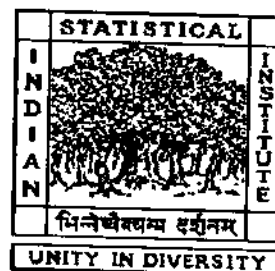


INDIAN STATISTICAL INSTITUTE

DELHI CENTRE



Construction of STUDENT MESS BUILDING

IN

ISI CAMPUS

AGREEMENT

(2010 –2011)

**7, SJS, Sansanwal Marg
Near Qutab Hotel, Opposite Katwaria Saria
New Delhi - 110016**



दिल्ली DELHI

AGREEMENT

19AA 415070

This Agreement is made on 14th February 2011 between INDIAN STATISTICAL INSTITUTE, Delhi, 7, S.J.S. Sansanwal Marg, New Delhi - 110016 (herein after called "Employer" which expression shall include its successors and assigns) of the one part and A 2 Z CONSTRUCTIONS, 7 / 108, Malviya Nagar, New Delhi - 110017 (herein after called Contractor which expression shall include his heirs, executors, administrators and assign) of the other part.

Whereas the employer is desirous to Construct Mess Building (Civil & Allied works) in Delhi Centre and whereas the Contractor has agreed to execute the work on total Cost of Rs 271,89,805 (Two Crore Seventy one lakhs Eighty nine thousand Eight hundred five only) subject to the conditions set forth herein. Now it is hereby agreed as follows :-

The contractor agrees to complete the construction of Mess Building (Civil & Allied works) in Phased Manner as per the requirement of the Institute. The total cost of work after rebate is Rs 27189805 /-. In First Phase Contractor are directed to take up the work costing not more than Rs 20 Lakhs (Twenty Lakhs)

The work will be carried out under the overall advice of Engineer (Civil) of the employer. The Contractor shall be paid for the quantity of the work successfully completed and certified by the Engineer (Civil) of the Institute as per the tender item.

That Contractor shall deposit an amount equal to 5% of the tendered and accepted value of the work (without Limit) as performance guarantee as per CPWD Manual and a sum of 5% of the gross amount of the bill shall be deducted from each running bill of the contractor, till the sum along with sum

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- already deposit as earnest money amounts to security deposit @ 5% of the tendered amount of work.
4. That Employer will deduct DVAT as applicable from time to time from running bills and final bill of the Contractor and certificate of deduction shall be issued to him within 15 days.
 5. That Employer will deduct Income Tax as applicable from time to time and from running bills and final bill.
 6. 0.50% of bill shall be deducted if Institute electricity is used for execution of work.
 7. 1.0 % of running bill shall be deducted if Institute water is used for the execution of work.
 8. That the commencement date for starting the work shall be reckoned of seven days from the written order . Failure to commence the work within the stipulated date shall result in forfeiture of Contractor's security deposit and cancellation of contract.
 9. That the contractor should clean the site within week after completion of the work.
 10. The time allowed to complete the project is Eighteen months and time required for completing the first phase work is upto 31st March 2011.
 11. That all disputes arising out of or in any way connected with this agreement shall be deemed to have arisen in New Delhi/Delhi and only the Court in New Delhi/Delhi shall have the jurisdiction to determine the same.
 12. The said conditions in the tender and appendix thereto shall be read and construed as forming part of this agreement and the parties hereto will respectively abide by and submit themselves to the conditions and stipulations and perform the agreement of their parts respectively in such conditions contained therein.
 13. This several parts of this contract have been read and fully understood by us.
 14. As witness our hands this 14th February 2011
 15. Institute May release advances upto an amount not exceeding 75% of the value of material element cost in the tender brought to the site or assessed and certified by the Engineer (Civil) of the Institute.
 16. The scope of work shall be to carry out all Civil work , and all allied works as per relevant " CPWD'S Technical specification and General Contract Conditions" amended upto date.

1. Witness:-

Employer:-

f.p.d. 4/2/11

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प्रमुख / Head
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75th Anniversary, Gyanwanal Marg, N. Delhi-16

for A Z Z CONSTRUCTION

2. Witness:-

Contractor:-

[Signature]
Proprietor

INDIAN STATISTICAL INSTITUTE
Delhi Centre

TENDER NOTICE

1. Sealed tenders are invited by the Head, Indian Statistical Institute, Delhi Centre from the registered class1 Contractors of CPWD/MES/State Govt/Central Undertaking/ central Autonomous bodies/working contractor of Institute and can submit proof in support of the same at the time of purchase of tender document for the following works.

CONSTRUCTIONS OF STUDENT MESS
In
ISI Campus

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2. Last date of submission for tender will be upto 1400 hours on 04-01-2011 and tender will be opened at 1530 hours on the same day.
3. Earnest money amounting to Rs. 200000.00/- (Rupees Two Lakh only) for the above mentioned work shall have to be deposited along with the tender in the form of Bank Draft / FD in favor of Indian Statistical Institute, New Delhi.
4. Any tender which is not accompanied by the said earnest money deposit shall be summarily rejected. No interest will be paid on the earnest money deposited by the tenderer.
5. The Head, Delhi Centre reserves the right to reject any or all tenders without assigning any reason whatsoever.
6. Copy of the tender may be obtained from the Engineering / Accounts section of the Institute on any working day upto 04-01-2011 from 1000 hours to 1400 hours against a payment of Rs. 1000/-.
7. Contractor must have a valid certificate of registration on works contract as provided by the competent authority and Institute will deduct works tax as applicable.

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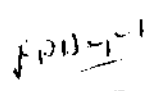
CONDITIONS

1. The contract document consist of Agreement, general condition, the drawing, specification and scope of work.
2. This is items rates basis project and the Contractor shall carry out and complete the said work in every respect in accordance with the contract, scope of work in, with the direction of and to the satisfaction of In-Charge, Engineering Unit of the Institute.
3. A proper contract agreement will be executed between the party whose tender is accepted and the department. The cost of stamp papers required for execution of the agreement shall be borne by the contractor.
4. The work shall be executed in phased manner. In first phase the cost of the work is Nineteen lakhs (this can be extended upto eighty lakhs or any amount sanctioned by Head of the center.).
5. Escalation applicable as per CPWD rule.
6. Institute reserves the right to increase or decrease the quantum of work to any extent or to accept tender in part and let separate contractor for various type of work.
7. Contractor must have valid certificate of registration on works contract as provided by the competent authority and institute will deduct works tax as applicable from time to time.
8. Income tax as applicable shall be recovered from contractor bills.
9. Contractor shall be protect the Institute property arising in his connection with the contract.
10. Time – contractor hereby obligate himself to complete the work relating to first phased of this contract within Two months from the date of commencement of work. Total time required to complete the entire work is eighteen months.
11. The period of completion above shall however be subject to any adjustment granted by the Head of the Centre.
12. 0.50% of bill shall be deducted if institute electricity is used for execution of work.
13. 1.0% of bill shall be deducted if institute water is used for execution of work.
14. (a) Before tendering the Contractor shall visit and examine the site and satisfy himself as to the scope of work and nature of existing roads or other means of communication. No extra charges made in consequence of any misunderstanding or in correct information of any of these points or on the grounds of insufficient description, will be allowed. Should the contractor after visiting the site, find any discrepancies, omission, ambiguity or conflicts or to be in doubt as to their meaning he shall bring the questions to the Institute attention before closing of the tenders.

(b) The possession of site shall be given within 7 days from the date of issue of the Work order any delay beyond this period on handling over possession of the site shall not entitle the Contractor of any extra claim against the owner.

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15. The Contractor shall, at the time of signing the contract insure the works and keep them insured until the virtual completion of the contract against loss or damage by fire, earthquake and other cause through an Insurance Company.
16. The Contractor shall continuously maintain adequate protection of all his work and material from damage destruction or loss and shall protect the Institute property from injury arising in connection with his contract.
17. The contractor shall wholly and solely responsible for full compliance with the provision under all the all labour laws and/or regulation such a workman act, industrial disputes act etc. in respect of the labour he may employ and for liabilities arising in this connection.
18. The Contractor shall dismantle; demolish the work with proper care.
19. Engineer (Civil), Engineering unit of the Institute shall have general supervision and direction of the work. He shall have authority to stop the work whenever such stoppage may be necessary to ensure the proper execution of work.
20. The contractor shall keep a qualified and competent site Engineer/Supervisor with a minimum 5 years experience for carrying out of the work & follow the instruction of Engineer (Civil).
21. The Contractor shall provide watchman to guard the site and premises at all the time at his expense.
22. The Contractor shall provide erect and maintain proper shed or the storage protection of the material etc. and also for the execution of work which may be prepared on the site.
23. (a) The Contractor whose tender is accepted the earnest money deposit at the time of tender shall be treated as part of security and will be adjusted in first bill. (b) 10% of the tender value (The successful Tenderer, shall deposit an amount equal to 5% of the tendered and accepted value of work in PHASE MANNER (without limit) as Performance guarantee & remaining 5% of the gross amount of the bill shall be deducted from each running bill of the contractor of the work shall be retain as security deposit and to be retain at least six months after completion of project..
24. Institute may release advances up to an amount not exceeding 75% of the value of material element cost in the tender brought to the site or as assessed and certified by the Engineer in-charge, civil Engineering Unit of the Institute.
25. The contractor desire to sublet any party of partly of the works, he shall send a written notice to the Institute seeking his approval.
26. The CPWD specification with up to data correction slip shall be applicable for the above works.
27. The work shall be carried out under the direction, supervision and in stages as desired by Engineer in-charge, Civil Engineering Unit of the Institute.


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28. The successful tendered shall be cooperative with other Contractor if any appointed by the Institute so as that the work shall proceed smoothly.
29. All dispute arising out of or in any way connected with the work shall be deemed to have arisen in Delhi jurisdiction. (b) If contractor fails to complete the work in time then Rs 1000/- per day will be recovered from the bill / security deposit of contractor.
30. Central Public Works Department's General Specifications for Electrical Works (Part -I, Internal) 2005, (Part -II, External) - 1995, (Part -IV, Substation), 2007, (part -V, Wet Riser & Sprinkler System) - 2006 & Air conditioning - 2005 with Correction Slips upto the date of receipt of tenders. All installations shall comply with the requirements of Indian Electricity Rules, 1956 and Indian Electricity Act - 1910 as amended upto date.
- 1.2 Wherever reference to any Indian Standard Specifications occurs in the documents relating to this contract, the same shall be inclusive of all amendments issued thereto or revisions thereof, if any, upto the date of receipt of tenders.
- 1.3 Before commencement of the work, the contractor shall co-relate nomenclature of the items with all the relevant architectural and structural drawings to satisfy himself that the information available therefrom is complete and unambiguous. The figures and written dimensions on the drawings shall be followed. The dimensions shall not be scaled out. The contractor shall submit for approval of Engineer-in-Charge his workshop drawings and the sample of work to be performed under the specified items of work before actually commencing the mass execution of work under the item. Nothing extra shall be payable on this account.
- 1.4 The discrepancy in the drawings issued, if any, shall be brought to the notice of Engineer in-charge for immediate decision before execution of the work. The contractor, alone, shall be responsible for any loss or damage occurring by the commencement of work on the basis of any erroneous and incomplete information and no claim, whatever, shall be entertained on this account.

31 GENERAL SCOPE OF WORK

The scope of work shall be to carry out all Civil and all allied works as per relevant CPWD's Technical Specifications and General Contract Conditions amended upto date

The scope of work shall also include procurement of all other materials including components and consumables required for completion of the work, inspection, commissioning and handling over the work in fully completed condition to the client.



J.P.D. 11

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32. The scope of work shall also include but not limited to the following
- Undertaking all repair modification and rectification work for completeness of work to the satisfaction of the Client Abide by statutory regulation Labour rules Safety codes during the execution of contract.
 - Providing all labour skilled, Semi-Skilled, unskilled and supervisory personnel as required for construction.
 - Providing adequate tools and tackles, instruments, scaffolding, shuttering and construction equipments required for the work.
 - Providing all consumable materials as may be required at site.
 - Construction water and power shall be supplied by the Department. The contractor should make arrangement to bring it to the site from the location indicated by the engineer in charge. However in case of any problem due to interrupted supply or shortfall the contractor shall make his own arrangement at his own cost.

33. Specification for supply & Installation of solar water Heating system

- Supply & installation of ISI Mark FPC Collector SOLCHROME / BHEL / TATA/ KOTAK / URJA along with M.S. clamps for holding collectors.
- Stand for hot water tank & collectors.
Collector Stand :- M.S. angle 40X4X4 mm suitably grouted for High wind protection, 1 coat of primer and 2 coats of enamel paint
Hot Water Stand :- 4 ½' High Stand made up of 50X5X5 mm MS angle suitably grouted to hold weight, 1 coat of primer and 2 coats of enamel paint as per direction .
- Stainless Steel (304 Grade) Tank for Hot water Storage -500 litr. 14 swg. S.S. Sheet for bottom, Top and sides, fitted with stainless steel fittings for Inlet, Outlet, Drain, Supply, etc., insulation with glass wool, Wire Mesh, and 24 swg Al. Sheet cladding.
- Stainless Steel (304 Grade) additional tank for hot water storage 300 litrs. 16 swg S.S. sheet for bottom, top and sides, fitted with Stainless Steel fittings for inlet, outlet, Elct. Heater (2 x 3KW) , Drain, supply etc. Insulation with Glass Wool, wiremesh, and 24 swg. Al. Sheet cladding.
- Heat exchanger made-up of stainless steel pipes(304 grade) fitted with all fittings.Fitted in the hot water tank and complete in all respect
- System Piping for connecting hot water storage tank and collectors- 1" G.I. (B Class) pipe dully insulated with glass wool, Wire Mesh & 26 swg. Al. sheet cladding. Supply and fitting of Gate Valves, wherever directed.
- Supply and installation of Elect. Backup- 2X3 KW. Elect. Heaters with 0-80° C. thermostat (ISI Mark). Elect. Fittings not included

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8. Supply and installation of Temp. Gauge- 0-100° C.
Temp Gauge. (ISI)
9. Stand for cold- water tank and supply of 500 Ltr.
PVC Tank – MS C Channel 4"X3"X8 mm of 8 ½ ft.
Height suitably welded and grouted with MS sheet
of 16 swg. for tank base, 1 coat of primer and 2 coats
of enamel paint PVC Tank of ISI make of
500 Ltr with necessary G.I. Fittings.
10. Supply and Insulation of hot water supply pipe line ,
25 mm, GI, B class pipe insulated with glass wool,
wiremesh and 24 swg Al. sheet in each toilet of
Old Hostel as per the direction.

34.. DETAILED TECHNICAL SPECIFICATIONS

1. Solar Water Heating System with heat exchanger with Solar flat plate collector conforming to IS: 12933 (Part 1) and IS: 12933 (Part 2) / 2003 suitable for inlet water with chlorine and fluorine content up to 100 ppm and supply hot water at the outlet.
2. Solar water heating system comprising of solar flat plate collector, collectors stand assembly, stainless steel insulated hot water storage tank with heat exchanger and various other components. Solar flat plate collector component shall have:
 - a) Solar flat plate collector cover plate made of toughened glass
 - b) Sheet for absorber made of copper
 - c) Absorber made of copper sheet and copper tube.

3. Solar Flat Plate Collector Specifications :

Solar flat plate collector shall conforming to IS: 12933 (Part 1) with amdt. No.1 and IS 12933 (Part 2)/2003 and various components shall be as under:

- a) Cover plate: Cover plate shall be toughened glass and thickness of 4.0 mm conforming to section-1 of IS: 12933) pt-2/2003. The solar transmittance of the cover plate shall be minimum 82 percent at near normal incidence.
- b) Collector Box: Collector box shall be made of Aluminium sections only. Type, grade, size, workmanship and finish of the material used shall be as per section-2 of IS: 12933 (pt 2/2003).

The minimum thickness of Aluminium shall be as under:

- i) Channel section for sides 1.6 mm
- ii) Sheet for bottom 1.7 mm
- iii) Support for glass retaining 1.2 mm
- iv) Sheet for entire body 1.0 mm

- c) Absorber: Absorber shall consist of riser, header and sheet for absorber. The Diameter of header shall be 25.4 +/- 0.5 mm and thickness 0.71mm. The diameter of the riser shall be 12.7 +/- 0.5 mm and thickness 0.56 mm and made of copper only. The distance between the risers From centre to center shall be 120mm. Type grade, size, workmanship and finish of the material used shall be as per section-3 of IS: 2933 (Pt2)/2003. Riser and header assembly designed for working



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pressure up to 24.5 K Pa (2.5 Kg./cm square) shall be tested for leakage at a minimum hydraulic pressure of 490 K Pa (5 Kg./cm square).

- d. Sheet for absorber: Sheet for absorber shall be made of copper only. Type, grade, size, workmanship and finish of the material used shall be as per section -3 of IS 12933 (pt 2)/2003. A sample piece of the absorber for having minimum area of 400 square cm. shall be heated in an oven at temperature of 175 degree C for 2 hours. After heating, the sample shall be taken out from the oven and cooled at room temperature. The cooled sample shall be inspected visually for damages, if any. There shall not be any appearance of blistering/rupture/peeling off of the coated/painted surface and of weakening of the bonding between absorber sheet and risers/headers.
- e. Collector box insulation: Insulation shall be provided at back and sides. Thermal Resistance @ of insulation material shall be minimum 0.96 m square degree C/W for back insulation and minimum 0.48 m square degree C/W for side insulation. This shall be derived after determining thermal conductivity (K) value at 100 degree C mean temperature in accordance with IS: 3346. Collector box insulation shall conform to sec.4 of IS: 12933 (pt.2)/2003.
- e. Gaskets and Grommets: Gaskets and Grommets shall conform to sec.5 of IS: 12933(pt2)/2003. Insulated hot water storage tank. The thickness of the water storage tank shall
- f. Material: Insulated hot water storage tank shall be non-pressure type and made of stainless steel grade (X04Cr19Ni9 or X07Cr18Ni9 of IS: 1570 (part 5)/1985), TIG welded
- g. Insulation: Solar water heating system (SWHS) up to and including 500 LPD shall be insulated with 40mm thermal grade PUF insulation of 32 Kg./meter cube or higher density. PUF insulation could be pre extruded type fitted with FRP exterior cladding or alternatively injection moulded in a twin walled steel tank and PPE end cap. Other systems shall be insulated with 100mm thick Rock wool of 48 Kg./m3 density with 22swg Aluminium cladding. Systems up to 500 LPD may also alternatively be installed with 100 mm thick Rock wool of same specifications with aluminium or G.I. powder coated cladding. Heat exchanger shall be cage type and made of copper/stainless steel tubes of grade X04Cr19Ni9 or X07Cr18Ni9 of IS: 15700 (Part 5)/1985. Heat exchangers shall have a minimum of 0.24 sq.meters heat transfer area per 100 LPD.
4. System inter connecting piping : ISI marked G.I. pipes, medium class of IS: 1239 duly insulated with 50mm thick rock wool of 48 Kg/m3 density and 26 swg Al cladding. EPDM hose pipes can also be used for systems up to and including 500 LPD.
5. Collector stand assembly shall be made of MS angle of size 38x38x4 mm duly pre- treated and stove enamelled with black colour paint. Alternatively tubular structure with Powder coating could also be provided

ABC CONSTRUCTIONS



Proprietor

R. B. Bapat

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प्रमुख / Head

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6. The capacity of make up tank shall be 5 liters up to 500 LPD and 10 liters for 1000 LPD and above.
7. Electrical heaters: Electrical heater shall be ISI marked. Electrical heater backup shall be three nos. each of rating 3 KW for 500 LPD.
8. Temperature Gauge : Dial type, duly calibrated and suitable for temperature range from 0 degree C to 120 degree C and shall be provided for capacity above 500 LPD
9. Suppliers shall furnish 3 valves, one for inlet, outlet and make up tank each.
10. Other component essential for completeness of the system as per tenderer specification.
11. Installation, testing and commissioning of the complete system at consignee's end shall be completed within two months from the date of confirmation received from consignee that the ground and foundation work has been completed.
12. Supplier shall get general arrangement drawings approved from the indenter or consignee before supply of the system above 500 LPD. General arrangement - drawing shall clearly show all the parts of the system (such as solar flat plate collectors, collectors stand assembly, stainless steel insulated hot water storage tank complete with stainless steel heat exchanger, sacrificial anode, electrical back up, internal and external piping, tank stand assembly, various valves, pressure gauges, temperature gauges, water meter etc.) and their fixing arrangements. Suppliers shall supply two sets of instruction manual to the consignee without any extra cost. Instruction manual shall contain the following details.
 - a) Schematic diagram of the solar collector and a domestic hot water system.
 - b) Instructions for installation (including mounting details) and use and safety precautions.
 - c) Instructions for repair and maintenance including causes for common failures, such as, dust ingress on glass cover, peeling of paint, scaling, damaged sealant, gasket and grommets and their remedies and
 - d) List of service outlets.
13. The firms shall furnish complete and satisfactory type test reports for each size / type of solar flat plate collector as per contract specification from any govt. laboratory to the concerned Director (QA) Type test reports shall be complete with authenticated drawing giving complete details of the various component used in the solar flat plate collector. Type test reports shall include all the tests listed in IS: 12933 (part 1) with admit. No. 1 (excluding test requirements as per cl. 7.2.7 and 7.2.8 of IS) and IS: 12933 (Part 2)/2003 and also the tests included on various components of solar flat plate collector as per IS: 12933 (pt 2)/ 2003.

222 CONSTRUCTIONS

[Signature]

For use

[Signature]

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ESCALATION

If the prices of materials (not being materials supplied by the Employer and / or wages of labour required for execution of the work increase, the contractor shall be compensated for such increase as per provisions detailed below and the amount of the contractor shall accordingly be varied, subject to the condition that compensation for escalation in prices shall be available only for the work done during the stipulated period of the contract including such period for which the contract is validly extended under the provisions of General Conditions of Contract of CPWD without levy of compensation under Clause – 20 of General Conditions of Contract and also subject to the condition that no such compensation shall be payable for a work for which the stipulated period of completion is six months or less. Such compensation for escalation in the prices of materials and labour when due, shall be worked out based on the following provisions.

- (i) The base date for working out such escalation shall be the last date on which the tenders were stipulated to be received.
- (ii) The cost of work on which escalation will be payable shall be reckoned as 85% the cost of the work as per the bills, running or final, and from this amount the value of material supplied by the Employer and proposed to be recovered in the particular bill shall be deducted before the amount of compensation for escalation is worked out. In case of materials brought to site for which secured advance is included in the bill full value of such materials as assessed by the Engineer in charge (and not the reduced amount for which secured advance has been paid), shall be included in the cost of work done for operation of this clause. Similarly, when such materials are incorporated in the work, the secured advance is deducted from the bill the full assessed value of the materials originally considered for operation of this clause shall be deducted from the cost of work shown in the bill running or final. Further the cost of work shall not include any work for which payment is made for any item at prevailing market rates.
- (iii) The compensation for escalation for materials & labour shall be

worked out as per the formula given below:

$$VM = W A / 100 \times (MI - MIO) / MIO$$

VM- Variation in material cost i.e. increase or decrease in the amount in rupees to be paid or recovered. Cost of work done worked out as indicated in sub Para (ii) above. Component of materials expressed as per cent of the total value of work and is predetermined as 75.

MI- Index numbers of Wholesale prices in India for all commodities published by the CPWD/Ministry for the period under reckoning.

Mio- Index numbers of Wholesale prices in India for all commodities published by the CPWD/Ministry India on the date of receipt of tenders.

$$(I I - I I o)$$

$$VL = W \times B / 100 \times I I o$$

222 Construction

[Signature]

Project

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VL- Variation in labour cost i.e. increase or decrease in the amount in rupees to be paid or recovered.

W- Value of work done, worked out as indicated in sub para (ii) above. B- Component of labour expressed as per cent of the total value of work and is predetermined as 25.

LI- All India consumer price index numbers for industrial workers published by the CPWD/Ministry for the period under reckoning as for the period under consideration.

Llo- All India consumer price index numbers for industrial workers published by the CPWD/Ministry and valid on the stipulated date of receipt of tenders.

The following principle shall be followed while working out indices mentioned in sub Para (iii) above.

(i) The compensation for escalation shall be worked out at half yearly intervals and shall be with respect to the cost of work done during the six calendar months of the said work. The first such payment shall be made at the end of the six months after the month (excluding) in which the tender was accepted and thereafter at six monthly interval. At the time of completion of work, the last period for payment might become less than six months, depending on the actual date of completion.

ii) The index (MI or LI) relevant to any six months for which such compensation is paid shall be the arithmetical average of the indices relevant to the six calendar months. If the period up to date of completion after six months covered by the last such installment of payment is less than six months, the index MI or LI shall be the average of the indices for the months falling within that period.

iii) The base index (Mio or Llo) shall be the one relating to the month in which the tender was stipulated to be received. the base event the price of materials and / or wages of labour required for execution of the work decreases there shall be downward adjustment of the cost of work so that the price of materials and / wages of labour shall be deductible from the cost of work under this contract and in this regard formula herein before stated under this clause shall mutates mutandis apply, provided that no such adjustment for the decrease in the prices of materials and / or wages of labour aforementioned would be made in case of contracts in which the stipulated period of completion of the work is six months or less.

Employer shall have the discretion to permit the IEEMA (India Electrical & Electronics Manufacturers Association) clause for escalation in case of specialized works e.g. lifts and electrical and mechanical installations etc. where the price variation is not similar to building works.

36. ARBITRATION

Except where otherwise provide in the contract, all questions and disputes relating to the interpretation of the specifications, designs, drawings and instructions herein before mentioned, and as to

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the quality or workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, specifications, estimates, instructions, orders on these conditions or otherwise concerning the works, or the execution or failure to execute the same, whether arising during the progress of the work or after the completion or abandonment thereof, shall be referred to the sole arbitration of the person appointed by the Head – Indian Statistical Institute. The arbitrator to whom the matter is originally referred, being unwilling or unable to act for any reason, Head - Indian Statistical Institute, Delhi Centre shall appoint another person to act as arbitrator in accordance with the terms of the contract. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor. The arbitrator shall give a speaking award. The award of the Arbitrator shall be final and binding on the parties. The cost of the Arbitrator shall be borne equally by both the parties.

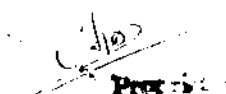
It is also a term of the contract that the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute. It is also a term of the contract that if the contractor does not make any demand for arbitration in respect of any claim in writing within 90 days of receiving the intimation from the Employer that the final bill is ready for payment, the claim of the contractor will be deemed to have been waived and absolutely barred and the Employer shall be discharged and released of all liabilities under the contract in respect of these claims.

The Arbitrator may from time to time with consent of parties enlarge the time for making publishing the award. Subject as aforesaid the provisions of the Arbitration and Conciliation Act, 1996, or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration reference under this clause.

37. VARIATION & PRICE FOR VARIATION

- a) The Engineer with the approval of the Employer shall have power to make any alteration / omissions / additions and / or substitutions from the original specifications, drawings, designs, and written instructions and such alterations, omissions, additions, substitutions shall not invalidate the contract and any altered, additional, or substituted work which the contractor may be directed to do in the manner specified above as part of the work shall be carried out by the contractor on the same conditions in all respects on which he agreed to do the main work. The rates for such altered, additional or substituted work under this clause shall be worked out in accordance with the following provisions in their respective order!.
- b) If the rates for the altered, additional, or substituted work are specified in the contract for the work, the contractor is bound to carry out the altered, additional, or substituted work at the

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- same rates as are specified in the contract for the work
- c) If the rates for the altered, additional, or substituted work are not specifically provided in the contract for the work, the rates will be derived from the rates for a similar class of work as are specified in the contract for the work.
- d) If the rates for the altered, additional, or substituted work cannot be determined in the manner specified in sub-clause (b) and (c) above, then the contractor shall, within 10 working days from the date of receipt of the order to carry out the work through notice in writing, inform the Engineer of the rate which it is his intention to charge for such class of work, supported by analysis of the rate claimed which shall be based on actual cost of work plus 15% as contractor's profit and over-heads except in case of departmental materials for which contractors profit and over-heads shall be 2.5 %. When such notice has been given, the Engineer with the consent of the Employer may agree to such a rate but if the Engineer does not agree to the contractor's rate the Engineer may cancel his order to carry out such class of work and arrange to carry out in such a manner as he may consider advisable.
- e) Under no circumstances, the contractor shall suspend the work on the plea of non-settlement of rates of items falling under the clause.
- f). Deviation limits
- (i) Building work
 - (ii) Maintenance / emergency works
 - (iii) Foundation works
 - (iv) Services works

38 .INDEMNIFYING AGAINST DAMAGES TO PERSONS, PROPERTY & STATUTES

The contractor shall take all precautions to avoid all accidents by exhibiting necessary caution boards day and night, speed limit boards, red flags, red lights, and providing barriers. He shall be responsible for all damages and accidents caused due to negligence on his part. No hindrance shall be caused to traffic during the execution of work. The contractor shall be responsible for all injury to persons, animals or things, and for all damage, whether such injury or damage arises from carelessness or accident in any way connected therewith. This clause shall be held to include interlia any damage due to causes as aforesaid to work, building (whether immediately adjacent or otherwise) and to roads, streets, foot paths, bridges or ways as well as all damage caused to the buildings and works forming the subject of this contract by inclemency of weather. The contractor indemnifies the Employer and holds him harmless in respect of all expenses arising from such injury or damages as aforesaid and also in respect of any award of compensation or damage consequent upon such claim including legal costs. The contractor shall reinstate all damage of every sort mentioned in this clause, so as to deliver the

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whole of the contracted works complete and perfect in every respect and so as to make good and otherwise satisfy all claims for damage as aforesaid to the property of third parties.

The contractor also indemnifies the Employer against all claim which may be made upon the Employer for acts during the currency of this contract by any employee or representative of an employee of the contractor or any sub-contractors, employed by him, for any injury to or loss of life, of such employees, or for compensation payable under any law for the time being in force to any workman or to the representative of any deceased or incapacitated workmen. The contractor also indemnifies the Employer against all claims which may be made upon the Employer for acts during the currency of this contract by the Central / State Government or local Municipal authorities for the noncompliance of any laws, regulations, rules pertaining to wages act, safety act in force and any amendments thereof in respect of all labour and apprentices directly or indirectly employed in the work under this contract.


The Employer shall be at liberty and is hereby empowered to deduct the amount of any damages, compensation costs, charges and / or expenses arising or accruing from or in respect of any such claim and / or damages as aforesaid from any sum or sums due to become due to the contractor or security deposit. The contractor shall indemnify the Employer against any action, claim or proceedings relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the contract. In the event of any claims made under or action brought against the Employer in respect of any such matters as aforesaid the contractor shall be immediately notified thereof and the contractor shall be at liberty, at his own expense, to settle any dispute or to conduct any litigation that may arise therefore. Provided that the contractor shall not be liable to indemnify the Employer if the infringement of the patent or design or any alleged patent or design right is the direct result of an order passed by the said Employer or his authorized representative.

39. WIRING

All the wiring installation shall be as per IS: 732 with latest amendment. PVC FRLS insulated copper conductor cables as specified in bills of quantity shall be used for sub-circuit runs from the distribution boards to the points and shall be pulled into conduits. They shall be twisted copper conductors with thermoplastic insulations of 660/1100 volts grade. Colour Code for wiring shall be followed.

Looping system of wiring shall be used, wires shall not be jointed. Where joints are unavoidable, they shall be made through approved mechanical connectors with prior permission of the consultant. No reductions of strands are permitted at terminations. No wire smaller than 2.5 sq mm shall be used and shall be as per B.O.Q. Wherever wiring is run through trunkings or raceways, the

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wires emerging from individual distributions shall be bunched together with cable straps at required regular intervals. Identification ferrules indicating the circuit and DB number shall be used for sub mains, sub-circuit wiring. The ferrules shall be provided at both end of each sub main and sub-circuit.

Where single-phase circuits are supplied from a three phase and a neutral distribution board, no conduit shall contain the wiring fed from more than one phase. In any one room in the premises where all or part of the electrical load consists of lights, fans and/or other single phase current consuming devices, all shall be connected to the same phase of the supply. Circuits fed from distinct sources of supply or from different distribution boards or through switches or MCBs shall not be bunched in one conduit. In large areas and other situations where the load is divided between two or three phase, no two single-phase switches connected to different phase shall be mounted within two meters of each other.

All splicing shall be done by means of terminal blocks or connectors and no twisting connection between conductors shall be allowed. Industrial sockets shall be of polycarbonate and deeply recessed contact tubes. Visible scraping type earth terminal shall be provided. Socket shall have self-adjustable spring loaded protective cap. Socket shall have MCB/ELCB/RCCB as specified in the schedule of work.

Maximum number of PVC insulated 650/1100 V grade/copper conductor cable conforming to IS: 694-1990

Conduit size	20mm		25mm		32mm		38mm		51mm		64mm
Wire size in sq.mm.	S	B	S	B	S	B	S	B	S	B	S
1.50	5	4	10	8	18	12	-	-	-	-	-
2.50	5	3	8	6	12	10	-	-	-	-	-
4	3	2	6	5	10	8	-	-	-	-	-
6	2	-	5	4	8	7	-	-	-	-	-
10	2	-	4	3	6	5	8	6	-	-	-
16	-	-	2	2	3	3	5	5	10	7	12
25	-	-	-	-	3	2	5	3	8	6	9
35	-	-	-	-	-	-	3	2	6	5	8
50	-	-	-	-	-	-	-	-	5	3	6

- 1) The above table shows the maximum capacity of conduits for a simultaneous drawing in of cables.
- 2) The columns heads 'S' apply to runs of conduits which have distance not exceeding 4.25 m between draw in boxes and which do not deflect from the straight by an angle of more than 15 degrees. The columns heads 'B' apply to runs of conduit, which deflect from the straight by an angle of more than 15 degrees.
- 3) Conduit sizes are the nominal external diameters.

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DISTRIBUTION BOARDS

Distribution boards shall be of standard make with MCBs as per approved make given. Distribution boards shall be constructed out of 16 SWG sheet steel, all welded enclosure with double door IP42 protection and shall be powder coated. Ample clearance between the conductors of opposite pole, between conductors and sheet steel body shall be maintained in order to obviate any chance of short circuit. Removable conduits entry plates shall be provided at top and bottom to facilitate drilling holes at site to suit individual requirements. Also on additional/separate adopter box of suitable length and size shall be provided to accommodate wires and cables. No. of conduits etc. and nothing shall be payable on this account. The MCBs shall be mounted on high-grade rigid insulating support and connected by electrolytic copper bus bars. Each incoming MCB isolator shall be provided with solder less cable sockets for crimping. Phase separation barriers made out of arc resistant materials shall be provided between the phases. Bus bars shall be colour coded for phase identification.

Distribution boards shall be recessed in wall nitch or if required mounted on the surface of the wall with necessary clamp bolts etc. The mounting height shall not exceed 1200mm from finished floor level. Distribution board shall be provided with proper circuit identification nameplate and danger sticker/plate as per requirements.

All the distribution boards shall be provided with engraved nameplates with 'lighting', 'power' or 'UPS' with DB Nos., as the case may be. Each DB shall be provided with a circuit list giving details of each circuit. All the outgoing circuit wiring shall be provided with identification ferrules giving the circuit number & phase.

Each distribution board shall have a separate neutral connection bar and a separate earth connection bar mounted within the DB each having the same number of terminals as the total number of outgoing individual circuits from the distribution board. Conduit & cable armouring shall be bonded together & connected to the distribution board earth bar.

Where oversized cables are specified due to voltage drop problems, it shall be contractors responsibility to ensure that satisfactory terminal arrangements are provided without an extra cost.

41 EARTH LEAKAGE CIRCUIT BREAKER

ELCB shall be 4 pole 415 volts 50Hz, 30-300mA sensitivity. These shall be of approved make. The rating of the ELCB shall be as required. These shall be suitable for manual closing and opening and automatic tripping under earth fault circuit of 30-100mA as specified in item of work.

The enclosure of the ELCB shall be moulded from high quality insulating material. The material shall be fire retardent, anti tracking, non-hygroscopic, impact resistant and shall with stand high temperature. All parts of switching mechanism shall be non-

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greasing, self-lubricating material so as to provide consistent and trouble free operation. Operation of ELCB shall be independent of mounting position and shall be trip free type.

42. **MINIATURE CIRCUIT BREAKER**

1. The MCB shall be current limiting type and suitable for manual closing and opening and automatic tripping under overloads and short circuit. The MCB shall also be trip free type.
2. Single pole/three pole versions shall be furnished as required.
3. The MCB shall be rated for 10 KA /15 KA fault level.
4. The MCB shall be suitable for its housing in the lighting boards and shall be suitable for connection at the outgoing side by tinned cable lugs and for bus-bars connection on the incoming side.
5. The terminal of the MCBs and the open and close conditions shall be clearly and indelibly marked.
6. The MCB shall generally conform to IS: 8828. -1996
7. The MCB shall have 20,000 electrical operation upto 63A.
8. The MCB shall have Minimum power loss (watts) as per IS/IEC.

43. **L.T. CABLES & WIRE**

a) Wires

The design manufacture, testing and supply of single core FRLS PVC insulated 1.1 KV grade multi-stranded twisted wires under this specifications shall comply with latest edition of following standards.

IS : 3961 Current rating for cables.

IS : 5831 PVC insulation and sheath of electric cables.

IS : 694 PVC insulated cables for working voltage upto and including 1100 volts.

IEC: 754(i) FRLS PVC insulated cable.

Copper multi-stranded twisted conductor FRLS PVC insulated wires shall be used in conduit as per item of work.

The wires shall be colour coded R Y B, for phases, Black for neutral and Green for earth.

Progressive automatic in line indelible, legible and sequential marking of the length of cable in metres at every one metre shall be provided on the outer sheath of wire.

b) Cables

The design, manufacture, testing and supply of the cable under this specification shall comply with latest edition of following standards:

IS : 8130 Conductors for insulated electric cables and flexible cords.

IS: 7098 XLPE insulation and sheath of electric cables.

IS : 3975 Mild steel wires, strips and tapes for armouring cables.

IS : 7098 Current rating of cables.

IS: 7098 XLPE insulated (heavy duty) electric cables for working voltage upto and including 1100 volts.

IS:424-1475(F-3) Power cable-flammability test.

Specification for cross linked polyethylene insulated XLPE sheathed cable for working voltage upto 1.1 KV.

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Specification for XLPE insulated (heavy duty) electric cables for working voltages upto and including 1100 volts.

ASTM-D:2863 Standard method for measuring the minimum oxygen concentration to support candle-like combustion of plastics (Oxygen Index).

ASTM-D:2843 Standard test method for measuring the density of smoke from the burning or decomposition.

IEEE : 383 Standard for type of test Class-IE, Electric cables, field splicers and connections for power generation station.

ASTME:662IEC:754(x) Standard test method for specific optical density of smoke generated by solid materials.

IS : 10418 Cable drums.

Technical Requirements:

- a) The cables shall be suitable for laying in racks, ducts, trenches conduits and under-ground buried installation with uncontrolled back fill and chances of flooding by water.
- b) They shall be designed to withstand all mechanical, electrical and thermal stresses under steady state and transient operating condition.
- c) The aluminium/copper wires used for manufacturing the cables shall be true circular/sector in shape before stranding and shall be of uniformly good quality, free from defects. The conductor used in manufacture of the cable shall be of H2 grade.
- d) The cable should withstand 25 KA for 0.5 sec with insulation armour insulated at one end. Bidder shall furnish calculation in support of capability to withstand the earth fault currents. The current carrying capacity of armour and screen (as applicable) shall not be less than the earth fault current values and duration.
- e) The fillers and inner sheath shall be of non-hygroscopic fire retardant materials and shall be suitable for the operating temperature of the cable. Filler and inner sheath shall not stick to insulation and outer sheath.
Progressive automatic in line indelible, legible and sequential provided on the outer sheath of all cables and at every 5 metre 'FRLS' marking in case of 'FRLS' cables.
- f) Strip/Wire armouring following method (b) mentioned in IS:3975 shall only be acceptable. For single core cable aluminium wire armouring shall be used.
- h) Allowable tolerance on the overall diameter of the cables shall be + 2mm.
- i) The normal current rating of all XLPE insulated cables shall be as per IS:7098.
- j) A distinct inner sheath shall be provided by pressure extrusion process for all multicore armoured and unarmoured cables as per IS:5831.
- k) Outer sheath shall be provided by extrusion process as per IS:5831

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- l) The breaking load of armour joint shall not be less than 95% of that armour wire. Zinc rich paint shall be applied on armoured joint surface.
- m) In plant repairs to the cables shall not be accepted.
- n) All the cables shall be supplied in non-returnable drums as per IS:10418.
- d) In Case of FRLS Cables
 - i) The outer sheath of cables shall have an oxygen index of not less than 29 as per ASIMD : 2863.
 - ii) The maximum acid gas generation by weight as per IEC:754 (i) shall not be more than 20% for outer sheath material of all cables. Bidder shall also guarantee the maximum theoretical acid gas generation with 20% by weight of outer sheath.
 - iii) The cables outer sheath shall meet the requirement of light transmission of 40% (minimum and shall be tested as per ISTMD:2843). In case the test for light transmission is conducted as per ASTM E:662. The bidder shall furnish smoke density values as per this standard and shall co-relate the anticipated light transmission when tested as per ASTM D:2843.
- iv) The cable shall pass the fire resistance test as per SS:42, 41, 475 and flammability test as per EEE:383.
- e) Inspection:

All cables shall be inspected on receipt of the same at site and checked for any damage during transit.
- f) Joint In Cables

The contractor shall take care that the cables received at site are distributed to various locations in such a manner as to ensure maximum utilisation and avoidance of cable jointing. Cable shall be rechecked before cutting in lengths, where the joints are unavoidable, the location of such joints shall be got approved from the Owner/Consultant. The joints shall be done by qualified jointer strictly in accordance with manufacturer's instruction/drawings.
- g) Joint Boxes For Cables

The cable joint boxes shall be of appropriate size suitable for type of cable of particular voltage rating.
- h) Jointing of Cables

All straight through joints shall be done in epoxy mould boxes with epoxy resins. Straight through joints shall not be permitted unless the length of run is in excess of cable drum.

End terminations of cables more than 1.1 KV grade shall be done with epoxy mould boxed and epoxy resin. Cable glands shall be 1.1KV grade double compression type and made to tin plated heavy duty brass casting and machine finished. Glands shall be of robust construction capable of clamping cable and cable armour, firmly without injury of cable.

All washers and hardwares shall be made of brass tinned. Rubber components used in the glands shall be made of neoprene of tested quality.

for 224 CONSTRUCTIONS

Proprietor

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Cable lugs shall be tinned copper/aluminium solderless crimping type conforming to IS:8309 suitable for aluminium or copper conductor

Crimping of terminals shall be done by using Corrosion inhibitory compound, with crimping tool.

Fire resistant paint has to be applied 1 Metre on either side of cable joint.

The contractor shall liaise fully with all other contractors to achieve an efficient and properly coordinated installation where equipment has to be re-positioned due to lack of site liaison, no extra cost shall be incurred by the client.

i) Testing of Cables

Cables shall be tested at factory as per requirement of IS:7098 Part-I. The tests shall incorporate routine tests, type tests and acceptance tests. Prior to laying of cables, following tests shall be carried out:

a) Insulation test between phases and phase to earth for each length of cable before and after jointing.

On completion of cable laying work, the following test shall be conducted in the presence of Engineer-in-charge/Owner.

a) Insulation resistance test (Sectional and overall) 1000/5000V depending upon the voltage grade of cable.

b) Continuity resistance test.

c) Sheathing continuity test.

d) Earth test.

Where the cables are laid in open (in building) along walls, ceiling or above false-ceiling, cable rack (ladder type) or cable tray shall be provided. The size of the cable tray or rack shall depend on the number of cables to pass over that rack. Cable tray/rack shall be properly supported through wall/ceiling according to the site conditions. Cable laid on tray & riser shall be neatly dressed & clamped at an interval of 500mm for horizontal & vertical cable run respectively either side at each bend of cable. All power cables shall be clamped individually & control cables shall be clamped in groups of three or four cables. Clamps for multicore cables shall be fabricated of 20x3 GI flats. Single core power cable shall be laid in trefoil formation & clamped with trefoil clamps made of PVC/fibre glass.

Cable openings in wall/floor shall be sealed by the contractor suitably by hession tape & bitumen compound or by any other proven to prevent ingress of water.

After the cables are laid, these shall be tested as per IS and the results submitted to Architects/Engineer and in case the results found unsatisfactory, all the repairing/ replacing of cables will be done by the contractor free of charge.

j) Fire Seal System

a) All the floor/wall opening provided for cable crossing shall be sealed by fire seal system.

FOR ALL INSTRUCTIONS

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- b) The fire proof sealing system shall fully comply with the requirements of relevant IS/BS:476 Part-B. The fire proof seal system shall have minimum one hour fire resistance rating.
- c) The fire proof seal system shall be physically, chemically, thermally stable and shall be mechanically secured to the masonry concrete members. The system shall be completely gas and smoke tight, antiodent and anti-termite.
- d) The material used in fire proof seal system shall be non-toxic and harmless to the working personnel.
- e) Type of fire proof seal system shall be foaming type or flamemastic type compound or approved equivalent.
- k) Testing
After laying and jointing work is completed, high voltage test should be applied to all cables to ensure that they have not been damaged during or after the laying operation and that there is not fault in the jointing.
Cables for use on low and medium voltage system (1.1KV grade cables) should withstand for 15 minutes a pressure of 3000V DC applied between conductors and also between each conductor and sheaths. In the absence of pressure testing facilities it is sufficient to test for one minute with a 1000V insulation tester. In case the test results are unsatisfactory the cost of repairs and replacements and extra work of removal & laying will be made good by the contractor.

44 LIST OF APPROVED MAKES OF MATERIALS FOR ELECTRICAL WORK

1	MCCB with Variable (Static/T.M. Based Releases	Group A – ABB / L&T / Merlin Gerin/Seimens / legrands
2	Change Over Switch	L&T / GE / MDS / Merlin Gerin / HPL
3	Contactors	L&T / ABB / Siemens / Group Schenider
4	Terminal Strip	Siemens / Elmex / C&S
5	MCB, DB's & Industrial Socket Outlets	Group A - MDS / ABB / Group Schenider / L&T / GE
6	Programmable Timer (Self Powered Electronic Digital)	Siemens / L&T / MDS
7	XLPE Al. Conductor 1.1 KV Grade	Group A - Polycab / Skytone / Universal / Havells
8	Brass Compression Gland (Heavy / Medium Duty)	Commex / Gripwell
9	Crimpling Lugs / Thimbles	Dowel / Gripwell
10	Cable Tray	Slotco / Indiana / Bharati / Rico Steel
11	G.I. Strip & Earthing Material	Slotco / Indiana

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12	M.S. Conduit Pipe(ISI Marked-ERW)	BEC / Steel Craft
13	M S. Conduits Accessories	BEC or any other ISI Marked brand
14	PVC Conduit (ISI)	Polypack / BEC / Precision
15	Modular Plate Switch Socket with Switch Boxes / As per item (Screwless)	MDS / M.K. / ABB / Anchor Roma / Clipsal / Gewiss / Toyama
16	Industrial Sockets Outlets	Group A - BCH / ABB
17	PVC Insulated Copper Wire 1.1 KV Grade (FRLS)	Group A - Finolex / Skytone / National
18	Telephone Cable (Multipair)	Delton / Skytone / National
19	CAT-5 Wire for Telephone	AMP / Delton / Skytone
20	Telephone Tag Block with Boxes	Krone (German) / Pouyet
21	Luminaries	Artlite / Reiz / Decon / Ankur / GE
22	Ceiling Fan	Crompton / Orient / GEC
23	Exhaust Fans with Louver Having Bird Screen (Heavy Duty)	Crompton / GEC
24	Exhaust Fan (Plastic Body)	Newtek / Crompton / GEC / Usha

45 LIST OF APPROVED MATERIALS FOR CIVIL WORKS
S.N Material Approved Make/Brand (The Institute has choice to use any brand make listed here or any equivalent)

1. Flush Door Shutters : Sitapur/Kitply/Mysore/Sharada Plywood/Jawala/Merino/century
2. Hardware Fittings EfficientGadgets/ Earl Bihari/Palladium/Parmar/Kich
3. Cylindrical Lock : Godrej / Golden Locks
4. Mortice Latch & Lock : Godrej/ Dorset.
5. Hydraulic Door Closer : Doorking/Everite/DC 2000
6. Floor Spring : Doorking/Everite
7. Aluminium Section : Hindalco/Jindal/Indal
8. Steel Windows : NCL Seccolar or Equivalent
9. Bitumen : Indian Oil
10. Paints/Distemper/acrylic/enamel : Shalimar/ICI/Nerolac(allscapes)
11. Water Proof Cement Paint : Super Snowcem
12. Grey Cement (OPC) : ACC/JK/Birla/Shree
13. White Cement : JK/Birla/Shree
14. Epoxy Paint : Hindustan Ciba-Geigy/ MC Bauchemie
15. Reinforcing Steel : Sail/Jindal/VSP/Tata Tor Tiscon high strength bar as per IS: 1786/Rebar
16. Bricks : Class designation 75 or as specified
17. Water Proofing Compound : CICO/PASH/M C/Bauchemie/

22/03/2019

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18. Ceramic Tiles : Kajaria/Orient/Somany/NITCO/Johnson
19. Anti Termite : NOCIL(Dursban TC)/Lupin (Classic 20)
/Montari (Pyramid)
20. Cast Iron Rain Water Pipes : RIFCO
21. G.I. Pipes Fittings : TATA/ Jindal (Hissar) medium, For
Elbows/Unions/T-sockets unik fittings to be
used
22. Glass Sheet : Modi Float/ Atul glass/Saint Gobain/Gleverbel/GGL
23. Sanitary Ware : Hindustan/Parry Ware/ CERA
24. Glazed/Matt Tiles : Kajaria/Orient/Somany/NITCO
25. Coarse Aggregate : Coarse aggregate as per IS- 383
26. Stoneware Pipes and Gully traps : Perfect/ Lalchand Anand /Burn
27. R.C.C. Pipes : Indian Home Pipe Co/ Hindustan Prefab
28. C.P. Fittings : Jagaur / Kingston
29. Brass Stop Cocks : Jagaur/B/B Cocks etc.
30. C.I. Manhole Covers : RIFCO
31. Man Hole Covers : RIFCO
32. C I Sluice Valves : Zelato/Leader
- Non return valves etc. : Kirloskar/IVC/IST Mark
33. Gunmetal Valves : Leader /Audco
34. Liquid Soap container : Lotus make
35. PVC Strips : FIXOPAN/CALIPLAST/WAVIN
36. Anodised Aluminium : SIGMA/ESSEL/EVERITE
- Hardware Fittings
37. Laminate : Formica/Neoluxe/Greenlam/Merino/Ventura
Enterprise(Metlam)/SIBU
38. Ply and Board : Duro /Merino/Green/Century/Bhutan
39. Mirror : Modiguard
40. Fire Retardant Paint : Navair/viper
41. Putty : Shalimar/Berger/Asian
- Vitrified Tiles : Marbonite/Marbogranit/Somany/Greviti/Nitco
43. Mineral Fibre Board ceiling : Armstrong/AMF/USG
44. Gypboard ceiling : India gypsum
45. Resin based adhesive : Fevicol
46. Melamine polish : MRF/ICI
47. Chequered tiles : unistone
48. Texture paint : Spectrum/Heritage.
49. High performance/ reflective glass : Saint Gobain/Gleverbel.
50. Interlocking pavers : Unistone
51. PVC water tank : Sintex/Frontier
52. Sump pumps : KSB/ Nocchi
53. Hotwater Insulation : Rocklloyed /Aproch
54. EPDM Gasket : Hanu make
55. C.I S&S pipes (class L.A) : Kesoram/Electrosteel
56. Gunmetal valves (full way check and globe valves) : Leader/Audco.
57. Butterfly valves : Kirloskar /IVC
58. Mild steel pipes, plates, flats,
Angle, chequered plate beams, strips etc. Tisco/Sail/HSL

[Signature]

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PROFORMA OF SCHEDULES

FOR

Construction of Student Mess (Civil & Allied works) in ISI Delhi Centre

SCHEDULE 'A'

Schedule of quantities as per Tender (WO No :- D/ISI/Civil/Mess Building/116/2011

Dated – 07-02-2011)

SCHEDULE 'B'

Schedule of materials to be issued to the contractor. – NA -

S.No.	Description of item	Quantity	Rates in figures & words at which the material will be charged to the contractor	Places of issue
1	2	3	4	5

SCHEDULE 'C'

Tools and plants to be hired to the contractor - NA -

S.No.	Description	Hire charges per day	Places of issue
1	2	3	4

SCHEDULE 'D'

Extra schedule for specific requirements/document for the work, if any. – NA -

SCHEDULE 'F'

Reference to General Conditions of contract.

Name of work : Construction of Student Mess (Civil & Allied works)

Estimated cost of work : Rs. 27189905 (To be taken in Phased Manners)

i) Earnest Money : Rs. 200000.00

ii) Performance Guarantee : 5% of tendered value (Phase Manners)

iii) Security Deposit : 5% of tendered value.(Phased Manners)

TENDER RULES : Officer inviting tender :- Head Delhi Centre
& DIRECTIONS

Maximum percentage of quality of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3.

After the Quantities mentioned in the tender

Sd/- (Signature) R. B. Bapat
Head / Head

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Definitions :

2(v)	Engineer-in-Charge	Engineer (Civil) of ISI Delhi Centre
2(viii)	Accepting Authority	Head Delhi Centre
2(x)	Percentage on cost of materials and labour to cover all overheads and profits.	15%
	Percentage of Labour Component	25%
2(xi)	Standard Schedules of Rates	DSR 2007
2(xii)	Department	Indian Statistical Institute

Clause 1

- i) Maximum allowable extension beyond the period provided in i) above in days As per CPWD Rule

Clause 2

Authority for fixing compensation under clause 2. Head Delhi

Clause 2A

Whether Clause 2A shall be applicable No


Clause 5

Number of days from the date of issue of letter of acceptance for reckoning date of start 7days

Mile stone(s) as per table given below:-

Table of Mile Stone(S)**OR**

Sl. No.	Financial Progress	Time Allowed (from date of start)	
1.	1/8 th (of whole work)	1/4 th (of whole work)	
2.	3/8 th (of whole work)	1/2 (of whole work)	
3.	3/4 th (of whole work)	3/4 th (of whole work)	
4.	Full	Full	


 Head / Head
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Total Time allowed for execution of work. Eighteen months

Authority to give fair and reasonable extension of time for completion of work. Head Delhi

Clause 7 **Gross work to be done together with net payment**
/adjustment of advances for materials collected,
if any, since the last such payment
for being eligible to interim payment As per CPWD

ESCALATION

Clause 10C& 10CA 10 CC
Clause 10 C, 10CA & 10 CC as /applicable in
CPWD Yes
10 C for Labour & Building material
(Excluding cement steel & Structural steel)

10 CA for cement, steel & structural steel
Base rate for the period of January 2011 as published by Dte of Economics & Statistics Govt of
NCTD web site / Market rates shall be used for calculation of escalation / de-escalation under
clause 10 C

For 10 CA – All India whole sale price indices for above materials published by Economic
advisor to Govt of India, Ministry of Commerce and Industry which is available at their web site,
shall be take for calculation of escalation/ deescalation.

Clause 11
Specifications to be followed
for execution of work CPWD

Clause 12

12.2 & 12.3 Deviation Limit beyond which clauses
12.2 & 12.3 shall apply for building work After the Quantities
mentioned in the tender.

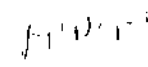
12.5 Deviation Limit beyond which clauses
12.2 & 12.3 shall apply for foundation work After the Quantities
mentioned in the tender

Clause 16
Competent Authority for
deciding reduced rates. Head Delhi Centre

Clause 36 (i)
Minimum Qualification &
experience required for Principal
Technical Representative.

a) For works with estimated cost




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put to tender more than

- (i) Rs. 10 Lakhs for Civil work Graduate or retired AE possessing
(ii) Rs. 5 Lakhs for Elec/Mech Works at least recognised diploma

b) For works with estimated cost put to tender.

(i) More than Rs. 5 Lakhs but less than Rs. 10 Lakhs for Civil Works. Recognised Diploma holder

(ii) More than Rs. 1 Lakh but less than Rs. 5 Lakh for Elec/Mech Works Recognised Diploma holder

c) Discipline to which the Principal Technical Representative should belong. Civil / Elect. / Mech.

d) Minimum experience of works _____ years.

Graduate e) Recovery to be effected from Rs. 10,000/- p.m. for
contractor in the event of not fulfilling provision of clause 36(i). Rs. 5,000/- p.m. for diploma holder

Clause 42

i) (a) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates 2007 printed by C.P.W.D.

ii) Variations permissible on theoretical quantities.

a) Cement for works with estimated cost put to tender not more than Rs. 5 lakhs. 3% plus/minus.

for works with estimated cost put to tender more than Rs. 5 lakhs. 2% plus/minus.

b) Bitumen All works. 2.5% plus only & nil on minus side.

c) Steel Reinforcement and structural steel sections for each diameter, section and category. 2% plus/minus.

d) All other materials. Nil.

RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION

Sl. No.	Description of Item	Rates of figures and words at which recovery shall be made from the Contractor Rate in schedule 'B' plus 10% in case materials issued by Department	
		Excess beyond permissible variation	Less use beyond the permissible variation
1.	Cement		
2.	Steel reinforcement		
3.	Structural Sections		
4.	Bitumen issued free		
5.	Bitumen issued at stipulated fixed price		

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आर० बा० बापट/R. B. Bapat
 प्रमुख / Head
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