CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS
(Council of Scientific and Industrial Research)
Post Office-CIMAP, Lucknow-226015

Name of work : Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing Fragrance building at CSIR - CIMAP, Lucknow.

COVER – I

TECHNICAL BID

CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS
(Council of Scientific and Industrial Research)
Post Office-CIMAP, Lucknow-226015

Name of Work: **Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing Fragrance building at CSIR - CIMAP, Lucknow.**

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Note:
1.Tenderes should confirm that they have received all the above papers from S. No. 1 to 5.

2. Particulars at Sl. No. 6 and 7 may be seen in the Engineering Unit. Post office – CIMAP, Lucknow 226015 between the hours of 11.00 A.M. to 4.00 P.M. on any working day.

M/s……
Received Rs._____ (Rupees _____) only in cash vide Challan no._____ dated _____ from M/s _____ _____ towards **cost of the tender documents**

Signature of the Tender Issuing Officer

Crossed Demand Draft/ Bankers cheque from a Nationalized Bank for Rs. _____ (Rupees _____) drawn on _____ is enclosed with the tender towards **cost of Tender documents.**

Signature of the Tenderer

Name of the Tenderer

Seal of the Tenderer

Particulars of Earnest Money

Crossed Demand Draft for **Rs3,69,300.00 (Rupees Three Lakhs Sixty nine thousand three hundred only)**

Drawn on the
Has been sent to the officer opening the tenders.

Or

In other forms as specified in condition no. 9 of notice inviting tender

Tender issued to: Dated:

M/s ……
……
……
telephone No., if any) ……

Signature of Tenderer

Credential verified/tender issued subject to verification of credentials.

Signature of the Officer Issuing Tender

Cash Receipt No. Dated for Rs. ……..

Central Institute of Medicinal and Aromatic Plants
(Council of Scientific and Industrial Research)

NOTICE INVITING TENDER

Sealed tenders are hereby invited in **"Two Bid system" Technical bid and Financial bid** for the work **: Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing Fragrance building at CSIR - CIMAP, Lucknow** from the contractor of appropriate class from CPWD, State PWDs, Railways or MES , Post & Telegraph department from those who have carried out similar works for CSIR, Govt and Semi government organizations or Public Sector Undertaking Institutions etc. Tenderers should have successfully completed at least three work amounting to 40% **(Rs. 73.86 Lakhs)** or two works of **50% (Rs. 92.32Lakhs)** or at least one work amounting to **80% (Rs147.71 Lakhs)** value of the estimated cost or above in single contract during the last five year. Tenders will be issued to only those contractors who show the satisfactory work completion certificates, Registration certificate under work contract tax etc.

1. Estimated cost is **Rs184.64 Lakhs (based on CPWD. D.S.R – 2014 & market rate)**

2. Time for carrying out the work will be **Twelve Months.**

3. **The tender will be in two bid system. Cover – I - shall be super scribed as "Technical Bid" and shall contain the following:**

i) Tender fee of Rs1,000.00 (Non refundable) } **Separate Demand Draft drawn in favor of**

ii) EMD of Rs3,69,300.00 (Bank Draft) } **Director, CSIR – CIMAP, Lucknow.**

iii) Self attested Requisite experience proof along with certificate regarding satisfactory completion of work.

iv) Self attested Registration certificate under work contract tax.

v) Self attested Copy of pan card.

vi) Duly filled and signed Tender documents except price bid.

vii) Self attested Valid Character certificate from District Magistrate or Tenderer has to submit a original valid Character Certificate in the form of an Affidavit on the stamp paper of Rs.100/- to the effect that the contractor/firm has not been blacklisted by any Govt. deptt /CSIR as also that there is no criminal case pending against the firm/contractor in any court of Law.

viii) A copy of partnership deed, in case of partnership firms.

ix) Self attested Valid 'Á' Class Electrical License of the Contractor/ sub Contractor (issued by the Electric safety department).

Cover – II should be super scribed as "Financial bid" and should be contain only the contractor's quoted rates in the enclosed format. Cover –II will be opened only if the Institute is satisfied with the Technical bid which will be opened first. Any type of correction, overwriting or erasing will lead to disqualification of the tender. Both the cover –I & cover - II may be placed and submitted in another wax sealed cover super scribed **"Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing Fragrance building at CSIR - CIMAP, Lucknow."** and addressed to the **Director, CSIR-Central Institute of Medicinal and Aromatic Plants, Post office CIMAP, Lucknow- 226015.** Institute will not be responsible for any postal delays etc.

Before submitting the tender please go through all the terms and conditions on which the work will be awarded and to be executed by the successful tenderer. Tender documents shall be issued during office hours in the office of **Controller of Administration, CIMAP, CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS , Post office CIMAP, Lucknow-226015 from 24.08.2016 to 16.09.2016 on cash payment of Rs1000.00 (Rupees One thousand only) or** Tender papers along with terms & conditions can be downloaded from the institute web site; www.cimap.res.in and the duly completed tenders may be dropped in the tender box kept in the office of **Controller of Administration, CSIR - CIMAP, CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS,**

Post office CIMAP, Lucknow-226015 in a wax sealed cover super scribed **"Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing Fragrance building at CSIR - CIMAP, Lucknow" up to 2.30 P.M. on dated: 20.09.2016** and will be opened at **3.30 PM** on the same day in the presence of the tenderers or their authorized representative, present if any. **The opening date of financial bids of the successful technical bidders will be intimated by post / Telephone.**

4. Contract document consisting of the details plans, complete specifications and the set of schedule of quantities and the various conditions of contract to be complied with by the persons whose tenders may be accepted, which will also be found printed in the form of tenders, can be seen in the office of **Engg. Unit/ Controller of Administration, Central Institute of Medicinal and Aromatic Plants, P.O. CIMAP, Lucknow-226015** between the hours of 11.00 A.M. and 4.00 P.M. on any working day.

5. Tenders and / or earnest money receipts or demand drafts received up to 2.30 P.M. on **20.09.2016** whether sent by poster delivered in person are liable to be rejected.

6. Tenders should be submitted in double sealed covers with the name of the work written both on the inner and outer envelopes. They will be received up to 2.30 P.M. on **20.09.2016** and will be opened at 3.30 P.M. on the same day at **Central Institute of Medicinal and Aromatic Plants, (CIMAP), Lucknow-226015**. tender forms will be issued from **24.08.2016 to 16.09.2016**

7. Tenders should be on the specified from which may be obtained from office of the **Controller of Administration, Central Institute of Medicinal and Aromatic Plants, P.O. CIMAP, Lucknow-226015** on payment in cash of **Rs. 1000/- (Rupees One thousand only)** in the favor of the **Director, Central Institute of Medicinal & Aromatic Plants, Lucknow or** can be downloaded from the institute web site; **www.cimap.res.in.** The cost of tender papers is not refundable under any circumstances.

8. The **contractors should quote in figures as well in words the rates and amount tendered by them**. The amount for each item should be worked out and the requisite totals given.

9. The earnest money amounting to **Rs3,69,300.00 (Rupees Three Lakhs sixty nine thousand three hundred only)** should be deposited by Demand Draft drawn in favor of the **Director, CIMAP Lucknow** issued by a Scheduled Bank. **The earnest money, technical bid and financial bid should be put up in the separate – separate sealed envelopes , which can be kept in one bigger sealed cover**. All tenders which are received without earnest money, will not be accepted.

10. Tenders should be sent in double sealed cover to the **Controller of Administration, Central Institute of Medicinal and Aromatic Plants, P.O. CIMAP, Lucknow-226015.** The words Tender for the work due date **20.09.2016** up to 2.30 P.M. shall be written by contractors both on the outer and inner envelopes.

11. The Council of Scientific and Industrial Research does not bind itself to accept the lowest tender and reserves to itself the authority to reject any or all of the tenders received without assigning any reasons.

12. Canvassing in connection with the tenders is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection on the same ground.

13. Tenders incorporating additional conditions are liable to be rejected.

14. The tenderer shall not be permitted to tender for works in the concerned unit of CSIR in which a relative is posted in the grade between Controller of Administration and Junior Engineer, (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or subsequently employed by him and who are relatives as mentioned above.

15. Item rate tenders showing percentage above or below are liable to be rejected.

16. Earnest money is liable to be for fitted , if the contractor selected for the work fails to send necessary stamp paper or to sign the formal agreement within seven days from the date of intimation to that effect to him or fails to start the work within seven days from date of commencement given in the work order.

17. Name of address of the officer To whom earnest money / receipts/drafts Are to be sent, along with original tender

The Director
Central Institute of
Medicinal & Aromatic Plants,
Lucknow-226015

18. Tender which do not fulfill all or any of the above conditions or are incomplete in any respect are liable to rejection.

19. Contractor(s) should, in addition the details of their registration etc., particulars of building/sanitary works/electrical work carried out by them including the details of organization for whom they have built, their location and cost etc. along with the original tender.
20. Contractors must quote for all the items of the schedules together otherwise their tenders are likely to be treated as incomplete. The building contractor, if he is himself not a registered Sanitary contractor/electrical contractor will have to get sanitary work/electrical work done through licenced plumber/electrician. The entire work will be given to only one contractor.

21. Except writing rates and amounts contractor(s) should not write any condition or make changes. Additions, alterations, and modification, in the printed form of tenders. Contractors should give rebates, if any, and modification, conditions etc in a separate forwarding letter if they so desire. Tenders containing modifications in printed form shall be treated as invalid. Conditional rebates will not be considered for comparison.

22. Any additions, subtractions, alterations, in tender conditions or rates and amounts, submitted by tenderers after submission of tender will not be considered, unless the tenderers are called by the departments to make the same.

23. Tenders will be valid for a period of 90 days from the date of opening, which can be extended, if so agreed to by both the parties.

24. Tenderers must a brief PERT/BAR CHART along with their tender showing how they would complete the work in the prescribed time. After the award of the work, the successful tenderer will submit a detailed CPM+PERT CHART of the entire work within a period of two months from the date of signing of the agreement. The detailed chart thus prepared and accepted by the Department shall from part of the agreement between the parties.

25. After award of work, the successful tenderer will have to submit names and qualifications with details of experience of the supervisory staff to be deputed for the work. He should also communicate changes if any, in names so communicated. He Should also give list of the major tools and plants to be deployed for work.

26. This tender document will part of the agreement

APPENDIX

Defects liability period	12 months from the date of virtual completion as certified by the Architect/Engineer.
Time for completion	Twelve Months from the date of start as given in work order
Minimum value of work for Interim payment.	**16.00 Lakhs** or less as per Discretions of Engineer-In-charge, but not more than one running payment per month.
Earnest money to be deposited with the tender	**Rs3,69,300.00 (Rupees Three Lakhs Sixty nine thousand three hundred only)**

RETENTION MONEY FOR INTERIM PAYMENTS
SECUTIRY DEPOSIT (SEE SPECIAL CONDITIONS)

i)	Earnest Money:	**Rs3,69,300.00 (Rupees Three Lakhs Sixty nine thousand three hundred only)**
ii)	Subsequent retention inclusive of earnest money deposited at the time of submitting the tender	A sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum along with the sum already deposited as earnest money, will amount to security deposit of 5% of the tendered value of the work. In addition, the contractor shall be required to deposit an amount equal to 5% of the tendered value of the contract as Performance Security within the period prescribed for commencement of work in the letter of award issued to him

Modified terms of refund of security deposit are as under: (These supersede the conditions given alse where in the tender documents)

The refund of the security deposit shall be made only after the defect liability period is over and the final bill is paid as per provision of contract, no interim refund of any percentage of security deposit is admissible.

Period of submitting of final bill by the contractor	:	Two months from the date of virtual completion
CEMENT AND STEEL		Arranged by Contractor as per contract provision.

CONDITIONS FOR CONTRACT

Notice Inviting Tenders

Tenders are hereby invited for the work of **Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing Fragrance building at CSIR - CIMAP, Lucknow** from contractor of **appropriate class of** CPWD, **Railways,** MES, **Post & Telegraph Department and/ or from those who have carried out Similar works for** CSIR **and Semi- Govt. Organisations** Tenderers should have successfully completed at least three work amounting to 40% **(Rs. 73.86 Lakhs)** or two works of **50% (Rs. 92.32 Lakhs)** or at least one work amounting to **80% (Rs147.71 Lakhs)** value of the estimated cost or above in single contract during the last five year**. The tenderers are required to produce proof of fulfilling these conditions along with satisfactory work completion certificates, Registration certificate under work contract tax etc.** while making request for issue of tender documents.

1. Estimated cost is **Rs184.64 Lakhs** (Based on CPWD DSR – 2014 & market rate).

2. Time for carrying out the work will be **Twelve Months** and the date of commencement shall be reckoned from the tenth day of issue of award letter.

3. Complete Contract documents to be complied with by the tenderer whose tender may be accepted can be seen at the office of **Controller of Administration, CIMAP, CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS , Post office CIMAP, Lucknow-226015**

4. Tenders should be on the specified form. (Non-transferable) which may be obtained from the Office of **Controller of Administration, CIMAP, CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS , Post office CIMAP, Lucknow-226015** during office hours on payment of Rs **1000.00** in cash (non-refundable). Sale of tenders shall be stopped two days before the date of opening of tenders.

5. Tenders should be submitted in double sealed covers super scribed with the name of the work date and time of opening written both on the inner and outer envelopes. They will be received up to **2.30 P.M** on **20.09.2016** and will be opened at **3.30. P.M** on the same day in the office of **COA/AO, Central Institute of Medicinal and Aromatic Plants, Post office – CIMAP, Lucknow – 226015,** Tenders should be dropped in the tender before the closing date and time indicated. In case these are sent by post there should be sent by Regd. Post, speed post addressed to **COA/AO, Central Institute of Medicinal and Aromatic Plants, Post office – CIMAP, Lucknow – 226015**. Tenderers are to ensure that the post the tender well in advance so as to reach before the closing time and date indicated.

6. The Earnest money amounting to **Rs3,69,300.00 (Rupees Three Lakhs sixty nine thousand three hundred only)** as demand draft or pay order of a schedule bank and drawn in favour of **Director, Central Institute of Medicinal and Aromatic Plants, Post office – CIMAP, Lucknow - 226015** should accompany the tender. Tenders received without earnest money will be invalid.
7. The Employer does not bind himself to accept the lowest or any tender and reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rates quoted.

8. Canvassing in connection with the tenders is prohibited and the tenders submitted by contractor who resort to canvassing are liable for rejection.

9. The tenderer shall not be permitted to tender for works in the concerned unit of CSIR in which a relative is posted in the grade between Controller of Administration and Junior Engineer, (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or subsequently employed by him and who are relatives as mentioned above.

   NOTE: A person shall be deemed to be a relative of another if, and only if, (a) they are members of Hindu undivided family; or (b) they are husband and wife; or (c) the one is related to the other in the following manner: Father, Mother (including Step mother), Son (including step son), Sons wife. Daughter (including step daughter), Father, Son's son, Son's son's wife, Son's daughter, son's Daughter's husband, Daughter's husband, Daughter's son's wife, Daughter's daughter, Daughter's daughters husband, Brother (including step brother), wife, Sister (including step sister). Sister's husband.

10. Tender submitted shall remain valid for 90 days from the date of opening for the purpose of acceptance and award of work, validity beyond 90 days from the date of opening shall be by mutual consent.

11. The tenderer shall quote rates both in figures and words. He shall also workout the amount for each item of work and write in both figures and words. On check if there are differences between the rates quoted by the tenderer in words and in figures or in the amount worked out by him, the following procedure shall be followed.

(i) When there is difference between the rates in figures and in words, the rates which correspond to the amounts worked out by the tenderer shall be taken as correct.

(ii) When the amount of an item is not worked out by the tenderer or it does not correspond with the rate written either in figures or in words, the rate quoted by the tenderer in words shall be taken as correct.

(iii) When the rate quoted by the tenderer in figures and in words tallies but the amount is not worked out correctly the rate quoted by the tenderer shall be taken as correct and not the amount.

12. The tenderer should see drawings and in case of doubt, obtain required particulars, which may in any way influence his tender from the Engineer as no claim whatsoever will be entertained for any alleged ignorance thereof.

13. Before tendering, the tenderer shall inspect the site to fully acquaint himself about the condition in regard to accessibility of site, nature and extent of ground, working condition of site and locality including stacking of materials, installations of tools and plants (T & P) etc., conditions affecting accommodations and movement of labour etc. required for the satisfactory execution of the work contract. No claim whatsoever on such account shall be entertained by the Employer in any circumstances.

14. Earnest money will be forfeited if the contractor fails to commence the work as per letter of award.

16. Expect writing rates and amount, the tenderer should not write any conditions or make any changes, additions, alterations and modifications in the printed form of tenders. Tenderers who are desirous to offer rebate the same should be brought out separately in the covering letter and submitted along with the tender.

17. Some of the provisions of General Conditions of Contract are given below. Interpretation however shall be as given in the General Conditions of Contract.

(a) **Defects Liability Period:** Twelve months from the date of completion as certified by the Employer.

(b)**Minimum Value Of Work For The Intermediate Certificate: Rs16.00 Lakhs (Rupees Sixteen Lakhs only)**. Intermediate certificate for a lesser amount can be admitted for payment at the discretion of the Engineer.

(c) **Security Deposit:** A sum@10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum along with the sum already deposited as earnest money, will amount to security deposit of 5% of the tenderer value of work. In addition, the contractor shall be required to deposit an amount equal to 5% of the tendered value of the contract as performance Security within the period prescribed for commencement of work in the letter of award issued to him.

(d) **Compensation:** Contractor shall pay as-compensation and amount equal to one percent or such smaller amount as the Employer (whose decision in writing shall be final) may decide on the cost of whole work as shown in the agreement, for every week that the work remains uncommenced or unfinished or due quantity of work remains incomplete after the proper dates. Compensation to be paid shall not exceed ten percent of the estimated cost of the work as shown in the agreement.

18. Schedule showing approximate quantity of materials to be supplied by the Employer under Clause: 6 of the General Conditions of Contract for works contracted to be executed and to rates at which they are to be charged for.

Particulars of materials	Approx. Qty.	Rates at which the material will be charged to the contractor			Place of Delivery Stores, (NAME OF THE LABORATORY)
		Unit	Rs. (Figures)	Rupees	
1. Cement 2. Steel	**CONTRACTOR'S SUPPLY**				

NOTE: The Tenderer shall ensure that particulars in the above form are filled in by the engineer before he submits the tender.

19. For all specialist jobs e.g., lights, air conditioning, public address, fire protection, security *I* surveillance and building management systems, technical (covering also general conditions and commercial terms) and financial offers will be given separately in two sealed covers.

II ARTICLES OF AGREEMENT

ARTICLES OF AGREEMENT MADE AT _____this _____ day of _____ BETWEEN the Council of Scientific & Industrial Research, New Delhi, a society registered under the Societies Registrations Act 1860 (Hereinafter referred to as the Employer, which expression shall include its successor and assignees and authorised officers of the Society) of the one part and_____ trading in the name and style of _____ (herein after referred to as the contractor(s) which expression shall include his/ their respective heirs, executors, administrators and permitted assignees) of the other part.

WHEREAS the Employers is desirous of getting the work of ……done and has caused drawings, schedule of Quantities and Specifications describing the work to be prepared.

AND Whereas the said specifications and the schedule of quantities and other documents have been signed by on behalf of the parties.

Now it is hereby agreed and declared by and between the parties hereto as follows:

1. In consideration of the payments to be made to them as hereinafter provided the Contractor shall upon and subject to the conditions hereinafter contained executed and complete, the work at the rates specified in the attached schedule of quantities and with such materials as are provided for and in accordance in all respect with specifications, designs, drawings and instructions in writing. Time for carrying out the work will be **Twelve Months** and the date of commencement be reckoned from the **tenth day** of issue of award letter.

2. The Employer shall pay to the Contractors such sum as shall become payable hereunder at the items and in the manner specified in the said conditions.

3. This agreement contains the following documents in addition to pages of Articles of Agreement.

   (i) General Conditions of Contract Page No _____ to _____.

   (ii) Special Conditions Page No _____ to _____.

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(iii) Additional Conditions Page No_____ to _____ .

(iv) Indenture for Secured Advance Page No _____ to _____.

(v) Original tender document along with the covering letter of the firm dated Page No: 1 to _____.

(vi) _____ .

(vii) _____ .

(viii) _____ .

In witness whereof the parties hereto have set their respective hands the day and year in above written.

Signed by, for and on behalf of Employers _____

In the presence of

(1) _____ (2) _____.

Signed by the said contractor

In the presence of

(1) _____ (2) _____.

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GENERAL CONDITIONS OF CONTRACT

1. Interpretation

(a) In construing these conditions, the Specifications, the Schedule of Quantities, Tender, Special Conditions and Agreement, the following words shall have the meaning herein assigned to them except where the subject or context otherwise requires.

(b) This contract shall comprise of the Articles of Agreement, General Conditions of Contract, Special Conditions. Additional Special Conditions, the Schedule of Quantities, Specifications, letter of acceptance of tender and other documents mentioned in the contents sheet attached hereto and including these to which only reference is made herein.

Work or Works: Shall mean all work or works defined in schedule of quantities, specification and such other work or works as the contractor may be entrusted with for carrying out under this contract.

Employer: Shall mean Director-General, CSIR or any officer authorized by Director-General for the purpose. .

Engineer: Shall mean the Engineer designated by the Employer to superintend and perform other duties as indicated in the contract.

Contractor: Shall mean the individual or Firm or Company, whether incorporated or not. Undertaking the work and shall include the legal personal representative or such individual or the persons composing such Firm or Company or the successors of such Firm or Company and the permitted assignees of such individual or Firm or Firms or Company.

Site: Shall mean the site of the contract works including any buildings and erections thereon and any other land adjoining thereto (inclusive) as aforesaid allotted by the Employer or the Engineer for the contractor's use.

Compensation: Shall mean all sum payable by way of compensation under any of the conditions shall be considered as reasonable compensation without reference to the actual loss or damage sustained and whether or not any damage sustained, and whether or not any damage shall have been sustained. Words imputing persons include firms and corporations; Words imputing the singular only also include the plural and vice versa where the context so required.

The headings are given to the clauses for convenience and they will not limit the meaning or scope of the clauses in any way.

2. Drawings and Specifications

The Contractor shall execute whole and every part of the work in the most substantial and workmanlike manner both as regards material and otherwise in every respect in accordance with the specifications. The contractor shall also confirm exactly and faithfully to the design, drawings and instructions given in the respect of the work by the Engineer. The contractor shall be furnished free of charge one- copy of such specifications and all such designs, drawings and instructions as are not included in the printed publications.

3. Earnest Money Deposit (EMD)

EMD upto the value of ***Rs.*10,OOO/-** may be deposited in cash and when value of EMD exceeds *Rs.10,OOOI-* then EMD should be deposited in the shape of **DD/PO** upto the value of RS 25 lacs. If EMD amount is in excess of Rs 25 lacs then the excess amount over RS 25 lacs can be accepted in the form of Bank Guarantee issued by a scheduled bank.

4. Contractor to Provide Everything Necessary

(a) The contractor shall provide at his.awn cost all materials (except such materials, if any as may in accordance with the contract be supplied by the Employer) plants, tools, appliance, implements, ladders, scaffolding, temporary works, etc. requisite or proper for the execution of the work whether original, altered or substituted and whether included in the specifications or other documents forming part of the contract or which may be necessary for the purpose of satisfying or complying to the requirements of Engineer, as to any manner as to which under these conditions he is entitled to be satisfied together with carriage therefore to and from the work. The contractor shall also supply without charge the requisite number of persons with means and materials necessary for the purpose of setting out works and counting, weighing and assisting in the measurement or examination at any time and from time to time of the work or materials. Failing his so doing, the same may be provided by the Engineer **at the expense of the contractor** and the expenses may be deducted from any money due to the contractor under the contract and *I* or from his Security Deposit.

(b) The contractor shall provide himself with requisite quantity and quality of water for carrying out the works at his own, if, however piped water is supplied by the Employer, the contractor shall pay for the water at **one percent of** the total of the work done except on Electrical Work, Air-conditioning work and Furniture work. The contractor shall make own arrangement for water

connection and laying of further pipelines from the source of supply of the Employer. It should be clearly understood that the Employer does not guarantee to maintain uninterrupted supply of water and it will be incumbent on the part of the contractor to make alternative arrangement for water at his own cost in the event of any temporary breakdown in the water mains so that the progress of work is not held up for want of water. No claim as damages or refund of water charges will be entertained on account of such breakdowns. However, if the contractor is permitted to make his own arrangement to draw water from a well, hand-pump, or natural river or pond of the Employer, no charges will be made for the water drawn from the same, but the contractor will make good any damage done to the installations and ensure that the quality of water used in the work is conforming to BIS codes and provide for any treatment at his own cost.

(c) The contractor shall be allowed to construct temporary wells in Employer's land for taking water for construction purpose only after he has permission of the Employer in writing. No charges shall be recovered from the contractor on this account but the contractor shall be required to provide necessary safety arrangement to avoid any accident or damage to adjacent buildings, roads and service lines. He shall be responsible for any accident or damage caused due to construction and subsequent maintenance of the wells and shall restore the ground to its original condition after the wells are dismantled on completion of the work.
(d) The Employer on no account shall be responsible for the expenses incurred by the contractor for hired ground or water obtained for elsewhere.

(e) Subject to availability the Employer may **supply power** at only one point from where the Contractor shall make his own arrangement for distribution including provision of electric meters, switches, fuses etc. at his own cost. These shall be in the custody of the Employer. If there is any hinderance caused to other works the contractor shall reroute or remove such temporary lines without any extra cost. Such temporary lines shall be removed after the completion of work. The cost of power consumed by the contractor shall be payable to the employer at rates fixed by the Employer, which would be deducted from the running account bills. However the Employer does not guarantee the supply of power and no compensation for any failure or short supply of power shall be entertained.

"Sufficiency of Tender:
The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiently of the tender the works and the rates and the prices quoted in the schedule of items, which rates and the prices shall, except as otherwise provided, cover all his obligation under the contract and all matters and things necessary for the proper completion and maintenance of the works".

5. Authorities, Notice & Patents

(a) The contractor shall confirm to any regulations and bye-laws of any corporation and of any electricity supply company and authorities with whose systems the structure is proposed to be connected, and shall before making any variations from the drawing and specifications that may be necessitated for so conforming by giving written notice to the Engineer specifying the **variations proposed** to be made, the reasons for making it and apply for instructions thereon. If the compliance with this clause involves any extra work not included in this contract, he shall specify these items of work and the allowance of extra payment required on their account.

(b) The contractor shall give all notices required by the said regulations or bye-laws to be given to any Authority and pay to such Authority or to. any public office all fees that may be chargeable in respect of the works and lodge the receipts with the bill to the Engineer for reimbursement.

6. Rates to include all Taxes

(a) Rates quoted by the contractor shall **include sales tax / VAT (except service tax)** , **purchase tax, turnover tax**, duties, octroi, toll tax, royalties and all other taxes in respect of this contract. The Employer shall not entertain any claim whatsoever in this respect. **However, in respect of service tax, same shall be paid by the contractor to the concerned department on demand and it will be reimbursed to him by the department after satisfying that it has been actually and genuinely paid by the contractor. The applicable and eligible service tax shall be reimbursed preferably within 7 days but not later than 30 days of submission of documentary proof of payment provided same are in order.** Tendered rates are inclusive of all taxes levies payable under the respective statutes. However pursuant to the Constitution (Forty Sixth Amendment) Act; 1982 if any further tax or levy is imposed by Statutes, after the date of receipt of tenders and the contractor there upon necessarily and properly pays such taxes/ levies the contractor shall be reimbursed the amount as per the rules on producing proof of payment so made provided such payments, if any, is not in the opinion of the Employer (whose decision shall be final and binding) attributable to delay in execution of work within the control of the contractor.

(b) The contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorized representative of the Employer and further shall furnish such other information and documents as the Employer may require.

(c) The contractor shall within a period of thirty days of imposition of any **further tax** or levy pursuant to the Constitution (Forty Sixth Amendment) Act, 1982 give a written notice thereof to the Employer that the same is given pursuant to this condition together with all necessary information relating thereto.

7. Materials

(a) If the specifications of schedule of items provide for the use of any material to be supplied by the Employer's stores or if it is required that the contractor shall use certain stores to be provided by the Employer as shown in the schedule of materials hereto annexed, the contractor shall be bound to procure and shall be supplied such materials and stores as are from time to time required to be used by him for the purpose of the contract only and value of the materials so supplied at the rates specified in the said schedule of materials and of the quantities incorporated in the work may be set of or deducted from any sums then due, or thereafter to become due to the contractor under the contract or otherwise or against or from the Security deposit. All materials so supplied to the contractor by the Employer shall remain the absolute property of the Employer and the contractor shall be the trustee of the materials so supplied procured and the said materials shall not be removed/disposed off from the site of the work on any account and shall be at all times open for inspection by the Engineer or Employer. The contractor shall bear all incidental charges for cartage, storage and safe custody of all materials and against damage due to 'dampness, rain, sun, fires and theft and be fully responsible for their storage and maintenance. Any such material unused and in perfectly good condition in the opinion of the Employer at the time of the completion of work or termination of the contractor or earlier shall be returned to the Employer at a place directed by the Engineer at contractor's cost and at rates stipulated in the said schedule but in case the Employer decides not to take back the materials the contractor shall have no claim for compensation on account of any such materials supplied to him as aforesaid being unused by him or for any wastage or damage to any such materials.

(b) If for any reason there is delay or non-supply of material as shown in the schedule, the contractor shall procure the same and complete the work in time after due intimation and approval of the Employer. The difference in price (between his procurement price and price shown in the schedule) shall be paid to the contractor. However, in case approval of the Employer is not given, only suitable extension of time

would be considered and no other claim of compensation/damages
shall be payable by the Employer.

(c) After completion of the work or on determination/ termination of the contract, the theoretical quantity of cement to be used in work shall be calculated on the basis of statement showing quantity of cement to be used in different items of work provided in current Schedule for the purpose printed by CPWD. In case any item is executed for which the standard contents for the consumption of cement are not available in the above mentioned statement or cannot be derived from this statement, the same shall be calculated on the basis of standard formula to be laid down by the Engineer. Over this theoretical quantity of cement shall be allowed a variation upto 3% plus/minus for works estimated cost of which as put to tender is not more than Rs.10 lakhs and upto 2% plus/ minus for works estimated cost of which as put to tender is more than Rs. 10 lakhs. The difference in the quantity actually issued to the contractor and the theoretical quantity including authorised variation if not returned by the contractor, shall be recovered at twice the issue rate, without prejudice to the provision of other conditions regarding return of material governing the contract. In the event of its beings discovered that the quantity of cement which is less than the quantity ascertained as herein before provided (allowing variation on minus side as stipulated above) the cost of quantity of cement not so used, shall be recovered from the contractor on the basis of stipulated issue rates and cartage to site.

(d) The provisions of foregoing sub-clause shall apply Mutatis-Mutandis in the case of steel reinforcement structural steel sections (each diameter/ section or category shall be considered separately) except that the theoretical quantity of the steel be taken as the quantity required as per design or as authorised by the Engineer, including lappages, plus 3% wastage due to cutting into pieces. Over this theoretical quantity 2% plus/ minus shall be allowed as variation due to wastage.

(e) The provision of foregoing sub-clause shall apply Mutatis-Mutandis in the case of cables; (other than under-ground cables) wires, conduits/ GI pipes, GI/ MS sheets used in various items of work shall be calculated on the basis of measurements recorded in the measurement books for the purpose of payment and for assessing the Consumption of materials used in the works. Over this quantity a variation of 5% plus shall be allowed for wastage of materials during execution in case of cables (other than under-ground cables), wires, conduits GI pipes, and 10% plus in case of GI/ MS Sheets.

(f) The provisions made above are without prejudice to the right of the Employer to take action against the contractor under the conditions of the contract for not doing the work according to the prescribed specifications.

(g) "In case of easy availability of approved quality of cement and steel in the open market it will be Employer's discretion to make these items as contractor's supply".

8. Testing of Materials

The contractor shall provide assistance, instruments, materials, labour and any other arrangement normally required for testing, checking of materials and workmanship as stipulated in the specifications and by statutory authority at his own cost. The Employer has the right to appoint the testing authorities. The contractor shall pay for the cost of test samples, its packing, transportation including testing fees. Failings his so doing, the same shall be provided by the Engineer at the expense of the contractor and the expenses may be deducted from any money due to the contractor under the contract and/ or from the Security Deposit or proceeds thereof or of a sufficient portion thereof.

9. Contractor's Engineers/ Foreman & Workman

(a) The contractor shall give all necessary personals superintendence during the execution of the (work and as long thereafter as the Engineer may consider necessary until the expiration of the Defects Liability Period. The contractor shall employ competent Site-Engineer/ Foreman as per CPWD norms and as approved by the Engineer Whose qualification must conform to the requirement specified by the Engineer who shall be constantly in attendance of the work while the men are at work. Any directions, explanations, instructions or notices given by the Engineer to such Site-Engineer or Foreman or any other authorized agent shall be held to be given to the contractor.

(b) Contractor's Site Superintendence Staff to be employed by contractor on works: The contractor shall employ the following technical staff during execution of works

(a) For building and road works

(i) One Graduate Engineer, when the tendered cost of work exceeds Rs. 10 lakhs
(ii) One qualified Diploma holder (overseer) with experience not less than 3 years when the tendered cost of work exceeds Rs. 5 lakhs but is less than RS.10 lakhs.

(iii) One qualified Diploma holder when the tendered cost of work is more than RS.2lakhs but less than RS.5Iakhs.

(b) For sanitary and water supply works

One qualified diploma holder with experience of not less than 5 years, out of which one year should be in sanitary and water supply works when the tendered cost of work is more than Rs.50,000.

(c) For electrical works

(i) One qualified Graduate Engineer possessing Degree in Electrical Engineering from recognized university with an experience of not less than 3 years or a Diploma holder in Electrical Engineering with an experience of not less than 7 years when the tendered cost of the work is not less than RS.1.5 lakhs.
(ii) One Graduate Electrical Engineer with two years experience or a Diploma holder in Electrical Engineering with experience of not less than 3 years when the tendered cost of the work is more than RS.75,000 but less than Rs. 1.5 lakhs.
(iii) One Diploma holder in Electrical Engineering with experience of not less than 3 years when tendered cost of work is more than Rs. 37,000, but less than Rs.75,000.
(iv) One licensed Supervisor with experience of not less than 3 years when the tendered cost of work is more than Rs.7,500 and less than Rs.37,000.

(d) In case the contractor fails to employ the technical staff as aforesaid, he shall be liable to pay reasonable amount not exceeding the amount shown below for each month. of default. These recoveries are subject to modification, from time to time by CSIR based on CPWD.
(i) In case when a Graduate Engineer is to be employed Rs. 3,000
(ii) In case when a qualified Diploma holder is required to be employed Rs. 1,500
(iii) In case when a technical Supervisor is required to be employed Rs. 750

(e) The contractor shall on the request of the Engineer immediately dismiss from the works any person employed thereon who may in the opinion of the Engineer be unsuitable or incompetent or who may in the opinion of the Employer misconduct himself.

10. Access

(a) The Engineer, and the Employer or its representatives shall at all reasonable time have free access to the works and/or workshops, factories or other places the materials are being prepared or constructed for the contract and also to any place where the materials are lying or from which they are being obtained and the contractor shall give every facility to them for inspection. Except the representatives of statutory authorities and those mentioned above no other person shall be allowed on the works at any time without the permission of the Engineer.

(b) If any work is to be done at a place other than the site of works, contractor shall obtain written permission of the Engineer.

11. Variation & Price for Variation

(a) The Engineer with the approval of the Employer shall have powers to make any alterations/ omissions/ additions and/ or substitutions from the originals specifications, drawings, designs and written instructions of such alterations, omissions, additions, substitutions shall not invalidates 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 same rates as are specified in the contract for the work.

(c) 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 same rates 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, with 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 10% as contractor's profit and overheads 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 with1he 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 d the work on the plea of non-settlement of rates of items falling under the clause.

(f) "Deviation limits"

Building work	30%
Maintenance/emergency woks	50%
Foundation works	100%
Services works	30%

12. Faulty Materials, Workmanship & Defects After Completion

(a) The Engineer shall have powers to require the removal from the site of all materials and work which in his opinion are not in accordance with specifications and in case of default, the Engineers shall be at liberty to employ other persons to remove the same without being answerable or accountable for any loss or ,damage that may happen or arise to such materials to be substituted thereof and in case of default the Engineer may cause the same to be supplied and all costs which may attend such removal and/ or substitution are to be borne by the contractor.

(b) If it shall appear to the Engineer or to the Employer based on audit/ technical examination that any work has been executed with unsound, imperfect, or unskillful workmanship or with materials of any inferior description, or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that

contracted for or otherwise not in accordance with the contract, any defects, shrinkage or other faults which may appear within the defects liability period of 12 months from the date of completion arising in the opinion of the Engineer, the contractor shall on demand in writing which shall be made within 12 months of the completion of the work from the Engineer specifying the work, materials, articles defects or other faults complained of notwithstanding that the same may have been passed, certified and paid for, forthwith rectify, or remove and reconstruct the work so specified in whole or in part, as the case may requires or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own cost. In case of any such failures, the Engineers may rectify or remove or re-execute the work or remove and replace with others, the material or articles complained of as the case may be at the risk and cost in all respects of the contractor.

(c) In lieu of rectifying the work not done in accordance with the contract, the Employer may, allow such work to remain, and in that case make allowance for the difference in value, together with such further reduction as in his opinion may be reasonable.

(d) Provided always that nothing in this clause shall relieve the contractor from his liability to execute the works in all respects in accordance with the terms and conditions of this contract, or from his liability to make good all defects.

13. Works to Be Open for Inspection

(a) All work under or in course of execution or executed in pursuance of the contract shall at all times be open to the inspection and supervision of the Engineer and the contractor shall at all times, during the usual working hours, and at all other times at which reasonable notice of the intentions of the Engineer to visit the works shall have been given to the contractor, either himself be present to receive order and instruction or have a responsible agent duly accredited in writing present for that purpose.

(b) The contractor shall give not less than seven days notice in writing to the Engineer before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimensions thereof be taken before the same is so covered up or placed beyond the reach of measurement and shall not cover up and place beyond the reach of measurement, any work without the consent in writing of the Engineer and the Engineer shall within the aforesaid period of seven days inspect the work, and if any work shall be covered up or placed beyond the reach of measurement without sud1 notice having been or the Engineer's consent obtained the same shall be uncovered at the contractors expense or in default thereof. no payment or allowance shall be made for such work or the materials with which the same was executed

14. Assignment or Sub-Letting

(a) The contract shall not be assigned or sublet without the written approval of the Employer. And if the contractor shall assign or sub-let his contract or attempt to do so or become insolvent or commence any insolvency proceedings or make any composition with his creditors or attempt to do so or if any bribe, gratuity or gift, loan, perquisite, reward or advantage pecuniary or otherwise, shall either directly or indirectly, be given, promised or offered by the contractor or any of his servants or agents to any person in the employment of the Employer in any way relating to his office or employment, or if any such employee or person shall become in any way directly or indirectly interested in the contract, the Employer shall have the power to adopt any of the courses specified under clause-23 as may be best suited to the interest of the Employer and in the event of any of the courses being adopted the consequences specified in the said clause shall ensure.

(b) Where the contractor is a partnership firm, the approval in writing of the Employer shall be obtained before any changes in the constitution of the firm. Where the contractor is an, individual or a Hindu undivided family business concern such approval as aforesaid shall likewise be obtained the contractor enters into any partnership agreement hereunder the partnership firm would have the right to carry out the work hereby undertaken by the contractor. If previous approval as aforesaid is not obtained, the contract shall be deemed to have been assigned or sublet in contravention of clause 13 (a) and the same action may be taken and the same consequences shall ensue as provided in the said clause 13 (a).

15. 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.

(a) The contractor shall be responsible for all injury to persons, animals or things, and for al damage, whether such injury or damage arises from carelessness or accident in any way connected therewith. This clause shall be held to include interalia any damage due to causes is 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 damage as aforesaid and also in respect of any award of compensation or damage consequent upon such claim including legal costs.

(b) The contractor shall reinstate all damage of every sort mentioned in this clause, so as to deliver the 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.

(c) 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 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 workmen or to the representative of any deceased or incapacitated workmen.

(d) 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.

(e) 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 or to become due to the contractor or security deposit.

(f) The contractor shall indemnify the employer against any action, claim or proceedings relating to infringement or sue 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 contact. 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 there from. 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.

16. Lien in Respect of Claim in Other Contracts

(a) Any sum of money due and payable to the contractor including the security deposit under the contract may be withheld or retained by way of lien by the Employer or Government or any other contracting person or persons against any claim of the Employer or Government or such other persons in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Employer or Government or with such other persons.

(b) It is agreed term of the contract that the sum of money so withheld or retained under this clause by the Employer will be kept withheld or retained as such by the Employer or till his claim arising out of in the same contract or any other contract is either mutually settled or determined by the Arbitrator if the contract is governed by arbitration clause or by the competent court as the case may be, and that the contractor shall have no claim for interest or damages whatsoever on this account or any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the contractor.

17. Withholding & Lien in Respect of Sums Claimed

(a) Whenever any claim or claims for payment of a sum of money arises out of or under the contract against the contractor, the Employer shall be entitled to withhold arid also have a lien to retain such sum or sums in whole or in part from the security deposit if any deposited by the contractor and for the purpose aforesaid, the Employer shall be entitled to withhold the security deposit, if any, furnished as the case may be and also have a lien over the same pending finalisation or adjudication of any such claim. In the event of the security deposit being insufficient to cover the claimed amount or amounts or if no security deposit has been taken from the contractor, the Employer shall be entitled to withhold and have a lien to retain to the extent of such claimed amount or amounts referred to above, from any sum or

sums found payable or which at any time thereafter may become payable to the contract under the same or any other contract, with the, Employer or any contracting person pending finalisation or adjuction of any such claim.

It is an agreed terms of the contract that the sum of money so withheld or retained under the lien referred above, by the Employer will be kept withheld or retained as such by the Employer till the claim arising out of or under the contract is determined by the Arbitrator (if the contract is governed by the arbitration clause) or by the competent court as the case may be and that the contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the contractor. For the purpose of this clause, where the contractor is a partnership firm or a limited company the Employer shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or In part from any sum payable to any Partner/ Limited company as the case may be, whether in his individual capacity or otherwise.

(b) The Employer shall have the right to cause an audit and technical examination of the works and the final bills of the contractor including all supporting vouchers, abstract etc., to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been over paid in respect of any work done by the contractor under the contract or any work claimed by him to have been done by him under the contract and found not to have been executed, the contractor shall be liable to refund the amount of over payment and it shall be lawful for the Employer to recover the same from him in the manner prescribed in sub-clause (a) of this clause or in any other manner legally permissible; and if it is found that the contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under-payment shall be duly paid by the Employer to the contractor.

Provided that the Employer shall not be entitled to recover any sum over-paid, nor the contractor shall be entitled to payment of any sum paid short where such payment has been agreed upon between the Employer on the one hand, and the contractor on the other hand under any term of contract permitting payment for work after assessment by the Employer.

18. In-Case of Death of Contractor

Without prejudice to any of the rights of remedies under this contract, if the contractor dies, the Employer shall have the option of terminating the contract without compensation to the contractor.

19. Sub -Contractors

The Employer reserves the right to use the premises and any portion of the site for the execution of any work not included in the contract. The contractor is to afford all reasonable facilities to all sub-contractor, specialists, merchants, tradesmen and others who may at any time be appointed by the Employer for executing any work or supplying any goods relating to the construction, servicing, equipping or furnishing of the work under this contract.

20. Compliance to Labour Laws & Apprentice Act

The contractor shall comply with an the provisions of the Minimum Wages Act, 1948, Contract Labour (Regulation and Abolition) Act, 1970, and rules and orders framed there under and other labour laws affecting contract labour and Apprentice Act, 1961 and the rules and orders framed there under that may be in force or brought into force from time to time.

Contractor shall obtain a valid license under Contract Labour (R&A) Act 1970 and Contract Labour (R&A) Central Rules 1971 before commencing work and which should be valid till the completion.

21. Compensation for Delay

(a) The time for carrying out the work as entered in the tender shall be strictly observed by the contractor and shall be deemed to be essence for the contract on the part of the contractor. The work shall throughout the stipulated period of the contract be proceeded with all due diligence and the contractor shall pay as compensation an amount equal to ONE PER CENTOR such smaller amount as the employer (whose decision in writing shall be final) may decide on the amount of the whole work as shown in the agreement, for every week that the work remains uncommenced or unfinished after the purpose.

(b) And further to ensure good progress during the execution of the work, the contractor shall be bound in alt cases. in which the time allowed for any work exceeds one month (say for special jobs) to complete one-eighth of the whole of the work before one-fourth of the whole time allowed under the contract has elapsed: three-fourths of the work before three-fourths of such time has elapsed. However for special jobs if a time schedule has been submitted by the contractor and the same has been accepted by the Employer, the contractor shall comply with the said time schedule. In the event of the contractor failing to comply with this condition he shall be liable to pay as compensation an amount equal to one per cent or such smaller amount as the Employer (whose decision in writing shall be final) may decides on the said cost of the work for every week that the due quantity of work remains incomplete. Provided that the entire compensation to be paid under the provisions of this clause shall not exceed ten percent on the estimated cost of the work as shown in the tender.

22. Damage to Works in Consequence of Hostilities or War-Like Operation

(a) The work (whether fully constructed or not) and all materials, machines, tools and plants, scaffolding, temporary buildings and others things connected therewith shall be at the risks of the contractor until the work has been delivered to the Employer and a certificate from him to that effect obtained. In the event of the works or any materials properly brought to the site for incorporation in the work being damaged or destroyed in consequence of hostilities or war-like operations, the contractor shall, when ordered in writing by the Employer, remove any debris from the site, collect and properly stored or remove from store all serviceable materials salvaged from the damaged work and shall be paid at the contract rates in accordance with the provision of this agreement for the work of clearing the site 9f debris, stacking, removal of serviceable materials and for the reconstruction of all works ordered by the Employer such payment being addition to compensation upto the value of the work originally executed before being damaged or destroyed and not paid for. In case of works damaged or destroyed but not already measured and paid for the damage/ destruction suffered and for restoring the material at the rates based on the analysis of rates tendered for in accordance with the provision of this agreement. The certificate of the Employers regarding the quality and quantity of materials and the purpose for which they were collected shall be final and binding on the contractor.

(b) Provided always that no compensation shall be payable for any loss in consequence of hostilities or war-like operations (i) unless the contractor had taken all such precautions against Air Raid as are deemed necessary by the A. R. P. Officers or the Employer, (ii) for any materials etc., not on the site of the work or for any tools and plant, machinery, scaffolding, temporary buildings and other things not intended for the work.

(c) In the event on the contractor having to carry out reconstruction as aforesaid, he shall be allowed such extension of time for its completion as is considered reasonable by the Employer.

23. Extension of Time

(a) If the contractor shall desire an extension of time for the completion of the work on the grounds of his having been unavoidably hindered in its execution or any other ground he shall apply in writing to the Employer within thirty days of the date of hindrance on account of which he desires extension-as aforesaid, and the Employer shall, if in his opinion (which shall be final) reasonable grounds shown therefore, authorise such extension of time if any, which may, in his opinion, be necessary or proper

(b) In the event, the value of work exceeds the value of the Bill of Quantities owing to variations, the contractor shall be entitled to ask for extension of time in proportion to the increased value of work.

24. Suspension of Work by Contractor

(a) The Employer may without prejudice to his right against the contractor in respect of any delay or inferior workmanship or otherwise or to any claims for damages in respect of any breaches of the contract and without prejudice to any rights or remedies under any of the provisions of this contract or otherwise and whether the date for completion has elapsed by notice absolutely determine the contract in any of the following cases:

(i) If the contractor having been given by the Engineer to rectify, reconstruct or replace any defective work or that the work is being performed in any inefficient' or otherwise improper or unworkman-like manner shall omit to comply with the requirements of such notice for a period of seven days thereafter or if the contractor shall delay or suspend the execution of

the work so that in the judgment of the Employer (which shall be final and bindings) he will be unable to ensure completion of the work by the date for completion or he has already failed to complete the work by that date.

(ii) If the contractor being a company shall pass a resolution or the court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of a creditors shall be appointed or if circumstances shall arise which entitle the court of creditor to appoint a receiver or a manager or which entitle the court to make a winding up of order.

(iii) If the contractor commits breach of any of the terms and conditions of this contract.

(v) If the contractor commits any acts mentioned in clause-23th thereof.

(b) When the contractor has made himself liable for action under any of the cases aforesaid, the Employer shall have the following powers:

(i) To determine or rescind the contract as aforesaid (of which termination or rescission notice in writing to the contractor under the hand of the Employer shall be conclusive evidence). Upon such determination or recession the security deposit of the contractor shall be liable to be forfeited and shall be absolutely at the disposal of the Employer.

(ii) The Engineer may employ labour paid by the Employer and to supply materials to carry out the work or any part of the work debiting the contractor with the cost of the labour and the price of the materials (of the amount of which cost and price certified by tile Engineer shall be final and conclusive against the contractor) and crediting him with the value of the work done in all respects in the same manner and at the same rates as if it had been carried out by the contractor under the terms of his contract. The certificate of the Engineer as to the value of the work done shall be final and conclusive against the contractor, provided always that action under the sub-clause shall only be taken after giving notice in writing to the contractor. Provided also that if the expenses incurred by the Employer are less than amount payable to the contractor at his agreement rates, the difference should not be paid to the contractor.

(iii) After giving notice to the contractor to measure up the work of the contractor and to take such part thereof as shall be unexecuted out of his hands and to give it to another contractor to complete in which case any expenses which may be incurred in excess of the sum which would have been paid to the original contractor if the whole work had been executed by him (of the amount of which exceed the certificate in writing of the Engineer shall be final and conclusive) shall be borne and paid by the original contractor and may be deducted from any money due to him by the Employer under this contract or any other account whatsoever or from his security deposit.

(iv) In the event anyone or more of the above courses being adopted by the Employer the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagement or made any advances on account or with view to the execution of the work or the performance of the contract. And in case action is taken under any of the provisions aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer has shall certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

25. Secured Advance

The contractor on signing an indenture in the form specified by the Employer during the progress of the execution of the work may be paid if agreed by the Employer upto 75 percent of the estimated value which shall take into account the market value and contractor tendered rates for the finished item of any material which in the opinion of the Engineer is likely to be incorporated in the work within next three months, are non-perishable and are in accordance with the contract and which have been brought on the site in connection therewith and are adequately stored and protected against damage by weather or other causes, which have not at the time of advance been incorporated in the works. When materials on account of which an advance has been made under this clause are incorporated in the worth the amount of such advance shall be deducted from the next payment made under any of the clause of clauses of this contract.

26. Certificates & Payments

(a) No payments shall be made for a work estimated to cost Rupees ten thousand or less till the whole of the work shall have been completed and certificate of completion given. But in the case of a work estimated to cost more than Rupees ten thousand, the contractor shall, on submitting the bill entitled to receive a monthly payment proportionate to the part of the work executed and to the satisfaction of the Engineer, whose certificate of the" sum so payable shall

be final and conclusive against the contractor, provided the amount of work done is as per the value of intermediate certificate or for a lesser amount at the discretion of the Engineer as mentioned in the NIT. All such intermediate payments shall be regarded as payments by way of advance against the/ final payment only and not as payments for work actually done and completed and shall not preclude the requiring of bad, unsound, imperfect or unskilled work to be removed and taken away and reconstructed, or recreated or be considered as an admission of the due performance of the contract, or any part thereof in any respect or the accruing of any claim nor shall it conclude, determine, or affect in any way the powers of the Employer under these conditions or any of them as to the final settlement and adjustment of the accounts or in any other way affect the contract. The final bill shall be submitted by the contractor within two months of the date fixed for the completion of work or of the date of the certificate of completion furnished by the Employer and payments shall be made within three months if the value of the completed works is upto Rupees Two lakhs and in six months if the same exceeds Rupees Two lakhs of the submission of such bill. If there shall be any dispute about any item or items of the work then the undisputed item or items only shall be paid within the said period of three months or six months as the case may be.

(b) Whenever there is likely to be delay in recording detailed measurements for making a running payment, advance payment without detailed measurements for work done worked out at 75 percent of the tendered rates for assessed quantities may be made in running account bills by the Employer on the basis of a certificate from the Engineer. The advance payments so allowed shall be adjusted in the subsequent running bills by taking detailed measurements thereof. Final payments shall be made only on the basis of detailed measurements.

(c) A bill shall be submitted by the contractor each month on or before the date fixed by the Engineer on printed forms obtainable from the Engineer's office. The Engineer shall take or cause to be taken the requisite measurements for the purpose of having the same verified and the claim, as far as admissible, adjusted as far as possible, before the expiry of ten days from the presentation of the bills. If the contractor does not submit the bill within the time fixed as aforesaid the Engineer may take action within seven days of the date fixed as aforesaid, an authorised representative to measure up the said work in the presence of the contractor whose signature to the measurement will be sufficient warrant and the Engineer may prepare the bill from such measurements.

(d) Before taking any measurement of any work the Engineer or his authorised representative deputed by him shall give reasonable notice to the contractors. If the contractor fails to attend after such notice or fails to sign or to record the difference within a week from the date of measurement in the manner required by the Engineer then in any such event the measurements taken by the Engineer or by the authorised representative deputed by him as the case may be, shall be final binding on the contractor and the contractor shall have no right to dispute the same.

(e) The charges in the bills shall always be entered at the rates specified in the agreement or in the case of any extra work ordered in pursuance of these conditions and not mentioned or provided for in the agreement at the determined as per-clause-10. However in case of partially executed items of work, the Employer at his discretion allows proportionate rates for such items of work as determined by the Engineer whose certificate of the sum so payable shall be final and conclusive against the contractor.

27. Security Deposit

(a) A sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum along with the sum already deposited as earnest money, will amount to security deposit of the 5% tender value of the work. In addition, the contractor shall be required to deposit an amount equal to 5% of the tendered value of the contract as Performance Security within the period prescribed for commencement of work in the letter of award issued to him.

(b) In case a fixed deposit receipt of any scheduled bank is furnished by the contractor to the Employer as part of the Security deposit and the bank goes Into liquidation or for any reason is unable to make payment against the said fixed deposit receipt,. the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Employer to make good the deficit of such sum from the running bill as mentioned above. Such deductions will be held by the Employer by way of security deposit, provided always that the Employer for this purpose shall be entitled to recover the said percentage of the amount from each running bill till the balance of the amount of security deposits is realised. All compensation or the other sums of money payable by the contractor under the terms of this contract may be deducted from the security deposit or from the interest arising there from or from any sums which may be due to or may become due to the contractor by the Employer on any account whatsoever and in the event of his security deposit being reduced reason of any account whatsoever and in the event of his security deposit being reduced reason of any such deductions aforesaid, the contractor shall within ten days make good in cash or further fixed deposit receipt pledged in favour of the Employer. The security deposit shall be collected from the running bills of the contractor at the rates mentioned above and the earnest money if deposited-at the time of tenders will be treated as part of the security deposit.

(c) The contractor if he so desires may furnish fixed deposit receipt in advance towards the security deposit. Such fixed deposit receipt shall be of a minimum value of *Rs.25,OOO/-* each. (The last such fixed deposit receipt could be of a lower value on the basis of the amount) In case any recovery is effected from running account bills, such recovered amount shall not be replaced with fixed deposit receipt. It is in the contractor's interest to keep a ward about the adequacy of the fixed deposit receipt submitted.

(d)No partial refund of security deposit shall be made during the defect liability period. In case the final bill is not settled within stipulated period for reasons beyond control and the Employer is satisfied that the security deposit is not required for adjustment of Employer dues or whatsoever dues either in this or any other contract then this security deposit either in full or in part could be refunded at the sole discretion of the Employer. However, release of security deposit would be only after written clearance of Labour Officer regarding no dues or claims is received.

(e) In case of termination of contract, this security deposit shall be forfeited and amount necessary to makeup this amount shall be recovered from money due to the contractor under this contract, or any Contract with the Employer.

27. Completion Certificate

Within ten days of the completion of the work, the contractor shall give notice of such completion to the Employer and within ten days of the receipt of such notice the-Engineer shall inspect the work. It there is no defect in the work the Employer shall furnish the contractor with certificate of completion otherwise a certificate of completion indicating defects shall be issued but the work shall not, considered to be completed until the contractor shall have removed from the premises on which the work shall be executed an the scaffolding, surplus material, rubbish, and all the huts and sanitary arrangements required for his work, people on the site in connection with execution of the works as shall have been erected or constructed by the contractor and cleaned of the dirt, splashes, droppings of finishing items from all wood work, doors, windows, walls, floors or other parts of any building, in upon or about which the work is to be executed or of which he may have had possession for the purpose of the execution thereof. If the contractor shall fail to comply with requirements of this clause on or before the fixed for the completion of the work, the Employer may at the risk and cost of the contractor take action as he may think fit and the contractor shall have no claim except for any sum actually realised by the sale thereof.

28. Escalation

(aIf the prices of materials not being supplied by the Employer and/ or wages of labour required for execution of the works 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 Clauses-22 of General Conditions of Contract 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 and also 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% of the cost of the work as per the bills, running or final, and from this amount the value or 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 bought 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 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 X A/100 X (MI-MI_0)/MI_0.
VM	=	Variation in material cost Le. increase or decrease in the amount in rupees to be paid or recovered
W	=	Cost of work done worked out as indicated in sub para (ii) above.
A	=	Component of materials expressed as percent 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 Reserve Bank of India for the period under reckoning
Ml_0	=	Index numbers of Wholesale prices in India for all commodities published by the Reserve Bank of India and valid on the stipulated date of receipt of tenders
VL	=	W X B/100 X (LI-LI_0)/LI_0
VL	=	Variation in labour cost, that is, increase or decrease in the amount in rupees to be paid of recovered
W	=	Value of work done, worked out as indicated in sub para (ii) above.
B	=	Component of labour expressed as percent of the total value of work and is predetermined as 25
L1	=	All India consumer price index numbers for workers published by the Reserve Bank of India for the period under reckoning as for the period under consideration
$L1_0$	=	All India consumer price index numbers for industrial workers published by the Reserve Bank of India and valid on the stipulated date of receipt of tenders.

(b) 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 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 tenders was accepted and thereafter at six monthly intervals. 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 upto date of completion after the 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 indices for the months falling within that period.

(iii)The base index (MI or LI) shall be the relating to the months in which the tender was stipulated to be received.

a. In the 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/or wages of labour shall be deductable from the cost of work under this contract and in this regard formula herein before stated under this clause shall mutatis 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.

b. Employer shall have the discretion to permit the IIEEMA (Indian Electrical & Electronics Manufacturers' Association) Clause for escalation in case of specialised works e.g lifts and electrical and mechanical installations etc. where the price variation is not similar to building works.

30. Arbitration

(a) Except where otherwise provided in the contract, all questions and dispute relating to the interpretation of the specification, designs, drawings and instructions, herein before mentioned, and as to the quality or workmanship or materials used in 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 Director General, Council of Scientific and Industrial Research. The arbitrator shall be appointed within 30 days from the receipt of a request by any party. The arbitrator to whom the matter is originally referred, being unwilling or unable to act for any reason, the Director General 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 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.

(b) 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.

(c) 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 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.

(d) 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 inforce shall apply to the arbitration reference under this clause.

31. Dismantled Material:

The contractor shall treat all material obtained during dismantling of a structure, services sub systems/ installations, excavation of the site for a work etc., as employer's property and such material shall be disposed of to the best advantage of the Employer according to the instructions issued in writing by the Engineer.

32. Performance Guarantee

Performance Guarantee may be taken from the contractor before the award of work, by the officer authorized to award the contract, if and where considered necessary, to ensure that a part or whole of the contract is completed by the contractor. In case of non-performance this guarantee could be encashed.

SPECIAL CONDITIONS – I

1. These special condition are meant to amplify the general specifications and general conditions of contract.

2. Work shall be done as per CPWD specification.

In case of any discrepancy the order of precedence in interpretation shall be as under.

(i) Schedule of quantities
(ii) Drawings
(iii) Additional conditions
(iv) General conditions of contract
(v) Special condition
(vi) Additional Technical Specifications
(vii) CPWD latest Civil and Electrical Specification
(viii) IS Codes
(ix) International Codes
(x) Best Engineering Practice.

3. Steel

(i) Steel to be issued as stated elsewhere in the contract shall be for reinforcement bars for RCC work. For all other items of steel work the contractor shall procure the same.

(ii) Reinforcement bars for RCC work will be issued in available coils and straight lengths. No claim for straightening the bars whatsoever shall be entertained.

(iii) Issue of steel of diameters above 10 mm dia will be regulated on sectional weight basis, weight being calculated with the help of the standard sectional weights as given in the CPWD latest specifications for conversion of length to weight. However, for bars upto and including 10 mm dia the following procedure shall be adopted. The average sectional weight for each diameter shall be arrived at from samples from each lot of steel received at site. The actual weight of steel issued $hall be modified to take into account the variations between the actual and the standard coefficient and the contractor's account will be debited by the cost of this modified quantity only.

(iv) For theoretical consumption of steel, reinforcement bars will be balanced diameter wise for the purpose of penal recovery as envisaged in the contract.

4. <u>Cement</u>
Cement to be issued as stated elsewhere in the contract shall be only for site work. For factory made products such as Pre-cast tiles, Hollow concrete blocks, RCC pipes etc. cement shall not be issued.

5. Unless otherwise provided in the schedule of quantities the rates tendered by the contractor shall apply for all heights, lifts, leads and depths of the work and nothing extra shall be payable on this account.

6. The surplus excavated earth which is beyond the requirement of the Employer's work may be allowed by the Employer to be disposed off by the contractor on his own or sell the surplus excavated earth to private parties at his discretion but nothing extra will be paid for the carriage or disposal of surplus earth if the same is not required for any other work of the Employer

V.ADDITIONAL CONDITIONS

1. The structural and architectural drawings, shall at all time be properly correlated before executing any work. However, is case of any discrepancy in the item given in the schedule of quantities appended with the tender and drawings relating to the relevant item the former shall prevail unless and otherwise given in writing by the Engineer.

2. No payment shall be made to the contractor for any damage caused by rain snowfall, floods or any other natural cause whatsoever during the execution of work. The damage to work will be made good by the contractor at his own cost and no claim on this account shall be entertained.

3. All materials used shall be as per specifications and 151 marked wherever applicable. 151 marking referred relates to latest

BIS code as published by Bureau of Indian Standards upto 30 days before the date of opening the tender.

4. The contractor shall give a performance test of the entire installation(s) as per standard specifications and/ or as directed by the Engineer and will also submit. Test certificates as are required by Municipal. Electrical authority or anyother authority. Nothing extra shall be payable for the same other than the fees paid to such authorities which shall be reimbursed on production of receipts.

INDENTURE FOR SECURED ADVANCE

This indenture made the _____day of_____20_____between _____ (hereinafter called the contractor which expression shall where the context so admits or implies be deemed to include his heirs, executors, administrators and permitted assignees) of the one part and Council of Scientific & Industrial Research, New Delhi, a Society registered under the Societies Registration Act 1860 (hereinafter called the Employer which expression shall include its successors and assignees and authorised officer of the Society) of the other part.

WHEREAS by an agreement dated_____ (hereinafter called the said agreement) the contractor has agreed AN D WH EREAS the contractor has applied to the Employer that he may be allowed advances on the security of materials absolutely belonging to him and brought by him to the site of the works the subject of the said agreement for use in the construction of such of the works as he has undertaken to execute at rates fixed for the finished work (inclusive of the cost of materials and labour and other charges) AND WHEREAS the Employer has agreed to advance to the contractor the sum of Rs._____(Rupees_____) on the security of materials the quantities and other particulars of which are detailed in accounts of secured advances attached to the running account Bill for the said works signed by the contract on _____and the Employer has reserved to himself the options of making any further advance or advances on the security of other materials brought by the contractor to the site of the said works. Now THIS INDENTURE WlTNESSESS that in pursuance of the said agreement and in consideration of the sum of Rs. _____on or before the execution of these presents paid to the contractor by the Employer (the receipt whereof the contractor both hereby acknowledge) and of such further advances (if any) as may be made to him as aforesaid the contractor both hereby convince and agree with the Employer and declare as follows:

1. That the said sum of Rs._____ ___advanced by the Employer to the contractor as aforesaid and all or any further sum or sums advanced as aforesaid shall be employed by the contractor in or towards expediting the execution of the said works and for no other purpose whatsoever.

2. That the materials detailed in the said account of secured advance which have been offered to and accepted by the Employer as security are absolutely the contractor's own property and free from encumbrance of any kind and the contractor will not make any application for or receive a further advance on the security of materials which are not absolutely his own property and free from encumbrances of any kind and the contractor indemnifies the Employer against all claims to any materials in respect of which an advance has been made to him as aforesaid.

3. That the materials detailed in the said account of secured advances and all other materials on the security of which any further advance or advances may hereafter be made as aforesaid (hereinafter called the said materials) shall be used by the contractor solely in the execution of the said works in accordance with the directions of the Engineer and in the term of the said agreement.

4. That the contractor shall make at his own cost all necessary and adequate arrangements for the proper watch. safe custody and protections against all risks of the said materials and that until used in construction as aforesaid the said materials-shall remain at the site of the said works in the contractor's custody and on his own responsibility and shall at all times be open to inspection by the Employer or any officer authorised by him. In the event of the said materials or any part thereof being stolen destroyed or damaged or becoming deteriorated in a greater degree than is due to reasonable use and wear thereof the contractor will forthwith replace the same with other materials of like quality or repair and make good the same as required by the Engineer.

5. That the said materials shall not on any account be removed from the site of the said works except with the written permission of the Employer or any officer authorised by him on that behalf.

6. That the advances shall be repayable in full when or before the contractor receives payments from the Employer of the price payable to him for the said works under the terms and provisions of the said agreement. However if any intermediate payments are made to the contractor on account of work done then on the occasion of each such payment the Employer will be at liberty to make a recovery from the contractor's bill for such payment by deducting there from the value of the said materials then actually used in the construction and in respect of which recovery has not been made previously the value for this purpose being determined in respect of each description of materials at the rates at which the amount of the advances made these presents were calculated.

7. That if the contractor shall at any time make any default in the performance or observance in any respect of any of the terms of provisions of the said agreement or of these presents the total amount of the advance or advances that may still owing to the Employer shall immediately on the happening of such default be repayable by the contractor to the Employer together with interest thereon at twelve percent per annum from the date or respective dates or such advance or advances to the date off repayment and with all costs charges, damages and expenses incurred by the Employer in or for the recovery thereof or the enforcement of this security or otherwise by reason of the default of the contractor and the contractor hereby convenants and agrees with the Employer to repay and pay the same respectively to him accordingly.

8. That the contractor hereby charges all the said materials with the repayment to the Employer of the said sum of Rs._____ and any further sum or sums advanced as aforesaid and all costs charges, damages and expenses payable under these presents PROVIDED ALWAYS AND it is hereby agreed and declared that notwithstanding anything in, the said agreement and without prejudice to the powers contained therein if and whenever the convenient for payment and repayment herein before contained shall become enforceable and the money owing shall not be paid in accordance therewith the Employer may at any time thereafter adopt all or any of the following courses as he may deem best:;-

   (a) Seize and utilize the said materials or any part thereof in the completion of the said works on behalf of the contractor in accordance with the provisions in that behalf contained in the said agreement debiting the contractor with the actual cost of effecting such completion and amount due in respect of advances under these presents and crediting the contactor with the value of work done as if he had carried out in accordance with the said agreement and at the rates thereby provided. If the balance is against the contractor he is to pay same to the Employer on demand.

   (b) Removed and sell by public action the seized material or any part thereof and out of the money arising .from the sale retain all the sums aforesaid repayable or payable to the Employer under these presents and pay over the surplus (if any) to the contractor.

   (c) Deduct all or any part of the money owing out of the security deposit or any sum due to the contractor under the said agreement.

9. That except in the event of such default on the part of the contractor as aforesaid interest on the said advance shall not be payable.

In witness whereof the said _____ and _____ by the order and under the direction of the Employer have hereunto set their respective hands the day and year first above written.

Signed sealed and delivered

By the said contractor: _____

In the presence of

Signature : _____

Name: _____

Address: _____

Signed by _____

By the order and direction
Of the Employer: _____

In the presence of

Signature : _____

Name: _____

Address: _____

PERFORMANCE GUARANTEE

To

Council of Scientific and Industrial Research

In consideration of Council of Scientific and Industrial Research (hereinafter) called "The Council" having awarded to MIs _____ _____a Company registered under the Companies Act 1956 (hereinafter) called the Contractor, a contract for (hereinafter) called the said contract under the terms and conditions of an Agreement dated-made between the Council and the 'Contractor hereinafter called the said agreement and Council agreed to accept the Council and the Contractor as herein provided for Rs.. _____ (Rupees _____ only) from a Scheduled Bank towards due performance of the contract by the Contractor as per the terms and conditions of the contract on the condition that the Bank on demand from the Council and without demur pay to the Council the aforesaid amount.

2. We, _____ Bank Ltd., (hereinafter referred to as the 'bank' do hereby undertake to pay to the Council and amount not exceeding Rs. _____ against any loss or damage caused to or suffered or would be caused to or suffered by the Council by reasons of any breach or breaches of any of the terms. of condition of the said agreement by the said contractor.

3. We, _____ Bank Ltd., do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on a demand from the Council by stating the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Council for reasons of any breach by the said contractor(s) of any of the terms conditions contained in the said Agreement or by reason of the Contractor(s) failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

4. This guarantee shall come into force immediately and continue in force and remain valid till six months after the completion of all works under the said contract which according to the terms of the said contract, should be six months from the probable date of completion viz., the_____ _____ day of _____. If, however, the period of the completion of the works under the said contract is for any reason extended and upon such extension if the Contractor fails, before the terms of this guarantee expires, to furnish a fresh or renewed guarantee for the extended period, the Bank shall pay to Council the said sum of Rs. _____

5. This guarantee shall not be affected by any change in the constitution of the Bank or of the Contractor.

6. Notwithstanding anything hereinafter contained, the liability of the Bank under this guarantee is restricted to Rs._____ (Rupees_____ only) and the guarantee shall remain in force till _____day of 20____ unless claim or demand under this guarantee is presented to the Bank within six months from that date all the rights of Council u'1der this guarantee shall be forfeited and the Bank shall be released and discharged from all obligations hereunder.

(NAME OF THE LABORATORY), FULL ADDRESS

SPECIAL CONDITIONS – II

These special conditions are meant to amplify the general specifications and general conditions of contract.

ii. If any discrepancy is noticed between these conditions and specifications, general conditions of contract, drawing, etc., the order of precedence would be mentioned in Contract Document.

iii. **Inspection of Site:** The Contractors must visit site before giving tender and must get acquainted with the working conditions. They should include in their rates all preliminary work such as jungle clearance construction of temporary approach roads, cleaning rubbish, pumping out water where necessary to make the area fit for further work etc., to start work and also complete it. .

The contractor will be deemed to have included in their tender rates allowance for all such preliminary works.

Water Charges for Building Work Including Services:
Please refer 3 (b) of Contract Document for works.

4. Rates:
Please refer Clause (5) of Contract Document.

5. Increase In Rate on Account Of Increase In Basic Price:
Please refer Clause (5) and (28) of Contract Document.

6. Rates for doors, windows, glazing, louvers should also include cost of fixing them in RCC columns and walls.

Rates shall also include shutters being fixed side hung, bottom hung, or centrally pivoted.

7. **Work in Patches and Different Shapes, Cement Slurry Under Flooring etc**.,
Even if not specifically mentioned in the schedule of quantities, including preamble of Schedule of quantities, the contractor shall be deemed to have allowed necessary materials, labour, tools and plants etc., required for satisfactory completions of the items of work as indicated in drawings and description given in building specification which shall mean CPWD Specification for works at Delhi Vol, I and II, 1977, unless the item specifies labour only or otherwise. Rate quoted also apply for work in patches strip, small or large areas, and for different shapes. The rates for flooring shall include the cost of cement slurry at bases where required as per specification.

8. Quantities:

All the quantities given in the schedule of Quantities are provisional. The contractors shall be deemed to have given Balanced Rates for each item, irrespective of the quantity to any extent the contractor shall be paid at accepted contract rates only. Council reserves the right to increase or decrease to any extent.

9. Measurements
Under each trade head, various items are given such as RCC Slab, beams, chajjas etc., In case of dispute between the contractor and the employer or any ambiguity as to under which items a particular work is to be measured, the decision of Architect/ Engineer shall be final and binding on both the parties to the Contract.

10. Mode of Measurements Not Specified:

If for any items, mode of measurements is not specified the decision of the Architect/Engineer about the mode of measurement shall be final and binding both the parties to the control.

11. Schedule of Rates and Specifications:

"CPWD" Specifications are to be generally followed. However, the contractor shall include in his rates all such items of works which might have been specified as payable extra in CPWD schedule of rates but not specifically included in the tender schedule but are required to be executed to complete the work in accordance with the drawings additional specifications etc., The Employer is not bound to follow the practice and mode of measurements followed by other departments.

12. Work on Holidays:
Contractor shall not carry out work on any Government holidays except with the permission of the Civil Engineer-In-charge. The contract period will be inclusive of such holidays.

13. Labour Wages:

In labour wages either due to market conditions or by notification or legislation nor any claim on that account will be entertained.

14. Cement Consumption:

Please refer Clause (6) of Contract Document.

15. Other Contractors:

The contractor shall afford every facility to other contractors working in the same building or compound. In case of deal in completion of his *woil*< due to other contractor's work the contractor shall only have a right to ask for extension of time but no other claims on this or any other account shall be entertained by the Employer.

16. Extension of Time:

Contractor hereby agrees that extension of time required for by the contractor, and granted by the employer shall be treated as an extension of time without any claim of contractor for compensation or damages for any reasons whatsoever including those for which the extension is granted.

17. Drawings, Designs, etc:

Department will make all efforts to give all drawings, designs, decisions etc. time to time and the contractors shall make request, for the same. No claim whatsoever shall however be entertained for compensation of delay in supply of drawings, designs, decisions, running payment etc. from the department. Drawings shown at the time of issue of tenders and forming part of the contract shall indicate scope of work and drawings issued subsequently during the execution of work shall be deemed to be the drawings elaborating the basic scheme. If any detailed drawings show an item for execution, the contract with his claim in any, for final decision. Decision of the Engineer/ Architect, as to whether it is an extra item or not or whether it is covered by contract items and if not, what extra rate should be paid shall be final and binding on both the parties to the contract i.e. contractor and employer.

18. Running Bills:

Minimum value of work for interim certificate shall be contract amount divided by original completion period in months. At the discretion of Civil Engineer a running payment may be allowed for a lesser amount but not more than one running payment will be made in a month. All interim payments will be certified for payment by the Civil Engineer-in-charge of the work and only the final bill will be sent by him to the Engineer I Architect mentioned in the Agreement for certification. Secured Advance payment will not be treated as running bill if paid separately.

19. Security Deposit:

A sum@10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum along with the sum already deposited as earnest money, will amount to security deposit of 5% of the tendered value of work in addition, the contractor shall be required to deposit an amount equal to 5% of the tendered value of the contract as performance Security within the period prescribed for commencement of work of ward issued to him. In case of termination of contract, this Security Deposit shall be forfeited and amount necessary to make up this amount shall be recovered from money due to the contractor under this contract, or any other contract with COUNCIL OF SCIENTIFIC & INDUSTRIAL, RESEARCH.

20. Work in Subsoil Water/ Rain Water/ Water:

If during execution of work, sub-soil water is met with, or water enters the working space due to rains or any other cause the contractor shall dewater the same by using pumps or manual labour and also carry out additional work consequent thereupon, including shoring, strutting, work in liquid, slush etc., without extra payment.

21. Heights:

Contractor's rate shall include lifts upto all heights given in drawings or as required during execution. Contractors would satisfy themselves for correctness and allow for variation if necessary. Nothing extra include in their rate allowance for works at extra heights, required double of multiple staging, tall centering, scaffolding, etc., for all items including extra labour if any.

22. Steel in RCC Work:

All materials, workmanship and supervising for plain or RCC construction shall be in accordance with Indian Standard 456 latest edition.

23. Concrete Work (Plain and Reinforced):

a) Concrete members may be required to be finished with plaster or left (fair faced) as per drawing or as directed by Architect/ Engineer, The plaster shall include for facing out the surfaces required to be plastered. Shuttering required for exposed faced concrete shall be measured and paid for separately, over normal shuttering if specifically ordered.

b) Grooves up to 20mm X 20mm as per design will be made between exposed fair masonry and (fair faces) exposed RCC members without any extra charges, if required, during the execution of work. .

c) All RCC columns, beams, lintels may be required to be chamfered at the edges upto 20mm or as directed by the Architects/ Engineer for which no extra payment will be made whether such chamfering is shown in drawing or not. Before making the shuttering, the contractor shall have instructions from Architect/ Engineer whether such chamfering is to be done or not.

24. RCC Work:

Mechanical mixers and vibrators will be used for RCC work. Hand mixing and waiving use of Vibrator under unavoidable circumstance, may be allowed by the Civil Engineer in-Charge. Concrete work plain or RCC (labour, material supervision) WILL CONFIRM to IS 456 latest edition. If the item does not give RCC mix by proportion but gives grade concrete, suitable mix that will give required strength by getting preliminary cubes tested but minimum quantity of cement as mentioned must be used. Strength, quality of material workmanship and quality of work should conform to IS 456. Tests cubes will be prepared and got tested by the contractor and when directed by the Civil Engineer from approved Test House. Contractor shall be responsible to ensure that required test results are obtained. Incase the concrete is found to be giving weaker test results, the contractor shall have to dismantle and redo the work. However, Architect/ Engineer may accept the substandard work at reduced rates if he is otherwise satisfied about its functional utility and rates thus decided shall be final and binding on both the parties. All charges connected with preparation of moulds, preliminary mix, testing of moulds at the preliminary mix stage and during the course of work including testing charges will be borne by the contractor. Concrete shall also mean an item of materials for the purpose of testing. Concrete referred to in RCC shall be controlled concrete. Preliminary cubes shall be taken whenever change of material takes place like change of source etc. Preliminary mix may be designed by trial at site or approved at laboratory and the expenditure involved shall be borne by the contractor at the preliminary mix stage and during the course of work including testing charges will be borne by the contractor. Concrete shall also mean an item of materials for the purpose of testing. Concrete referred to in RCC shall be controlled concrete. Preliminary cubes shall be taken whenever change of material takes place like change of source etc. Preliminary mix may be designed by trial at site or at approved laboratory and the expenditure involved shall be borne by the contractor.

25. Drip Groove:

The contractor shall provide drip groove at all ends of slabs/ lintels/ beams if required, to protect rain water from entering inside the boundary of the structure, within quoted rates of RCC work.

26. Projection:

Slab projection beyond the face of wall/ column shall be measured under item RCC work in slabs and not under items RCC work in chajjas.

27. Concealed RCC Beams/ Lintels:

If in RCC SLAB, extra bars or steel cages is provided to act as a lintel or a beam over an opening the same will be measured as slab and not as beam/ lintel. If in case of RCC Wall, extra bars or steel cage is provided to as a lintel or beam over an opening the same will be measured as wall and not as Lintel/ beam. RCC Column integrated in shear wall shall be measured as wall if the same thickness and as RCC column if its thickness is more than that of shear wall.

28. Cantilever Beams, Slabs, Lintels etc.:

Nothing extra will be paid for work in cantilevers and quoted rates shall include work in and connected with cantilevers also, including extra cost for keeping centering and shuttering for a longer period.

29. Grade Concrete:

a) Minimum quantity of cement to be used in different grades of concrete for nominal mix shall be as given below:

M-100	…..	200 Kg	per cubic meter	} Seven days & 28 days cube test strength shall be given as per ISI for grade concrete even if mix is given by proportion.
M-150	…..	300 Kg.	____do_____	
M-200	….	375 Kg	____do_____	
M-250	…..	500 Kg.	____do_____	

1:2:4	RCC mix shall be nominal	M-150
1:1 1/2:3	____do_____	M-200
1:1:2	____do_____	M-250

Design Mix: As per IS 456 of Latest edition.

30. Measurements for RCC:

The rates for RCC items are inclusive of rendering and plastering with cement mortar 1:3, not more than 6mm thick. The thickness of RCC work shall be taken before rendering is done.

31. RCC in Steps, Waistes etc. :

The rates are inclusive of inclined surface finish shuttering, cantilevered steps of shapes, and size as per design or zig zag shaped steps.

32. Precast or Cast Insitu RCC Shelves:

Rate for shelves shall include cost of cutting chases in brick or stone work and fixing them and making good. No deduction for bearing of slab in brick or stone work is made. RCC in shelves shall be paid including RCC in bearings.

33. M.S. Reinforcement:

Rate quoted for placing in position and fabrication of mild steel or ribbed Tor steel reinforcement should include for straightening and cleaning including removing the rust of the bars at work site, cutting, cranking, hooking, hoisting at required levels, cost of providing and binding wire of 18 to 20 G. etc. complete and no separate payment will be made on this accounts.

34. Brick Work:

Rate shall include for tapering of bricks over column footing of in an over walls, steps, etc., and for exposed brick work, or any other work. Rate for brick work also includes work in pillars and small horizontal courses.

35. Brick Works: Heights/Depths

The height or width of foundation steps and superstructures will be measured as per actual. The contractors shall use suitable bricks and adjust the thickness and mortar joints to make up the widths or heights as per drawings with due regard to size of bricks available.

36. Scaffolding, Centering and Shuttering:

Contractors shall use external scaffolding to ensure true line in vertical and horizontal Planes, Centering, Shuttering, Scaffolding requiring for execution of this work may vary form single floor height to multifloor heights, which may require multiple staging scaffolding, Centering and Shuttering. Since the payments will be made to the contractor at net quoted rates irrespective of the heights involved the contractors must see and study the drawings carefully before tendering their rates.

37. Exposed Brick Work:

All brick work which will be exposed shall be done in one plane surface on exposed face and all horizontal joints shall be kept truly horizontal in one line and all vertical joints shall be truly vertical. Rates of brick work shall be inclusive of exposed brick work, and nothing extra will be paid on this account.

38. Frames Shutters:
Allowance for curved or tapered or any shape for shutters and frame.

39. Measurements of Shutters of Doors:

Actual area of wooden shutters provided shall be measured. For rolling shutters, only size of opening covered shall be measured.

40 Flush Doors:

Rates shall include forming rebates for double leaf shutters to be provided suitably for double leaf opening.

41. Steel Window Painting:

For payment of painting to steel window on both the sides, the actual area of steel windows as painted shall be multiplied as per IS 1200 and taken as area of painting for payment if not covered by schedule item for steel windows. For wooden doors and windows coefficients given in general specification shall be followed.

42. Paintings:

Where wire gauge shutters are provided in addition to normal shutters for painting to wire gauge shutters, area of wire gauge shutters multiplied by co-efficient shall be paid for. Fixed glazing will be treated as full glazed doors for painting.

43. Glazing:

If glass of required thickness is not available in the market the contractor shall have to use next higher thickness available without any extra payment. Thickness of glass be used is 3mm for area upto 2 sq. ft. and for areas between 2 sq. ft. and 10 sq. ft. the thickness of glass shall be 4mm. If the area of panel is 10 sq. ft. or more the thickness of glass should be 5.5 mm and the cost should include for providing and fixing the glass as per above details with mastic patty etc. Fixed glazing shall be measured clear between the rebate of frame.

44. Pelmets:

Measurements shall be taken on front face only the sides shall not be measured.

45. Flooring:

Rate for flooring includes work in staircase steps, forming nosing including front and sides if required and work in panels. For flooring in steps only top surface would be measured and not sides and front though quoted rate shall include finishing sides and front as floor.

46. Terrazzo Flooring:

Terrazzo work in tiles- or in situ flooring and dado skirting should be of approved make and will have the desired shade, colour and size of marble chips (white, black, green, brown & chocolate etc.) in specified proportion. The rate quoted should include for flooring in curves etc.

47. Staircases:

Flooring over steps and in nosing shall be paid under the item of flooring and the contractors rates shall include for extra shuttering for nosing of required shape with or without thread line terrazzo/ plain concrete finish as on steps for exposed of and nosing etc., Finishing on risers of steps shall be paid under the items of skirting/ dado and nothing extra will be paid for work in steps or risers.

48. Plastering and Skirting:

Minimum 1/2" plaster from wall face should be done, skirting should project 1/4" from wall plaster and the quoted rate should include for this irrespective of actual thickness of plaster, dado or skirting. The rate quoted for plastering or skirting should include for the work in circular shape or curved walls etc. and for giving thread line in plaster at junction of RCC and brick work if necessary. The rates should also include for additional thickness required on stone works. No additional payment shall be made for increase in thickness of plaster on uneven surface.

49. Measurements for Flooring Skirting and Dado Plaster and Finishing Items like Snowcem Distemper etc.: Measurements for all these items shall be taken clear between the walls/ columns. Actual area of skirting, dados and finishing items/ like snowcem, distemper, plastic emulsion, white/ colour wash shall be measured and paid for as per IS 1200. Area of opening, doors and windows shall be deducted on both faces and jambs, sills/ soffits shall be measured as per actuals.

50. Mortice Lock:

These shall be with heavy gauge iron body 2 1/2" in width, with brass levers 4 not. C.P. Iron keys in duplicate with C.P. Iron handles 2 Nos. per lock, cover and looking place of C.P. iron complete.

51. Mortice Latch:

These shall be with heavy gauge iron body 21/2" in width C.P. iron handles 2 Nos. per latch, brass safety latch, cover and locking plants of C.P. iron complete. Mortice lock and mortice latch shall be paid for separately.

52. Beading:

Wooden beading for fixing glass panels and over wooden or board panels of panelled shutters will be deemed to be included in the rate of fixing glazing or glazed panelled shutters. Wooden beading around door and window frames will be paid for separately.

53. Screws:

All screws to be steel screws, chromium plated for aluminum and C.P. fitting ano oxidized steel for iron fittings

54. Dimensions:

If fittings, of given dimensions are not manufactured, higher manufactured size shall be used at same cost.

55. Works Programme:

The contractor shall give a phased programme for execution of his work, after award of work and also give his requirement for cement and steel in a phased programme.

56. Works Supervisor:

Contractor shall keep a qualified and experienced Engineer for supervision of building work to ensure best quality work.

57. Essentiality Certificates/ Permits/ recommendation Letter for Material Available at Controlled Rates:

These would be given by the department, if required by the contractor. It will,

however, be the responsibility of the contractor to obtain material against the certificates or otherwise, and no claim on this account will be entertained by the department. Contractor shall use materials thus procured exclusively in this work and for misuse if any, he shall be solely responsible.

58. Making Holes in RCC Slabs:

For forming holes up to one sq ft size in RCC slab, no deductions in concrete or shuttering shall be made at the same time nothing extra will be paid for forming such opening including any extra cost of material or labour.

59. Architect/ Engineer:

The words "Architect/ Engineer", wherever appear in the agreement shall be read as "CSIR ARCHITECT".

60 Payment by measurements specified in these conditions as applicable to only those items of schedule of quantities, where quantities are given in Cum/ Sqm/etc. where amount is called for, and given in lump-sum, it shall be deemed to include the works specified against such items.

61. Cement and Steel:

Steel and Cement shall be supplied to contractor as stated in appendix sheet. If for any reason cement and steel is not available, the contractor shall procure the same and complete the work in time after due intimation of the same the Civil Engineer-in-Charge. The quantities brought by the contractor would be replenished to the contractor at issue rates given in appendix when received during or after completion of work but before payment of final bill.

If steel of required diameters is not available but contractor could get substituted diameters by exchanging available diameters, in the interest of work, such an exchange would be authorised with the permission of the Civil Engineer but without any extra cost of department.

Contractors's rates shall be deemed to have been based on issue rates of cement and steel given in the appendix sheet of tender, any they shall have to use materials issued departmentally as per Appendix.

(a) Forming Slits in Facias and Parapet Walls:

Slits shall be formed in RCC or brick work as per design for which nothing extra would be paid either for foming them or for extra labour in plastering it.

62. Regarding Weight of Materials Supplied Departmentally:

When cement is issued in bags, variation in its weight shall be deemed to have been allowed for loss in handling as per clause 6c/ Gen. condo. Each bag shall be deemed to weigh 50 Kg. If bags are tom, underweight or partially set or damaged, the contractor must point out the same in writing while taking delivery, to the issuing authority.

For reinforcement steel (Mild or Tor) round, the weight for issue purpose shall be the actual weight, i.e. P.R.I weight if supplied by wagons direct or the truck weigh bridge weight recorded at producer's works or suppliers stockyard if delivery is by road.

If steel is issued from CSIR lab. Stores the contractor should arrange for necessary labour for weighment and shifting, loading etc. If the store has no arrangement for weighing the contractor will have to take steel to any approved weigh bridge. For this purpose, the truck will be either arranged by concerned laboratory or alternatively, the contractor may be required to arrange truck for which only transportation charges on actual tripe performed will be paid to him. Steel may alternatively be issue by length multiplied by standard co-efficients, for which labour will be arranged by the contractor.

Since payment for steel would be made on basis of standard co-efficients on length, the contractors should ensure that each dia. of rods issued conforms to standard co-efficients, and incase it is not, he should at once report to the Architect/ Engineer and get standard co-efficient established for specific diameter and specific quantity. Weight of steel shall be measured correct to three decimal places.

Standard co-efficient will be established in presence of (a) contractors representative (b) stores officer or his representative (c) Civil Engineer-in-charge of work. (d) a representative of Administrative Officer, and information supplied to contractors and Architect/ Engineer.

If steel is issued departmentally as stated in Appendix sheet, it shall be meant mild steel rounds and tor steel for holdfast, squares, flats, etc. are to be procured by the contractor.

63. Return of Steel:

While receiving the surplus structural steel back from the contractor after the end of the project the department shall not accept cut pieces less than three meters of length. The contractor should take care while cutting rod that the wastage is minimum i.e. he should cut of required length in such a way that maximum steel is used out of quantity supplied or as directed at site by Engineer. Variation over 5% will be allowed by the Architect/Engineer, if he is satisfied about abnormal wastage.

64. Nomenclature of Item:

Nomenclatures of the items of work mentioned in the priced schedule is only a brief description of work. The work shall have to be executed in accordance with the relevant specifications which shall mean CPWD specifications.

To the satisfaction of Architect/ Engineer in charge of the work. Any omission in description will not absolve the contractor from his responsibilities to complete the work in a satisfactory manner.

65. Where RCC surface are to be plastered to bring them in line with the brick and or stone wall plaster, of the same mix, payment for such plaster will be made under the item of plastering only irrespective of the fact whether there is any increase due to odd or even surface of brick or stone work below and/or adjoining it.

66. Wood Work:

Sizes mentioned in schedule of quantity or in drawings are the finished sizes. Contractor shall allow necessary increase in sizes for planning required. In case the sizes of wooden member fixed are less than the one shown in the drawing of schedule of quantity allowing for tolerance, payment will be made for actual size used at site. The rate quoted also will include the allowance for curved or tapered or any other shape of the wooden member unless a separate item is provide for it.

67. Random Rubble Masonry:

The rates shall include cost of hammer dressing square edges of walls, jambs, sills etc.

68. Metric Units:

The bill of quantity indicates the unit of Metric System: The mode of measurement of different items of work shall be as per details contained in specification and special conditions, with the equivalent of the units mentioned in Metric system.

69. The Recovery from Running Account Bills:

Recovery for the materials issued departmentally shall be made in full or on the basis of the quantity used in the work as assessed by the Engineer-in-Charge giving a due allowance for wastage. The contractor shall submit once in a month a statement showing the materials received consumed and the balance carried over to subsequent month so that watch could be maintained on the materials for which payment of advance could be considered by the DepC3J!ment.

70. The Fittings:

To be used in the work shall be presented for approval well in advance. Approved fittings shall be kept in the Office of Civil Engineer in a mounted lockable board.

71. The work may be measured in British Units and finally coverted in abstract to Metric Units, Alternatively it could be measured in metric units if found convenient at site as per drawings issued.

72 Schedule of fittings generally to be provided to doors, windows and ventilator is given below:

(a)	Butt hinges	100 X 30 X 1.5mm	3Nos.
(b)	Rubber Block	2"/Wooden cleat with 2 hinges	1No
(c)	Tower Bolts (Barrel type)	29mm X 10 mm (shoot dia)	2Nos.
(d)	Tower Bolts (Barrel Type)	150 mm X 10 mm (shoot dia)	1No.

(a) Doors Fittings per Leaf:

(a)	Butt hinges - 10 X 30 X 1.5 mm	3 Nos.
(b)	Sand Block of size 15cm X 5cm X 8cm duly painted	1 No.
(c)	Wooden cleat with hinges 50 X 16 X 1.5 mm of approved quality with paintings etc. complete	1 No.
(d)	Grip handle 10mm (In case of double leaves, 3 grips handles shall be. provided instead of four numbers)	2 Nos.
(e)	Tower bolts (barrel type) 250X 10 mm (shoot dia)	1 No.
(f)	Tower bolt (barrel type) 150 X 10 mm (shoot dia)	1 No.
. (g)	Sliding door bolt 300mm X 16mm	1 No.

(b) Windows Fittings per Leaf:

	Butt hinges 80X25X1.50mm (3 Nos. if height is more than 4'0")	1 No.
(b)	MS Hooks and eyes 150 mm	1 No.
(c)	Barrel type tower bolt - 100 X 100 mm (shoot dia)	1 No.
(d)	Barrel Type tower bolts- 200 X 10 mm (shoot dia)	1 No.
(e)	Grip Handle 100 mm	1 No.
(f)	Sand block of size 15cm X5cm X8cm painted etc., complete	1 No.

(The size of tower bolts shall be 250 X 10 cm, instead of (c) and (d) specified above for windows placed at skirting level) The rate quoted shall include for providing and fixing with 3 cm (minimum) long Iron Screws. The sliding bolts shall be fixed with bolts and nuts. In lieu of sand block 2 Nos. rubber buffers 2" dia. may be required to be provided.

(c) Folding doors per Leaf:

(a)	Butt hinges 100 X30 X1.50 (heavy type)	3 Nos.
(b)	Barrel Type, tower bolt 250 X 10 mm (shoot dia)	1 No.
(c)	Barrel type tower bolt - 200 X 10 mm (shoot dia)	1 No.
(d)	125 mm Grip plate handle with screw, in addition to this two Rubber buffers fixed on walls and one Grip 125 mm plate handle on locking leaf shall also be provided.	1 No.

(d) Fittings for Ventilators

(a) Central Hung	i. Fin - Light pivots (sets)	2 Nos.
	ii. Fanlight catches	1 No.
(b) Bottom Hung	i. Fanlight catches	1 No.
	ii. Chain with hook	1 No.
	iii. Butt hinges 80 X 25 X 1.50 mm	2 Nos.
(c) Top Hung	i. Fanlight catches	1 No.
	ii. Eyes and hooks 25 mm long S.W.G.	2 Nos.
	iii. Butt hinges 80 X 25 X 1.50 mm	2 Nos.

73. Appendix, Notice inviting Tender, Abstract of cost and additional special conditions to water supply & sanitary installation and Electrical, shall form part of special conditions.

Preparation of Running and Final Bills:

The Civil Engineer/Superintending/Junior Engineer shall take measurements in presence of contractors representative and record them in Measurement Book from time to time and shall prepare abstract for running and final bill including recovery statements. The bill abstract shall be prepared on either standard CPWD form or on contractors letter head, on basis of Civil Engineer's abstract in triplicate. The contractor should sign the bill and Measurement Book with remark "Measurement and bill accepted". However in the final bill, the contractor shall have to certify, the bill accepted in full and final settlement of all claims and demands against this work".

In case, a large amount is blocked in the final bill, pending technical/ audit check, advance up to the extent of 75% of net final amount may be paid to the contractor. With the approval of the Architect/ Engineer at his discretion even after the completion date is over.

74. **Bitumen/ tar felting:**

The items of Bitumen / Tar felting should be executed through approved specialist firms, agencies and a guarantee of 10 years should be given in the name of Director of Laboratory !Institute where the work is to be executed from a Specialist firm doing work. His security deposits shall be released after a guarantee bond is received and after defect liability period as given in the appendix.

75. The contractor, at his own cost shall arrange for carryout all mandatory tests on materials to be used in the construction, listed in Annexure, and such other test which Architect may require him to carry out.

CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS

(Council of Scientific and Industrial Research)
Post Office-CIMAP, Lucknow-226015

GENERAL SPECIFICATION FOR ELECTRICAL WORKS

INTERNAL ELECTRIFICATION

1. I.E.E. WIRING REGULATIONS:

The installation shall generally be carried out in conformity to the latest Indian Electricity Rules, the supplementary Regulations of state Electricity department and Electricity undertakings concerned and the practice recommended by the Institution of Electrical Engineers, England herein referred as I.E.E. wiring regulations out wire this specification or the special specification attached to the tender differ from those regulations, this specification and special specification shall be followed. In addition all installations shall comply in all respects with the requirement of Indian Electricity Rules, 1956 for the time being in force.

2. DEFINITIONS AND COVICTIONAL SYMBOLS:

The definition of term in I.E.E. wiring regulation (extract reprinted in Annexure B) shall apply except the definition of a 'point'. The attached list of conventional signs and symbols shall be used in all drawings, wiring plans etc. (Annexure E).

Point wiring shall include all work necessary in complete wiring of a tumbler switch circuit of any length from the taping point on the distribution circuit to the following via and switch.

(a) Ceiling rose (in the case of ceiling & exhaust fan points)
(b) Ceiling rose or connector (in the case of pendent points except stiff pendent points).
(c) Back plate (in case of stiff pendent)
(d) Socket outlet (in case of socket outlet points)
(e) Lamp holder (in the case of wall bracket, batton points, bulk head fittings & similar other fittings).
(f) Call bell / buzzer (in the case of the words via 'the switch' shall be read as 'via the ceiling rose / socket outlet or bell push where not ceiling rose (socket outlet is provided')

NOTE: The wiring for call bell shall be terminated in a ceiling rose/ socket outlet except where the push is provided on the walls.

When there is only one point on the distribution circuit (one way) the same shall be measured in two parts, one as circuit wiring as per the definition for "CIRCUIT WIRING" and the other as point wiring as per the above definition for "POINT".

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

(a) Switch and ceiling rose as required.

(b) In the case of wall brackets, bulk head fittings and similar fittings. Cable as required upto the lamp holder.

(c) Bushed conduit or porcelain tubing where cables pass through walls etc.

(d) Earth wire from three pin socket point to the common earth including connections to the earth clamp, rose/socket outlet or bell push shall be measured along the run of the wiring, classified as above and treated as one point so derived.

When more than one call bell/buzzer point are controlled by the same ceiling rose/socket outlet or bell push, the length of the point shall be measured as given in Note *.

2-A. सर्क्यूट वायरिंग :

CIRCUIT WIRING :

Length of wiring from the distribution board upto the taping point for the first point viz. upto the first switch shall be considered as circuit wiring. Such wiring shall be classified on the basis of length.

The length in this case shall mean the length from the distribution or sub-distribution board upto the switch for the first point measured along the run of the wiring.

Except as described previously for point wiring, different types of wiring shall be measured separately and given in running meters. The length shall be in actual length fixed and the number and size of cables fixed shall be stated.

The wiring shall be carried out on such a system as may be specified in the tender schedule or otherwise specified in the special specification. 'POWER' and 'HEATING' wiring shall be kept separate and distinct from 'LIGHTING' and 'FAN' wiring. The wiring shall be done on the distribution system which main and branch distribution boards at convenient physical and electrical centres and without isolated fuses. All conductors shall be run, as far as possible, along the walls and ceiling so as to be easily accessible and capable of being thoughly inspected. In no case, the wiring shall be run above the ceiling without the approval of the Engineer-in-charge. In all types of wiring, due consideration shall be given for neatness and good appearance.

3 B. The balancing of circuits in three wire or poly phase installations shall be arranged before-hand to the satisfaction of the Engineer-in-charge. Circuits of opposite side of a three wire system or on different phases of a poly phase system shall be kept apart at a minimum distance of a 2 m. (6 ft.) unless they are enclosed in earthed metal casing suitable marked to indicate the risk of dangerous shock due to the voltage between the conductors contained in them. In large or important rooms, light and socket outlet points shall be distributed over more than one circuit as directed by the Engineer-in-charge.

3 C. Medium pressure wiring and associated apparatus shall comply in all respect with the requirement of Rules 50 & 51 of the Indian Electricity Rules 1956 (see Appendix 24).

4. वायरिंग की स्थिति :

POSITION OF WIRING RUNS AND POINTS :

All runs of wiring and the exact position of all points and switch boxes shall be first marked on the building or on the plan of the building and approved by the Engineer-in-charge before actual commencement of work.

5. दाब और आवृत्ति की पूर्ति :

PRESSURE & FREQUENCY OF SUPPLY :

All current consuming devices shall be suitable for the pressure and frequency of the supply to which these are to be connected.

6. आरेखण :

DRAWINGS :

All wiring diagrams shall be deemed to be "Drawings" within the meaning of the terms as used in clause 11 of the conditions of contract (PWD 7 or PWD 8). The design of a switch board, or special fixture or any point of an electrical installation as may be called for by the Engineer-in-Charge shall also be supplied by the contractor and got approved by him. On completion of the work, a wiring diagram shall be prepared and submitted to the Engineer-in-charge. All wiring diagrams shall indicate clearly in plan, the main switch board, the distribution fuse board, the runs of various mains and sub mains, and the position of all points and their controls. All circuits are already indicated and numbered in the wiring diagram and all points shall be given the same number as the circuit to which they are electrically connected.

7. कंडक्टर्स :

CONDUCTORS :

All conductors shall be of aluminium. The smallest conductor for the final sub–circuit shall be 1.5 mm. The Size of conductor for power wiring shall be 4 mm. The minimum cross sectional area of conductor for flexible cord shall be 0.0006 sq. inch (14/.0076"). In the case of power circuit, the designed for the load which it is supposed to carry.

8. केबल :

CABLE :

All cables shall conform to I.S.I. specifications and each coil shall be accompanied by the I.S.I. certification mark stating the types or the class and the length of each coil.

9. लचीली केबल एवं लचीले कार्ड्स :

FLEXIBLE CABLE AND FLEXIBLE CORDS :

Unless these cables and cords are protected by armour or tough rubber or P.V.C. sheath these shall not be used in workshops where they are liable to be subjected to mechanical damage.

10. केबल अंत :

CABLE ENDS :

Conductors having a nominal area exceeding 10 mm. shall always be provided with cable socket, or all strands at the exposed end of the cable shall be soldered together.

11. दीप, पंखा कोटर निकास स्थान एवं निकासी पंखा का रेटिंग :

RATING OF LAMPS FANS SOCKET OUTLET POINTS & EXHAUST FANS :

In estimating the current to be carried by any conductor, incandescent lamp shall be rated at 60 watts, unless otherwise specified. Ceiling fans shall be rated at 100 watts, tabel fans and ordinary/sockets outlet points at 60 watts and power sockets outlet points at 1000 watts unless the actual values are known or specified. Exhaust fans, if any, shall be rated according to their capacity.

12. संधि & लूपिंग बैक :

JOINTS & LOOPING BACK :

Unless otherwise specified in the special specification the wiring shall be done in the 'Looping system'. Phase or live conductor can be looped either from the switch box or from the light, fan or socket outlet.

Where joint box system is specified in the special specification, all joints in the conductors shall be made by means of approved mechanical conductors in suitable and approved junction boxes.

In both systems of wiring, no bare or wist joints shall be made at intermediate points in the run of cables unless the length of the final sub-circuit, or submain or main is more than the length of the standard coil, as given by the manufacturer of the cable.

If any joint becomes unavoidable, such joints shall be made through proper cut-outs or through proper junction boxes open to easy inspection, but in looping back system, no such junction boxes shall be allowed.

13. पूर्ति के प्रवेश-स्थान पर नियंत्रण :

CONTROL AT POINT OF ENTRY OF SUPPLY :

There shall be linked main switch or switches and one main fuse on each live conductor of the supply mains at the points of entry. The wiring throughout the installation shall be such that there is no break in the neutral wire in the form of a switch or fuse unit. The neutral shall also be marked. In this connection Rule 32(2) of the Indian Electricity Rules 1956 (See Appendix A) shall also be referred.

The main switch gear shall be easily accessible and shall be situated as near as practicable to the termination of service line.

On the main switch gear, where the conductors include an earthed conductor of a two wire system or an earthered neutral conductor of a multiwire system or a conductor which is to be connected thereto, an indication of a permanent nature shall be provided to identify the earthed neutral conductor. In this connection Rule 32(1) of Indian Electricity Rules 1956 (see Appendix 1A) shall be referred.

14. मुख्य स्विच और स्विच बोर्ड स्विच उनका स्थान निर्धारण :

A MAIN SWITCHES AND SWITCH BOARD AND THEIR LOCATION :

All main switches shall be either of iron clad enclosed pattern or of any insulted enclosed pattern as specified in the specification of the work, which shall be fixed at close proximity to the point of entry of supply.

Open type switch boards shall be placed only in dry situation and all in well ventilated rooms and they shall not be placed in the vicinity of storage batteries and exposed to chemical fumes.

In a damp situation or where inflamable or explosive dust, vapour or gas is likely to be present, the switch boards shall be totally enclosed or made flameproof as may be necessitated by the particular circumstances.

A switch board shall not be installed so that its bottom is within 1.25 m. (4 ft.) above a floor, unless the front of the switch board is completely enclosed by a door or the switch board is located in a position to which only authorised persons have access.

"Switch boards, if unavoidably fixed in places likely to be exposed to weather, to drip or to abnormal moist atmosphere the outlet casing shall be weather proof and shall be provided with glands or bushing or adopted to receive screwed conduit according to the manner in which the cables are run.

Iron clad switch gear shall preferably be mounted on and of the following types of boards.

Hinged type metal boards (suitable for small switch boards for mounting iron clad switch gear connected to supply at low voltages).

For small switch boards for mounting iron clad switch gear, metal boards shall be used. Metal board shall consist of a box made of sheet metal not less than 3.175 mm. (1/8") thick and shall be provided with a hinged cover to enable the board to be swung open for the examination of the wiring at the back. The Joints shall be welded.

The boards shall be securely fixed to the full by means of rag bolts and shall be provided with a locking arrangement and earthing stud. All wires passing through the metal boards shall be bushed.

Alternatively metal boards may be made of suitable size angle iron or channel iron frame work suitably mounted on front with a 3.175 mm. (1/3") thick M.S. plate and on back with 1.588 mm. (1/8") M.S. sheet. In the case of wood casing or P.V.C. system of wiring the top and bottom members may be replaced by 2.54 c.m. (1")

teak wood batton. Except for the above change all other details mentioned above shall be applicable for the alternative also. Besides the front sheet shall be provided with suitable hinges.

There shall be a clear distance of 3.175 c.m. (1 1/4") between the front and back sheets in both the cases. More spare should be allowed wherever necessary.

A teak wood board of thickness not less than 6.35 m.m. (1/4") may be provided at the back, if so required in the special specification in any particular work.

14. फिक्सड टाइप बोर्ड :

B FIXED TYPE BOARDS :

(Suitable for large switch boards for mounting large number of switch gears and/or higher capacity iron clad switch-gear).

These shall consists of an angle or channel iron frame fixed on the wall or on the floor and supported on the wall at the top. There shall be a clear distance of 1 m (3 ft.) in front of the board. A working distance of 1 m. (3 ft.) behind the switch board is preferable. If there are any attachment of bare connection at the back of the switch board. Rule 51 (1) of Indian Electricity Rules 1956 (see Appendix A) shall apply.

The connections between the switch gear mounting and to the out going cable upto the wall shall be enclosed in a heavy gauge conduit pipe.

The detailed dimention and design of metal boards and angle iron frame work for switch gears, including the disposition of the various mountings, which shall be systematically and neatly arranged for arriving at over all dimension shall be prepared and submitted before hand and shall have the prior.

15. प्रतिसरण बोर्ड :

RECESSING BOARD :

Where so specified in the schedule of work or in the special specification, switch boards shall be recessed into the wall. The front shall be fitted with hinged panel of teak wood or other suitable material such as bakelite, in teak wood frame with locking arrangement, the outer surface of the doors being flush with the walls. Ample room be provided at theback for connections and at the front between gear mountings and the door.

16.(A) उपकरण की व्यवस्था :

ARRANGEMENT OF APPRATUS :

Equipment which is on the front of a switch board shall be so arranged that inadvertant personal contact with live parts is unlikely during the manipulation of switches, changing of fuses or like operations.

(b) No apparatus shall project beyond any edge of the panel. No fuse body shall be mounted within 2.5 c.m. (or 1") of any edge of the panel and no hole other than the holes by means of which the panel is fixed shall be drilled closer than 1.3 c.m. (or 1/2") from any edge of the panel.

(c) The various live parts, unless they are effectively screened by substantial barriers of non-hygroscopic, non-inflamable insulating material, shall be so spaced that an arc cannot be maintained between such parts and earth.

(d) The arrangement of the gear shall be such that they shall be readily accessible and their connections to all instruments and apparatus shall also be easily traceable.

(e) In every case in which switches and fuses are fitted on the same pole, these fuses shall be so arranged that the fuses are not alive when their respectable switches are in the "off" positoh.

(f) No fuses other than fuses in instrument circuit shall be fixed on the back of or behind a switch board panel or frame.

17.(A) उपकरण की तैयारी :

MAKING OF APPARATUS :

When a board is connected to voltage higher than 250 volts, all the terminals or leads of the apparatus mounted on it shall be marked in the following colours to indicate the different poles or phases to which the apparatus or its different terminals may have connected.

A.C.	D.C.
Theree phases-Red, Blue & Yellow 1 Neutral - Black	Three wire system 2 out-wires-Red and Blue 1 Neutral - Black

Where four wire three phase wiring is done, the neutral shall preferably be in one colour and the other three wires in another colour.

(B) Where a board has more than one switch, each such switch shall be marked to indicate which section of the installation it controls. The main switch shall be marked as such and where "is more than one main switch in the building, each " there such switch shall marked to indicate which section of the installation it controls.

All marking required under this rule shall be clear and permanent.

18.(A) मुख्य एवं शाखा वितरण बोर्ड :

MAIN AND BRANCH DISTRIBUTION BOARDS :

Unless otherwise specified in the special specification, main and distribution fuse board shall be of the iron clad type or any type mentioned above.

(b) Main distribution boards shall be provided with a switch or circuit breaker on each pole of each circuit a fuse on the phase or live conductor and a link on the neutral or earthed conductor of each circuit. Switches shall be always be linked.

(c) Branch distribution boards shall be provided with a fuse on the live conductor of each circuit and the earthed neutral conductor shall be connected to a common link and be capable of being disconnected individually for testing purposes. One spare circuit of the same capacity shall be provided on each branch distribution board. Lights and fans may be wired on a common circuit. Such sub circuits shall not have more than total of ten points of light, fan and socket outlets or a load of 800 watts, whichever is less. If a separate fan circuit is adopted the number of fans in the circuit shall be eight. As regards power sub-circuits, the outlet shall be provided according to the load design of those circuits but in no case shall there be more than two outlets on each circuits.

19.(A) संस्थापन वितरण बोर्ड :

INSTALLATION DISTRIBUTION BOARDS :

The distribution fuse board shall be located as near as possible to the centre of the load they are intended to control.

(b) These switch boards (as per clause 14) shall be fixed on suitable stand or on wall and shall be accessible for replacement of fuses.

(c) These shall be of either iron clad type or all insulated type. But, if exposed to weather or damp situations, they shall be of the weather proof type and if installed where exposed to explosive dust, vapour or gas, they shall be flame proof type.

(d) Where there are more distribution fuse boards feeding low pressure circuits are fed from a supply at medium voltage, these distribution boards shall be –

(i) Fixed not less than 2 m. (or 6 ft.) a part, or

(ii) Arranged so that two cannot be opened at a time, nearly they are interlocked and the metal case is marked 'Danger' – 400 Volts', or

(iii) Installed in ..... or enclosure accessible to only authorised persons.

(e) All distribution boards shall be marked 'lighting' or 'power' as the case may be and also marked with the pressure and number of phases of the supply. Each shall be provided with a circuit list giving details or each circuit which it controls and the current rating of the circuit and size of the fuse element.

20.(A) वितरण बोर्ड का वायीकरण :

WIRING OF DISTRIBUTION BOARDS :

In wiring a branch distribution board, the total load of the consuming device shall be divided, as far as possible evenly between the number of ways of the board, leaving the spare circuit for future extension.

(b) All connections between pieces of apparatus or between apparatus and terminals on a board shall be neatly arranged in a definite sequence, following the arrangement of the apparatus mounted thereon, avoiding unnecessary crossing.

(c) Cables shall be connected to terminal only by soldered lugs, unless the terminal is of such a form that they can be securely clamped without cutting away of cable strands.

(d) All bare conductors shall be rigidly fixed in such a manner that a clearance of at least 2.5 cm. (or 1") is maintained between conductors of opposite polarity or phase and between the conductors and any materials other than insulating material.

(e) In a hinged board, the in-coming and out-going cables shall be neatly bunched and shall be fixed in such a way that the door shall be capable of swinging through an angle of not less than 90 deg.

(f) If required in the special specification, a pilot lamp shall be fixed and connected through an independent single pole switch and fuse to the bus bars of the board.

21.(A) दीवार के जरिये जानेवाले तार :

PASSING THROUGH WALLS :

Where conductor pass through walls, any one of the following methods shall be employed. Care shall be taken to see that wires pass very freely through protective pipe or box and that wires pass through in a straight line without any twist or cross in wires, on either ends of such holes.

(a) A teak wood box extending through the whole thickness of the wall shall be burried in the wall and casings or conductors shall be carried so as to allow 1.3 cm. (or ½ in) clear space on three sides of the casing of conductor.

(b) The conductors shall be carried in an approved heavy gauge solid drawn or lap welded conductor in a porcelain tube of such a size that it permits easy drawinge, in. The ends of conduit shall be neatly bushed with porcelain, wood, or other approved materials.

(B) Where a wall tube passes outside a building so as to be exposed to weather, the outer end shall be bell mouthed and turned down-wards and properly bushed on the open end.

22. दीवार एवं छत में स्थिरीकरण :

FIXING TO WALLS AND CEILING :

Plug for ordinary walls or ceiling shall be of well seasoned teak or other approved hard wood not less than 5 cm. (or 2 in) long by 2.5 cm. (or 1 in) square on the inner end and 2 cm. (¾") square on the outer end. They shall be cemented into walls within 6 mm. (or ¼") of the surface the remainder being finished according to the nature of the surface with plaster or lime punning.

Where owing to irregular coursing or other reasons the plugging of the walls or ceiling with wood plugs present difficulties, the wood casing, wood batton, metal conduit or cleat (as the case may be) shall be attached to the wall or ceiling in an approved manner. In the case of new buildings, the teak wood plugs shall be fixed in the walls, as far as possible before first coat of white washing.

Plugging of walls or ceiling can be done in a better way where neatness is the first consideration. In all cases an approved type of asbestos or fibre fixing Plug (Rawl or phil plug) with correct size of tools shall be used and done in a workman-like manner.

Where it cannot be done, wooden plugs as described above can be used with a special permission of the Engineer-in-charge.

23. शाखा स्विच :

BRANCH SWITCHES :

Where the supply is derived from two wire or four wire source and the distribution is done on the two wire system, all branch switches shall be placed in the outer or live conductor of the circuit and no single pole switch or fuse shall be inserted in the middle wire, earth or earthed neutral conductor of the circuit. Single pole switches (other than for multiple control) carrying not more than 15 amperes may be of the tumbular type and the switch shall be 'ON' when the handle or knob is down.

24. फिटिंग एवं सहायक उपकरण :

FITTING & ACCESSORIES :

(a) A ceiling rose or any other similar attachment shall not be used on a circuit, the voltage of which normally exceeds 250 volts.

(b) Normally only one flexible cord shall be attached to a ceiling rose. Specially designed ceiling roses shall be used for multiple pendants.

(c) A ceiling rose shall not embody fuse terminal as an integral of it.

25. साकेट निर्गम एवं प्लग :

SOCKET OUTLETS & PLUGS :

(a) A socket outlet shall not embody fuse terminals as an internal part of it. But the fuse may be embodied in plug in which case plug shall be non-reversible and shall be so arranged and connected that the fuse is connected to an outer or phase conductor of the non-earthed conductor of the circuit.

(b) Every socket outlet shall be controlled by a switch.

(c) The switch controlling the socket outlet shall be on the 'Live' side of the line.

(d) Ordinary socket outlet shall normally be fixed at any convenient place 23 cm (or 9 in) above the floor level or such nearor level in a special cases and desired by the Engineer-in-charge of the works. It shall be controlled by a switch placed at the normal switch level.

Where use of shutter type or the interlocking type of socket is required for any special installation, it item should be separately and specifically listed in the schedule and specification of that particular work.

Where socket outlets are placed as a lower level, they shall be enclosed in a suitable wooden or metallic box, as the case may be, to harmonize with the system of work used.

Note: In place of the three pin plug and socket outlet, two pin reversible socket outlet with an earthing attachment may be used, if necessary.

26. फिटिंग्स :

FITTINGS :

(a) Every light fitting shall be controlled by a switch and where control at more than one point is necessary, by as many two ways and intermediate switches as there are control points. Lights, fans and socket outlets shall be located as to provide maximum comfort to the occupant and to enable him to utilise the electricity in the most economical manner.

(b) Where conductors are required to be drawn through tube or channel leading to the fitting, the tube or channel must be free from sharp angles or projecting edge and of such a size as will enable them to be wired with the conductors used for the final sub-circuit without removing the braiding or taping. As far as possible all tubes or channels should be of sufficient size to permit of looping back.

(c) Where a light fitting is supported by one or more flexible cord, the maximum weight to which the twin flexible cords can be subjected shall be as follows –

SIZE OF TWIN FLEXIBLE CORDS

Nominal cross sectional area in sq. inch.	No. & Diameter in inches of wires	Maximum Permissible weight	
		Kgm.	Lbs.
0.0008	14/0.0076"	1.4	3
0.0010	23/0.0076"	2.3	5
0.0017	40/0.0076"	4.5	10

Where a weight greater than 4.5 kgm. (or 10 lbs.) has to be supported two or three twin flexible cords shall be used so that the maximum weight to which any cord is subjected does not exceed the above values, or alternatively other means of support, namely suitable metal pipe or suitable chain shall be provided.

(d) No inflammable shade shall form a part of a light fitting unless such shade is well protected against all risks of fire. Celluloid shade or light fitting shall not be used under any circumstances

(e) Enclosed type fittings shall be provided with a removable glass receptacle, arranged to enclose the lamp completely and of such size or construction as to prevent undue heating of the lamp or if the position of fitting be such that the glass receptacle is liable to mechanical damage, the glass shall be protected by a suitable wire guard.

(c) In an earthed system of supply, a socket outlet and plug shall be of the three pin type, the third terminal shall be connected to earth.

Conductors connecting current consuming devices shall be of flexible twin cord with an earthing cord and the earthing cord shall be secured by connecting between the earth terminal of plug and the current consuming devices.

27. फिटिंग्स वायर :

FITTINGS WIRE :

The use of fitting shall be restricted to the internal wiring of the light-fitting. Where fittings wire is used for wiring fittings, the sub-circuit leads shall terminate in a ceiling rose or connector from which they shall be carried into the fittings.

28. लैम्प होल्डर्स :

LAMP HOLDERS :

Lamp holders for use on brackets and the like shall have not less than a 1.3 cm. (or ½ in.) nipple and all those for use with flexible pendant shall be provided with cord grips. All lamp holders shall be provided with

shade carriers. Where centre contact Edision Screw Lamp holders are used the outer or screw contact shall be connected to the middle wire or the neutral or to the earthed conductor of the circuit.

29. बाहर रखेजानेवाले लेम्प्स :

OUTDOOR LAMPS :

External and road lamps shall have weather proof fittings of approved design so as to effectively prevent the admission of moisture. An insulating distance piece of moisture proof material shall be inserted between the lamp holder nipple and the fitting. Flexible cord conductors and cord grip lamp holders must not be used where exposed to weather. In verandha and similar exposed situations, where pendants are used, they should be of fixed rod type.

30. लेम्प्स :

LAMPS :

All incandescent lamps, unless otherwise required, shall be hung at height of 2.5 m. (or 8 ft.) above the floor level. They shall be provided with lamps of the following patterns.

Upto and including 200 watts.	..... standard Bayonet (B).
Above 200 watts and not exceeding 300 watts	..... Edision Screw (E.S.)
Above 300 watts	..... Golliath Screw (G.S.)

31. पंखा नियंत्रक और क्लिकप्स :

FANS REGULATORS AND CLAMPS :

(I) Ceiling Fans : Ceiling fans including their suspension shall conform to I.S. 374-1951 and to the following requirements :

(a) All ceiling fans shall be wired to ceiling roses or to special connector boxes and suspended from hooks or shackles with insulators between hooks and suspension rods. There shall be no joint in the suspension rod but if joints be unavoidable then such joints shall be screwed to special couplers of 5 cm. (or 2 inch) minimum length and both ends of the pipes shall touch together within couplers and shall in addition be secured by means of split pins; alternatively the two pipes may be welded.

(b) For wooden joints and beams, the suspension shall consist of M.S. flat of sized not less than 4 cm. 6X4 mm. (1½in X ¼") secured on the sides of the joints or beams by means of two coach screws of size not less than 5 cm. (or 2 inch) for each flat. Where there is space above the beam, a through bolt of size not less than 1.5 cm. (or 5.8") dia, shall be placed above the beam from which the flat are suspended. In the later case the flats shall be secured from movements by means of another bolt and not to the bottom of the beam. A hook consisting of M.S. rod of size not less than 1.5 cm. (or $^{5}/_{8}$") dia shall be inserted between the M.S. flat through oval holes on their sides. Alternatively the flats may be bent inwards to hold tightly between them by means of a bolt and nut, a hook of 'S' form.

In the case of (I) beams, flats shall be shaped suitably to catch the flanges and shall be held together by means of a long bolt and nut. For concrete roofs, ceiling fan hooks shall be got buried in the concrete during construction. A M.S. flat of size 4 cm X 6.4 mm. (or 1½ X ¼") bent in the form of an inverted 'U' supported on two cross roads or cross flats 60 cm. (or 2 ft.) long which are bound together to the top reinforcement of the roof shall be used. The distance between the vertical legs shall not be less than 15 cm. (or 6 in.) and the legs shall project at least 13 cm. (or 5 in.) below the ceiling and oval holes shall be made in the for carrying a 15 mm. (or $^{5}/_{8}$") dia rod hook.

Alternatively a 15 mm. (or $^{5}/_{8}$") dia M.S. rod in the shape of 'U' with their vertical legs bent horizontally at the top at least 19 cm. (or 7½") on either side and bound to the top reinforcement of the roof shall be used as shown in the attached drawings.

(c) Canopies on top of suspension rod shall effectively hide the suspensions.

(d) The leading in wire shall be of nominal cross sectional area not less than 2.5 mm. and shall be protected from abresion.

(e) Unless otherwise specified, all ceiling fans shall be hung 2.79 m. (or 9 ft.) above the floor.

(II) Exhaust Fans – shall be erected at the places indicated by the Engineer-in-charge. For fixing an exhaust fan, a circular hole shall be provided in the wall to suit the size of frame, which shall be fixed by means of rag bolts embedded in the wall. The hole shall be neatly plastered to the original finish of the walls. The exhaust fan shall be connected to exhaust fan point which shall be wired as near to the hole as possible, by means of a flexible cord, care being taken that the blades rotate in the proper direction.

32. फिक्टिंग्स और सहायक उपकरणों के संयोजन :

ATTACHMENT OF FITTINGS AND ACCESSORIES :

(i) In other than conduit wiring, all ceiling roses, socket outlets, switches, regulators, brackets, pendants and accessories attached to the wall or ceiling shall be mounted on substantial teak wood blocks, well varnished both inside and outside including backside after all fixing holes are made in them. Blocks shall not be less than 4 cm (or 1½ in.) deep. Brass screws only shall be used for attaching fittings and accessories to their base blocks.

(II) Groups of accessories and regulators shall be mounted on well seasoned and properly secured double teak wood boards of suitable size to accommodate the number of fittings. The board shall be well varnished with pure shellac on all sides, both inside and outside, irrespective of being painted to match the surroundings. The board shall be divided into two sections, one for the switches which shall be flush mounted and the other for regulators, fixed with suitable washers and round head iron screws (or any other type of screws as required)

Alternatively in the case of surface type wiring switches may be surface mounted on teak wood boxes. But in this case, the rate shall be suitably reduced and suitably amended them entered in the Scheduled of work.

33. विनिमेयता :

INTERCHANGEABILITIES :

Similar parts of all switches, lamp holders, distribution fuse boards, ceiling rose, brackets pendants, fans and all other fittings of the same type shall be interchangeable in each installation.

34. भवनों का संरचनात्मक परिवर्तन :

STRUCTURAL ALTERNATE TO BUILDINGS :

No alternation which shall effect the structure of building shall be done unless sanction of the competent authority has first been obtained and request for the same shall be made through the Engineer-in-charge. All chases, ducts, holes etc. required in connection with the electrical works shall be provided and filled by the contractor at his own cost to the original architectureal finish of the building. For new buildings, these chases, ducts holes etc. shall be provided when the buildings is in progress.

35. भवनों के अधिभोक्ताओं की सुविधाएँ :

CONVENIENCE OF OCCUPANTS OF THE BUILDING :

When the building is occupied and major portion of the work is required to be done under that condition the work shall be carried out in such a way as not to cause any inconvenience to the occupants. In such cases, it may be necessary to work before and after office hours are required.

36. संस्थापन का आरंभ :

INSTALLATION IN COMMISSION :

Before the workman leaves the work finally the must make sure that the installation is in commission.

37. कारीगरी :

WORKMANSHIP :

Good workmanship is an essential requirement for compliance with the clauses in this specification. The work shall be carried out under the direct supervision of a first class licenced foreman or of a person holding a certificate of competency issued by the State Government for the type of work involved, employed by the contractor who shall rectify then and there the defects pointed out by the Engineer-in-charge during the progress of work.

38. अधिकतम भारण का प्रबंध :

PROVISION FOR MAXIMUM LOAD :

All conductors, switches and accessories shall be of such size as to be capable of carrying without their respective rating being exceeded the maximum current which will normally flow through them.

39. संस्थापन केलिए परिवर्धन :

ADDITION TO AN INSTALLATION :

An addition, temporary or permanent, shall not be made to the authorised load of an existing installation until it has definitly ascertained that the current carrying capacity and the condition of the existing accessories, conductors switches etc. affected including those of the supply authorities are adequate for the increased load.

40. अभिकल्पन एवं निर्माण :

DESIGN & CONSTRUCTION :

The design and construction of all electrical apparatus including cables shall comply with the requirement of section 13 of the I.E.E. wiring regulations. All materials supplied shall be new.

41. विशेष दायित्व :

SPECIAL RISKS :

Special forms of construction such as flame proof enclosures shall be adopted where there is risk of fire or explosion and wherever indicated in the schedule of work or special specification.

42. अनुषंगी भवनों में कनेक्सन्स :

CONNECTION TO ANCILLARY BUILDINGS :

Unless otherwise specified, electrical connections to ancilary buildings such as out houses, garage etc., adjacent to the main building at a distance not greater than 3 m. (or 10 ft.) and when no road intervenes shall be taken in an earthed G.I. pipe of suitable size in the exposed portion at a height of not less than 2.5 m. (or 8 ft.) This applies to both runs of mains of submains or final sub circuit wirings between the buildings.

When the distance between the buildings exceeds 3 m. (or 10ft.) or a road intervenes, separate, mains or sub-mains shall be run from the main building to ancillary buildings and the portion of the same exposed to weather shall be carried in weather roof cable on G.I. bear wire at a height not less than 5 m. (or 19 ft.) above the ground.

भाग II नली वायरिंग पद्धति

SECTION II CONDUIT WIRING SYSTEM

(a) *सतह नली वायरिंग पद्धति :*
Surface conduit wiring system :

43. नली के प्रकार एवं आकार :
TYPE AND SIZE OF CONDUIT :

All conduit pipes shall be of approved gauge (not less than 16 SWG for conduits of sizes upto 32 mm. (or 1¼ in.) diameter and not less than 14 SWG for conduits of size above 32 mm. (or 1¼ in.) diameter, solid drawn or lap welded finished with galvanised or stove enamelled surface. All conduit accessories shall be of threaded type and under no circumstances pin grip type or clamp grip type accessories shall be used. The capacity of conduits shall be in accordance with Table and shall never be exceeded.

No steel conduit less than 19 mm. (or ¾") in diameter shall be used.

44. तार समूह :
BUNCHING OF CABLES :

Cables carrying direct current may, if desired be bunched whatever their prolarity, but cables carrying alternating current, if installed in metal conduit shall always be bunched so that out going and return cables are drawn into the same conduit.

45. नली संधि :
CONDUIT JOINTS :

Conduit pipes shall be joined by means of screwed couplesand screwed accessories only. In long distance straight run of conduit, inspection type couplers at reasonable intervals shall be provided or running threads with couplers and Jamnuts (in the latter case the bare threaded portion shall be treated with anti-corrosive preservative) shall be provided. Threads on conduit pipes in all cases shall be between 13 mm. (or ½") to 19 mm (or ¾") long sufficient to accommodate pipes of full threaded portion of couplers or accessories. Cut ends of conduit pipes shall have no sharp edge nor any burrs left to avoid damage to the insulation of conductors while pulling them through such pipes.

TheEngineer-in-charge with a view to ensure that the above provision has been carried out may require the separate lengths of conduit etc. after they have been prepared shall be submitted for inspection before being fixed.

46. कीड़ों से बचाव :
PROTECTION AGAINST INSECTS :

In order to minimise condensation or seating inside the tube, all out lets of cond. system shall be properly drained and ventilated in such a manner as to prevent the entry of insects if so required by the Engineer-in-charge.

47. जंग से नली का बचाव :
PROTECTION OF CONDUIT AGAINST RUST :

The outer surface of conduit including all bends, unions, tees, junction boxes etc. forming part of the conduit system shall be adequately protected against rust when such system is exposed to weather by baking galvanised or enamelled or painted with two coats of oxide paint applied before they are fixed. In all cases, no bare threaded portion of conduit pipe shall be allowed unless such bare threaded portion is treated with anti-corrosive preservative or covered with approved plastic compound.

48. नली का स्थरीकरण :

FIXING OF CONDUIT :

Conduit pipes shall be fixed by heavy guage, saddles, secured to suitable wood plugs or other approved plugs with screws in an approved manner at an interval of not more than one meter (or 3 ft.) but on either side of the couplers or bends or similar fillings, saddles shall be fixed at a distance of 30 mm. (or 1 ft.) from the centre of such fittings.

49. नली में मुड़ाय :

BENDS IN CONDUIT :

All necessary bends in the system including diversion shall be done by bending pipes or by inserting suitable solid or inspection type normal bends, elbows or similar fittings, or by fixing cast iron inspection boxed whichever is most suitable. Conduit fittings, shall be avoided as far as possible on conduit system exposed to weather, where necessary solid type fittings shall be used. Radius of such bends on conduct pipes shall not be less than 7.5 cm (or 3") no length of conduit shall have more than the equivalent of four quarter bends outlet to outlet.

50. निकासे :

OUTLETS :

The switch or regulator box shall be made of metal on all a sides, except on the front. In the case of cast iron boxes, wall thickness shall be at least 3 mm. (or $^1/_8$") and in case of welded mild steel sheet boxes the wall thickness shall not be less than 1.6 mm. (or $^1/_{16}$"). Except where otherwise stated 3 mm. (or $^1/_8$") thick bakolite sheets shall be fixed on the front with brass screws. Clear depth of the box shall not be less than 7.5 cm. (or 3") and this shall be increased suitably to accommodate mounting of fan regulators in flush pattern.

Only a portion of the above box shall be sunk in the wall, the other portion being projected out for suitable entry of conduit pipes into the box.

51. कंडक्टर्स :

CONDUCTORS :

All conductors used in conduit wiring shall be stranded unless otherwise stipulated in the item of work.

52. नली का उत्थापन एवं भूयोजन :

ERECTION & EARTHING OF CONDUIT :

The conduit of each circuit or section shall be completed before conductors are drawn in. The entire system of conduit after erection shall be tested for mechanical and electrical continuity through out and permanently connected to earth conforming to the requirements specified under section IV by means of special approved type of earthing clamp efficiently fastened to conduit pipe in a workman like manner for a perfect continuity between earth wire and conduit. Gas or water pipe shall not be used as earth medium. If conduit pipes are liable to mechanical damage, they shall be adequately protected. In a conduit system pipe must be continuous when passing through walls or floors and no other form of insulating or protecting type is required.

(B) कंडक्यूट वायरिंग पद्धति :

Recessed conduit wiring system :

53. चौक की तैयारी :

MAKING OF CHASE :

Recessed conduit wiring system shall comply with all the requirements of surface conduit wiring system specified in clause 43 to 52 and in addition to the requirements specified in the following clauses 53 to 56.

The chase in the wall shall be neatly made and of ample dimensions to permit the conduit to be fixed in the manner desired. In the case of buildings under construction, chases should be left in the wall, ceiling etc., at the time of construction and shall be filled up neatly after erection of conduit and brought to the original finish of the wall.

54. चौकी में नली की स्थापना :

FIXING OF CONDUIT IN CHASE :

The conduit pipe shall be fixed by means of stapples or by means of saddles not more than 60 mm (or 2 ft.) apart. Fixing of standard bends or elbows shall be avoided as far as practicable and all curves maintained by bending the conduit pipe it self with a long radius which will permit easy drawing in of conductors. All threaded joints of conduit pipes shall be treated with some approved preservative compound to secure protection against rust.

55. परीक्षण बक्स :

INSPECTION BOXES :

Suitable inspection boxes shall be provided to permit periodical inspection and to facilitate removal of wires, if necessary. These shall be mounted flush with the wall, suitable ventilating holes shall be provided in the inspection box covers.

56. उपयोग किये जानेवाले सहायक सामग्री के प्रकार :

TYPES OF ACCESSORIES TO BE USED :

All outlets such swithches wall sockets etc., may be either of flush mounting type or of surface mounting type.

The outlet box shall be same as in clause 50 and shall be mounted flush with the wall. The metal box shall be affiencienbly earthed with conduit by an approved means of earth attachment.

भाग III पालथीन वेल्कनित तार वायरिंग

SECTION III POLYTHENE VULGANIZED CABLES WIRING

57. सामान्य :

GENERAL :

This system of wiring is suitable for low pressure installation, and shall not be used in places exposed to sun and rain nor in damp places but can be installed in the above places, provided they are sheathed in special approved protective covering against atmosphere and well protected to withstand dampness. This system of wiring is suitable in situations where acide – and alkalies are likely to be present.

(a) All Polythene vulganized cables on brick walls, stone or plastered walls and celling shall be run on well seasoned, perfect straight and well varnished on four sides teak wood or any approved hardwood, battens not less than 10 mm. (or ⅜") finished thick; width of which shall be such as to suit total width of cables laid on the batten. Prior to erection, these shall be painted with one coat of varnish or approved paint of colour to match with the surroundings. Those battens shall be secured to the walls and ceilings by flat head wood screws to rawl plug or phil plug at an interval nor exceeding 75 cm. (or 2½ ft.) wood plugs as per clause 22 can be used only with the special approval of the Engineer-in-charge. The flat head wood screws shall be counter sunk within wood batten and smoothened down with file.

(b) Where wiring is to be carried along the face of the rolled steel joints, wooden batten of adequate width shall first be laid on the same and clipped to it as inconspicuously as possible.

The wiring shall then be fixed to this backing in the ordinary way. Where wiring passed through structural steel work the holes shall be suitably bushed to prevent the abrasion of the cables.

59. लिंक क्लिप्स :

LINK CLIPS :

Only tinned brass link clips shall be used. Link clips shall be so arranged that the single clip shall not hold more than two twin core PVC cables upto 2.5 mm. above which a single clip shall hold a single twin core cables. The clips shall be fixed on varnished wood battens with brass pins and spaced at intervals of 15 cm (or 6") both in the case of horizontal and vertical runs. For the wiring and runs of mains exposed to heat and rain; clips specially made for outdoor use from a durable metal resistant to weather and atmospheric corrosion shall be used.

60. वायरिंग में मुडाव :

BENDS IN WIRING :

The wiring shall not in any circumstance be bent so as to form a right angle but must be rounded off at the corners to a radius not less than six times the over all diameter of the cable.

61. यांत्रिक भांति से वायरिंग का संरक्षण :

PROTECTION OF WIRING FROM MECHANICAL DAMAGES :

(a) In cases where there are chances of any damage to the wiring, such wiring shall be covered with a sheat metal protective covering, the base of the covering being flush with the plaster, or brick work as the case may be, or the wiring shall be drawn through a heavy guage metal conduit pipe and complying with all the requirements of conduit wiring system.

(b) Such protective covering shall in all casee be fitted on all down drops within 1.5 m. (or 5') from the floor.

62. फर्श द्वारा तार उतारना :

PASSING THROUGH FLOORS :

All cables taken through floors shall be enclosed in heavy guage steel conduit extending 1.5 m (or 5') above the floor and flush with the ceiling below or by means of any other approved type of metalling covering. The ends of all conduits or pipes shall be neatly bushed with procelain wood or other approved material. The conduit pipes, wherever accessible, shall be securely earthed.

63. दीवारों के जरिये तार उतारना :

PASSING THROUGH WALLS :

The method to be adopted shall be that said down in clause 21. In the later case there shall be one conduit for every twin corecable or two runs of single core cable and the conduit shall be neatly arranged so that the cables enter them without bending.

64. भूस्थापित केबल :

BURIED CABLES :

The P.V.C. cable shall not normally be buried directly in plaster; where so specified in the special specification they may be taken in teak wood channelling of ample capacity or conduit pipe buried in the wall.

65. बाह्य आवरण हटाना :

STRIPING OF OUTER COVERING :

While cutting and stripping of the outer covering of the cable, care shall be taken that the sharp edge of the cutting instrument does not tough theinsulation of the conductors. The protective outer covering of the cables shall be stripped off near connecting terminals and this protective covering shall be maintained upto the close proximity of connecting terminals as far as practicable. Care shall be taken to avoid hammering on link clips with any metal instrument, after the cables are laid. Where junction boxes are provided, they shall be rude moisture proof with a plastic compound,

66. पेंगाई :

PAINTING :

The wiring shall after erection be neatly painted with two coats of oil cracking paint suitable for painting of P.V.C. to the satisfaction of the Engineer-in-charge.

भाग IV भूयोजन

SECTION IV EARTHING

The earthing arrangements to be provided shall be any one of the following types as may be specified in the schedule of work and shall be in accordance with the approved drawing.

67. एर्थ इलैक्ट्रोड :

EARTH ELECTRODE :

All earth connections unless otherwise specified shall be of galvanised iron pipe of approved length and diameter or any galvanised iron plate or copper earth plate, copper wire shall be used as lead-in-wire.

68. **ARRANGEMENT OF PIPE EARTH :**

भूनलिका की व्यवस्था :

The galvanised iron pipe shall not be less than 38.1 mm (or 1½") in diameter and 2 m (or 6½ ft.) long. The length of the galvanised iron pipe shall be increased to 2.75 m (or 9 ft.) if the nature of the soil so required in dry or rocky places. They shall be buried in the earth vertically with their top not less than 2.75 m (or 9 ft.) below ground level.

69. प्लेट एर्थ व्यवस्था :

ARRANGEMENT OF PLATE EARTH :

The galvanised iron plate shall be of size not less than 60 cm. X 60 cm. X 6.35 mm. (or 2' X 2' X ¼") the copper plate 60 cm. X 60 cm. X 3.18 mm. (or 2' X 2' X 2'/$_8$").

They shall be buried in the earth with their faces vertical and their tops not less than 3 m (or 10 ft.) below ground level.

70. भवनों से भूयोजन की दूरी :

DISTANCE OF EARTH FROM BUILDINGS :

Normally an earth shall not be situated less than 1.5 m (or 5 ft.) from any building. Care shall be taken that the excavations for earthing may not effect the footing of the foundation of the building, in such case the distance being suitably increased. The location of the earth will be such where the soil has reasonable change of remaining moist as far as possible. Pavements and roadways are definitely avoided for locating the earths.

71. मुख्य भूयोजन कंडक्टर :

MAIN EARTHING LOAD :

The main earthing load shall be of galvanised iron wire in the case of galvanised iron pipe and galvanised & iron plate and it shall be of copper wire in the case of copper plate. The nominal cross sectional area of wire shall be at least 0.020 sq. in., or 12.87 mm2 (No. 8 SWG) and in general not less than one half that of the largest, of the conductors to be protected, but that a wire larger than 0.1 sq. in. or 70.88 mm2 in nominal cross sectional area (2/0 SWG) or 19/0.083" standard in the case of copper conductor or equivalent current carrying capacity in the case of GI wire) need not be used.

72. निरंतर भूयोजन कंडक्टरों का आकार :

SIZE OF EARTH CONTINUITY CONDUCTORS :

The nominal cross sectional area of an earth continuity conductor not contained within a cable or flexible cord shall be at least 0.0045 sq. in. (No. 14 SWG or 7/0.29" in standard) of copper and in general not less than

(c) Control rheostat, heating and proper appliances and electric signs may, if required be dis connected from the circuit during the test, but in that event the insulation resistance between the case of frame work, and all live parts of earth rheostat, appliance and sign, shall be not less than that specified in the relevant Indian Standard Specification or where there is not such specification shall be not less than half a megohm.

(d) The insulation resistance shall also be measured between all conductors connected to one pole or phase conductor of the supply and all the conductor connected the middle wire or the neutral or the other pole or phase conductors of the supply and it's value shall be not less than that specified in Sub Clause (b).

(e) On completion of an electric installation (or an extension to an installation) certificate shall be furnished by the contractor countersigned by the certified supervisor under whose direct supervision the installation was carried out. This certificate shall be in the prescribed form as required by the local electric supply Authorities. One such recommended form is given in APPENDIX D.

79. भूयोजन अवस्थिति पथ का परीक्षण :

TESTING OF EARTH CONTINUITY PATH :

The earth continuity conductor including metal conduits and metallic envelopes of cables in all cases shall be tested for electric continuity and the electrical resistance of the same along with the earthing lead but excluding any added resistance or earth leakage circuit breaker measured from the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed one ohm.

80. ध्रुवीयता से असंयुक्त एक पोल बटन का परीक्षण :

TESTING OF POLARITY NON LINKED SINGLE POLE SWITCHES :

(a) In a two wire installation a test shall be made to verify that all non linked single pole switches have been fitted in the same conductor through out and such conductor shall be labelled or marked for connection to an outer or phase conductor or to the non-earthed conductor of the supply.

(b) In a three wire or a four wire installation, a test shall be made to verify that every non-linked single pole switch is fited in a conductor which is labelled or marked for connection to one of the outer or phase conductor of the supply.

Size of conduit			19 mm (¾")		(25.4 mm.) (1")		(31.8 mm) (1¼")		38.1 mm (1½")		50.8 mm (2")		63.6 mm (2½")	
CONDUCTOR OF CABLES		Approx. overall dia. of cables	MAXIMUM NUMBER OF CABLES											
Area sq. Inches.	No. & dia of wires Inches.	250 vol. Inch.	V.R.	P.V.C.	V.R.	P.V.C.	V.R.	P.V.C.	V.R.	P.V.C.	V.R.	P.V.C.	V.R.	P.V.C.
.0015	1/.044	0.150	6	7	10	13	14	20						
.002	3/.029	0.165	6	7	10	13	14	20						
.003	3/.036	0.180	5	5	10	10	14	16						
sq.	mm.	mm.												
1.5	1/1.40	3.65	6	6	10	10	14	16						
2.5	1/1.80	4.05	5	6	10	10	14	16						
4.0	1/2.24	4.70	4	5	10	10	10	16						
6.0	1/2.80	5.25	4	3	6	7	10	10	–	14				
10.00	1/3.55	6.30	2	2	4	5	8	8	–	11				
16.00	7/1.70	8.05	–	–	2	3	4	5	5	17				
25.00	7/2.24	10.00	–	–	–	–	2	3	3	4	–	6	7	7
35.00	7/2.50	11.05	–	–	–	–	2	3	2	4	5	6	6	–
	19/1.80		–	–	–	–	–		–	3	3	5	5	–

Note:– The above table shows the maximum capacity of conduits for a simultaneous drawing in of Aluminium cables. The table applies to 250 volt grade VIR & PVC cables and the maximum number of cables shown in the table shall apply to all types of conduits irrespective of weather they are light gauge or heavy gauge.

CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTTS
(Council of scientific &Industrial Research)

Post office CIMAP, Lucknow-226015.

NOTICE INVITING TENDER

Sealed Tender are hereby invited in **Two bid system (Technical Bid & Financial bid)** for **Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing Fragrance building at CSIR - CIMAP, Lucknow** from the Contractors of appropriate class from CPWD/state PWD ,Railways ,MES and Post & Telegraph Department and/or from those who have carried out similar work for CSIR, Govt. and semi Govt. Organizations or Public Sector Undertaking Institutions etc. Tenderers should have successfully completed at least three work amounting to **40% (Rs73.86 Lakhs)** or two works of **50% (Rs92.32 Lakhs)** or at least one work amounting to **80% (Rs147.71 Lakhs)** value of estimated cost or above in single contract during the last five year. Tenders will be issued to only those contractors who show the satisfactory work completion certificates. The Estimated cost is **184.64 lakhs (**based on CPWD DSR – 2014 & market rate) and earnest money is **Rs3,69,300.00 (Rupees Three Lakhs sixty nine thousand three hundred only).** Tender documents shall be issued during office hours in the office of **the Controller of Administration, CIMAP**, **CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS, Post office CIMAP, Lucknow-226015 from 24.08.2016 to 16.09.2016** on cash payment of **Rs1000.00 (Rupees One thousand only). Tender papers along with terms and conditions can be down loaded from the Institute web site www. Cimap.res.in and the cost of tender Rs 1000.00 to be paid through D.D / Pay order in favor of Director CIMAP, Lucknow along with technical bid.** The cost of tender papers is not refundable. Tender will be issued to only those Contractors who show the proof of their experience. Tender shall be received in the office of **Controller of Administration, CIMAP**, **CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS , Post office CIMAP, Lucknow-226015** up to **2.30 P.M. on 20.09.2016** and will be opened at 3.30 PM on the same day in the presence of the tenderers present.

The Director, CIMAP reserve the right to accept the tender in part or in whole and reject any or all the tender without assigning any reason.

(Supt. Engineer)

SO (Works)

CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS
(Council of Scientific and Industrial Research)
Post Office-CIMAP, Lucknow-226015

Name of work : Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing Fragrance building at CSIR - CIMAP, Lucknow.

COVER – II

FINANCIAL BID

CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS
(Council of Scientific and Industrial Research)
Post Office-CIMAP, Lucknow-226015

ABSTRACT OF COST

Name of work : **Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing Fragrance building at CSIR - CIMAP, Lucknow**.

Schedule of Quantities

a) Building Work: Rs. …….

b) Electrical work Rs ……

Total **Rs** ……
(Rupees only)

ALL MATERIALS SHALL BE OF QUALITY AS SPECIFIED AND APPROVED BY THE ENGINEER/ARCHITECT

1. **The contractor shall procured 33 grade (confirming to IS:269) or 43 grade (confirming to IS: 8112) Ordinary Portland Cement, as required in the work, from reputed manufacturers of cement, having a production – capacity of one million tons per annum or more, such as ACC, L&T, J.P. Rewa, Vikram, Prism, shri Cement, Birla and Cement corporation of India etc., as approved** by Ministry of Industry, Government of India and holding licence to use ISI Certification mark for their product whose name shall be got approved from Engineer – in – charge. Supply of cement shall be taken in 50 kg bags bearing manufacturers name and ISI marking, sample of cement arranged by the contractor shall be taken by the Engineer – in – charge and got tested in accordance with provisions of relevant BIS Code. In case test results indicated that the cement arranged by the contractor does not conform to the relevant BIS Codes, the same shall stand rejected and shall be removed from the site by the contractor at his own cost within a week's time of written order from the Engineer – in – charge to do so.
2. The cement shall be brought at site in bulk supply of approximately 50 tones or as decided by the Engineer – in – charge. The cement godown of the capacity to store a minimum of 2000 bags of cement shall be constructed by the contractor at site of work for which no extra payment shall be made. Double lock provisions shall be made to the door of the cement godown. The keys of one lock shall remain with the Engineer – in – charge or his authorized representative and the key of the other lock shall remain with the contractor. The contractor shall be responsible for the watch and ward and safety of cement godown. The contractor shall facilitate the inspection of the cement godown by the Engineer – in – charge at any time.
3. The contractor shall supply free of charge the cement required for testing. The cost of tests shall be born by the contractor. Cement brought to site and cement remaining unused after completion of work shall not be removed from site without written permission of the Engineer – in – charge.
4. The contractor shall procured steel reinforcement bars confirming to relevant BIS Codes from main producers as approved by the Ministry of steel. The contractor shall have to obtain and furnish test certificates to the Engineer – in – charge in respect of all suppliesof steel brought by him to the site of work. Sample shall also be taken and got tested by the Engineer – in – charge as per the provisions in this regard in relevant BIS codes. In case test results indicated that the reinforcement arranged by the contractor does not conform to the relevant BIS Codes, The same shall stand rejected and shall be removed from the site by the contractor at his own cost within a week's time of written order from the Engineer – in – charge to do so. The steel shall be brought at site in bulk supply of approximately 10 tons or more as decided by the Engineer – in – charge.
5. Coarse sand and fine sand shall be conforming to grading zones III and IV, respectively.
6. Stone aggregate shall be crushed stone grit of specific grade as approved by the Engineer-in-charge.
7. The contractor should inspect site, examine drawings, specifications, schedules of quantities and tender their rates. The rates given in the schedule of quantities will be deemed to include all the necessary materials, T&P, labour required for satisfactory completion of work as shown in the drawings, specifications, schedule of quantities.
8. The additional work in the same campus can be awarded during the currency of contract at the same rates, terms and conditions of the contract.
9. C.P. fittings shall be JAQUAR / PARKO/ Plumber make even if not specified in the item.
10. All materials, fixture and fittings, required for this work, which are available with ISI certificate mark, will be of that quality, even if not specified in the item.
11. The exterior paint shall be "APEX ULTIMA" of Asian paint / "Sand Tax Matt" of Snowcem India of required shade as approved by the Engineer – in - charge even if not specified in the item.

Scope of work **: Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing Fragrance building at CSIR - CIMAP, Lucknow**

WITNESS **SIGNATURE OF TENDERER**

SUMMARY SHEET

CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS
(Council of Scientific and Industrial Research)
Post Office-CIMAP, Lucknow-226015

Name of Work : **Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing Fragrance building at CSIR - CIMAP, Lucknow**

Total brought forward from **page no.**

67	RS----------
68	RS----------
69	RS----------
70	RS----------
71	RS----------
72	RS----------
73	RS----------
74	RS----------
75	RS----------
76	RS----------
77	RS----------
78	RS----------
79	RS----------
80	RS----------
81	RS----------
82	RS----------
83	RS----------
84	RS----------
85	RS----------
86	RS----------
87	RS----------
88	RS----------
89	RS----------
90	RS----------
91	RS----------
92	RS----------

Total carry over to
Abstract of cost on page no. 65 Rs

SCHEDULE OF WORK

Name of Work : Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing fragrance building at CSIR - CIMAP, Lucknow.

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed.					
1.1	All kinds of soil	118.136	cum			
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	118.136	cum			
3	Clearing grass and removal of the rubbish upto a distance of 50 m outside the periphery of the area cleared.	216	100 sqm			
4	Providing and injecting Chemical emulsion of Chloropyriphos/ Lindane E.C. 20% emulsifiable concentrate for PRE - CONSTRUCTIONAL anti termite treatment and creating a chemical barrier under and allround the column pits, wall trenches, basement excavation, top surface of plinth filling, junction of wall and floor, along the external perimeter of building, expansion joints,surrounding of pipes and conduits etc. complete through specialist firm with 10 years guarantee against termite infestation (plinth area of the building at ground floor only shall be measured).					
4.1	PRE - CONSTRUCTIONAL ANTI TERMITE TREATMENT					
4.1.1	With Chlorpyriphos/Lindane E.C. 20% with 1% concentration	140.561	sqm			
5	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :					
5.1	1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)	55.1977	cum			
5.2	1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	25.7331	cum			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
5	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, sunken floor etc., up to floor five level, excluding the cost of centering, shuttering and finishing :					
6.1	1:1½:3 (1 cement:1½ coarse sand:3 graded stone aggregate 20 mm nominal size)	0.3968	cum			
7	Providing and laying damp-proof course 40 mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size).	19.4534	sqm			
8	Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification.	5.057	per 50 kg cement			
9	Applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7 kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	19.453	sqm			
10	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including finishing the top smooth.	125.71	sqm			
11	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :					
11.1	1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)	3.3371	cum			
12	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement:					
12.1	1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)	6.2342	cum			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
13	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size).	152.494	cum			
14	Reinforced cement concrete work in arches, archribs, domes, vaults, shells, folded plate and roofs having slope more than 15° up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement, with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size).	1.2342	cum			
15	Reinforced cement concrete work in vertical and horizontal fins individually or forming box louvers, facias and eaves boards up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement, with 1:1½:3 (1 cement : 1½ coarse sand : 3 graded stone aggregate 20 mm nominal size).	3.1761	cum			
16	Centering and shuttering including strutting, propping etc. and removal of form for:					
16.1	Columns, Pillars, Piers, Abutments, Posts and Struts	83.5752	sqm			
16.2	Stairs, (excluding landings) except spiral-staircases	16.796	sqm			
16.3	Arches, domes, vaults up to 6 m span	42.35	sqm			
16.4	Vertical and horizontal fins individually or forming box louvers band, facias and eaves boards	114.753	sqm			
16.5	Suspended floors, roofs, landings, balconies and access platform. with water proof ply 12 mm thick	952.774	sqm			
16.6	Lintels, beams, plinth beams, girders, bressumers and cantilevers. with water proof ply 12 mm thick	325.739	sqm			
17	Providing, hoisting and fixing up to floor five level precast reinforced cement concrete in shelves, including setting in cement mortar 1:3 (1 cement : 3 coarse sand), cost of required centering, shuttering and finishing with neat cement punning on exposed surfaces but excluding the cost of reinforcement, with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size).	1.29	cum			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
18	Providing precast cement concrete Jali 1:2:4 (1 cement : 2 coarse sand: 4 graded stone aggregate 6 mm nominal size), reinforced with 1.6 mm dia mild steel wire, including centering and shuttering, roughening cleaning, fixing and finishing in cement mortar 1:3 (1 cement: 3 fine sand) etc. complete, excluding plastering of the jambs, sills and soffits.					
18.1	50 mm thick	77.49	sqm			
19	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto floor V level.					
19.1	Thermo-Mechanically Treated bars	16648	Kg			
20	Providing and fixing sheet covering over expansion joints with iron screws as per design.					
20.1	Aluminium fluted strips 3.15 mm thick.					
20.1.1	150 mm wide	46.98	metre			
21	Add for plaster drip course/ groove in plastered surface or moulding to R.C.C. projections.	2215.12	metre			
22	1st class Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 150 in foundation and plinth in:					
22.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	69.7379	cum			
23	1st class Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 150 in superstructure above plinth level up to floor V level in all shapes and sizes in :					
23.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	398.42	cum			
24	1st class Brick work 7 cm thick with common burnt clay F.P.S. (non modular) brick of class designation 150 in cement mortar 1:3 (1 cement : 3 coarse sand) in superstructure above plinth level and upto floor five level.	0.4209	sqm			
25	1st class Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 150 in superstructure above plinth level up to floor V level.					
25.1	Cement mortar 1:4 (1 cement :4 coarse sand)	96.136	sqm			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
26	Extra for providing and placing in position 2 Nos 6mm dia. M.S. bars at every third course of half brick masonry.	96.136	sqm			
27	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately).					
27.1	Second class teak wood	0.545	cum			
28	Providing and fixing Pre-laminated flat pressed 3 layer (medium density) particle board or graded wood particle board IS : 3087 marked, with both side decorative lamination Grade I, Type II exterior grade IS : 12823 marked, in shelves with screws and fittings wherever required, edges to be painted with polyurethane primer (fittings to be paid separately).					
28.1	25 mm thick	50.716	sqm			
29	Providing and fixing "CENTURY OR EQUIVALENT" ISI marked flush door shutters conforming to IS : 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters:					
29.1	30 mm thick including necessary screws	87.5495	sqm			
29.2	25 mm thick (for cupboard) including ISI marked nickel plated bright finished M.S. piano hinges with necessary screws	48	sqm			
30	Providing and fixing wooden moulded beading to door and window frames with iron screws, plugs and priming coat on unexposed surface etc. complete :					
30.1	2nd class teak wood					
30.1.1	50 x 20 mm	376.73	metre			
31	Providing and fixing 18 mm thick, 150 mm wide pelmet of coir veneer board ISI marked IS : 14842, including top cover of 6 mm coir veneer board, nickle plated M.S. Pipe 20 mm dia. (heavy type) curtain rod with nickel plated brackets, including fixing with 25x3 mm M.S. Flat 10 cm long fixed to pelmet with hollock wood cleats of size 100 mm x 40 mm x 40 mm on both inner side of pelmet and rawl plugs 75 mm long etc. all complete.	137.26	metre			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
32	Extra for using veneered particle board conforming to IS 3097 Grade I, in item of pelmet 18mm thick 150mm wide.					
32.1	Particle board with decorative veneering on both sides	137.26	metre			
33	Providing and fixing teak wood lipping of size 25x3 mm in pelmet.	292.22	metre			
34	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete. "Godrej or equivalent"	72	each			
35	Providing and fixing aluminium sliding door bolts, ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868), transparent or dyed to required colour or shade, with nuts and screws etc. complete : "Diamond or Equivalent"					
35.1	250x16 mm	46	each			
36	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete : "Diamond or Equivalent"					
36.1	300x10 mm	94	each			
36.2	150x10 mm	85	each			
37	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete : "Diamond or Equivalent"					
37.1	125 mm grip and with plate	228	each			
37.2	100 mm mortise handle fixed with aluminim sliding window of required colour	76	each			
38	Providing and fixing aluminium hanging floor door stopper, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete. "Diamond or Equivalent"					
38.1	Twin rubber stopper	99	each			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
39	Providing and fixing magnetic catcher of approved quality in cupboard / ward robe shutters, including fixing with necessary screws etc. complete.					
39.1	Triple strip vertical type	42	each			
40	Providing and fixing wire gauge shutters using stainless steel grade 304 wire gauge with wire of dia 0.5 mm and average width of aperture 1.4 mm in both directions for doors, windows and clerestory windows with necessary screws :					
40.1	35 mm thick shutters					
40.1.1	with ISI marked M.S. pressed butt hinges bright finished of required size					
40.1.1.1	Second class teak wood	31.5495	sqm			
41	Providing and fixing fly proof stainless steel grade 304 wire gauge, to windows and clerestory windows using wire gauge with average width of aperture 1.4 mm in both directions with wire of dia. 0.50 mm all complete.					
41.1	With 12 mm Powder coated heavy U beading	76.38	sqm			
42	Providing and fixing PVC Door Frame of size 50x47 mm with a wall thickness of 5 mm (± 0.2 mm), made out of single piece extruded PVC profile, with mitred cut joints and joint with 2 nos of PVC bracket of size 190 mm x 100 mm long arms of cross section size 35 x 15 mm & self driven self taping screws, the vertical door profiles to be reinforced with 40x20 mm M.S. rectangular tube of 0.8 mm , including providing EPDM rubber gasket weather seal throughout the frame, including jointing 5 mm PVC frame strip with PVC solvent cement on the back of the profile. The door frame to be fixed to the wall using 8 x100 mm long anchor fasteners complete, all as per manufacturer's specification and direction of Engineer -in- charge.	207.9	metre			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
43	35 mm thick factory made Solid panel PVC Door shutter, made out of single piece extruded soild PVC profiles, 5 mm (± 0.2 mm) thick, having styles & rails (except lock rail) of size 95 mmx 35 mm x 5 mm, out of which 75 mm shall be flat and 20 mm shall be tapered (on both side), having one side thickness of 15 mm integrally extruded on the hinge side of the profile for better screw holding power, including reinforcing with MS tube of size 40 mm X 20 mm x 1 mm, joints of styles & rails to be mitered cut & joint with the help of PVC solvent cement, self driven self tapping screws & M.S. rectangular pipes bracket of size 190 mm X 100 mm of cross section size 35 mm x 17 mm x 1 mm at each corner. Single piece extruded 5 mm thick solid PVC Lock rail of size 115 mm x 35 mm, out of which 75 mm to be flat and 20 mm to be tapered at both ends, having 15 mm solid core in middle of rail section integrally extruded, fixing the styles & rails with the help of solvent and self driven self tapping screws of 125 mm x 11 mm, including providing 5 mm Single piece solid PVC extruded sheet inserted in the door as panel, all complete as per manufacturer's specification and direction of Engineer-in-charge.					
43.1	Decorative finish (wood grained finish)	60.27	sqm			
44	Providing and fixing pressed steel door frames conforming to IS: 4351, manufactured from commercial mild steel sheet of 1.60 mm thickness, including hinges, jamb, lock jamb, bead and if required angle threshold of mild steel angle of section 50x25 mm, or base ties of 1.60 mm, pressed mild steel welded or rigidly fixed together by mechanical means, including ISI Marked STAINLESS STEEL BUTT HINGES with necessary screws and with mortar guards, lock strike-plate and shock absorbers as specified and applying a coat of approved steel primer after pre-treatment of the surface as directed by Engineer-in-charge:					
44.1	Profile C					
44.1.1	Fixing with adjustable lugs with split end tail to each jamb	134.725	metre			
44.2	Profile E					
44.2.1	Fixing with adjustable lugs with split end tail to each jamb	97.185	metre			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
45	Providing and fixing circular/ Hexagonal cast iron or M.S. sheet box for ceiling fan clamp, of internal dia 140 mm, 73 mm height, top lid of 1.5 mm thick M.S. sheet with its top surface hacked for proper bonding, top lid shall be screwed into the cast iron/ M.S. sheet box by means of 3.3 mm dia round headed screws, one lock at the corners. Clamp shall be made of 12 mm dia M.S. bar bent to shape as per standard drawing.	29	each			
46	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.					
46.1	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	472.02	kg			
47	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement, including cement slurry, but excluding the cost of nosing of steps etc. complete.					
47.1	40 mm thick with 20 mm nominal size stone aggregate	9.675	sqm			
48	Providing and fixing glass strips in joints of terrazo/ cement concrete floors.					
48.1	40 mm wide and 4 mm thick	109.6	metre			
49	Marble stone flooring and skirting with 18 mm thick marble stone, as per sample of marble approved by Engineer-in-charge, over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry, including rubbing and polishing complete with :					
49.1	Makrana Doongri Adanga	39.9426	sqm			
50	Extra for pre finished nosing to treads of steps of marble stone.	61.71	metre			
51	Extra for marble stone flooring in treads of steps and risers using single length up to 2.00 metre.	16.368	sqm			
52	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :					
52.1	25 mm thick	19.6725	sqm			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
53	Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	2.6875	sqm			
54	Providing and fixing Ist quality ceramic glazed wall tiles "KAJARIA/CITY/JOHANSON/SOMANI"conforming to IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of size 300x600 mm as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.	361.179	sqm			
55	Providing and laying Ceramic glazed floor tiles "KAJARIA/CITY/JOHANSON/SOMANI" of size 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), including pointing the joints with white cement and matching pigment etc., complete.	90.5521	sqm			
56	Providing and laying vitrified floor tiles **Double Charge** "KAJARIA /JOHANSON/SOMANI" in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete.					
56.1	Size of Tile 600x600 mm	742.371	sqm			
57	Providing and laying Vitrified tiles **Double Charge** "KAJARIA /JOHANSON/SOMANI" in different sizes (thickness to be specified by manufacturer), with water absorption less than 0.08 % and conforming to I.S. 15622, of approved make, in all colours & shade, in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), including grouting the joint with white cement & matching pigments etc. complete.					

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
57.1	Size of Tile 600x600 mm	60.756	sqm			
58	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes.					
58.1	110 mm diameter	147.7	metre			
59	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion.					
59.1	Coupler					
59.1.1	110 mm	21	each			
59.2	Single pushfit Coupler					
59.2.1	110 mm	21	each			
59.3	Single tee with door					
59.3.1	110x110x110 mm	21	each			
59.4	Single tee without door					
59.4.1	110x110x110 mm	21	each			
59.5	Bend 87.5°					
59.5.1	110 mm bend	21	each			
59.6	Shoe (Plain)					
59.6.1	110 mm Shoe	21	each			
60	Providing and fixing unplasticised -PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of dash fastners of required length, including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete.					
60.1	110 mm	163	each			
61	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter and weighing not less than 440 grams.	21	each			
62	12 to 15 mm cement plaster of mix :					

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
62	1:6 (1 cement: 6 coarse sand)	2737.73	sqm			
63	Cement plaster 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement.					
63.1	20 mm cement plaster	82.755	sqm			
64	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) and a top layer 6 mm thick cement plaster 1:3 (1 cement : 3 coarse sand) finished rough with sponge.	1074.77	sqm			
65	6 mm cement plaster of mix :					
65.1	1:3 (1 cement : 3 fine sand)	1018.22	sqm			
66	6 mm cement plaster 1:3 (1 cement : 3 fine sand) finished with a floating coat of neat cement and thick coat of Lime wash on top of walls when dry for bearing of R.C.C. slabs and beams.	111.465	sqm			
67	Extra for plastering:					
67.1	Spherical ceiling	30.25	sqm			
68	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface :					
68.1	Water thinnable cement primer	3555.4	sqm			
69	Finishing walls with textured exterior paint "SAND TEX MATT of Snowcem India / APEX ULTIMA of Asian paint" of required shade as approved by Engineer - in- charge complete over plain/ rough surface (the area shall be measured as plain surface and no extra will be payable for rough surface):					
69.1	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm	1278.58	sqm			
70	Applying priming coat:					
70.1	With ready mixed pink or Grey primer "BERGER/ ASIAN PAINT"of approved brand and manufacture on wood work (hard and soft wood)	388.416	sqm			
71	Painting with synthetic enamel paint "BERGER/ ASIAN PAINT"of approved brand and manufacture to give an even shade :					
71.1	Two or more coats on new work	438.305	sqm			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
72	Providing and applying white cement based "BIRLA"putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	5792.55	sqm			
73	Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, "ASIAN ROYALE LUXURY EMULSION" including applying additional coats wherever required, to achieve even shade and colour.					
73.1	Two coats	5591.99	Sqm			
74	Removing dry or oil bound distemper, water proofing cement paint and the like by scrapping, sand papering and preparing the surface smooth including necessary repairs to scratches etc. complete.	2036.6	sqm			
75	Painting with synthetic enamel paint of approved brand and manufacture Asian paint/Berger" of required colour to give an even shade :					
75.1	One or more coats on old work	108.661	sqm			
76	Finishing walls with textured exterior paint of required shade "SAND TEX MATT of Snowcem India / APEX ULTIMA of Asian paint" of required shade as approved by Engineer - in- charge complete over plain/ rough surface (the area shall be measured as plain surface and no extra will be payable for rough surface):					
76.1	Old work (Two or more coats on existing cement paint surface applied @ 3.28 ltr/10 sqm.	642.848	sqm			
77	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge.					
77.1	Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)	8.8142	cum			
77.2	Nominal concrete 1:4:8 or leaner mix (i/c equivalent design mix)	34.0656	cum			
78	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.					
78.1	In cement mortar	0.4125	cum			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
79	Dismantling doors, windows and clerestory windows (steel or wood) shutter including chowkhats, architrave, holdfasts etc. complete and stacking within 50 metres lead :					
79.1	Of area 3 sq. metres and below	37	each			
79.2	Of area beyond 3 sq. metres	5	each			
80	Dismantling steel work in single sections including dismembering and stacking within 50 metres lead in:		cum			
80.1	Channels, angles, tees and flats	52.491	kg			
81	Demolishing brick tile covering in terracing including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.	637.985	sqm			
82	Demolishing mud phaska in terracing and disposal of material within 50 metres lead.	63.7985	cum			
83	Dismantling roofing including ridges, hips, valleys and gutters etc., and stacking the material within 50 metres lead of:					
83.1	G.S. Sheet	20.4282	sqm			
84	Dismantling G.I. pipes (external work) including excavation and refilling trenches after taking out the pipes, manually/ by mechanical means including stacking of pipes within 50 metres lead as per direction of Engineer-in-charge :					
84.1	15 mm to 40 mm nominal bore	39.24	metre			
85	Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved.	83.798	cum			
86	Providing and fixing water closet squatting pan (Indian type W.C. pan) with 100 mm sand cast Iron P or S trap, 10 litre low level parryware white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever) conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required:					
86.1	White Vitreous china Orissa pattern W.C. pan of size 580x440 mm with integral type foot rests "Parryware or equivalent"	2	each			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
87	Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous china flushing cistern "Parryware Cascade" & C.P. flush bend with fittings, flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design, CP JET "Parryware"or equivalent complete, including painting of fittings , cutting and making good the walls and floors wherever required :					
87.1	W.C. pan with ISI marked "Parryware Cascade" or equivalent white solid plastic seat , lid and C.P. Jet spray complete.	19	each			
88	Providing and fixing "Parryware or equivalent"white vitreous china flat back half stall urinal of size 580x380x350 mm, three nos white glazed Magnum partition with Jaquar Urinal valve Auto closing system with built - in Control cock cat no. 077 with fittings, standard size C.P. brass flush pipe, spreaders with unions and clamps (all in C.P. brass) with waste fitting as per IS : 2556, C.I. trap with outlet grating and other couplings in C.P. brass, including painting of fittings and cutting and making good the walls and floors wherever required :					
88.1	Range of two half stall urinals with Jaquar Urinal valve Auto closing system with built - in Control cock cat no. 077, three nos 'Parryware" or equivalent white glazed Magnum partitions.	1	each			
89	Providing and fixing wash basin Parryware or equivalent with C.I. brackets, 15 mm C.P. brass pillar taps "Jaquar cat no. FLR - 5011N", 32 mm C.P. brass waste of standard pattern, PVC WAIST PIPE with fittings "D-Plast" make including painting of fittings and brackets, cutting and making good the walls wherever require:					
89.1	White Vitreous China Wash basin size 550x400 mm "Parryware or equivalent" with 15 mm C.P. brass pillar tap "Jaquar cat no. FLR-5011N.	21	each			
90	Providing and fixing white vitreous china pedestal "Parryware" or equivalent for wash basin completely recessed at the back for the reception of pipes and fittings.	21	each			
91	Providing and fixing mirror of superior glass Jaquar cat no. ACN - 1195 N Swivel Mirror or equivalent with CP Brass screws and washers complete :					
91.1	Superior glass Jaquar cat no. ACN - 1195 N Swivel Mirror	21	each			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
92	Providing and fixing 600 mm long glass shelf Jaquar cat no. ACN - 1171 N or equvalent fixed with SS Screws etc. complete.	21	each			
93	Providing and fixing toilet paper holder Jaquar cat no. ACN - 1153 N Tpilet roll holder with flap or equivalent.					
93.1	C.P. brass	19	each			
94	Providing and fixing soil, waste and vent pipes :					
94.1	100 mm dia					
94.1.1	Centrifugally cast (spun) iron socket & spigot (S&S) pipe as per IS: 3989	125.15	metre			
94.2	75 mm diameter :					
94.2.1	Centrifugally cast (spun) iron socketed pipe as per IS: 3989	156.3	metre			
95	Providing and fixing M.S. holder-bat clamps of approved design to Sand Cast iron/cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including cost of cutting holes and making good the walls etc. :					
95.1	For 100 mm dia pipe	68	each			
95.2	For 75 mm dia pipe	68	each			
96	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.					
96.1	100 mm dia					
96.1.1	Sand cast iron S&S as per IS - 3989	17	each			
96.2	75 mm dia					
96.2.1	Sand cast iron S&S as per IS- 3989	17	each			
97	Providing and fixing plain bend of required degree.					
97.1	100 mm dia					
97.1.1	Sand cast iron S&S as per IS : 3989	1	each			
97.2	75 mm dia					
97.2.1	Sand cast iron S&S as per IS - 3989	17	each			
98	Providing and fixing collar :					

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
98.1	100 mm					
98.1.1	Sand cast iron S&S as per IS - 3989	30	each			
98.2	75 mm					
98.2.1	Sand cast iron S&S as per IS - 3989	40	each			
99	Providing lead caulked joints to sand cast iron/centrifugally cast (spun) iron pipes and fittings of diameter :					
99.1	100 mm	70	each			
99.2	75 mm	70	each			
100	Providing and fixing trap of self cleaning design with C.P Brass Cockroch Trap heavy duty of approved brand complete, including cost of cutting and making good the walls and floors :					
100.1	100 mm inlet and 75 mm outlet					
100.1.1	Sand cast iron S&S as per IS - 3989	61	each			
101	Providing and fixing Soap Dish Holder Jaquar cat no. ACN - 1131 N or equivalent complete. .	19	each			
102	Providing and fixing single towel rail 600 mm long "Jaquar cat no. ACN - 1111 N"or equivalent complete.					
102.1	600 mm long towel rail.	19	each			
103	Providing and fixing G.I. pipes B- Class "Jindal Hissar/ Tata" complete with G.I. fittings "NMC/NMV" and clamps, i/c cutting and making good the walls etc. Internal work - Exposed on wall					
103.1	15 mm dia nominal bore	30	metre			
103.2	20 mm dia nominal bore	60	metre			
103.3	25 mm dia nominal bore	60	metre			
103.4	40 mm dia nominal bore	60	metre			
104	Providing and fixing G.I. Pipes B- Class "Jindal Hissar/ Tata" complete with G.I. fittings "NMC/NMV" and clamps, i/c making good the walls etc. concealed pipe, including painting with anti corrosive bitumastic paint, cutting chases and making good the wall :					
104.1	15 mm dia nominal bore	84	metre			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
104.2	20 mm dia nominal bore	168	metre			
105	Providing and fixing G.I. pipes B- Class "Jindal Hissar/ Tata" complete with G.I. fittings "NMC/ NMV" including trenching and refilling etc. External work					
105.1	40 mm dia nominal bore	40	metre			
105.2	50 mm dia nominal bore	40	metre			
106	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including cutting and threading the pipe etc. complete :					
106.1	25 to 40 mm nominal bore	2	each			
106.2	50 to 80 mm nominal bore	1	each			
107	Providing and fixing gun metal gate valve "ZOLOTO/ NMV" with C.I. wheel of approved quality (screwed end) :					
107.1	25 mm nominal bore	6	each			
107.2	40 mm nominal bore	6	each			
107.3	50 mm nominal bore	4	each			
108	Providing and fixing ball valve (brass) of approved quality "ZOLOTO/ NMV", High or low pressure, with plastic floats complete :					
108.1	15 mm nominal bore	6	each			
108.2	20 mm nominal bore	20	each			
109	Providing and fixing C.P. brass shower rose "Jaquar cat no. OHS - 5489.					
109.1	100 mm diameter	19	each			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
110	Constructing masonry Chamber 30x30x50 cm inside, in brick work in cement mortar 1:4 (1 cement :4 coarse sand) for stop cock, with C. I. surface box 100x100 x75 mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12mm thick, finished with a floating coat of neat cement complete as per standard design :					
110.1	With common burnt clay F.P.S.(non modular) 1st class bricks of class designation 150	9	each			
111	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :					
111.1	With common burnt clay F.P.S.(non modular) 1st class bricks of class designation 150	4	each			
112	Painting G.I. pipes and fittings with synthetic enamel white paint "ASIAN PAINT/ BERGER" with two coats over a ready mixed priming coat, both of approved quality for new work :					
112.1	15 mm diameter pipe	30	metre			
112.2	20 mm diameter pipe	60	metre			
112.3	25 mm diameter pipe	60	metre			
112.4	40 mm diameter pipe	100	metre			
112.5	50 mm diameter pipe	40	metre			
113	Providing and fixing G.I. Union "NMC/NMV" in G.I. pipe including cutting and threading the pipe and making long screws etc. complete (New work) :					

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
113.1	15 mm nominal bore	6	each			
113.2	20 mm nominal bore	12	each			
113.3	25 mm nominal bore	6	each			
113.4	40 mm nominal bore	6	each			
113.5	50 mm nominal bore	4	each			
114	Providing and placing on terrace 4 nos of 1000 ltrs capacity (at all floor levels) polyethylene water storage tank "SINTEX", ISI : 12701 marked, with cover and suitable locking arrangement including 25mm ZOLOTO/ NMV/NMC"make float valve with suitable size Ball and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	4000	per litre			
115	Providing and fixing C.P. brass Double Coat Hook "Jaquar cat no. ACN - 7761" or equivalent.					
115.1	Double Coat Hook "Jaquar cat no. ACN - 7761" or equivalent.	19	each			
116	Providing and fixing C.P. brass bib cock "Jaquar cat no. FLR - 5047 N" with wall flange or equivalent.					
116.1	15 mm nominal bore	21	each			
117	Providing and fixing C.P. brass wall mixer with provision for overhead shower with 115 mm long bend pipe "Jaquar cat no. FLR - 5273 UPR or equivalent.					
117.1	15 mm nominal bore	19	each			
118	Providing and fixing C.P. brass angle valve Jaquar Cat no. FLR -5053 N for basin mixer and geyser points.					
118.1	15mm nominal bore	118	each			
119	Cutting holes up to 30x30 cm in walls including making good the same:					
119.1	With common burnt clay F.P.S. (non modular) bricks	35	each			
120	Cutting holes up to 15x15 cm in R.C.C. floors and roofs for passing drain pipe etc. and repairing the hole after insertion of drain pipe etc. with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including finishing complete so as to make it leak proof.	21	each			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
121	Making chases up to 7.5x7.5 cm in walls including making good and finishing with matching surface after housing G.I. pipe etc.	30	metre			
122	Providing, laying and jointing glazed stoneware pipes class SP-1 with stiff mixture of cement mortar in the proportion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete :					
122.1	100 mm diameter	100.8	metre			
123	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) all-round S.W. pipes including bed concrete as per standard design :					
123.1	100 mm diameter S.W. pipe	100.8	metre			
124	Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design:					
124.1	150 x 100 mm size P type		metre			
124.1.1	With common burnt clay F.P.S. (non modular) 1st class bricks of class designation 150	21	each			
125	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) with R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design :					
125.1	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) :					
125.1.1	With common burnt clay F.P.S. (non modular) 1st class bricks of class designation 150	6	each			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
126	Extra for depth for manholes :					
126.1	Size 90x80 cm					
126.1.1	With common burnt clay F.P.S. (non modular) 1st class bricks of class designation 150	4	metre			
127	Making connection of drain or sewer line with existing manhole including breaking into and making good the walls, floors with cement concrete 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) cement plastered on both sides with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement and making necessary channels for the drain etc. complete :					
127.1	For pipes 100 to 250 mm diameter	21	each			
128	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket/ T - Gasket in three track slots etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling to be paid for separately) :					
128.1	For fixed portion					
128.1.1	Powder coated aluminium (minimum thickness of powder coating 50 micron)	1408.75	kg			
128.2	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots, sliding rolers of approved quality and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)					
128.2.1	Powder coated aluminium (minimum thickness of powder coating 50 micron)	337.072	kg			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
129	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item):					
129.1	With float glass panes of 5.00 mm thickness	153.908	sqm			
130	Providing and fixing 100mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete.	1	each			
131	Providing and fixing aluminium round shape handle of outer dia 100 mm with SS screws etc. complete as per direction of Engineer-in-charge					
131.1	Powder coated minimum thickness 50 micron aluminium	2	each			
132	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment).	357.504	kg			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
133	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations: a) Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface before treatment. b) Laying 1st class brick bats with mortar using broken bricks/brick bats 25 mm to 115 mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs. c) After two days of proper curing applying a second coat of cement slurry using 2.75 kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge. d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement :4 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3 mm deep. e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. All above operations to be done in order and as directed and specified by the Engineer-in-Charge :					
133.1	With average thickness of 120 mm and minimum thickness at khurra as 65 mm.	789.551	sqm			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
134	Providing and fixing of single Bed Godrej EQ bed or equivalent of size 2050mm x 973 mm x720 mm with bedstead of height 412mm.the bed should comply of tubular steel, particle board. the tubular metal must be designed to form a continuous structure like a loop and all other elements must be connected to this primery metal loop. the design of the metal loop must be such so that it must provide rigidity to the structure. the bed must have headboard of desired size with slatted mattress base. All the metal parts must be powder coated with 50 microns. the design of the bed must be ergonomic in nature.					
134.1	Godrej EQ bed of size 2050mm x 973 mm x720 mm with bedstead of height 412mm or equivalent.	40	each			
135	Providing and fixing Godrej Study Table model Buddy of size 1200X450X740 MM or equivalent. The steel structure must be square tube with powder coating of 50 microns. The under structure must contain a steel hanging basket for keeping study material. Top must be made up of 18 MM PLT board.					
135.1	Godrej Study Table model Buddy of size 1200X450X740 MM.	40	each			
136	Providing Godrej Mattress Model Ortho Regular of size 78'' X 36'' X 4''. The inbuilt material must be coir and bonded foam with quilting on top for better lumbar support. The score on cushion scale must be 4 and on support scale must be 7 out of 10.	40	each			
137	Godrej Study Chair Model 5D13X: or equivalent. The chair shall have the dimensions of 45cm (W) x 54cm (D) x 88.5cm (H). The seat height shall be 49.5 cm. The seat and back shall be made from 1.2+/-0.1 cm thick hot pressed plywood and upholstered with fabric and moulded Polyurethane foam together with seat and back covers. The back foam shall be designed with contoured lumbar support for extra comfort. The seat size shall be 45cm (W) x 42cm (D) and the back size shall be 39cm (W) x 38cm (H). The High Resilience Polyurethane foam shall be moulded with density 45+/-2 Kg/m3 and hardness load 16+/-2 Kgf as per IS: 7888 for 25% compression. The fixed type mechanism shall be without back tilt. The tubular frame shall be made up of M.S. ERW tube and black powder coated (DFT 40-60 microns).	40	each			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
138	Providing and fixing Godrej 3+1+1 Sofa Set Model Urban of single seater with size 920 X 600 X 400 MM and three seater with size 2040 X 600 X 400 MM or equivalent. The sofa must comprise of metal frame made up of MS pipe which should provide sturdiness to the sofa. The upholstery must be plane chenille fabric. Base material must be Dimetroll fabric, legs must be made from rubber wood and PU foam with 45 Kg/ CuM density.Recron fibre used in the lining must use recron of 200 grade chemical body. Upholstery must be removable and washable.	4	each			
139	Providing and Fixing Centre table model crystallin or equivalent of size 1000 X 600 X 450 MM. The glass top must be 8MM tempered glass. Under structure must be made up of MDF covered with PVC covering. Glass top must contain PU paint strips with silver powder. Glass should be attached to under structure Via UV disc. Load bearing capacity of the table must be 30Kg.					
139.1	Centre table model crystallin or equivalent of size 1000 X 600 X 450 MM.	4	each			
	Total					

Suptd. Engineer

SUMMARY SHEET

CENTRAL INSTITUTE OF MEDICINAL AND AROMATIC PLANTS
(Council of Scientific and Industrial Research)
Post Office-CIMAP, Lucknow-226015

Name of Work : **Internal Electrification for Construction of 20 Rooms Hostel (Ground floor + First floor) over the existing Fragrance building at CSIR - CIMAP, Lucknow**

Total brought forward from page no.

94 RS----------

95 RS----------

96 RS----------

97 RS----------

98 RS----------

99 RS----------

Total carry over to
Abstract of cost on page no. 65 Rs _____

SCHEDULE OF WORK

Name of Work : Internal Electrification for Construction of 20 Rooms Hostel (Ground floor + first floor) over the existing fragrance Hostel at CSIR-CIMAP, Lucknow.

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc. as required.					
1.1	Group C	240	Point			
2	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required					
2.1	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	300	Metre			
2.2	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	300	Metre			
2.3	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	300	Metre			
2.4	4 X 4 sq. mm + 2 X 4 sq. mm earth wire	50	Metre			
2.5	4 X 6 sq. mm + 2 X 6 sq. mm earth wire	80	Metre			
2.6	4 X 10 sq. mm + 2 X 10 sq. mm earth wire	80	Metre			
3	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.					
3.1	25 mm	100	Metre			
4	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	33	Each			
5	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	40	Each			
6	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.					
6.1	1 or 2 Module (75mm X 75mm)	40	Each			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
7	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection etc. as required. (For light plugs to be used in non residential buildings).	52	Each			
8	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 amps modular socket outlet and 15/16 amps modular switch, connection etc. as required.	52	Each			
9	Installation, testing and commissioning of pre-wired, fluorescent fitting / compact fluorescent fitting of all types, complete with all accessories and tube etc. directly on ceiling/ wall, including connection with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable and earthing etc. as required.	175	Each			
10	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable etc. as required.	33	Each			
11	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required.					
11.1	Upto 450 mm sweep	25	Each			
12	Extra for fixing the louvers/ shutters complete with frame for a exhaust fan of all sizes.	25	Each			
13	Providing and fixing following rating and breaking capacity and pole MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required.					
13.1	100 Amp, 16 KA,TPMCCB	3	Each			
14	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 volts, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)					
14.1	2 + 2 way,SPN, Double door, MCB DB	30	Each			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
15	Supplying and fixing following way prewired TP&N MCB distribution board of steel sheet for 415 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required.(But without MCB/ RCCB/ Isolator)					
15.1	4 way (4 + 12), Double door	3	Each			
15.2	8 way (4 + 24), Double door	3	Each			
16	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
16.1	Single pole	160	Each			
16.2	Triple pole	5	Each			
17	Supplying and fixing 20 amps, 240 volts, SPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, SP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	29	Each			
18	Supplying and Installation of GEL earthing electrode of 80mmX3 mtrs. including back fill compound complete as required	4	Set			
19	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	80	Metre			
20	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.					
20.1	Above 95 sq. mm and upto 180 sq. mm	430	Metre			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
21	Laying of one number additional PVC insulated and PVC sheathed/ XLPE power cable of 1.1 KV grade of following size direct in ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the trench etc as required.					
21.1	Above 35 sq. mm and upto 95 sq. mm	430	Metre			
22	Supply of ISI marked PVC insulated aluminium conductor, steel armored cable 1.1KV grade of the following size –					
22.1	3.5 X 95 sq.mm	430	Metre			
22.2	3.5 X 120 sq.mm	430	Metre			
23	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.					
23.1	3½ X 95 sq. mm (45mm)	4	Each			
23.2	3½ X 120 sq. mm (45mm)	4	Each			
24	Supplying of LED/holder light fitting, surface/recess mounting etc. as given below-					
24.1	1X22 watt LED fitting 4 feet model no.SSK-T5-22W (Syska/compact/Philips) or equivalent	50	Each			
24.2	Wall light fitting model no.SSK-T5-6W(Syska/compact/Philips)or equivalent	25	Each			
24.3	Ceiling fitting model no.SSK-SDC-11W (Syska/compact/Philips)or equivalent	25	Each			
24.4	wall fitting model no.COMAT 30575 (Philips/compact/syska) or equivalent	75	Each			
25	Supplying of LED/holder light fitting, surface/recess mounting etc. as given below-					
25.1	Street light model no.SSK-ST-40W(Syska/compact/Philips) or equivalent	5	Each			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
26	Supplying of ceiling fan having double ball bearings and other standard accessories as required of following sweep, suitable for operation on 230 volts, single phase, 50Hz, AC supply including suitable size powder coated down rod as required 1400 mm sweep(bajaj/Crompton/orient)					
26.1	1400 mm sweep(bajaj/Crompton/orient)	33	Each			
27	Supplying of heavy duty exhaust fan complete with standard accessories of following sweep, suitable for operation on 230 volts single phase, 50Hz, AC supply including suitable size louvers as required					
27.1	225/250 mm(Crompton/bajaj/GE marathon) 1400RPM	21	Each			
27.2	450 mm(Crompton/bajaj/GE marathon 960RPM	4	Each			
28	Supply, Installation, testing & commissioning of L.T. cubical panel board, wall/floor mounted type, made out of 16 gauge CRCA sheet steel duly powder coated paint and comprising of heavy duty switch gears as per specifications and details given below complete with interconnections…					
28.1	a) Incomer-I-250A TPN MCCB ---1No. b) Incomer-II 200A TPN, MCCB--- 1No. c) Busbar-I 400A, TPN, Alum conductor---1set II – 300A, TPN Alum conductor---1set d) instrument set volt meter(0-500V) Amp. Meter(0-300A) -2set with CTs coil and indicating light e) Outgoings – 100A, TP+N MCCB-8Nos., 160A TP+N MCCB-2Nos. complete set	1	Each			
28.2	b) Supply, Installation, testing & commissioning of outdoor type feeder pillar, made out of 16 gauge CRCA sheet steel duly powder coated paint and having double bus bar system of 500A and 400A capacity, the feeder pillar should have open able door from front and rear side and pedestal stand complete as required	1	Each			
29	Supplying and fixing of 10 Ltrs capacity Geyser including accessories as required (Crompton/Bajaj/Philips)					
29.1	10 Ltrs capacity Geyser including accessories as required (Crompton/Bajaj /Philips)	21	Each			

ITEM No	SUB-HEADS AND ITEM OF WORK	QUANTITY	UNIT	RATE (Rs)	RATE (In Words)	AMOUNT(Rs)
30	Supplying, Installation, testing and commissioning of 1.5 tonne capacity 5 STAR rating window A.C, with 4 KVA voltage stabilizer HLC/TDR input range 140-280 V including all standard accessories etc. as required.(Blue Star/Voltas/Carrier/LG)					
30.1	1.5 tonne capacity 5 STAR rating window A.C, with 4 KVA voltage stabilizer HLC/TDR input range 140-280 V (Blue Star/Voltas/Carrier/LG)	5	Each			
	Total					

Suptd. Engineer