The arrangement and support of conduit pipe
- (b) The position of light fittings, switches / plug socket and switch boards
- (c) Earthing installations
- (d) Layout plan showing the entire cable network

On completion of work, the successful tenderer shall supply one set of tracing in transparent linen and five sets of prints of all drawings incorporating all the changes / modifications affected during the execution of the contract. All wiring diagrams shall indicate clearly, the switch board, the runs of main

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and sub main wiring and the position of all the points with their controls. All the circuits shall be clearly indicated and numbered in a accordance with IS:375.

The technical literatures and operating instructions and the maintenance manuals shall also be supplied in triplicate to the purchasers after the completion of the installations work.

Test:

Manufactures standard tests in accordance with Indian Standard and other standards, adopted shall be carried out on all the equipment and accessories covered by this specification so as to ensure efficient and satisfactory performances of all the components and also the equipment as a whole under working conditions at site. The tenderer shall submit a complete list of all such tests. If the purchaser, if so desired for special tests, to be carried out, under certain conditions the same shall be made by the successful tenderer at his own expenses.

All equipment shall be tested at site before the commissioning in accordance with the adopted standard and Indian Electricity Rules. Voltage test shall be carried out on each circuit on completion of wiring and cabling.

Technical Data:

The tenderers shall submit with their tender all such technical data, which are required for complete evaluation of the equipment offered. The suppliers shall give complete technical information of the equipment as detailed in Annexure and relevant Indian standards. The tenderer should supply such details of all equipment and materials offered especially with regard to the following.

- a) Fuse switch board and distribution boards
- b) Light fittings
- c) Conduits and the accessories for them
- d) Switches / plug sockets
- e) Cable and wires

The tender shall give along with his tender the following details:

- a) Complete details of earthing electrodes, earthing station and earthing conductors
- b) Details of conduit supports
- c) Details of all the equipment and accessories to be supplied

Exception to Specifications:

The object of this specification is to have all tenderers quote for equivalent materials and workmanship. It is, however, understood the certain manufacturers may not be able to offer as specified in every case, where the tenderer may find it necessary to deviate from the exact letter and not the intent of the specification, he must specifically state what these deviations may be at the time he submits the tender. All deviations must be grouped in one statement.

No deviations other than those includes in the tender will be permitted. These deviations should be listed as per Annexure.

PVC insulated Cables and Wires:

For 415V Distribution system, cables of voltage grade not less than 1000V shall be used. These cables shall be heavy-duty class, PVC insulated and PVC sheathed with aluminium conductors. The wires used in the lighting installation shall be PVC insulated n sheathed in case of conduits wiring and of 660V grade. Wires of different colours shall be made use of for quick identification of phase wire / neutral wire etc. All cable of wires shall comply with the requirements regarding the manufacture and testing etc as specified in India Standard Specification IS:1554 and IS:694.

The length of cables indicated in the bill of quantities and drawings are only indicative and the successful tenderer will be paid for the exact length of cables laid at site. No joint shall be allowed in a run of cables, which can be covered by a possible drum length of cables.

Fuse switch / switch fuse shall be metal clad dust and vermin proof suitable for use under climatic conditions prevailing at site. Switch fuse / fuse switch units shall comply in general to IS:1567/4064 with regard to design and constructional / features.

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The 'ON' and 'OFF' position of the switch handles shall be distinctly indicated and interlocks shall be provided to ensure that the switch cover cannot be opened unless the switch is in the 'OFF' position. Means shall, however, be provided for releasing the interlock to permit closing of switch with cover open for testing purposes. Designs with normal conventional position of switch handles, i.e. with switch handle up in the 'ON' position and down in the 'OFF' position shall be preferred. All live parts inside the switch shall be properly surrounded and inter phase barrier shall be provided.

Switch fuse / fuse switch units, distribution boards shall be provided with necessary metal frame work so that they can be mounted on wall / columns structure etc. as desired. The panel boards, shall be wall mounted type or floor mounted type as specified in the bill of quantities or drawings. Necessary supporting metal frame of approved design shall be provided for all panel boards.

The arrangements of work boards shall be such that the operational handle of the top mounted switches are within the convenient of operators (about 1.2 M from the finished floor level) and proper space shall be provided for the termination of the cable in the switches provided below the bus-bars.

The bus-bars within the bus-bar chamber shall be liberally spaced for taking the riser connection. The bus bars with aluminium conductors shall be provided and PVC sleeves of different colour shall be mounted on them for easy identification, Clamped joints for taking the riser connections, instead of bolted type shall be preferred.

Two bolted type earthing terminals shall be provided on the switch boards. All individual switches shall be connected with suitable size earth wire to the main earthing terminals of the switchboard.

Hanger Board and shock treatment / charts shall be supplied wherever required.

At the incoming side of each pen phase, 3-neon type indicating lamps should be provided at the main board.

Switches and Plug Sockets

Switches provided for control of light points shall conform to IS:1087 and shall be rated for 5A/15A 250V

Ceiling Fans and Exhaust Fans:

Ceiling fans shall conform to Indian standard specification IS: 374-1960. The fans shall be supplied with all standard accessories like regulator and capacitors etc.

The performances rating of the propeller fans shall in accordance with stipulations of IS:2312. All fans shall be robust in design and construction and shall be supplied complete with wall brackets / clamps etc.

Fluorescent Fittings:

All fluorescent fittings supplied shall conform in general to IS:1913 and shall be complete with all standard accessories like choke, starter and capacitor etc

The type of enclosure provided for the fittings shall be of that specified in the bill of quantities and the working drawings. The materials of construction for fittings used for outdoor installations and for use in the work anodes shall be such that they shall withstand the atmospheric condition in that area.

Lamp holders used shall be fully shock proof, spring-loaded rotary type to ensure positive lamp locking. It should also be not possible to touch live parts of the lamp holder both after the lamp has been taken out and during the insertion or removal of the lamp. The starters shall be designed to give designed starting characteristics that shall promote full lamp life. Starter shall have high mechanical strength and topic proof construction. It should be incorporated with radio suppression capacitor of adequate rating and capacity. Power factor improvement capacitors are provided with hermetically sealed housing to ensure long and trouble free service. Terminal soldering tango shall be provided for easy electrical connections. The capacitors in general shall conform to IS:1569-1963 and P.F improvement up to 0.95 for twin fluorescent light fittings and 0.9 for single fluorescent light fittings is to be maintained.

The ballast provided in the fluorescent fittings shall generally be in accordance to IS:1534. The ballast should incorporate the following design features.

- i) Low working temperature
- ii) Correct pre heating current for the electrodes
- iii) Proper wave foam

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- iv) Small in dimensions
- v) Correct power supply to the lamp
- vi) No hum.
- vii) Easy connection leads.

All the metal construction of the fittings shall be such that they shall:

- 1) Withstand the atmospheric condition prevailing in the area
- 2) Provide maximum mechanical protection to the tubes and fittings accessories. Assists in maximum and uniform light distribution.

All fittings shall be provided complete with florescent lamps. All lamps shall confirm to IS:2418.

Incandescent Fittings:

The incandescent fittings shall be supplied strictly as per the details given in the enclosed annexure and bill of quantities, deviation if any regarding designs, construction of materials should be specified clearly.

All the metal parts used in construction of the fittings shall have no effect due to dust / fumes / gases likely to exist in the atmosphere. All the bolts, clamps, nuts and guard wire etc shall be galvanized.

The wall fittings shall be provided with necessary hooks / clamps / supports etc for fixing the light fittings on wall / ceiling etc as detailed in the bill of quantities and the working drawings.

Light fittings shall be suitable for connection with 19mm dia. Conduit pipe as required. If fittings are to be connected through PVC cables, glands of adequate size and capacity shall be provided.

The lamp holders provided in the fittings shall confirm to IS:1528.

C O D E S

Codes shall mean the following including the latest ascendants and / or replacement if any.

- a) Indian Boiler Act, 1923 and Rules and Regulations made there under
- b) Indian Electricity Act, 1923 and Rules and Regulations made there under
- c) Indian Factories Act, 1948 and Rules and Regulations made there under
- d) The minimum wages Act
- e) The Women's Compensation Act
- f) The Payment of Wages Act
- g) The Fatal Accident Act
- h) The Industrial Employment Act
- i) The Employment provident Fund Act
- j) Indian Explosive Act 1984 the Rules and Regulations made there under
- k) Indian Petroleum Act 1934, and Rules and Regulations made there under
- l) A.S.M.E. Test Codes
- m) AIRE Test, Codes
- n) American Society of Materials Testing Codes
- o) Standards of the Indian Standards Institution
 - 1) Low Tension Circuit Breakers: IS 2516-1955 Part I Sec.1
 - 2) Switchgear Bus Bars IS 375-1963
 - 3) HRC fuses links IS 2208-1962
 - 4) Distribution fuses boards IS 2675-1966
 - 5) Enclosure for Low Voltage switchgear IS 21470-1962
 - 6) PVC Cables IS 1554-1975
 - 7) Tabular fluorescent lamps for Cameral lighting service IS 2418-1963
 - 8) Tungsten Filament Lamps for cameral service IS 415-1963

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 Laxmipur, Koraput

- 9) Ceiling Fans IS274-1966
 - 10) Flood lights IS1947-1961
 - 11) Wall Glass flame-proof electric light fittings IS2206-1962 (Part 1)
 - 12) Water Tight Electric Light Fittings IS3553-1956
 - 13) Steel Boxes for Enclosure of Electrical Accessories IS5133-1969
 - 14) Fittings for Rigid Steel conduit IS2667-1979
 - 15) Rigid steel circuits for electrical wiring IS3837-1966
 - 16) Accessories for Rigid Steel Conduits for Electrical Wiring IS3837-1966
 - 17) Switch Socket Outlets IS3837-1966
 - 18) PVC Wiring IS694-1977
 - 19) Switches for domestic and similar purpose IS3854-1966
 - 20) PVC wiring IS694-1977
 - 21) Call Bell and Buzzers IS2268-1966
 - 22) Straight through joint boxes and leads sleeves or paper insulated cables-EID-0032-1964
 - 23) Earthing IS3043-1966
 - 24) Electrical Wiring installations IS732-1963
 - 25) Switchgear IS3072-1965 (Part I)
 - 26) Lighting protection IS2309-1969
 - 27) Public Address system IS1882-1962
 - 28) Low Tension switch use units IS4064-1978
 - 29) Code of Practice for Automatic FIRE ALARM system IS2189-1970
 - 30) Specification for Heat Sensitive Fire Detectors IS2175-1977
 - 31) Guide for Safety procedure in Electric work IS5216-1969
 - 32) Rubber Mats for Electric works IS5424-1969
- p) Other internationally approved standards and / or Rules and Regulations touching the subject matter of the contract.

PART-III

ADDITIONAL APPENDIX TO BILL OF QUANTITY:

(For P.H. Items of Work)

CONSTRUCTION OF BLOCK PUBLIC HEALTH UNIT AT LAXMIPUR UNDER LAXMIPUR BLOCK OF KORAPUT Dist.

And

CONST. OF LABOUR ROOM AT PHC KESKAPADI UNDER LAXMIPUR BLOCOK

1. The quantities of items mentioned in the tender schedule may increase or decrease during execution of works but the contractor will complete the work as per his tendered rates in accordance with the instruction of Engineer in charge of G.P.H. wing.
2. **Specification:** The standard PHD and PWD specification will be followed for execution of work. During the course of execution of work, the instructions of the Engineer in charge shall be final and binding.

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3. The Sales Tax element should not be added to the analysis of rates and the previous practice should be followed as per the Works Department letter No. IIT.22-89-18170 dt.18.7.1989
4. There should be no clause either in the tender or in agreement for payment of any additional claim on account of Sales Tax on completed works which will be deemed to be recovered by existing omnibus stipulation as per the works Department letter No. TIT 22/89-18170 dt.18.7.89/
5. It is the responsibility of the Contractor to arrange watch and ward to the installations until testing commissioning and handing over for which no extra payment towards watch and ward will be paid,
6. The contractor shall maintain a separate site order book for P.H. portion of work.
7. The P.H. portion of work shall be open for inspection by the authorities of P.H. Circle (R&B) Orissa, Koraput and the higher authorities and instructions imparted during the course of Inspection should be binding on the contractor.
8. Materials not covered by any of the above categories of items in the bill of quantity have to be approved by the competent authorities before utilising the same in works. In such event, the payment of such item will be made as per actual on due approval by the competent authority. All materials required for the work shall be supplied by the contractor as per standard specifications appended with due approval by the Engineer in charge.

In case the materials as per make specified is not available, the materials of equivalent, make and as per I.S. Specifications or of best quality when not covered by I.S. Specifications.

Can be utilised on prior approval of S.E./ E.E., G.P.H.D, (R & B), Koraput or the officers duly authorised by

him. It is binding on the part of the contractor to use such items of materials which are available in the Departmental store and in such case the deduction from the bill will be made at stock issue rates.

TECHNICAL SPECIFICATION FOR P.H PORTION OF THE WORK:

CONSTRUCTION OF BLOCK PUBLIC HEALTH UNIT AT LAXMIPUR UNDER LAXMIPUR BLOCK OF KORAPUT Dist.

And

CONST. OF LABOUR ROOM AT PHC KESKAPADI UNDER LAXMIPUR BLCOK

A. WATER SUPPLY PIPES AND FITTINGS

1. Materials

All galvanized Iron pipes are to be of mild Steel, continuous welded, screwed tubes, medium quality confirming to ISS & bearing ISI Marks, manufactured by reputed firms and approved brands as specified. The pipes shall confirm to I: S 1239 (Part - I) -1975.

All G.I. Fittings shall be of 'R' Brand manufactured by M/S.R.M.Engineering Ltd., Ahmedabad and 'C' brand manufactured by Crescent Engineering works or equivalent best quality.

All pvc pipes are to be of medium quality (Schedule-80) manufactured by reputed firms and approved brands as specified. The pipes shall confirm to ASTM- D-1785

2. Weight of G.I. pipes for a Metre length:

The per meter weight of different diameters of G.I. pipes for medium class is indicated in the following table.

Sl No.	Pipe size in mm	Medium class (in kg)
1	15mm	1.22
2	20mm	1.57
3	25mm	2.43
4	32mm	3.13
5	40mm	3.60
6	50mm	5.10

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3. Laying of Pipes

The layout of the mains and service Pipes etc will be done in accordance with the drawings. The Contractor is to mark out the exact position of the pipes and fittings at site and take approval of the consultant /Engineer In-charge, before taking up the work.

4. Where the pipes are laid, underground these must not be laid less than 450mm below ground level

and coated with one coat of approved black bituminous paint. For laying the G.I. Pipes and Fittings below ground level, the width and the depth of the trenches for different dimensions of the pipes shall be given as below:

Dia of pipe	Width of Trench	Depth of Trench
15mm to 50mm	300mm	600mm
65mm to 100mm	450mm	750mm

The pipes shall be laid on a layer of 75mm thick sand and filled up with sand up to 75mm above pipes and the remaining portion of the trench shall then be filled up with excavated earth with proper ramming as described in "Excavation and refilling". The surplus earth shall be disposed of as directed.

Thrust or anchor blocks of cement concrete 1:2:4 in hard granite chips shall be constructed on all bends or branches to transmit the hydraulic pressure without impairing the ground and spreading it over a sufficient area. Pipes shall not be laid to pass through man holes, catch pit, drain. Where it is unavoidable the pipes shall be carried in sleeve pipes of M.S./G.I., as approved by the consultant/Engineer-in-charge. The rates should include such a situation

5. **Where pipes run along walls, the same are to be fixed to the wall with holder bat clamps /M.S. Hooks as below**

Dia of pipe in mm	15	20	25	32	40	50
Horizontal Line	2m	2.5m	2.5m	2.5m	3m	3m
Vertical Line	2.5m	3m	3m	3m	3.5m	3.5m

Where the pipes are passing through the R.C.C./Masonry wall/Column/beam or pillars, these must pass through the appropriate higher sizes of C.I./G.I. Sleeve Pipes and are to be included in the rates

In case the Pipes are embedded in walls and floors it should be painted with one coat of anticorrosive paint of approved quality

All pipes should be fixed horizontal and vertical. For taking the Pipes through the walls and floors and roof slabs etc. The holes shall be made by filling with chisel or jumper and not by dismantling the brick work or concrete. After fixing, the holes shall be made good with cement concrete 1:2:4 and properly finished with cement plaster 1:4 to match the adjacent surface.

Union Nuts are to be provided in each of the Vertical riser or drop on and from G.I. Tank and near the Valve and as and where necessary.

The long screw fittings of 8cms are to be provided for long horizontal lines and inside the lavatory / Kitchen etc.

6. After laying and jointing the Pipes and fittings shall be inspected under working condition of pressure and flow. Any joint found leaking pipes should be removed and replaced without extra cost. The Pipes and Fittings after they are laid shall be tested to hydraulic pressure of 6 Kg/ cm². The test pressure should maintain without loss of for at least half an hour.

7. Painting

On completion of the test, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour and brand over a coat of priming.

8. Measurement

The length shall be measured in running meter correct to centimetre for the finished work, which shall include the Pipes and fittings such as Bends, Tees, Elbows etc., but excludes Brass or Gun-metal fixture like Tap, Cocks, Valves, PVC connection Pipes etc.

9. Jointing

The jointing of G.I. tubes/pvc pipes and fittings etc. will be done as per the provisions stipulated in the B.I.S specification.

10. Bib cock and Stop Cock

These shall conform to I: S 781 - 1967 and bear ISI Mark. The Bib cock is a draw off tap with a horizontal inlet and free outlet and stop cock is a valve with a suitable means of connection for insertion in a pipeline for controlling or stopping the flow. This shall be of screw down type. The cocks shall

open in anti-
clockwise direction. The stopcocks should be C.P. concealed stopcocks and C.P. angle valve type as specified in tender schedule. Bib cocks should be also C.P. Brass bib cocks.

11. Full way Valve (Brass)

Full way valve is a valve with suitable means of connection for insertion in a pipeline for controlling or stepping the flow. The valves shall be of brass fitted with a cast iron wheel and shall be of gate valve type conforming to I: S780-1960 brass rod late stone, opening full way and of the size as specified. The approximate weight of the valves is indicated below for guidance.

Pipe size in mm	Flanged End valves in Kg	Screwed End valve in Kg
15mm	1.021	0.567
20mm	1.503	0.68
25mm	2.498	1.077
32mm	5.232	1.559
40mm	6.082	2.268
50mm	6.691	3.232

12. Gun-Metal Full way Valve

This shall be of the Gunmetal fitted with wheel and shall be of Gate-Valve type opening full way.

This shall confirm to I: S 778-1971. Class I. The valves should bear I.S.I. Mark

13. Ball Valve

The ball valve shall be high- or low-pressure class as stipulated in the Tender Schedule and shall confirm to I: S 1703 - 1968. The nominal size of ball valve shall be that corresponding to the size of Pipe for which it is used. The ball valves shall be of brass or gunmetal and the float for low pressure in Polyethylene and for high pressure in copper.

Each and every ball valve while in closed position shall withstand an internally applied hydraulic pressure of 20 Kg/Cm² for a minimum period of two minutes without leakage or sweating.

Every high-pressure ball valve when assemble in working condition, with the float immersed to not more than half its volume shall remain closed against a test pressure of 10.5 Kg/Cm².

Polyethylene floats shall be water tight and non-absorbent and shall not contaminate water and with no jointing adhesive jointing parts.

The minimum thickness of the copper sheet used for making copper floats shall be of 0.45 mm. The thickness of materials of the float shall be uniform throughout.

14. CUTTING HOLES UPTO 30CMX30CM IN WALLS INCLUDING MAKING GOOD THE SAME;

General:- Square holes of size as specified or as directed by the Engineer-in-charge shall be cut in the masonry or taking pipes. Any damage to the adjoining portion or to any other item shall be made good as directed by the Engineer-in-charge. All dismantled materials shall be removed from the site.

Masonry works: - Bricks work etc, shall be made good by using the same class of brick, tile or

stone masonry as was cut during the execution of the work. The mortar to be used shall be cement mortar (1:4) as directed by the Engineer-in-charge.

Finishing: - Cement mortar in 1:4 mix shall be used for plastering or pointing as may be required. The surface shall be finished with two or more coats of white wash/colour wash/distemper/ painting as required but where the surface is not to be whitewashed, colour washed, distempred or painted, it shall be finished smooth with a floating coat of neat cement or is required to match with the surrounding surfaces.

The specifications for brick work, stone work and finishing etc. shall be the same as detailed under relevant standards of State P.W.D. specification.

15. CUTTING HOLES UPTO 15CMX15CM IN RCC FLOORS INCLUDING MAKING GOOD THE SAME;

General:-

Square holes of size as specified shall be in R.C.C. floor and roofs/chajjas for passing pipes etc. Any

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damage to the adjoining portion or to any other item shall be made good as directed by the Engineer-in-charge. All the dismantled material shall be removed from the site.

Cement Concrete: - After insertion of pipes etc. the hole shall be repaired with cement concrete

1:2:4 and the surface finished to match the existing surface. The top and bottom shall be finished properly to make the joint leak-proof. The specifications for cement concrete work and finishing etc. shall be the same as detailed under relevant sub-heads of State P.W.D Specifications.

16. Shower rose

The shower rose:-The shower rose shall be of chromium-plated brass of specified diameter. It shall have uniform performance. The inlet size shall be 15mm or 20mm as required.

The chromium plating wherever specified shall be of grade-B type conforming to IS No. 1068 - 1958. The chromium shall never be deposited on brass unless a heavy coating of nickel is interposed. In the case of iron, a thick coat of copper shall first be applied, then one of nickel and finally the chromium. In finish and appearance, the plated articles, when inspected shall be free from plating defects such as blisters, pits, roughness and unplated areas and shall not be stained or discoloured.

A stopcock of the specified size shall be provided to control the inlet water supply to the shower rose.

(a) Height of shower 1850 to 2000 mm from floor level.

(b) Height of tap:-

450mm from floor level projecting 150mm from wall. Flushing

Cistern:

17.

The flushing of the Indian water closet (Orissa closet) shall be done by C.I. or polystyrene high level valve less symphonic flushing cistern (PVC low level cistern) of approved brand and quality I.S.I. marked and capacity as specified. The connection between the cistern and water closet shall be made by 32mm dia G.I. flush pipe, made from G.I. pipe (Light quality) or 32mm dia PVC pipe as specified in the tender schedule. The flush pipe with an offset should be fixed to wall using C.I. holder bat clamps. The capacity of the cistern should be 10ltrs. As per I.S.S. The cistern shall be fixed on cast iron or rolled steel/PVC cantilever brackets (built in type), which shall be firmly embedded screwed in the wall, with C.C. M20. The cistern shall be provided with 20mm dia PVC. Overflow pipe with fittings, which shall terminate into mosquito proof coupling secured in a manner that will permit it to be readily cleaned or renewed.

The 32mm dia flush pipe shall be connected to the water closet by means of approved type joint. The flush pipe shall be fixed to the wall by using C.I. holder bat clamps. The bend and the offset as required in the flush pipe shall be made cold. The inside of the C.I. Cistern shall be painted with two coats of approved black bitumen paint. The outer face of the C.I. Cistern, brackets overflow pipe and flush pipe etc., shall be painted with two coats of any synthetic enamel paint of approved shade and make, over a coat of priming. The cost of the painting shall be included in the rate quoted for the flushing cistern.

The inlet connection to the cistern shall be made with 450mm long 15mm dia PVC heavy type connection pipe.

B. SOIL AND WASTE PIPES AND FITTINGS

(a) These should conform to IS: 1729-1964 or its latest revision.

(b) The pipes and fittings should be true to shape smooth, cylindrical, inner and outer surfaces being concentric, free from cracks and pinholes and neatly dressed. The ends of the pipes and fittings shall be square to their axes.

(c) Pipes are available with or without ear single socketed or double socketed. These should be procured as per requirement. Usual length of the pipes are 1.8m but available in specific lengths, if so, ordered.

(d) Weights and other physical criteria including tolerances are stated in Table-1.

(e) **LYING:** - The laying is done by spigot - socket joints. The exact lengths are measured at the site; pipes are cut to sizes, if exact lengths of cut pieces are not readily available. In the stack lines, pipes with ears are used. The stack line is fixed to the wall with the help of 100 mm stout nails driven into wooden blocks fixed in the walls properly secured.

(f) **JOINTING:** - Jointing is made with the help of spun yarn and cement mortar (1:2). In certain places molten lead is used instead of cement mortar. Where molten lead is used, caul king is

done after lead gets cooled.

- (g) **VENTILATION PIPES:** - It should be carried up above the roof (at least 1 m above the parapet) and guarded with provision of a cowl. The stack lines must be secured to the walls by means of M.S. stay and clamps.
- (h) Provision of doors in the fittings is a must so as to clean the line wherever required. The doors must be fitted along with rubber insertion and brass bolts.
- (i) The lavatory waste stack shall be connected directly to the Inspection Chamber/Manhole whereas the wastes from kitchens, basins, sinks, and baths are to discharge through gully traps, the gully traps being connected ultimately to Inspection Chamber /Manhole.
- (j) Pipes and fittings must be internally painted with a coat – tar and externally with enamel paint of approved colour.

All soil-waste, vent and anti-siphon age pipes and fittings shall conform to I.S.1729-1964 or as revised from time to time. The pipes shall have spigot and socket ends with bend on spigot end. The pipes and fittings shall be true to shape, smooth and cylindrical, the inner and outer surface be in gas nearly as practicable concentric. They shall be sound and nicely cast and shall be free from cracks, laps pin holes or other imperfection and shall be neatly dressed and carefully fettled.

The ends of pipes and fittings shall be reasonably square to their axes.

The sand cast iron pipes shall be of the dia as specified in the description of the item and shall be in length of 1.5m, 1.8m and 2m including sockets ends of the pipes unless shorter lengths are either specified or required at junctions etc. The pipes and fittings shall be supplied without ear unless specified or directed otherwise.

All pipes and fittings shall ring clearly when struck over with a light hammer, and shall be capable of being easily worked with drill orbib.

TOLERANCES: - The standard weights and thickness of pipes shall be as shown in the following table. A tolerance up to minus 10% may however, be allowed against these standard weights.

TABLE 1

Table showing the standard weight and thickness of SCI / HCI pipes

Sl. No.	Nominal dia of (inKg) No.	Thickness in bore (In mm)	Overall weight of pipe excluding ears		
			mm.	1.5m	1.8m
	2.0m				
01	100	5.00	18.14	21.67	24.15
02	50	5.00	9.50	11.41	12.67

A tolerance up to minus 15 percent in thickness and 20mm in length will be allowed. For fittings, tolerance in length shall be plus 25 mm minus 10 mm.

The thickness of fittings and their socket and spigot dimensions shall conform to the thickness and dimensions specified for the corresponding sizes of straight pipes. The tolerances in weights and thickness shall be the same as for straight pipes.

The access door fittings shall be designed so as to avoid dead spaces to avoid accumulation of filth. Doors shall be provided with 3mm rubber insertion packing and when closed and bolted these shall be water tight.

SAND CAST IRON FLOOR TRAP: - Sand cast iron floor trap shall be P' or S' type with minimum 50 mm seal and shall be of self-cleansing design.

FIXING AND JOINTING: - The pipes and fittings shall be fixed in vertical alignment unless otherwise specified and shall be secured to the walls at all joints with M.S. holder butt6 clamps. The clamps shall be made from 1.6mm thick M.S. sheet of 30mm width, bent to the required shape and size so as to fit tightly on the socket of the pipe, when tightened with screw bolts. It shall be formed out of two semi circular pieces hinged with 6 mm dia M.S. pin on one side and provided with flanged ends on the other side with holes to fit in the screw bolt and nut 40mm long. The clamp shall be provided with a hook made out of 275 mm long 10 mm diameter M.S. bar riveted to the ring at the centre of one semicircular piece. The clamps shall be fixed to the wall by embedding their hook in cement concrete blocks 100mm x 100mm x 100mm, 1:2:4 mix for which necessary holes shall

be made in the wall at proper places. The clamps shall be kept about 25mm clear of finished face of wall, so as to facilitate cleaning and painting the pipes.

The pipes shall be fixed vertically. The spigot of the upper pipe shall be properly fitted in the socket of the lower pipes such that there is uniform annular space for filling with the jointing material. The annular space between the spigot and socket shall be filled with a few turns of spun yarn socked in cement slurry or blown bitumen grade 85 / 25 or lead caulked. Caulking tools shall press these home. More skins of yard shall be wrapped, if necessary, and shall be rammed home. The joint shall then be filled with stiff cement mortar (1:2) well pressed with caulking tools and finished smooth at top at an angle of 45 degree sloping up. The joint shall be kept wet at least for seven days by tying four folds of gunny bag to the pipe and keeping it moist constantly.

Where pipes are embedded in masonry these shall be fixed in the masonry work as it proceeds. The pipe shall be kept vertical or to the line as directed by the Engineer-in-charge. The pipe shall have a minimum surrounding of 12mm thick cement mortar on every portion of external surface. The mortar shall be of the mix as used in masonry work. The length shall be caulked in with lead as soon as the next length of pipe placed in position. The open end (socket end) of the pipe shall be kept closed till the next length of pipe is fitted and jointed to prevent any brick or concrete or pieces of wood falling in and chocking the pipe.

The spigot end shall butt the shoulder of the socket and leave no gap in between. The annular space between the socket and spigot will be first well packed in with spun yarn leaving 25mm from the lip of the socket for the lead. The joint shall then be lead caulked as described in detail under jointing of C.I. S/Spipes with lead joints in public W/S section of this specification. Pipes with ear shall be secured with 40 mm bore steel or iron barrel distance pieces or bobbins and stout C.I. / M.S. nails 10 cm long driven into hard wood plugs fixed in walls. Access doors to fittings shall be provided with 3 mm thick rubber insertion packing and received with screws to make the air/water tight.

All soil pipes shall be carried up above there of and shall have a wire baboon guard or a cow as specified.

HEIGHT OF VENTILATION PIPES: - All soil pipes shall be carried up above the roof and shall have sand cast iron terminal guard. The ventilating pipe or shaft shall be carried to a height of at least 1 mtr. above the outer covering of the roof of the building or in the case of a window in a gable wall or a dormer window it shall be carried up to the ridge of the roof or at least 2 metres above the top of the window. In the case of a flat roof to which access for use is provided, it shall be carried up to a height of at least 1 mtr. Above the parapet or 2 metres above the roof whichever is greater and shall not terminate within 2 metres measured vertically from the top of any window or opening which may exist up to horizontal distance of 5 metres from the vent pipe into such building and in no case shall be carried to a height less than 3 metres above plinth level.

Where ventilating pipes are carried in pipe shafts, the shaft shall be of a minimum size of 1 metre x 1 metre. If shafts are also used to give light and air to rooms, the ventilating pipe must be carried to a horizontal distance at roof level of not less than 5 metres from the side of the shaft. The payment for the shaft be made separately.

The pipes above the parapet shall be secured to the wall by means of M.S. stay and clamps as explained below.

M.S. STAYS AND CLAMPS: - Sand cast iron pipes above parapet shall be fixed with M.S. clamps and stays. The clamps shall be made from 1.5mm thick M.S. flat of 32 mm width, bend to the required shape and size to fit tightly on the socket, when tightened with screw bolts. It shall be formed of two semi-circular pieces with flanged ends on both sides with holes to fit in the screw bolts and nuts, 40 mm long. The stay shall be a minimum of one meter long of 10mm dia M.S. bar. One end of the stay shall be bent to form a hook to be fixed with the clamps by means of bolt and nut cm x 10 cm x 10 cm in 1:2:4 mix. The concrete shall be finished to match with the surrounding surfaces.

OTHER DETAILS: - The connection between the main pipe and branch pipes shall be made by using branches and bends with access door for cleaning.

Floor traps shall be provided with 25mm dia puff pipe where length of the wastes is more than 180 cm or the floor trap is connected to a waste stack through bends.

The waste from lavatories, kitchens, basins, sinks, baths and other floor traps shall be separately connected to respective waste stack of inspection chamber / upper floor. The waste stack

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of lavatories will be connected directly to manhole while the waste stack of others shall separately discharge overfully trap.

Every starting manhole shall have a 100 mm sand cast iron vent, terminating at 1 mtr above the parapet of the building.

The main anti-siphon age pipe shall be of 50 mm internal diameter. When more than one branch from water closet / sink is connected with the soil pipe and discharge into it, anti-siphon age from the lowestone should pass through the wall and be carried up outside the building parallel to the soil pipe to a point 1.5metres minimum above the highest branch.It can then be connected to the soil pipe or it can be carried in dependently. The anti-siphon age pipes of all the intermediate floors, water closets should be joined with the main anti-siphonage pipe.The ventilating pipe shall have inter naldia meter of not less than 50 mm in all parts and shall be connected with arm of soil pipe on trap through a 45 degree branch, at a point not less than 7.5cm and not more than 30cm from the highest part of the trap and on the side of the water seal which is nearest to the soil pipe the jointing shall be done according to the specification for piping materials used in soil, vent or wastepipes.

Joints shall be filled land caulked as described under sub-head "water supply". The depth of lead from the lip of the pipe socket shall be 25 mm.

TESTING:-All sand cast iron pipes and fittings including joints shall be tested by a smoke test to the satisfaction of the Engineer-in-charge and left in working order after completion. The smoke test shall be carried out as stated under.

Smoke shall be pumped in to the pipe at the lowest end from a smoke machine, which consists of a bellow and burner. The material usually burnt is greasy cotton waste, which gives out a clear pungent smoke, which is easily detectable by sight as well as by smell if there is leakage at any point of the drain.

PAINTING:-All the sand cast iron pipes and fittings shall be painted with colours with two coats of paint over a coat of primer on exposed surfaces as directed by the Engineer-in-charge. Besides, the sand cast iron pipes and fittings shall be painted with a coat of coal tar to the inside surfaces before laying and jointing of pipes and fittings. The specification for painting as described in the relevant sub-heads of Orissa State P.W.D. specification and revised from time to time shall apply in this case also.

REQUIREMENTS OF JOINTING MATERIALS FOR H.C.I. BUILDING PIPES AND FITTINGS:

The requirement of jointing materials like cement, gasket for Hard Cast Iron pipes and fittings is indicated in the table below.

TABLE

Table showing the requirement of jointing materials for HCI building pipes and fittings.

1. REQUIREMENT OF LEAD AND GASKET CEMENT FOR JOINTING H.C.I. PIPES (EACH JOINT)

Dia of pipe In mm	lead in Kg.	Gasket InKg(samefor Lead andcement Joints)	Cementin Kg
100	1.2	0.13	0.12
50	0.36	0.06	0.06

A. Sanitary Ware & Allied Fittings:

1. General:

All sanitary fixtures and their allied fittings should be of first quality, manufactured by reputed manufacture Hind ware/ E.I.D. Parry Ltd./ Nycer /Madhusudan ceramics or equivalent. These should be approved by the consultant / Engineer-in-charge before use.

2. Squatting pattern W.C. pan (Orissa pattern Closets):

The water closets shall be of vitreous china of specified size and pattern, integral flushing rim. It shall have the flushing inlet at the back. The Orissa closets should be of approved quality

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confirming to I:S:S:- 2556(part-III).

The squatting type Indian water closets (Orissa closet) shall be sunk in floor sloped towards the pan in a workmanship like manner. The closet shall be fixed on a proper cement concrete base of 1:3:6 proportions, taking care that the cushion is uniform and even without closet, to receive the specified thickness of the floor finishing. The joint between the closet and the P.V.C.(S.W.R.),Trap shall be made with W.C. ring and rubber lubricant and shall be of leak proof.

3. Wash Hand Basin:

The wash hand basin shall be of the white vitreous china of approved quality, make and brand I.S.I. marked. It shall be one-piece construction with an integral combined overflow. The size of the basin shall be specified. Each basin shall be provided with one 15mm dia C.P. Brass pillar Tap, 32mm dia C.P waste C.P. chain and rubber plug, unions, joints, C.P. Bottle trap casted PVC waste pipe complete in all respects of approved quality.

The basin shall be supported on a pair of R.S. or C.I cantilever brackets (built in type)m embedded and fixed in wall with cement concrete, M20. These brackets shall be painted to the required shade with two coats of synthetic enamel paint over coat of priming. The waste of the basin shall discharge into a floor trap or channel through bottle traps PVC waste pipe as specified. One 32 mm dia C.P.bottle trap is to be fixed to the waste of the basin, & the outlet of the bottle trap is to be connected to the waste pipe, to discharge the waste to the foresaid floor trap. The inlet connection to the basin shall be made with 450mm long 15mm dia heavy type P.V.C.connection pipe.

4. Kitchen Sink:

Unless otherwise mentioned the kitchen sink and drain board (if used) shall be of white vitreous china or fire clay as specified and of approved quality, make and brand,confirming to I.S.S.It shall be one-piece construction with integral combined overflow.The size of the sink and drain board shall be specified.

Each sink shall be provided with 15mm dia C.P.brass,BibCock,longbody40mmC.P.wastewithoverflowC.P chainandrubberplug,unionsetc.,completeinallrespectsasspecifiedandofapprovedquality.

The sink shall be supported on a pair of M.S. or C.I. cantilever brackets (built in type) embedded or fixed in position in the wall by cement concrete M20. The brackets shall be painted to required shade with two coats of approvedsyntheticenamelpaintoveracoatofpriming.Thewasteshoulddischargeintoafloortraporchannel .The wastepipeshouldbe40mmdiaPVCpipejointedtothewasteofthesinkwithabrassunionnut.

5. StandingUrinals

The urinals shall be flat pattern lipped front basin of required dimension of white/coloured vitreous china and onepiececonstructionwithinternalflushingbox,rimofanapprovedmakeandbrandasspecified.Itshallbefixedin

the position by using wooden plug embedded in the wall with screws of proper size. Each urinal shall be connected to a 40mm dia PVC waste pipe, which shall discharge into a channel or floor trap. The lip of urinal shall be kept at 525mm from floor level, while fixing the urinal on the wall.

Where no of urinals are fixed in a line, the distance between the center to center of each urinal shall be kept 750mm and each urinal should be separated from one to other by a partition plate. The center-to-center partition plates shall be kept 750mm.

The partition plates shall be of one-piece kota stone plates, cut to size or partition wall and front corners rounded. The partition plates are embedded in wall with cement concrete and finished smooth. The bottom of the partition plates should be kept 500mm above floor level and top should be kept at 1250 mm above floor level. The plates should project 600mm from wall surface. The width of the plates should be embedded inside the wall and should not be less than 100mm. The thickness of the plates shall be minimum of 25 mm to 32 mm. Thickness of partition wall should be limited to 150mm including smooth surface finishing.

For flushing the urinals each urinal shall be, connected with one 20mm dia G.I. Pipe (Medium class). One end of each of this pipe 15mm PVC connection pipe shall be inserted into the inlet of the Urinal and jointed with jute and putty where as the other end disconnected either with a te orbend with water pipe line fixed on the wall horizontal above the urinals. In each 20mm dia flush

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S. Shrivastava
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pipe, one 20 mm dia gunmetal gate valve angle stopcock to be fixed. By opening this valve, the water will flow to the rims of urinal through the inlet pipe and flush the urinal. After flush, the valve can be closed to avoid wastage of water. One 40mm dia P.V.C. waste pipe shall be connected to the waste of each urinal, to discharge the waste into the channel or trap. One end of this waste pipe shall be made a cup size to fit into the projected waste and tightened with screws and waste clamp.

1. Squatting Urinal Plates:

The urinal plates shall be of white glazed vitreous china with integral flushing rim of size 450mm X 350 mm of approved make and brand as specified. There shall be white vitreous channel with stop and out let pieces in the front. These plates shall be fixed on C.C. at 75mm to 100mm above floor level.

For flushing arrangement, one 25mm dia G.I. common water pipeline (minimum size) shall be fixed on the wall parallel to floor. For each urinal one 20mm dia G.I. Branch pipe shall be taken down up to 12mm from floor level just at the centre of each plate, in which one 20mm dia gate valves is fixed at 1500mm above floor level. At 1200mm heights, the 20mm dia flash pipe shall be divided into two branches with a tee and fixed horizontal. 300mm on either side and then with the help of elbows, both the branches shall be taken downward and connected to the inlets of the urinal plates at floor level. By operating the valve as above, the water will rush into the rims of the urinal plate and flush it.

Where there are number of Urinals fixed in a line, each Urinal should be separated by a partition plate fixed in the centre of two Urinal Plates. The centre-to-centre distance of the partition plate shall be kept 750mm minimum.

The partition plates shall be of one-piece kota stone plate, 25 mm to 52mm thick, cut to sizes and front corners rounded. The plates are embedded in wall with cement concrete and finished smooth. The bottom of the partition plate's wall shall be kept flushed to Urinal top level, the top level shall be kept at 1200mm from the Urinal Plate top and the projection from the wall shall be 600mm. The width of the plate to be embedded inside the wall should not be less than 100mm.

2. MIRROR:

Materials:-

The mirror shall be of superior glass with edges rounded off for levelled as specified. It shall be free from flaws, speaks or bubbles. The size of the mirror shall be 60 mm x 45 mm unless specified otherwise and its thickness shall be not less than 6mm.

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 pain.

Fixing: - The mirror shall be mounted on 6 mm thick plain asbestos sheet ground and shall be fixed on the position by means of CP brass screws and CP brass washers, over rubber washers and wooden plugs firmly embedded in the wall. CP brass clamps with CP brass screws may be alternative methods of fixing where so directed. Chromium plating shall be of grade "B" type conforming to IS 1069-1958 or as revised from time to time. Unless specified otherwise, the longer side shall be fixed horizontally. The height of the bottom edge of the mirror shall generally be 120 cm above the floor level unless otherwise specified.

3. Glass shelf unit

The shelf shall be of glass of best quality with edges rounded off, and shall be free from flaws, speaks or bubbles. The size of the shelf shall be 60cm x 120cm. Unless otherwise specified and thickness not less than 6mm. The shelf shall have CP brass guardrail resting on rubber washers on the glass plate and CP brass brackets which shall be fixed with CP brass crews to wooden plug firmly embedded in the walls. Chromium plating shall be of grade "B" type conforming to IS 1068-1958 or as revised from time to time. The height of the glass shelf above the floor level shall be 115 cm unless otherwise specified.

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SCHEDULE-ACERTIFICATE OF NO RELATIONSHIP

I/We hereby certify that I/We* am/are* **related/not related** (*) to any officer of PR & DW Department of the rank of Assistant Engineer & above and any officer of the rank of Assistant / Under Secretary and above of the PR & DW Department, Govt. of Orissa. I/We* am/are* aware that, if the facts subsequently proved to be false, my/our* contract will be rescinded with forfeiture of E.M.D and security deposit and I/We* shall be liable to make good the loss or damage resulting from such cancellation. I//We also note that, non-submission of this certificate will render my / our tender liable for rejection.

(*) - Strike out which is not applicable

Signature of the Tenderer

Date:-

Contractor

Sedhita
Block Dev. Officer, LA Officer
Laxmipur, Koraput

SCHEDULE-B**CERTIFICATE OF EMPLOYMENT OF UNEMPLOYED GRADUATE ENGINEER / DIPLOMA HOLDERS**

(for Super class / special class / A class contractors only)

I/We hereby certify that at present the following Engineering personnel are working with me / in our firm / company and their bio-data are furnished below.

Sl. No.	Name of Engineering personnel appointed for supervising contractor's work with address.	Qualification	Date of Appointment	Monthly emolument	Whether full time engagement and continuous.	If they are superannuated / retired / dismissed or removed personnel from state Govt./ Central Govt./ Public Sector Undertaking/ private Companies <u>and</u> or any one ineligible for Government service.
1	2	3	4	5	6	7

I / We also note that, non-submission of this certificate will render my / our tender liable for rejection.

Signature of the tenderer.
Date:-

Contractor

Sedha

Block Development Officer
Laxmipur, Koraput

Schedule-C
ANNEXURE - I

**LIST OF PLANT AND EQUIPMENTS TO BE DEPLOYED ON THE CONTRACT WORK
(MINIMUM REQUIREMENT)**

Sl. No.	List of plants and equipments		Marks
01.	Truck/Tipper	2	
02.	Concrete Mixture	2	
03.	Generator	1	
04.	Plate Vibrator	2	
05.	Needle Vibrator	2	
06.	Centring & shuttering materials.	4000 sqf	
07.	Water Tanker	2	
08.	Except if any		
	Total:-		

ANNEXURE - II OF SCHEDULE-C

Apart from the above the contractor shall have to arrange other machineries if any required for the work.

Contractor


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SCHEDULE-D**WORK EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS EXECUTED**

Name of Employer	Name of Location and Name of Work	Contract Price in Indian Rupees/ Agreement No.	Major items of Works	Stipulated date of Commencement/ completion of the Work as per Agreement.	Actual date of Completion of the Work.	Value of work actually executed during last 5 financial year		Reasons for delay in starting/ completion if any.
						Financial year	Value	
1	2	3	4	5	6	7	8	9

Note:- The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Contractor

[Signature]
 Block Development Officer, Laxmipur
 Laxmipur, Koraput

SCHEDULE-E**INFORMATION REGARDING CURRENT LITIGATION, DEBARRING EXPELLING OF TENDERED
OR ABANDONMENT OF WORK BY THE TENDERER**

1. a) Is the tenderer currently involved in any litigation relating to the work. Yes / No
- b) If yes: give details:
2. a) Has the tenderer or any of its Constituent partners been debarred/ expelled by any agency in India during the last 5 years Yes / No
3. a) Has the tenderer or any of its constituent partners failed to perform on any contract work in India during the last 5 years Yes / No
- b) If yes, give details:

Note:

If any information in this schedule is found to be incorrect or concealed, qualification application will be summarily be rejected.

Signature of the contractor

Contractor


Block Development Officer
Block Development Officer, Laxmpur

SCHEDULE -F

(To be submitted in original in legal stamp paper)

1. The undersigned do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither our firm M/s _____ nor any of its constituent partners have abandoned any road/ bridge/Irrigation /Buildings or other project work in India nor any contract awarded to us for such works have been rescinded during the last five years prior to the date of this bid.
3. The undersigned hereby authorised and request (s) any bank, person, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Department to verify this statement or regarding my (our) competency and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested and agree to furnish any such information at the request of the Department.

(Signed by an Authorised Officer of the firm)
Title of Officer
Name of Firm
Date:

Contractor


Block Development Officer, Laxmipur
Laxmipur, Koraput

SCHEDULE -G

Existing commitments and ongoing works

Description of works	Place & State	Contract No.	Name & Address of Employer	Value of Contract (Rs. Lakh)	Stipulated period of Completion	Value of works remaining to be completed (Rs. Lakh)	Anticipated date of completion
1	2	3	4	5	6	7	8

*Attach Certificate(s) from the Engineer -in-charge

Contractor

Siddhanta
 Block Development Officer
 Block Dev. Officer, Laxmipur
 Laxmipur, Koraput

Schedule-H**Form of Bid Security Declaration**

Name Of the Work-

Date:

Bid Identification No.

To

(Fill up the complete name and address of the Authority/Employer/Tender Inviting Authority)

We, the undersigned declare that:

1. We understand that, according to your conditions, bids must be supported by a Bid Security Declaration.
2. We accept that the Authority/Employer/Tender Inviting Authority shall cancel our empanelment and / or suspend/prohibit/debar/blacklist from participating in bidding in any contract of the State for a minimum period of 180 days, if we are in breach of our obligation(s) under the bid conditions, because we:
 - (a) Have withdrawn out Bid prior to the expiry date of the bid validity specified in the letter of Bid or any extended date provided by us; or
 - (b) Having been notified of the acceptance of our Bid by the Employer prior to the expiry date the bid validity in the Letter of Bid or any extended date provided by us,
 - (i) Failure of use to furnish the Performance Security and Additional Performance Security, if required in accordance ITB/Terms of the Bid Document, or
 - (ii) Fail to agree to the decisions of the contract negotiation meeting or
 - (iii) Failure refuses to execute the Contract.
3. We understand this Bid Security Declaration shall expire, if we are not the successful Bidder, upon the earlier of your notification of the name of the successful Bidder through award of contract; or after the expiry date of the Bid validity.

Name of the Bidder _____

Name of the person duly authorized to sign the Bid on behalf of the Bidder _____

Title of the person signing the Bid _____

Signature of the person named above _____

Date signed _____ day of _____

- In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder
- Person signing the Bid shall have the power of attorney given by the Bidder attached to the Bid.

[Note: In case of a Joint Venture, the Bid Security Declaration must be in the name of all members to the Joint Venture that submits the Bid]

Contractor


 Block Development Officer, Laxmipur
 Laxmipur, Koraput

SCHEDULE - I

MEMORANDUM OF UNDERSTANDING

First Party I Sri/Smt..... Aged Years, S/O- At / P.O. / Dist.-
..... (Hereinafter called the First Part)

AND

Second Party I Sri/Smt..... Aged Years, S/O- At / P.O. / Dist.-.....
Hereinafter called the Second Part) having H.T. / L.T. license registration No..... valid up to

AND WHEREAS the First Party of 1st part is the managing partner of

AND WHEREAS the First Party willing to appoint the Second Party to execute the E.I. portion for the tender work,
.....”

AND WHEREAS the Second Party accepted the offer of First Party.

NOW THIS DEED OF AGREEMENT WITNESSES AS FOLLOWS;

- 1) That, the Second Party shall do all E.I. works, if the tender is awarded to First Party.
- 2) That, the Second Party shall fulfil all the E.I. works as per the tender schedule by instruction of Engineer-in-Charge.
- 3) That, the First Party shall receive payment, signing the bill the document for the concerned work.
- 4) That, the Second Party shall abide the rules, regulations and specification of E.I. works of above said matter.

In witness where of both the party have signed in presence of

WITNESS

W₁ -

W₂ -

APPROVED for 68 (Sixty-Eight) pages only

Jadhava
 Block Development Officer
 Laxmipur, Koraput

Contractor

Block Dev. Officer, Laxmipur

TENDER SCHEDULE

NAME OF THE WORK :-	Construction of Block Public Health Unit at Laxmipur for the year 2021-22.
SCHEME:- XVFC 2021-22	BLOCK:- LAXMIPUR
Estimated Cost: Rs. 48,00,000/-	G.P:- Laxmipur
AMOUNT PUT TO TENDER:-Rs:- 34,19,121/-	
COST OF TENDER PAPER:-RS:- 6,000/-	E.M.D REQUIRED:-BID SECURITY DECLARATION
PERIOD OF COMPLITION:-9 MONTHS	CLASS OF CONTRACTOR:- "B" & "C"

Sl. No.	Items of Work	Qty.	Unit	Estimated Cost(In Rs)	
				Rate	Amount
1	2	3	4	5	6
1)	Earth work in hard soil or gravelly soil within 50m. Initial lead and 1.5m initial lift including rough dressing and breaking clods to maximum 5cm to 7cm and laying in layers not exceeding 0.3m in depth and as per the direction of the Engineer-in-charge.	121.62	One Cum	230.73	Rs. 28,061.38
2)	Supplying and filling in foundation trenches and plinth, ditches with sand well watered and rammed in layers not exceeding 23 cm. in depth with all lead and lift including cost, conveyance, loading, unloading, royalties and taxes of all materials, cost of all labour, sundries, T&P required for the work etc. complete in all respect as per direction by the Engineer in charge.	124.46	One Cum	420.50	Rs. 52,335.43
3)	Providing and laying plain cement concrete of proportion (1:3:6) in foundation and floors using 4 cm. size black hard crusher broken granite stone metal and screened and washed sharp sand for mortar of approved quality and from approved quarry including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each layer including cost, conveyance, royalties, taxes of all materials and cost of all labours, T&P etc complete as per the direction of the Engineer -in -charge.	35.11	One Cum	4776.47	Rs. 167,701.86
4)	Flyash brick masonry in cement mortar (1:6) in Plinth & foundation using Flyash bricks of 23cmX 11cm X 8cm size having a crushing strength of not less than 75 kg./sq.cm including splays cutting, circular moulding, chamfering and cur belling, watering and curing etc. complete including cost, conveyance, royalty, taxes of all the materials required for the work with all labour, T&P and cess etc. complete in all respect as per specification and direction of the Engineer-in-charge.	21.96	One Cum	4420.78	Rs. 97,080.33


 Block Development Officer
 Laxmipur, Koraput

5)	R.C.C. work with M-20 grade In Different Works having minimum compressive strength in work test of 200 Kg/Cm ² at 28 days using 20 mm and down graded size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering and laying concrete and compacting by using vibrators watering, curing for 28 days, centring & shuttering and finishing the exposed surface smooth providing grooves or beads where necessary in all floors including cost, conveyance, royalties and taxes of all materials, cost of all labour with cost of all T&P required for the work etc. complete in all respect but excluding cost and conveyance of M.S. rods or steel & binding wires and labour charges for strengthening, cutting, bending grills and placing in proper position.					
a)	Column base	20.44	One Cum	5135.65	Rs.	104,972.69
b)	Plinth Beam	7.14	One Cum	5503.77	Rs.	39,296.92
c)	Column Shaft					
i)	Ground floor	3.02	One Cum	12540.70	Rs.	37,872.91
ii)	First floor	3.02	One Cum	13475.74	Rs.	40,696.73
iii)	Second floor	1.11	One Cum	15246.90	Rs.	16,924.06
d)	Lintel					
i)	Ground floor	2.29	One Cum	8730.04	Rs.	19,991.79
ii)	First floor	2.38	One Cum	9555.81	Rs.	22,742.83
e)	Chajja					
i)	Ground floor	7.20	One Sqm	811.14	Rs.	5,840.21
ii)	First floor	8.10	One Sqm	914.27	Rs.	7,405.59
iii)	Second floor	1.20	One Sqm	1037.78	Rs.	1,245.34
f)	Roof Beam					
i)	Ground floor	6.54	One Cum	11028.11	Rs.	72,123.84
ii)	First floor	5.86	One Cum	12313.51	Rs.	72,157.17
iii)	Second floor	0.77	One Cum	13852.22	Rs.	10,666.21
g)	Roof Slab					
i)	Ground floor	12.20	One Cum	9410.31	Rs.	114,805.78
ii)	First floor	10.70	One Cum	9977.16	Rs.	106,755.61
iii)	Second floor	1.15	One Cum	11048.60	Rs.	12,705.89
h)	Stair case					
i)	Ground floor	1.91	One Cum	10506.70	Rs.	20,067.80
ii)	First floor	1.91	One Cum	11687.81	Rs.	22,323.72
6)	Providing, Straightening cutting, bending bent up or coiled rods, including cranking, hooking, welding or jointing the M.S. rods or tor conforming to I.S. 432 (Plain) and 1785 (Tor) steel and binding, tying the grills, hoisting, lowering and placing in proper position required for R.C.C. works including cost, conveyance and taxes of M.S. rods or tor steel and binding wires of 18 to 20 gauge and cost of all labour with all T&P required for the work etc. complete as directed by the Engineer- in-Charge.					
(a)	Ground floor	49.03	One Qntl	9142.41	Rs.	448,252.36
(b)	First floor	29.32	One Qntl	9163.61	Rs.	268,677.05
(c)	Second floor	4.04	One Qntl	9185.86	Rs.	37,110.87

7)	Flyash brick masonry in cement mortar (1:6) in Super structure using Flyash bricks of 23cmX 11cm X 8cm size having a crushing strength of not less than 75 kg./sq.cm including splays cutting, circular moulding, chamfering and cur belling, watering and curing etc. complete including cost, conveyance, royalty, taxes of all the materials required for the work with all labour, T&P and cess etc. complete in all respect as per specification and direction of the Engineer-in-charge.				
(a)	Ground floor	33.61	One Cum	4454.11	Rs. 149,702.64
(b)	First floor	36.90	One Cum	4691.71	Rs. 173,124.10
(c)	Second floor	13.07	One Cum	4964.96	Rs. 64,892.03
8)	Providing 16mm thick cement plaster with CM (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, provideing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, T&P and scaffolding required for the work etc. complete in all respect as directed by the Engineer-in-Charge.				
(a)	Ground floor	265.98	One Sqm	216.12	Rs. 57,483.60
(b)	First floor	256.67	One Sqm	220.50	Rs. 56,595.74
(c)	Second floor	24.80	One Sqm	225.02	Rs. 5,580.50
9)	Providing 12mm thick cement plaster with CM (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, provideing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, T&P and scaffolding required for the work etc. complete in all respect as directed by the Engineer-in-Charge.				
(a)	Ground floor	180.38	One Sqm	153.00	Rs. 27,598.14
(b)	First floor	180.38	One Sqm	157.92	Rs. 28,485.61
(c)	Second floor	101.25	One Sqm	163.08	Rs. 16,511.85
10)	Supplying, fitting and fixing vetrified tiles(Homogeneous) in floor of size 600mm x 600mm of approved make conforming to IS: 13755 laid on 20mm thick bed of C.M. (1:4) (1 cement: 4 course sand) and filling the joints with white cement of approved quality including cost of all materials , conveyance, taxes, labour, T&P etc. required for the work in all respect as directed by Engineer in Charge.				
(a)	Ground floor	58.76	One Sqm	986.95	Rs. 57,993.18
(b)	First floor	58.76	One Sqm	995.70	Rs. 58,507.33

11)	Supplying, fitting & fixing of Granite tiles laid on 20mm thick bed of C.M. (1:4) (1 cement: 4 course sand) and filling the joints with white cement of approved quality including cost of all materials, conveyance, taxes, labour, T&P etc. required for the work in all respect as directed by Engineer in Charge.				
(a)	Ground floor	6.01	One Sqm	2221.05	Rs. 13,348.51
(b)	First floor	4.27	One Sqm	2229.80	Rs. 9,521.25
12)	Supplying, fitting, fixing of Vitrified industrial floor Tile of premium grade having thickness 8mm to 10mm confirming to IS 4457 of size 300mmx300mm tile in floors over 20mm thick bed of C.M. (1:4) (1 cement: 4 course sand) and filling the joined with neat cement slurry mixed with pigment to match the shade of tiles, rubbing, polishing including cost of tiles, conveyance, taxes & labour, T&P and cess etc. complete in all respect as per specification and direction of the Engineer-in-charge.				
(a)	Ground floor	10.40	One Sqm	876.30	Rs. 9,113.52
(b)	First floor	25.40	One Sqm	885.04	Rs. 22,480.02
13)	Providing fitting & fixing of Ceramic tiles having size 20cmx30cm special plain ceramic wall tiles of premium grade having thickness 6.5mm to 6.7mm confirming to IS 13753 in dado on 12mm thick cement plaster (1:3) (1cement : 3sand) joined with neat cement slurry mixed with pigment to match the shade of tiles, rubbing, polishing including cost of tiles, conveyance, taxes & labour, T&P and cess etc. complete in all respect as per specification and direction of the Engineer-in-charge				
(a)	Ground floor	116.76	One Sqm	777.15	Rs. 90,740.03
(b)	First floor	24.58	One Sqm	790.31	Rs. 19,425.82
14)	Supplying, fitting and fixing of Stainless steel of 304 grade in hand railing using 50mm dia of 2mm thick circular pipe with Balustrade of size 32mm x 32mm x 2mm @ 0.90mtr. C/C and stainless square pipe bracing of size 32mm x 32mm x 2mm in 3 rows in stair case as per approved design and specification, buffing, polishing etc with cost, conveyance, taxes of all materials, cost of all labour, T&P etc. required for the complete in all respect as per direction of the Engineer-in-charge.				
(a)	Ground floor	73.36	One Kg	287.45	Rs. 21,087.33
(b)	First floor	73.36	One Kg	287.45	Rs. 21,087.33
15)	Painting two coats with approved weather coats (I.S.I) paint (1st quality) exterior grade of approved make & shade manufactured by reputed manufacture like Nerolac/ Asian/ Berger/ Dulux or equivalent to make an even finished surface over a coat of primer with oil bond cement primer in all heights with all scaffolding and staging charges including, cost, conveyances, taxes of all materials and cost of all labour with T&P etc, complete as per specification & direction of Engineer-in-charge.				
(a)	Ground floor	180.38	One Sqm	132.83	Rs. 23,959.88
(b)	First floor	180.38	One Sqm	137.36	Rs. 24,777.00
(c)	Second floor	13.07	One Sqm	142.12	Rs. 1,857.51



16)	Finishing wall surface of walls with Acrylic wall putty (Cement based) of approved make and finished smooth and even surface to receive painting including cost of scaffolding staging charges with cost of all materials taxes, labour T&P etc complete.				
(a)	Ground floor	212.39	One Sqm	67.52	Rs. 14,340.57
(b)	First floor	297.29	One Sqm	68.71	Rs. 20,426.80
(c)	Second floor	24.80	One Sqm	69.94	Rs. 1,734.51
17)	Painting two coats with approved emulsion paint (I.S.I) paint (1st quality) of approved make & shade manufactured by reputed manufacture like Nerolac/ Asian/ Berger/ Dulux or equivalent to make an even finished surface in all heights with all scaffolding and staging charges including, cost, conveyances, taxes of all materials and cost of all labour with T&P etc, complete as per specification & direction of Engineer-in-charge.				
(a)	Ground floor	212.39	One Sqm	139.22	Rs. 29,568.94
(b)	First floor	297.29	One Sqm	141.93	Rs. 42,194.37
(c)	Second floor	24.80	One Sqm	144.73	Rs. 3,589.30
18)	Painting two coats with synthetic enamel paint of approved shade over a coat of primer to new iron doors & windows and grills including sand papering, polishing the surface smooth to give an even shade with cost of paints, conveyance, taxes of all materials and labour with T&P required for the work etc. complet as per the direction of EIC.				
(a)	Ground floor	69.64	One Sqm	138.29	Rs. 9,630.52
(b)	First floor	73.60	One Sqm	141.40	Rs. 10,407.04
(c)	Second floor	6.12	One Sqm	144.60	Rs. 884.95
19)	Providing 2.5cm thick Grading Concrete over roof slab with cement concrete (1:2:2) using 6mm size black hard granite crusher broken chips and screened & washed sharp sand for mortar and finished smooth to the rough surface of slab including watering and curing with cost, conveyance, royalties and taxes of all materials with cost of all labour, and T&P required for the work etc. complete in all respect as directed by the Engineer in charge.				
(a)	First floor	107.23	One Sqm	332.58	Rs. 35,662.55
(b)	Second floor	12.11	One Sqm	361.33	Rs. 4,375.71
20)	Providing , fitting & fixing of Al. door with OEL anodized Al. door section of 9202 as vertical member, 9201 as top member and 9200 as bottom and middle member and 12mm thick prelaminate board in bottom and top portion fixed on door frame by means of tapered clip No.4660 and frame to be completed bt means of jointing angle No.1855 including all cost of labour T & P hire charges of drilling machine labour charges etc complete.	487.956	One Kg	433.80	Rs. 211,675.31

21)	Supplying, fitting, fixing up window (sliding type) made up aluminum Section 9778 as windows frame, section No.4095, 4096 & 9777, 3994 as shutter frame with 5mm thick black glass as panel fitted with rubber beading including lucking arrangement including all fitting including cost of materials all taxes,cess labour, T&P but excluding cost of glass etc. complete and as per direction of Engineer-in-charge.	134.671	One Kg	598.80	Rs.	80,640.99
22)	Cost of 5mm thick black glass	40.03	One Sqm	552.34	Rs.	22,110.17
23)	Cost of 12 mm Pre-laminated Particle board	16.65	One Sqm	589.79	Rs.	9,820.00
24)	Dismantling brick or stone masonry below 3.00m height in lime or cement including stacking & useful materials and the removing debries within 50m lead.	52.88	One Cum	1137.29	Rs.	60,139.90
25)	Cement concrete (1:2:4) with 12mm size hard granite C.B chips of approved quality free from weathered skins and foreign materials including hoisting,lowering and laying concrete in layers not exceeding 0.15 mtr. in depth, watering and curing 21 days etc complete including cost of all materials, conveyance, royalties, taxes of all materials and cost of all labours, T&P etc complete as per the direction of the Engineer -in-charge.	5.86	One Cum	6143.7	Rs.	36,002.08
26)	Supplying, fitting & fixing of 80mm thick Factory made Cement concrete interlocking paver block of M-35 & approved make variety colour & size made by block making machine with strong vibratory compaction of approved design and shape, laid in required colour and pattern over 50mm thick compacted bed of course sand, filling the joints with the sand etc all complete including cost of all materials, all labour with T&P etc required for the work complete in all respect as per the direction of the EIC.	53.00	One Sqm	834.52	Rs.	44,229.56
TOTAL AMOUNT PUT TO TENDER		Total			Rs.	3,419,120.56
		Round To			Rs.	3,419,121.00

NUMBER OF ITEMS:-26(TWENTY SIX)

(Rupees Thirty Four Lakh Nineteen Thousand One Hundred Twenty One)Only

REMARKS:- TENDER RATE QUOTED EXCESS THEN THE ABOVE TENDER AMOUNT WILL NOT BE ACCEPTED

PERCENTAGE RATE TO BE QUOTED BY THE TENDERER:-

_____% LESS / HIGHER THEN THE ABOVE TENDER
AMOUNT PUT TO TENDER

(QUOTE RATE BOTH IN FIGURE & WORDS CLEARLY)


Development Officer
BLOCK DEVELOPMENT OFFICER, LAXMIPUR
Laxmipur, n. or. or. or.

SIGNATURE OF THE CONTRACTOR

TENDER SCHEDULE

NAME OF THE WORK :-	Construction of Labour room at PHC Keskapadi under
SCHEME:- NHM PIP-2020-21	BLOCK:-LAXMIPUR
Estimated Cost: Rs. 31,00,000/-	G.P:- PIPOLPODAR
AMOUNT PUT TO TENDER:-20,96,881/-	
COST OF TENDER PAPER:-6000/-	E.M.D REQUIRED:-BID SECURITY DECLARATION

PERIOD OF COMPLITION:-6 MONTHS	CLASS OF CONTRACTOR:-"B" & "C"
--------------------------------	--------------------------------

Sl. No.	Items of Work	Qty.	Unit	Estimated Cost(In Rs)	
				Rate	Amount
1	2	3	4	5	6
1)	Earth work in ordinary soil with 50m initial lead and 1.5m initial lift including rough dressing and breaking clods to maximum 5 cm to 7 cm and laying etc. completed as per the direction of the Engineer in charge.	742.50	One Cum	156.17	Rs. 115,956.23
2)	Earth work in excavation of foundation trenches in hard soil including dressing of sides and levelling the bed up to the required depth and depositing the excavated materials away from the work site within 50m initial lead & 1.5m initial lifts with sundries & T&P required for the work complete as directed by the Engineer in charge.	124.69	One Cum	230.73	Rs. 28,769.72
3)	Supplying and filling in foundation trenches and plinth, ditches with sand well watered and rammed in layers not exceeding 23 cm. in depth with all lead and lift including cost, conveyance, loading, unloading, royalties and taxes of all materials, cost of all labour, sundries, T&P required for the work etc. complete in all respect as per direction by the Engineer in charge. Filling in foundation and plinth with excavated materials including watering and ramming as directed by the Engineer-in-charge for 100 cum. Filling in foundation and plinth with excavated materials including watering and ramming as directed by the Engineer-in-charge for 100 cum.	124.69	One Cum	108.55	Rs. 13,535.10
4)	Supplying and filling in foundation trenches and plinth, ditches with sand well watered and rammed in layers not exceeding 23 cm. in depth with all lead and lift including cost, conveyance, loading, unloading, royalties and taxes of all materials, cost of all labour, sundries, T&P required for the work etc. complete in all respect as per direction by the Engineer in charge.	68.67	One Cum	376.06	Rs. 25,824.04
5)	Providing and laying plain cement concrete of proportion (1:3:6) in foundation and floors using 4 cm. size black hard crusher broken granite stone metal and screened and washed sharp sand for mortar of approved quality and from approved	40.08	One Cum	4907.63	Rs. 196,697.81


 Block Development Officer
 Laxmipur, Koraput

6)	Cement concrete (1:2:4) with 12mm size hard granite C.B chips of approved quality free from weathered skins and foreign materials including hoisting, lowering and laying concrete in layers not exceeding 0.15 mtr. in depth, watering and curing 21 days etc complete including cost of all materials, conveyance, royalties, taxes of all materials and cost of all labours, T&P etc complete as per the direction of the Engineer -in-charge.	6.34	One Cum	6298.17	Rs.	39,930.40
7)	R.C.C. work with M-20 grade In Different Works having minimum compressive strength in work test of 200 Kg/Cm ² at 28 days using 20 mm and down graded size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering and laying concrete and compacting by using vibrators watering, curing for 28 days, centring & shuttering and finishing the exposed surface smooth providing grooves or beads where necessary in all floors including cost, conveyance, royalties and taxes of all materials , cost of all labour with cost of all T&P required for the work etc. complete in all respect but excluding cost and conveyance of M.S. rods or steel & binding wires and labour charges for strengthening, cutting, bending grills and placing in proper position.					
7.1)	Footing	9.48	One Cum	5297.15	Rs.	50,216.98
7.2)	Plinth Beam	5.31	One Cum	5665.31	Rs.	30,082.80
7.3)	Column	3.78	One Cum	12702.23	Rs.	48,014.43
7.4)	Lintel	2.40	One Cum	8891.58	Rs.	21,339.79
7.5)	Beam	5.29	One Cum	11189.65	Rs.	59,193.25
7.6)	Roof Slab	12.52	One Cum	9571.85	Rs.	119,839.56
7.7)	Chajja	8.82	One Sqm	821.64	Rs.	7,246.86
8)	Providing, Straightening cutting, bending bent up or coiled rods, including cranking, hooking, welding or jointing the M.S. rods or tor confirming to I.S. 432 (Plain) and 1785 (Tor) steel and binding, tying the grills, hoisting, lowering and placing in proper position required for R.C.C. works including cost, conveyance and taxes of M.S. rods or tor steel and binding wires of 18 to 20 gauge and cost of all labour with all T&P required for the work etc. complete as directed by the Engineer- in-Charge.	44.39	One Qntl	9172.96	Rs.	407,187.69
9)	Providing 2.5cm thick Grading Concrete over roof slab with cement concrete (1:2:2) using 6mm size black hard granite crusher broken chips and screened & washed sharp sand for mortar and finished smooth to the rough surface of slab including watering and curing with cost, conveyance, royalties and taxes of all materials with cost of all labour, and T&P required for the work etc. complete in all respect as directed by the Engineer in charge.	125.23	One Sqm	309.33	Rs.	38,737.40


 Block Development Officer
 Laxmipur, Koraput

10)	Flyash brick masonry in cement mortar (1:6) in Plinth & foundation using Flyash bricks of 23cmX 11cm X 8cm size having a crushing strength of not less than 75 kg./sq.cm including splays cutting, circular moulding, chamfering and cur belling, watering and curing etc. complete including cost, conveyance, royalty, taxes of all the materials required for the work with all labour, T&P and cess etc. complete in all respect as per specification and direction of the Engineer-in-charge.	21.48	One Cum	4362.79	Rs.	93,712.73
11)	Flyash brick masonry in cement mortar (1:6) in Super structure using Flyash bricks of 23cmX 11cm X 8cm size having a crushing strength of not less than 75 kg./sq.cm including splays cutting, circular moulding, chamfering and cur belling, watering and curing etc. complete including cost, conveyance, royalty, taxes of all the materials required for the work with all labour, T&P and cess etc. complete in all respect as per specification and direction of the Engineer-in-charge.	37.36	One Cum	4396.12	Rs.	164,239.04
12)	Providing 16mm thick cement plaster with CM (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, provideing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, T&P and scaffolding required for the work etc. complete in all respect as directed by the Engineer-in-Charge.	299.13	One Sqm	211.14	Rs.	63,158.31
13)	Providing 12mm thick cement plaster with CM (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, provideing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, T&P and scaffolding required for the work etc. complete in all respect as directed by the Engineer-in-Charge.	141.14	One Sqm	148.86	Rs.	21,010.10
14)	20 mm thick plaster (1:6) with stone work with cost, conveyance, royalties and taxes of all materials with cost of all labour, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge. 20 mm thick plaster (1:6) with stone work with cost, conveyance, royalties and taxes of all materials with cost of all labour, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.	41.50	One Sqm	222.83	Rs.	9,247.45


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15)	Supplying, fitting and fixing vetrified tiles(Homogeneous) in floor of size 600mm x 600mm of approved make conforming to IS: 13755 laid on 20mm thick bed of C.M. (1:4) (1 cement: 4 course sand) and filling the joints with white cement of approved quality including cost of all materials , conveyance, taxes, labour, T&P etc. required for the work in all respect as directed by Engineer in Charge.	82.94	One Sqm	979.71	Rs.	81,257.15
16)	Providing fitting & fixing of Ceramic tiles having size 20cmx30cm special plain ceramic wall tiles of premium grade having thickness 6.5mm to 6.7mm confirming to IS 13753 in dado on 12mm thick cement plaster (1:3) (1cement : 3sand) joined with neat cement slurry mixed with pigment to match the shade of tiles, rubbing, polishing including cost of tiles, conveyance, taxes & labour, T&P and cess etc. complete in all respect as per specification and direction of the Engineer-in-charge	153.28	One Sqm	772.86	Rs.	118,463.98
17)	Supplying, fitting, fixing of Vitrified industrial floor Tile of premium grade having thickness 8mm to 10mm confirming to IS 4457 of size 300mmx300mm tile in floors over 20mm thick bed of C.M. (1:4) (1 cement: 4 course sand) and filling the joined with neat cement slurry mixed with pigment to match the shade of tiles, rubbing, polishing including cost of tiles, conveyance, taxes & labour, T&P and cess etc. complete in all respect as per specification and direction of the Engineer-in-charge	45.11	One Sqm	869.05	Rs.	39,202.85
18)	Priming one coat to wall surafce using water bound cement primer including cost, conveyance all materilas, labour and T & P etc complete.	242.60	One Sqm	60.38	Rs.	14,648.19
19)	Painting two coats with approved emulsion paint (J.S.I) paint (1st quality) of approved make & shade manufactured by reputed manufacture like Nerolac/ Asian/ Berger/ Dulex or equivalent to make an even finished surface in all heights with all scaffolding and staging charges including, cost, conveyances, taxes of all materials and cost of all labour with T&P etc, complete as per specification & direction of Engineer-in-charge.	242.60	One Sqm	78.84	Rs.	19,126.58
20)	Finishing wall surface of walls with Acrylic wall putty (Cement based) of approved make and finished smooth and even surface to receive painting including cost of scaffolding staging charges with cost of all materials taxes, labour T&P etc complete.	242.60	One Sqm	67.52	Rs.	16,380.35


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21)	Painting two coats with approved weather coats (I.S.I) paint (1st quality) exterior grade of approved make & shade manufactured by reputed manufacture like Nerolac/ Asian/ Berger/ Dulux or equivalent to make an even finished surface over a coat of primer with oil bond cement primer in all heights with all scaffolding and staging charges including, cost, conveyances, taxes of all materials and cost of all labour with T&P etc, complete as per specification & direction of Engineer-in-charge.	182.64	One Sqm	132.83	Rs.	24,260.07
22)	Painting two coats with synthetic enamel paint of approved shade over a coat of primer to new iron doors & windows and grills including sand papering, polishing the surface smooth to give an even shade with cost of paints, conveyance, taxes of all materials and labour with T&P required for the work etc. complet as per the direction of EIC.	26.07	One Sqm	138.29	Rs.	3,605.22
23)	Providing , fitting & fixing of Al. door with OEL anodized Al. door section of 9202 as vertical member, 9201 as top member and 9200 as bottom and middle member and 12mm thick prelaminated board in bottom and top portion fixed on door frame by means of tapered clip No.4660 and frame to be completed bt means of jointing angle No.1855 including all cost of labour T & P hire charges of drilling machine labour charges etc complete.	233.49	One Kg	433.80	Rs.	101,287.96
24)	Supplying, fitting, fixing up window (sliding type)made up aluminum Section 9778 as windows frame, section No,4095, 4096 & 9777, 3994 as shutter frame with 5mm thick black glass as panel fitted with rubber beading including lucking arrangement including all fitting including cost of materials all taxes,cess labour, T&P but excluding cost of glass etc, complete and as per direction of Engineer-in-charge.	69.28	One Kg	598.80	Rs.	41,484.86
25)	Supplying, fitting and fixing of Stainless steel of 304 grade in hand railing using 50mm dia of 2mm thick circular pipe with Balustrade of size 32mm x 32mm x 2mm @ 0.90mtr. C/C and stainless square pipe bracing of size 32mm x 32mm x 2mm in 3 rows in stair case as per approved design and specification, buffing, polishing etc with cost, conveyance, taxes of all materials, cost of all labour, T&P etc. required for the complete in all respect as per direction of the Engineer-in-charge.	128.36	One Kg	287.45	Rs.	36,897.08
26)	Cost of 5mm thick black glass	16.20	One Sqm	552.34	Rs.	8,947.91
27)	Cost of 12 mm Pre-laminated Particle board	6.71	One Sqm	589.79	Rs.	3,957.49


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28)	Supplying, fitting & fixing of 80mm thick Factory made Cement concrete interlocking paver block of M-35 & approved make variety colour & size made by block making machine with strong vibratory compaction of approved design and shape, laid in required colour and pattern over 50mm thick compacted bed of coarse sand, filling the joints with the sand etc all complete including cost of all materials, all labour with T&P etc required for the work complete in all respect as per the direction of the EIC.	40.63	One Sqm	822.58	Rs.	33,421.43
TOTAL AMOUNT PUT TO TENDER				Total	Rs.	2,096,880.81
				Or Say	Rs.	2,096,881.00
NUMBER OF ITEMS:-28(TWENTY EIGHT)		(Rupees Twenty Lakh Ninty Six Thousand Eight Hundred Eighty One)Only				

REMARKS:- TENDER RATE QUOTED EXCESS THEN THE ABOVE TENDER AMOUNT WILL NOT BE ACCEPTED

PERCENTAGE RATE TO BE QUOTED BY THE TENDERER:-

_____ % LESS / HIGHER THEN THE ABOVE TENDER
AMOUNT PUT TO TENDER

(QUOTE RATE BOTH IN FIGURE & WORDS CLEARLY)

S. S. S.
BLOCK DEVELOPMENT OFFICE
Laxmipur, Koraput

SIGNATURE OF THE CONTRACTOR