

INTERIOR RENOVATION WORK
AT
5-B/4BP, NIT, NEELAM RAILWAY ROAD,
FARIDABAD-121001.
OF
THE ORIENTAL INSURANCE CO. LTD.



PART-A
(TECHNICAL BID)

SPECIFICATIONS DOCUMENTS :

Architects

M/s SPACE ACE

ARCHITECTS & INTERIOR DESIGNERS

V-20A/05 DLF CITY-III, GURGAON,

HARYANA - 122002

TEL. PH. No. :- 0124-4106618

Email: spaceace.india@gmail.com

Dated: 18/06/2015

Total No. of Pages Technical Bid = 51

TECHNICAL BID

- Invitation to Tenderers
- Instructions to Tenderers
- General Conditions of Contract
- Special Conditions of Contract
- List of approved Materials
- Technical specifications
- Drawings

NOTE: TENDERERS MUST VISIT THE SITE AND READ THE SPECIAL CONDITIONS AND ADDITIONAL SPECIAL CONDITIONS

APPENDIX SHOWING IMPORTANT SCHEDULES

- | | | | |
|-----|---|---|--|
| 1. | SIGNING THE AGREEMENT | : | Within seven days of the issue of letter of intent/order. |
| 2. | COMMENCEMENT OF WORK | : | Within seven days of the issue of letter of intent/order. |
| 3. | PERIOD OF COMPLETION | : | 30 days |
| 4. | LIQUIDATED DAMAGES | : | Rs. 500- per day subject to the max of 10% of the Accepted Contract sum. |
| 5. | PERIOD AND VALUE OF RUNNING/ON ACCOUNT BILL | : | Ten days |
| 6. | TOTAL RETENTION MONEY | : | 10% of cost of work executed. |
| 7. | TOTAL SECURITY DEPOSIT | : | Retention money +EMD . |
| 8. | REFUND OF E.M.D | : | To be refunded to the Contractor within Thirty days after submission and acceptance of the final bill. |
| 9. | REFUND OF RETENTION MONEY | : | To be refunded to the Contractor Thirty days after the end of Defects Liability period. |
| 10. | INCOME TAX DEDUCTION | : | At prevailing rate from each bill |
| 11. | DEFECTS LIABILITY PERIOD | : | Twelve months from the date of completion. |
| 12. | PERIOD OF FINAL MEASUREMENT | : | One month after virtual completion of work. |
| 13. | MINIMUM VALUE OF RUNNING BILL | : | 5 Lakhs. |
| 14. | DEVIATION LIMIT | : | Plus 20% |
| 15. | Service Tax | : | Item wise rates assured by the contractor is inclusive of Service Tax |
| 16. | Labour Cess | : | 1% of contract value will be deducted as Labour Cess payable to NCT Delhi. |

SECTION - I INVITATION TO TENDERERS

- 1.1 Sealed tenders in two bid system are invited from established experienced contractors by the **Chief Manager (Estate)**, The Oriental Insurance Company Ltd. A-25/27, Asaf Ali Road, New Delhi - 110 002.

S.No.	Name of Work	Estimated Value of Work (Rs.)	Time of Completion
1.	a) INTERIOR-FURNISHING & ELECTRICAL WORKS FOR NEW PREMISES AT 5-B/4BP, NIT, NEELAM RAILWAY ROAD, FARIDABAD-121001.	16,87,515/-	30 days

- 1.2 The intending contractors may collect the tender documents from the office of **Divisional Manager, The Oriental Insurance Company Ltd. Divisional office 4BP, Neelam Bata Road, Bata Chowk, Near Delight Hotel, NIT, Faridabad** on payment of Rs.1000/- in form of draft in favour of “ **The Oriental Insurance Co. Ltd** “ Payable at Delhi/NCR from 18-06-2015 to 29-06-2015 between **10:00 am to 3:00 pm**. The tender forms can be down loaded from the Website **www.orientalinsurance.org.in**. In such cases, the contractor shall deposit the tender cost in the form of Bank Draft favoring as mentioned above along with Technical Bid.

- 1.3 Tenders are invited into two bid system i.e. “Technical bid” and “Financial bid”. The intending contractors should submit the following details in the **technical bid (Part A)** duly contained in closed sealed envelope No.1 superscribed as “**Technical Bid**” : **also mention the name of work on each envelope.**

- 1.4 Tenderers are advised to submit :
- a. Organizational setup including details/assets of workshop/office facilities with infrastructure, for office infrastructure/assets proof of copy audited balance sheet of last 3 years to be furnished.
 - b. Bank solvency certificate for Rupees Twenty lacs and above that should not be older than six months.
 - c. Copy of Permanent Account number (PAN).
 - d. Registration /empanelment with Govt/Psu/reputed organizations.
 - e. Copy of registration with vat, registration is compulsory.
 - f. The average turnover of the contractor for last 3 financial years finding on 31st march of previous financial year should be atleast 80% of the estimated cost.
 - g. Contractor must have completed atleast :

One (1) similar work amounting to minimum 80% of the estimated cost

Or

Two (2) works amounting to 50% of the estimated cost

Or

Three (3) works amounting to 40% of the estimated cost of project in last 5 years ending last day of month previous to the one in which applications are invited, to be eligible to participate in tender.

- h. The works must be of similar nature involving complete interior works such as civil works, interior and furnishing works, electrical & LAN works for public sector undertakings, public sector banks/Govt. Financial Institutions. To prove similar

work, the contractor should enclose work order, completion certificates & copy of final sanctioned bill including copy of BOQ.

- i. The profile of contractor has to be attached with list of completed works and works in hand, tools and personnel and engineers to be posted at site. The contractor has to post one Diploma civil engineer of minimum 4 years of experience for entire period of renovation plus 15 days extra during final billing and one diploma electrical engineer with minimum experience of four years would also be posted for entire period of renovation plus 15 days extra during final billing. Non positioning of engineer in respective fields could have penalty of Rs.30,000 per month, per head.

THE CONTRACTOR TO SUBMIT ADDRESS, PHONE NO. AND NAME OF CONTACT PERSON OF BEST TWO BEST WORKS FULFILLING THE ABOVE, IT WOULD ALSO INCLUDE PHOTOGRAPHS OF THE ABOVE WORKS. OICL/ARCHITECT HAS RIGHT TO INSPECT OR TAKE ACCESSMENT REPORT WHICH WOULD BE BINDING TO THE TENDER, THIS ACCESSMENT IS NECESSARY FOR QUALIFYING FOR THE TECHNICAL BID. THE ASSEMENT OF PHOTOGRAPHS OF PAST WORKS ARE ESSENTIAL FOR TECHNICALLY QUALIFYING THE BIDDERS. OICL/ARCHITECT MAY INSPECT THE SITES IF NECESSARY.

- j. Earnest money of **Rs. 17,000/-** In the form of Demand Draft in favor of "**The Oriental Insurance Co. Ltd.**" **Payable at Delhi.**
The Earnest Money will be refunded without any interest to all the unsuccessful tenderers after the award of the work subject to the relevant provisions in the tender documents.

- 1.5 The "Financial bid"**(Part B)** shall be contained in a closed sealed envelope no. 2 superscribed as "**Financial Bid**". The financial bid shall contain **(Schedule of Quantities)** duly filled in by the intending tenderers : also mention the name of work on each envelope.
- 1.6 Both the sealed envelopes of "Technical bid" and "financial bid" should be kept in envelope no. 3 sealed and superscribed with the name of work on the top of envelope shall be deposited in designated tender box placed in the office of the **Divisional Manager, The Oriental Insurance Company Ltd. Divisional office 4BP, Neelam Bata Road, Bata Chowk, Near Delight Hotel, NIT, Faridabad on 29-06-2015 before 3:30 pm.** The tender received in any manner other than prescribed above shall be summarily rejected. The company will not accept any responsibility for the tender lost in transit for whatever the reason.
- 1.7 At first instance technical bid shall be opened on **29-06-2015 at 4:00 pm.** The technical bid will then be evaluated on the basis of documents/information furnished as also if necessary, after physical examination of the tenderers office/workshop & projects successfully executed by them. The criteria followed by OICL will be at its sole discretion and will not be open to question. The contractors who shall qualify in the technical bid will only be eligible for the opening of their financial bid. The date and time of opening of financial bid shall be intimated to individual qualified contractors.
- 1.8 Date of commencement of the work shall be reckoned from the 7th day of award of work.
- 1.9 The work as detailed in this tender shall be executed and completed in all respects in accordance with the Tender documents, which includes instructions to tenderers, General conditions of contract, special conditions of contract, schedule of Quantities, list of approved materials and Drawings to complete satisfaction of the Architects and the Employer.
- 1.10 Rates must be quoted for complete work at site inclusive of all costs, taxes and charges etc. All taxes and duties including Sales Tax on work contract. ESI charges etc. as applicable at New Delhi/NCR on the date of receipt of tender, Central & State Sales Tax, Octroi, Royalties etc. on works and materials required for use in

the execution of this project shall be entirely borne and payable by the Contractor and the Employer will not entertain any claim what so ever in this respect.

- 1.11 The tender for the works shall remain open for acceptance for a period of 30 days from the date of opening of tenders. If any Tenderer withdraws his tender before the said period or makes any modifications in terms & conditions of the tender which are not acceptable by the company, then the company shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money as aforesaid.
- 1.12 **Total Security Deposited during execution of work shall comprise of**
- (a) Earnest Money Deposit
 - (b) Retention Money
- 1.13 **Retention Money**
The retention money (i.e. deduction from interim & final bill shall be 10% of the gross value of each. The retention money & earnest money shall form the total security deposit during execution of work. The retention amount will be refunded to the contractor after the end of Defect Liability Period provided he has satisfactorily carried out all the works and attended to all defects in accordance with the condition of contract. No interest is allowed on retention money & earnest money. Earnest money shall be refunded after the submission and acceptance of final bill.
- 1.14 Earnest money of the successful tenderer is liable to be forfeited in the event of refusal or delay on his part in signing the agreement or starting the work as mentioned in the tender/modification in the specification or terms & conditions of the tender and employer will be at liberty to award it to another contractor.
- 1.15 The competent authority on behalf of the **Divisional Manager, The Oriental Insurance Company Ltd. Divisional office 4BP, Neelam Bata Road, Bata Chowk, Near Delight Hotel, NIT, Faridabad** reserves to himself the right of accepting the whole or part of the tender and the tenderer shall be bound to perform the same at the rate quoted.
- 1.16 Canvassing whether directly or indirectly in connection with the tender is strictly prohibited and the tenders submitted by the contractors who resort to canvassing in any form would be liable to rejection.
- 1.17 The tendering firms, in case the tenderer is a partnership firm, shall submit the tender signed by the partners. In the event of absence of any partner, it must be signed on his behalf by a person holding power of attorney which shall be attached along with the tender and it must also disclose that the contractor is duly registered under the Indian partnership Act or not.
- 1.18 The notice inviting tender shall form part of the contract document. The successful tenderer/contractor, on acceptance of his tender by the Accepting Authority, shall within 7 days from the stipulated date of start of work sign the contract consisting of :
- a) The notice inviting tender, all the documents including additional conditions, invitation of tender and acceptance thereof together with any correspondence leading there to.
 - b) Offer in standard tender form.
- 1.19 The tenderer shall unconditionally accept terms & conditions of the company. Conditional offer shall be summarily rejected.
- 1.20 In case of any discrepancy between the documents downloaded by the prospective

contractor and the proposal documents (hard copy) issued by OICL, the letter shall prevail.

- 1.21 OICL reserves the right to accept/reject any or all tenders without assigning any reason thereof.

**Divisional Manager,
The Oriental Insurance Company Ltd.
Divisional office 4BP, Neelam Bata Road,
Bata Chowk, Near Delight Hotel, NIT, Faridabad.**

STANDARD TENDER OFFER

THE ORIENTAL INSURANCE CO. LTD., ASAF ALI ROAD, NEW DELHI

Item Rate Tender & Contract for Works

Tender for the Interior-Renovation work of 5-B/4BP, NIT, NEELAM RAILWAY ROAD, FARIDABAD-121001.

To be submitted by between hrs. to hrs.

Issued to:

Signature of the person issuing the documents:

Designation:

Date of Issue:

TENDER

I/We have read and examined the notice inviting tender, Schedule, specifications applicable, Drawings & Designs, General rules and Directions, Conditions of Contract, clauses of contract, Special conditions, Schedule of Quantities & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for by the Chief Manager (Estate), The Oriental Insurance Company Ltd. 1st Floor, Asaf Ali Road, New Delhi within the time specified in schedule, viz., schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in General Rules and Directions and the Conditions of contract and with such materials as are provided by and in respects in accordance with, such conditions so far as applicable.

We agree to keep the tender open for Ninety days (90 days) from the due date of submission thereof and not to make any modifications in its terms and conditions.

A sum of Rs. **17,000/-** (Rupees Seventeen Thousand only) is hereby forwarded in the form of Demand Draft of a Bank as earnest money. If I/we, fail to commence the work specified I/we agree that the said **Divisional Manager, The Oriental Insurance Company Ltd. Divisional office 4BP, Neelam Bata Road, Bata Chowk, Near Delight Hotel, NIT, Faridabad** or the authorized officer in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to

in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, **upto maximum of the percentage 20% mentioned in the schedule and those in excess of that limit market/tendered rate whichever is lower at the rates to be determined in accordance with the provision contained in the tender form.**

I/We hereby declare that I/we shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived therefrom to any person other than a person to whom I/we am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of The Oriental Insurance Company Ltd.

I/We agree that should I/we fail to commence the work specified in the above memorandum, an amount equal to the amount of the earnest money mentioned in the form of invitation of tender shall be absolutely forfeited to the **Divisional Manager, The Oriental Insurance Company Ltd. Divisional office 4BP, Neelam Bata Road, Bata Chowk, Near Delight Hotel, NIT, Faridabad** and the same may at the option of the competent authority on behalf of the **Divisional Manager, The Oriental Insurance Company Ltd. Divisional office 4BP, Neelam Bata Road, Bata Chowk, Near Delight Hotel, NIT, Faridabad** be recovered without prejudice to any other right or remedy available in law out of the deposit in so far as the same may extend in terms of the said bond and in the event of deficiency out of any other money due to me/us under this contract or otherwise.

Dated.....

Sign. of Contractor
Postal Address

Witness:

Address:

Occupation:

ACCEPTANCE

The above tender (as mentioned by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the Divisional Manager, The Oriental Insurance Company Ltd. Divisional office 4BP, Neelam Bata Road, Bata Chowk, Near Delight Hotel, NIT, Faridabad for a sum of Rs. (Rupees.....
.....)

The letters referred to below shall form part of this contract Agreement:

- a)
- b)
- c)

for & on behalf of the Divisional Manager, The Oriental Insurance Company Ltd. Divisional office 4BP, Neelam Bata Road, Bata Chowk, Near Delight Hotel, NIT, Faridabad

Dated

Signature/Designation.....

SECTION-2: INSTRUCTION TO TENDERERS

- 2.1 The tenderer shall examine carefully all the tender documents consisting of:

TECHNICAL BID

- Invitation to Tenderers
- Instructions to Tenderers
- General Conditions of Contract
- Special Conditions of Contract
- List of approved Materials
- Technical specifications / Drawings

FINANCIAL BID (separately given)

- Schedule of Quantities

These shall form part of the agreement.

The tenderer is advised to visit and inspect the site at his own cost and responsibility and to secure all necessary information which may be required for completing the tender. Ignorance of site conditions or local information shall not be considered as an excuse for non-performance of the contract. All costs, charges and expenses that may be incurred by the tenderer in connection with the preparation of his tender shall be borne by him and the Employer/Architect does not accept any liability whatsoever in this regard.

- 2.2 Time is the essence of the contract and the tenderers are required to complete the work in all respects within the stipulated time of completion and hand over the same, complete in all respects to the satisfaction of the Architects/Employer.
- 2.3 The tender should contain not only the rates but also the value of each item of work entered in the prescribed column of the BOQ and all the items should be totalled up in order to show the aggregate value of the entire tender. The rates quoted by the tenderer should be expressed accurately both in words and figures so that there is no discrepancy. All corrections in the tender shall be duly attested by initials of the tenderers. Corrections if not attested, may entail rejection of tender. The rates quoted by the tenderers in item rate tender will be the basis (and not the amounts in case of discrepancies) in finalizing the tender.
- 2.4 It shall be clearly understood that the rates quoted in the tender are to be for complete work at site as per instructions to tenderers, conditions of contract, special conditions of contract specifications and drawings, addenda referred to therein and also for all such work's as are necessary for the proper completion of the contract. Although specific mention thereof may not have been made in the specifications or in drawings or in tender documents. The rates shall be firm and shall not be subject to cost escalation on account of labour and material and labour conditions or any other reason whatsoever.
- 2.5 The tenderers shall use only the form issued with this tender to fill up the rates.

- 2.6 Every page of the tender shall be signed on the **bottom of right hand side** and any tender not so completed is liable to be treated as defective and liable to be rejected.
- 2.7 The successful tenderer will be notified about the acceptance of his tender by the employer and he will execute agreement within 7 (seven) days thereof, failing which his tender would be liable to rejection with forfeiture of the Earnest Money and the employer would be at Liberty to award it to another tenderer.
- 2.8 The contract will be governed by the Indian Contract Act, Indian Sale of goods Act and all other relevant laws. All payments due to the contractor under the contract will be made in Indian Rupees Currency.
- 2.9 The rates quoted shall be for complete work at site and should be inclusive of incidentals expenses necessary for carrying out the work. The rates shall be inclusive of Sales Tax if applicable at New Delhi for or any other tax or duty levied by any Government or Public bodies. The rates shall be firm and shall not be subject to cost escalation of labor and material and exchange variations, labor conditions or any other conditions whatsoever.
- 2.10 A schedule of approximate quantities for various items accompanies this tender. It shall be clearly understood that neither the architect nor the employer accept any responsibility for the correctness or completeness of this schedule in respect of items and quantities and this schedule is liable to alterations by omission, deduction or additions at the discretion of the employer in consultation with the architect without violating the terms of the contract.
- 2.11 The employer does not bind itself to accept the lowest or any tender or to assign any reason thereof and also reserves the right of accepting the whole or part of the tender. The part acceptance will not violate the terms and conditions of the contract and will execute the work at the specified rates without any extra charges or compensation.
- 2.12 Tax deductions will be made as per the prevailing rates from the contractors on account bills as notified by the various govt. authorities.

SECTION III - GENERAL CONDITIONS OF THE CONTRACT

3.1.0 DIRECTIONS REGARDING PROCEDURES

In construing these conditions, specifications and Contract Agreement, the following words shall have the meaning here in assigned to them except where the subject or context otherwise requires:

- (a) **"Employer"** Shall mean The Oriental Insurance Company Ltd. Having its Divisional office at 4BP, Neelam Bata Road, Bata Chowk, Near Delight Hotel, NIT, Faridabad and shall include his (their) legal representative/s assign/s or authorized officer.
- (b) **"Contractor/Builder"** Shall mean the individual or firm or company, whether incorporated or not, undertaking the work and shall include legal personal representatives of such individual or the persons comprising such firm or company or the successors of such individual or firm or company and the permitted assignee of such individual or such individual or firm or company.
- (c) **"Architect"** Shall mean M/S SPACEACE whose registered office is situated at **V-20 A/05, DLF Phase-III, Gurgaon, Haryana-122002**. (and shall include his authorised representative) or in the event of his death or termination of his services by the Employer in his sole and unqualified discretion, such other person/persons as shall be provided always that no person subsequently appointed to be Architect under this contract shall be entitled to disregard or over rule any previous decision or direction given or expressed by the Architect specified here in unless otherwise approved by the Employer.
- (d) **"Contract"** **Means the documents forming the tender and acceptance thereof and the formal agreement executed between the competent authority on behalf of the Divisional Manager, having its Divisional office at 4BP, Neelam Bata Road, Bata Chowk, Near Delight Hotel, NIT, Faridabad and the Contractor, together with the documents referred to there in including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Engineer-in-Charge and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.**

In the contract, the following expressions shall, unless the context otherwise requires have the meanings, hereby respectively assigned to them:

- (i) The expression **works** or **work** shall, unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional.

- (ii) The **site** shall mean the land/or other places on, into or through which work is to be executed under the contract or any adjacent land, path or street through which work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract.
- (iii) **Schedule(s)** referred to in these conditions shall mean the relevant schedule(s).
- (iv) **Tendered Value** means the value of the entire work as stipulated in the letter of award of work.

3.1.1 General

The work shall be carried out strictly in accordance with the drawings amplified by the specifications of materials and workmanship given hereunder. The drawings and specifications shall be taken together and shall complement each other. In case of any discrepancy, the following order of preference shall be followed:

- (a) Particular Specifications.
- (b) Drawings.
- (c) CPWD Specifications & DSR 2012.
- (d) National Building Code and Relevant IS Provisions.

In case there are no specifications for items shown on the drawings or where items are not exhaustively described, the general specifications of CPWD shall be followed for which nothing extra shall be paid. However the specification should be got approved from the Architect before commencement of work.

3.1.2 Drawings and Specifications

- (a) After signing the Contract, the contractor will be given free of charge three prints of all working drawings. The contractor shall make at his own expense any additional copies he requires. One copy of the drawing furnished to the contractor as aforesaid shall be kept by the contractor at site and the same shall, at all reasonable times be available for inspection and use by the Architect and his representatives any by any other person authorized by him in writing.
- (b) Such further drawings and instructions including revisions, as the Architect may furnish to the Contractor shall form part of this contract.
- (c) Only figured dimensions and detailed drawings shall be followed. The Contractor shall verify all dimensions in the field before any work is started and obtain instructions of the Architect in case of any discrepancy.
- (d) The Architect with approval of the **Divisional Manager** shall have power and authority to supply to the Contractor from time to time during the progress of the work, such further drawings and instructions as shall be necessary for the purpose of proper and adequate execution and maintenance of work and the Contractor shall carry out and be bound by the same.

3.1.3 Architects Status and Decisions

- (a) Status:

The Architects shall have general supervision and direction of the work. He has authority on behalf of the Employer to stop the work whenever such stoppage may be

necessary to ensure the proper execution of the work. The architect shall be the interpreter of the conditions of contract and the judge of its performance subject to the approval of the Divisional Manager.

(b) Decisions:

The Architect shall, within a reasonable time, make decisions on all claims of the contractor and on all other matter relating to the execution & progress of the work or the interpretation of the contract documents. The decisions, opinion direction of the Architects with respect to all or any of the following matters shall be referred to the Divisional Manager and decision so taken shall be final & binding to the contractor.

- i) Variation or modifications of the design.
- ii) The quality or quantity of works or the additions/alterations or omissions or substitutions of any work.
- iii) Any discrepancy in the drawings or between the drawings and or specifications.
- iv) The removal and / or re-execution of any work by the contractor.
- v) The dismissal from the work of any persons employed therein.
- vi) The opening up for inspection of any work covered up.
- vii) The amending the making good of any defects under defects liability period.
- viii) Approval of materials and workmanship.
- ix) The contractor to provide every thing necessary for the proper execution of the work.

(c) The employer shall be at liberty to take over the project at any time get the work executed directly under the supervision of **Divisional Manager**. The power vested in the Architect under this tender shall automatically be vested in the **Divisional Manager** thereafter.

(d) In the event of any dispute under this contract or between the Architect & the contractor, the matter will be referred to the **Chief Regional Manager** for speedier decision & the decision will be final & binding to the parties dismissal. In case the contractor refer the matter to the **Chief Regional Manager** for speedier decision.

(e) Dismissal:

The contractor shall on the report of the architects immediately dismiss from the works within 24 hours any person employed by him for the above work, who may, in the opinion of Architects be incompetent or misconducts himself and such person shall not be re-employed on the works without the permission of the Architects.

3.2.1 Extent of Contract

The contractor shall supply at his own cost all material implements, ladders, cordage, tackle, scaffolding and temporary works required for the proper execution of the work whether original, altered or substituted and whether included in the specifications or other documents forming part of the contractor of the contract or referred to in these conditions or not and which may be necessary for the purpose of satisfying of conditions he is entitled to be satisfied which he is entitled to require together with carriage therefore to and from the work. The contractor shall also supply survey

instruments and other materials necessary for the purpose of setting out works, and counting weighing and assisting to the measurement or examinations at the any time and from time to time of the work material, failing his so doing the same may be provided by the engineer-in-charge at the expense of the contractor and the expenses may be deducted from any money due to the contractor under the contract from his security deposit or the proceeds of sale thereof. The contractor shall also provide a sufficient portion of fencing and lights required to protect the public from accident, and shall be bound to bear the expenses of defense brought by any person for injury sustained owing to neglect of the above precautions and to pay any damage and costs which may be awarded in any such suit, action or proceedings to any such person or which may with the consent of the contractor be paid to compromise any claim by any such person. In no case, the employer shall be a party to any such claim/claims and the contractor shall indemnify the employer against any claim for any person on this account.

3.2.2 Sufficiency of Tender

The contractor shall be deemed to have satisfied himself before tendering to the correctness and sufficiency of his tender for the work and of his prices for the work and of his prices stated in the schedule, which shall, except in so far as it is otherwise provided in the contract, cover all his obligations under the contract and all matters and things necessary for the proper completion and maintenance of the work.

3.2.3 Assignment or Sub Letting of Contract

The contractor shall not assign the contract or any part thereof or any benefit or interest therein or there under or any claim arising out of the contract to any other party without the prior written consent of the employer.

3.2.4 Power to make Alterations

Architect shall have power to make any alterations or additions to the stipulated specifications, drawings, designs, and in instructions that may appeal to him to be necessary or, advisable during the progress of the work and the contractor shall have no claim for compensation on account of such alterations or additions. The contractor shall be bound to carry out the work in accordance with any instructions which may be given to him in writing signed by the Architect and such alterations shall not invalidate the contract and any additional work which the contractor may be directed to do in the manner above specified 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 and at the same rates as are specified in the tender for the main work. The time for the completion of the work shall be extended in the proportion that the additional work bears to the original contract work and the certificate of the Architect/Divisional Manager shall be conclusive as to such proportions.

3.3.0 WORKS SUBJECT TO APPROVAL OF ARCHITECT

All works to be executed under the contract shall be subject to approval of the architect who shall be entitled to direct at what point or points and in what manner they are to be commenced and from time to time carried on.

3.3.1 Contractors office and Stores

All offices, sheds and stores required by the contractor shall be enacted at his own cost with the prior approval of the Divisional Manager or his representative and shall be dismantled and removed upon the completion of the work if so directed within 7 (seven) days of the issue of such intimation.

3.3.2 Urgent Repairs and Urgent works

If by reason of any accident or failure or other event occurring to or in connection with the work or any part thereof either during the execution of the work or during the period of Guarantee, any remedial or other work or repair shall in the opinion of Divisional Manager be urgently necessary for security and the contractor is unable or unwillingly at once to do such work or repair, the employer may on its own get the work done/remedied/repared as the Resident Engineer may consider necessary. If the work or repair so done by the employer is such, which, in the opinion of the Architect the contractor was liable to do at his own expense under the contract, all costs and changes incurred by the employer in doing so shall on demand be paid by the contractor to the employer or may be deducted by the employer from any money due or which may become due to the contract. Provided always that the resident engineer shall soon after the occurrence of any such emergency as may be reasonable notify the contractor thereof in writing.

3.4.0 DIRECTION FOR EXECUTION OF WORK

3.4.1 Setting outs

The contractor shall be responsible for the true and proper setting out of the works in relation to the original points, lines and levels of reference given by the architect in writing and for correctness subject as above mentioned of all the positions, levels dimensions and alignments of all parts of the work and for the provision of all necessary instruments, appliances and labour in connection therewith. If at any time during the progress of the work any error shall appear or arises in any part of the work, the contractor on being required to do so by the Divisional Manager shall at once inform the architect or their representatives. The checking of the work by the architect/representative shall not in any way relieve the contractor from his responsibilities of carrying out the work as per the best practices of construction.

3.4.2 Work to be to the satisfaction of the Architect

The contractor shall execute, complete and guarantee the work in accordance with the contract to the satisfaction of the architect and shall comply with the adhere to their instructions & directions concerning the work.

3.4.3 Engagement of Labour

The contractor shall employ labour in sufficient numbers either directly or through subcontractors, where such sub letting is permitted to maintain the required rate of specified in the contract and to the satisfaction of the architect. The contractor shall not employ in connection with the works any person who has not completed his fifteen years of age.

The contractor shall comply with the provisions of the payment of Wages Act, 1936; Minimum Wages Act, 1948; Act, 1947; Maternity Benefit Act, 1961 and Mines Act, 1938, Labour Contract (Regulations & Abolishing) Act or Rules, or any modifications thereof or any other law relating thereto and rules made there under time to time.

The contractor shall indemnify the employer against any payment to be made under and for observance of the Regulation aforesaid without prejudice to his right to claim indemnify from his sub-contractors.

The contractor shall provide and maintain at his own expenses all rights, guards, fencing and watching when and where necessary or required by the Resident

Engineer for the protection of the works or for the safety and convenience of those employed on works or the public.

3.4.4 Disruption of Progress

The contractor shall give written notice to the Architect whenever planning or progress of the works is likely to be delayed or disrupted unless any further drawings or order, including a direction, instruction or approval is issued by the Architect within a reasonable time. The notice shall include details of the drawing or order required and by when it is required and of any delay or disruption likely to be suffered if it is late.

If, by reason of any failure or inability of the Architect to issue within a time reasonable in all the circumstances any drawings or order requested by the contractor and the work suffers delay then the architects shall take such delay into account in determining any extension of time to which the contractor is entitled under provisions of contract hereof, however no other compensation will be admissible on this account.

3.4.5 Rectification of Defects

if, it shall appear to the Architect or his representative in-charge of the works that any work any has been executed with unsound, imperfect or un-skillful workmanship or material or any inferior description, the contractor shall, on demand, in writing from the Architect specifying the work material or articles complained of shall rectify or remove and reconstruction work so specified in part, as the case may require.

3.4.6 Variation

In case the quantity of any item of the work executed increases by more than 20% from the quantity given in the tender document, the rate of such item would be settled as under:

- a) Rate of the item worked out as per market rate
- b) Rate of the item quoted by the contractor.

The rate of such item would be lowest of the two rates mentioned above.

3.4.7 The contractor shall submit the samples of various materials for the approval of the Architect & Client. The contractor shall use the material only after the approval of the Architect/Client. The verification of the material shall be done on random base during the progress of the work in either the following manner :

- (a) Random samples would be picked up during execution of work from site & decided by the Architect/client, it would be sent to one of the approved laboratories for test & quality check. The cost of such tests would be borne by the client.
- (b) The Architect/client may direct the contractor to submit the challan of delivery of the material brought at site. It would be on Random based. The Architect may also direct the contractor to submit the copy of the test/verification certificate provided by the manufacturer of that particular material.

3.4.8 Free Access to work site

The contractor shall provide all necessary and reasonable facilities and free access to the works and his records at site of work to the Architects, Resident Engineer and their representatives. He shall provide facilities and space to the satisfaction of the Architect or his representative for inspection of any part of work.

3.4.9 Inspection of work

All work under or in course of execution or executed in pursuance of the contract shall at all times be open to inspection and supervision of the Architect or his representative and the contractor shall at all times with reasonable notice or the intention of the Architect or his representatives to visit work shall have been given to the contractor, either himself be present to receive orders and instructions, or have responsible agent duly accredited in writing present for that purpose. Orders to the contractor's agent shall be deemed to have given to the contractor himself.

3.4.10 Preparation of Construction Programme Schedule

As and when sufficient planning information is available, the contractor in consultation with the Architect shall prepare a programme schedule of the activities. Contractor should prepare bar-charts & articles path method analysis of the light of the tendered quantities and their rates respectively. Under no circumstances shall this schedule be prepared later than one week of finalization of contract. Throughout the work, all programmes, schedules and charts shall be revised wherever any significant change occurs. The contractor shall also submit weekly progress chart to the Architect.

3.4.11 Site Order Book

The contractor shall maintain a Site Order Book at the site of the works wherein the instructions of the architect/Divisional Manager or their representatives shall be reasoned. The site order book shall be the property of the employer and the instructions recorded therein shall be deemed to have the same force and effect as if they had been given to the contractor himself. The contractor or his representative on the site must sign the book in token of his having persuade the orders given therein.

3.4.12 Hindrance Register

A Hindrance Register shall be maintained at the site of work wherein the contractor shall notify the items affected and the execution of work, the date on which the delay was cleared. These entries shall be initialed by the Divisional Manager/Architect as well.

3.4.13 Suspension of Work

The contractor shall on the written order of the Architect/Divisional Manager suspend the progress of the work or any part thereof for such time or time and in such a manner as the Architect/ Divisional Manager may consider necessary and shall during such suspension properly protect and secure the work as considered necessary in the opinion of the architect/ Divisional Manager or their representative-in-charge of the work. No compensation shall be payable to the contractor on what so ever account for the suspension of work.

3.4.14 Extension of time for completion

If the contractor shall desire an extension of the time for completion of the work, on his having been unavoidably hindered in its execution or on any other ground, he shall apply in writing to the architect within three days of the date of starting of the hindrance on account of which he desires such extension as aforesaid. The architect in consultation with employer shall, if, in his opinion, will authorize, such extension of time, if any, as may in his

opinion be necessary or proper extension granted shall be without prejudice to the right of the Employer to recover compensation for delay as per **provisions of Para 3.4.15**

3.4.15 Liquidated Damages for Delay

The times and date stipulated in the contract for the completion of the work or any part or stage thereof shall be deemed to be the essence of the contract.

The work shall, throughout the stipulated period of the contract, be carried out with all diligence. If the contractor fails to complete the work within the time prescribed or within the extended time under the contract, he shall pay to the Employer on demand amount without prejudice to other rights and remedies the Employer may have against the contractor, a sum of Rs. 500/- per day as liquidated damages for such fault, if the work remain unfinished after the stipulated date of completion provided that the total liquidated damages payable shall not exceed 10% of the accepted contract price. The Employer may, without prejudice to any other method of recovery, deduct the amount of such damages from any money due or which become due to the contractor. The recovery or deduction of such damages shall not relieve the contractor from any obligations and liabilities under the contract.

3.4.16 Defects Liability Period

The contractor shall be responsible to make good and remedy at his own expense within such period as may be stipulated by the employer any defect which may develop or may be noticed before the expiry of 12 (twelve) months from the date of completion and intimation of which has been sent to the contractor within seven days of the expiry of the said period.

3.4.17

If the contractor or his work people, or servants shall break, deface, injure, or destroy any part of a building, or interiors, then the contractor has to rectify the same part at his own expenses to the satisfaction of the Architect.

3.4.18 Approval of Materials

The contractor would bring samples of necessary materials per the directions & would get them approved prior to execution of work.

3.5.0 SECURITY DEPOSIT

3.5.1 Rate of Security Deposit (Retention Money)

The employer will, at the time of making any payment to the contractor for work done or supply made under the contract deduct 10% of Gross value of each interim bill. The maximum amount of Retention money + Earnest Money shall amount to total Security Deposit.

All compensations or other sums of money payable by the contractor to the employer in terms of this contract may be deducted from, or paid by, the sale of a sufficient part of his security deposit, or from any sums which may

become due to the contractor by the employer on any account whatsoever, and in the event of his security deposit being reduced by reason of any such deduction or sale as aforesaid, the contractor shall within ten days. Thereafter make good in demand draft, endorsed in favor of the employer as aforesaid any sum or sums which may have been deducted from, or raised by sale of his security deposit or any part thereof.

3.5.2 Forfeiture of Security Deposit

The above said security deposit shall be liable to forfeiture wholly or in part at the sole discretion of the Employer if the contractor fails to carry out the work or perform or observe any of the conditions of the contract.

3.5.3 Interest on the Security Deposit

No interest would be payable by the employer to the contractor on the security held in deposit.

3.5.4 Responsibilities for the Structural Adequacy

The contractor shall comply with the provisions of the contract and with due cares and diligence, execute and maintain the work and provide all labour, including supervision of all works, structural plans and other things whether of temporary or permanent nature required for such execution and maintenance in so far as the necessary for providing these, is specified or is reasonably inferred from the contract. The contractor shall take full responsibilities for the adequacy, suitability and safety at site of all the works and methods of the construction provided.

3.6.0 MEASUREMENT AND PAYMENTS

3.6.1 All bill supported with measurement details shall be submitted by the contractor fortnightly to the Architect for all works executed in the previous period and the Architect/ Divisional Manager or his representative shall verify the requisite measurement for the purpose of having the same verified for the claim as far as admissible, if possible before the expiry of 15 days from the presentation of the bill.

All measurements to be taken in duplicate and all bills shall be submitted in triplicate along with a contractor's copy of each.

3.6.2 Final Bill

Final bill supported with consolidated measurement of the full work executed shall be submitted by the contractor within 1 month of completion of work.

When the final bill has been verified and corrected, the architect will give seven days notice to the contractor to countersign the bill in token of acceptance, the contractor shall countersign the bill within the above seven days or intimate in writing his intention to dispute. If the contractor fail to take appropriate action as above within the period prescribed, the bill finalized by the architect or his representative shall be final and binding on the contractor and the contractor shall have no right to dispute the same.

3.6.3 Claim for Interest

No claim for interest will be entertained by the Employer with respect to any moneys or balances which may be in its hands owing to a dispute between itself and the contractor or with respect of any delay on the part of the employer in making interim or final payments or otherwise.

3.6.4 Rates for extra Additional, Altered or Substituted work

The rates for additional, altered or substituted work shall be worked out in accordance with the following provisions in their respective order.

- i) If the rates for similar additional, altered or substituted work and directly available in the contract for the work, the contractor is bound to carry out the work at the same rates as are available in the contract for the work.
- ii) If the rates for additional, altered or substituted work are not directly available in the contract for the work the rates will be derived from the rates for a similar class of work as are specified in the contract for the work.
- iii) If the rates for the altered, additional or substituted work cannot be determined in the manner specified in sub-clause (i) to (ii) above, then the contractor shall within three days of the date of receipt of order to carry out the work, inform the Architect of the rate which it is intending to charge for such works supported by analysis of the rate or rates claimed (CPWD analysis). Rates finalized and approved by the Architect on the basis of these details will be final and binding. However, the architect by notice in writing will be at liberty to cancel his order to execute such work and arrange to carry it out in such a manner as he may deem advisable, but under no circumstances shall the contractor suspend the work once ordered in writing on the plea of non-settlement of rate.

3.6.5 Reimbursement of Variation in Price

Prices and rates quoted by the bidders shall be considered as firm for the complete work and entire duration of the contract. No claim for extra payment due to any rise in rates of raw material and labour or due to whatsoever reasons shall be considered, not even for extended period of completion.

3.7.0 GUARANTEES

3.7.1 Quality of Work

The contractor shall guarantee that the materials and workmanship are the best of their respective kinds for the service intended and that all items of work will be free from all inherent defects in workmanship and materials. He shall also guarantee that the works will not fail in any respect due to quality of materials, workmanship and methods of construction.

The specifications assume a proper degree of skill on the part of contractor and workmen employed. The contractor shall consult the Architect or his representative, whenever in his judgment variation in the methods of construction or in the quality of material would be beneficial methods of

construction or in the quality of material would be beneficial or necessary to fulfill the guarantee called for. Such variations may be made by the contractor only when authorised by the architect.

3.7.2 Rejection

If during the "Period of Guarantee", as defined under clause 3.7.6 hereof, any work or material shall fail in any respect to meet the above guarantee, the contractor shall replace such work or material in a condition which will meet the above guarantee, immediately.

3.7.3 Cost of Execution of work or repair etc.

All work of repair shall be carried out by the contractor at his own expense if the necessity thereof shall in the opinion of the Architect be due to the use of materials or workmanship not in accordance with the contract or on account of neglect or failure on the part of the contractor to comply with any obligation expressed or implied on the contractor's part under the contract.

3.7.4 Remedy on Contractor's failure to carry out the work required

If the contractor shall fail to do any such work as aforesaid required by the architect the employer shall be entitled to carry out such work which the contractor should have carried out, at the contractor's own cost. The employer shall be entitled to recover from the contractor the cost thereof or may deduct the same from any money due or that may be come due to the contractor.

3.7.5 Certificate of completion of works

On completion of the work, the contractor shall be furnished with a certificate, but no such certificate be given nor shall the work be considered to have been completed until the contractor shall have removed from the area of the premises (to be distinctly marked by the Architect/ Divisional Manager in the site plan which, the work shall be executed) all scaffolding, surplus materials and rubbish and clean the dirt from all wood work, doors, windows, walls, floors or other parts of any building, in or upon which the work is to be executed, or of which he may have had in possession for the purpose of the execution hereof. If the contractor shall fail to comply with the requirements of the clause as to the removal of scaffolding, surplus materials and rubbish and cleaning off dirt on or before the date fixed for the completion of the work, the architect may at the expense of the contractor remove such scaffolding, surplus materials, and the contractor shall forthwith pay the amount of all expense so incurred, and shall have no claim in respect of any such scaffolding or surplus materials aforesaid, except for any sum actually realized by the sale thereof.

3.7.6 Period of Guarantee for Complete work

The period of Guarantee for the works shall be **twelve** months starting from the date of issue of the completion certificate.

3.7.7 Contract Valid during Guarantee Period

This contract shall remain valid and in force until the expiry of Guarantee period.

3.8.0 RESCINDING/TERMINATE CONTRACT

3.8.1 Rescinding Contract

In any case in which under any clause or clauses of this contract the contractor has rendered himself liable to pay compensation amounting to the whole of his security deposit in hand of employer (whether paid in one sum or deduced by installments) the architect on behalf of the employer shall have power to adopt any of the following course, as deemed best suited to the interests of employer.

- (a) To rescind the contract (of which rescission notice in writing to the contractor under hand of the architect shall be conclusive evidence), and in which case the security deposit of the contractor shall stand forfeited and be absolutely at the disposal of the employer.
- (b) To employ a contractor 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 on site (of the amount of which cost and price certificate of architect 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 has been carried out by the contractor under the terms of the contract. The certificate of the architect as to the value of the work done shall be final and conclusive against the contractor.
- (c) To measure up the work of the contractor, and to take such part of the work of the contractor 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 has been executed by him (of the amount of which excess certificate in writing of the architect 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 employer under the contract or otherwise, or from his security deposit or the proceeds of sale thereof, or a sufficient part thereof.
- (d) In the event of any of the above courses being adopted by the architect, the contractor will have no claim to compensation to any loss sustained by him by reason of his having purchased any materials, or entered into any engagements made any advances on account of execution of the work or performance of the contract. And in case of the provisions aforesaid, the contractor shall not be entitled to be paid for any work actually performed under this contract unless and until the architect shall have certified in writing the performance of such work and the value payable in respect and he shall only be entitled to be paid the value so certified.

3.8.2 Termination of the Contract

If at any time after the commencement of the work the employer for any reason whatsoever does not require the whole or part thereof as specified in the tender to be carried out, Architect/ Divisional Manager shall give

notice in writing of the fact to the contractor who shall have no claim to any payment or compensation whatsoever on account of any profit or advantage, which would have derived from the execution of the work in full, but which he did not derive in consequences the full amount of the work not having been carried out, neither shall he have any claim nor compensation by reason of any alterations having been made in the original specification, or the designs and instruction on which shall involve any containment of the work originally contemplated.

3.8.3 Jurisdiction

The contractor and its operation shall be governed by the law of India for the time being in force, irrespective of the place of delivery of materials the place of execution of work or place of payment under this contract shall be deemed to have been entered into at Faridabad.

3.8.4 Bye Laws of Local Authorities

The contractor shall conform to the provisions of any Government Acts which relate to works and to the regulations and bye laws of any local authorities. The contractor shall give all such notices required by the said Act or Laws, etc., and pay all fees payable to such authorities and allow for these contingencies in his tendered rates including fees for encroachment, stacking charges, costs of restorations, etc. and all other fees payable to the local authorities. The contractor shall keep the employer indemnified against all penalties and liabilities for every breach of any such Act, Rules, Regulations or Bye-laws.

Contractor shall comply with all laws and statutory regulations dealing with the employment of labour such as:

- a. The payment of wages Act, 1936
- b. The Minimum Wages Act, 1938
- c. The Workmen Compensation Act, 1923
- d. The Contract Labour (Regulations & Abolishing) Act.
- e. The employer's liabilities Act, 1938
- f. Industrial Dispute Act, 1938
- g. Maternity Benefit Act, 1961
- h. The Employees State Insurance Act, 1948

Safety code, labour welfare Act or rules or any modification thereof any other laws and regulations framed by the Competent Legislative Authorities from time to time.

3.8.5 Liasoning & Co- ordination with Local Municipal Authorities

The contractor has to liason and take any clearance from local authorities like NDMC/ MCD/ DDA / other municipal authority for approval to start renovation and during renovation of work. He has to take also any clearance from Delhi Fire Service if needed and NOC and completion certificate from DFC if needed. Only statutory fees will be reimbursed by OICL.

SECTION IV – SPECIAL CONDITIONS OF THE CONTRACT

4.1.0 Insurance for Works

The contractor at the time of signing the contract or before commencing the execution of work, without limiting his obligations and responsibilities shall insure the works at his own cost and keep them insured until the virtual completion of the contract against all acts of God including Fire, Theft, Riots, War, Floods etc. with a Nationalized Insurance company in the joint names of the employer and the contractor (the name of the former being placed first in the policy) for the full amount of the contract. Such policy shall cover the property of the employer and fees for assessing the claim and in connection with its services generally therein and shall not cover any property of the Contractor or of any sub contractor or employee.

The contractor shall deposit the policy and receipt for the premiums with the employer within seven (7) days, from the date of signing of the contract/commencement of the execution of the work or unless otherwise instructed by the employer. In default of the contractor insuring as provided above, the employer on his behalf may so insure and may deduct the premiums paid from any moneys due on which may become due to the contractor. The contractor shall as soon any claim under the policy is settled on the work reinstated by the Insurance office should elect to do so, proceed with all due diligence with, the completion of the works in the same manner as through the misfortune/accident had not occurred and in all respects under the same conditions of the contract. The contractor in case of rebuilding or reimbursement after accident shall be entitled to such extension of time for completion, as the employer deems fit.

4.1.1 Insurance in respect of damage to persons and property

- a. The contractor shall be responsible for all injury to persons, animals or things and for all structural and decorative damage to property which may arise from the operation or neglect of himself or of any approved sub-contractor's or employees, whether such injury or damage arise from carelessness, accident or any other cause whatsoever in any way connected with the carrying out of this contract. The clause shall be held to include any damage to buildings, whether immediately adjacent or otherwise, and any damage to roads, streets, foot paths, bridges and works forming the subject of this contract by frost or other inclemency of the weather. The contractor shall indemnify the employer and hold him harmless damage to persons or property as aforesaid and also respect of any claims made in respect of injury or damage under any Acts of Government or otherwise and also in respect of any award of compensation of damages consequent upon such claims.
- b. The contractor shall reinstate all damages of every sort mentioned in this clause, so as to deliver up the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.
- c. The contractor shall indemnify the employer against all claims which may be made against the employer by any member of the public or other third party in respect of works in consequence thereof and shall at his own expense arrange to effect and maintain, until the virtual completion of the contract, with any Nationalized Insurance company in the joint name of the employer and the contractor against such risks and deposit such policy or policies with the employer from time to time

during the currency of this contract. The contractor shall similarly indemnify the employer against all claims which may be made upon the employer whether under the Workman's Compensation Act or any other statute in force during the currency of this contract or at common law in respect of any employee of the contractor or any sub-contractor and shall at his own expenses effect and maintain with an approved office a policy of Insurance in the joint names of the employer and the contractor against such risks and deposit such policy of policies with the employer and the contractor against such risks and deposit such policy or policies with the employer from time to time during the currency of the contract. The contractor shall be responsible for any thing which may be excluded from the insurance policies above referred to and also for all other damages to any property arising out of and incidental to the negligent or defective carrying out of this contract. He shall also indemnify the employer in respect of any costs, charges or expenses arising out of any claim or proceedings and also in respect of any award of or compensation of damages arising therefrom.

- d. The employer shall be at liberty and is empowered to deduct the amount of any damages, compensation costs, charges and expenses arising or occurring from or in respect of any such claim or damage from any sum or sums due to or become due to the contractor including the security deposit.
- e. If the contractor fails to comply with the terms of these conditions, the employer may insure the works and may deduct the amount of the premiums paid from any moneys that may be or become payable to the contractor or may at the option, not release running payment to the contractor until the contractor shall have complied with the terms of this condition.
- f. Such insurance whether effected by the employer or the contractor will not limit or bar the liability and obligation of the contractor to deliver the works to the employer completed in all respects according to the contract. In case of loss or damage due to any of the aforesaid clause, the moneys payable under any such insurance shall be received and retained by the employer until the works are finally completed and such moneys shall then be credited to the contractor in final settlement of accounts.
- g. The works shall be executed in close co-ordination with the progress of other work. This being absence of the contract, no claim for idles labor will be entertained.

SPECIAL CONDITIONS OF CONTRACT FOR AC WORK

LIST OF APPROVED MATERIALS FOR INTERIOR WORKS

The following brand makes/ manufacturer's makes listed below may be used with prior approval of the architect in case it is established that any material as listed below is not available in the market, approve equivalent materials and finishes of any other specialized brand names/ manufacture's makes may be used as per approval of the architect.

S.NO	MATERIALS	APPROVED MAKE/BRAND
1.	HARDWARE FITTINGS	: HETTICH/HAFFLE
2.	CUPBOARD /DRAWER LOCK	: GODREJ
3.	CYLINDRICAL LOCK	: GODREJ
4.	MORTICE LATCH & LOCK	: GODREJ
5.	PAINTS	: NEROLAC / ICI IN PLASTIC EMULSION
6.	GREY CEMENT (OPC)	: ACC/ L&T
7.	WHITE CEMENT	: JK/ BIRLA
8.	COMM BOARDS / PLY	:SARDA DURO /GREEN/ CENTURY//ARCHID
9.	CERAMIC TILES	: NITCO/ KAJARIA/ORIENT/SOMANY.
10.	G.I. PIPE FITTINGS	: TATA / JINDAL MEDIUM, BENDS ELBOWS, UNIONS, T-SOCKETS -UNIK
11	GLASS	:SAINTGOBAIN/MODI FLOAT/ASAHI/GLAVERBEL
12.	C.P FITTINGS	: JAQUAR
13.	LAMINATE	: 1MM FORMICA/GREENLAM/ MERINOLAM/SUNMICA.
14.	POLISH	: MELAMINE POLISH AS PER APPROVED SAMPLE
15.	GLUE	: FEVICOL
16.	HYDRAULIC DOOR CLOSER	:DORMA/ STERLING DC2000
17.	FLOOR SPRING, FRAMELESS GLASS FITTINGS, HANDLES	:DORMA/TRIUM/KICH
18.	ANTI-TERMITE/FIRE PAINT	: VIPER STAR-FR-881

LIST OF APPROVED MATERIALS

(SAMPLES TO BE CHECKED AT CONTRACTOR'S COST)

Electrical Items for OIC Faridabad

1.	M.S. / PVC CONDUITS & ACCESORIES	BEC / STEEL CRAFT / AKG/SETIA /ATUL/PRECISION
2.	WIRES (MULTI STRANDED ONLY) (ISI)	FINOLEX/SKYTONE / KEI/POLYCAB
3.	SHEET	HYLAM 3 MM WHITE BOTH SIDES
4.	SWITCHES / SOCKETS/PLATE ETC	MK(WRAP ROUND)/LEGRAND(MOSAIC)/CLIPAL(OPALE)/SIEMENS/PHILIPS(ELITE)
5.	MCCB, MCBs, ELCBs, DBs	LEGRAND/SCHNEIDER(DBS-DOUBLE DOOR TYPE ONLY)
6.	CHANGE OVER SWITCHES	HPL/SIEMENS /SCHEINDLIER/GE(FRONT OPERATED ONLY)
7.	SWITCHES FUSE UNITS	EE/L&T/ABB/HPL/GE
8.	CABLES	FINOLEX/SKYTONE / KEI/POLYCAB
9.	JOINTING KITS /CONNECTORS	SCREWLESS WAGO & CONTROLS (I) LTD
10.	INDICATING LAMPS	TELEMECHANIQUE/ L&T/KAYEE
11.	METERING EQUIPMENT	RISHAB/AUTOMATIC/ELECTRIC/ CONZERV
12.	ASS/VSS	KAYCEE/L&T
13.	CABLE GLAND/ LUGS/	COMET/CONNECT WEL/DOWWLS
14.	LUMINAIRES & FIXTURES	PHILIPS
15.	FANS	CROMPTON GREAVES/ USHA
16.	TELEPHONE WIRE	DELTRON/ PLAZA/ GRANDLAV/ LEADER
17.	MAIN PANEL	KRYTON/ADVANCE CONTROL/HITECH POWER CONTROL/MADHU ELECTRICAL/TRICOLITE
18.	LAMPS	PHILIPS/OSRAM
19.	DATA AND VOICE NETWORKING CABLE	AMP / SYSTIMAX
20.	INFORMATION OUTLETS	AMP / SYSTIMAX
21.	PATCH PANEL	AMP / SYSTIMAX
22.	RACEWAY	ADEQUITE/ STEEL WAY / JTC / PILCO/SLOTCO/RICCO/NATIONAL FABRICATOR
23.	PATCH CORDS	AMP / SYSTIMAX
24.	RACK FLOOR MOUNTED	DYNAMIC
25.	SERVER	HP

TECHNICAL SPECIFICATION

CONDITIONS AND SPECIFICATIONS FOR ELECTRICAL WORKS

1. The electrical works shall be executed by the contractor himself if he registered in appropriate class for electrical works with CPWD / P & T / MES / Railways / State PWD / Public undertaking Banks etc. through subcontractor registered in appropriate class for electrical works with CPWD / P & T / MES / Railways / State PWD.
2. The work shall be carried out as per CPWD Specification 2007 Part-I (internal) & Part - II 2008 (external) both amended up to date. All the installation shall comply with the requirement of Indian electricity Rule 1956 amended up to date. If the specifications for any item is not available in the CPWD specifications cited above, relevant IS specifications shall be followed. In case ISI specifications are also not available, the decision of the Engineer-In-charge given in writing based on acceptable sound Engineering Practice and local usage shall be final and binding on the contractor.
3. All the material to be used on the work shall be of superior quality and shall have to be got approved from the Engineer-In-Charge before use at site.
4. The layout for running of the conduits, positions of switches fitting etc. shall have to be got approved from the Engineer-In-Charge before execution of the same.
5. Suitable size of TW block duly varnished shall be provided for FI. fittings for which nothing extra shall be paid.
6. All the conduit to be laid shall be provided with fix wire or not less than 16 SWG for which nothing extra shall be paid.
7. All the switches to be provided for lighting/ fans/ light plug/ power plug/ call bell etc. shall be of modular type of superior quality.
8. The switchboards shall be provided with decorative sheet of approved colour and quality, which shall be got approved from the Engineer-In-charge before use at site.
9. The contractor shall make his own arrangement for the safe custody/ storage of his material. Breakage, damage if any done during the storage/ execution, the same shall be replaced/ rectified by the contractor at his own cost.
10. The contractor is bound to sign the entry/ entries made by the Engineer-In-Charge or his representative in the site order book time to time.
11. Good workmanship is an essential requirement for compliance with the rules & specifications.
12. The entire installation shall be at the risk and responsibility of the contractor until these are tested and handed over to the department.

13. Earthing loop earthing shall invariably be along as per CPWD specifications.
14. Notwithstanding the schedule of quantity. All items of inter-related work considered necessary to make installation complete and separate deemed to be included shall be provided by the contractor at no extra cost.
15. Contractor has to supply the layout / circuit drawings of installation after the completion of work.
16. The cover of all junction boxes shall be of bakelite sheet.
17. The tenderer shall submit a sample board, incorporating in it the samples of all electrical wires, conduits etc. proposed to be used for approval of Engineer-in-charge before commencement of work. No extra payment shall be given for the same.
18. Any damage caused to Building as a result of execution of electrical work shall be responsibility of the electrical contractor. The damage if so caused shall be made good by the contractor promptly at his own cost to the entire satisfaction of the Engineer-In-charge.
19. Embedding of earth electrode shall be done in the presence of Engineer-in-charge for his authorized representative.
20. The contractor shall submit the completion plan separately for each floor for one particular building only in triplicate on Blue print showing the route of sub-mains etc.
21. The Engineer-in-charge will be at liberty to get the work inspected through the C.T.E. or any other agency appointed by the Govt. or Municipal Corporation and the result of their finding will be binding on the contractor.
22. Contractor shall not assign or sub-let the work without prior approval of Engineer-in-charge.
23. Contractor would get load enhancement done from the electrical authority/NDMC/NDPL/concerned agency, OICL would only pay the requisite fees needed by authority against indent supplied by the concerned agency.
 - a. The Contractor shall appoint an authorized agency of relevant manufacturer for carrying out the works for the Data and VOICE Networking and get a Certification of the executed work and installation and get it tested to the satisfaction of Architect/client. The authorization certificate from the relevant manufacturer whether the agency doing the work is their authorized agent/system integrator has to be submitted before starting of the work shall be produced. Without the performance certificate from the company, the executed work shall be deemed as incomplete and shall not be accepted by the client and all payments made in this head be recovered by 50% for that particular Head. **The performance certificate should be for 8/10 years from the relevant manufacturer as applicable, The Data Cabling Scope of Work will also to have provision for the GFC**

Drawings including route, Labeling and Penta Testing Report and as Built drawings.

24. For Addressable Fire Alarm System, the Contractor shall appoint an authorized agency of the relevant principal manufacturer for carrying out the work and get a Certification of the executed work and installation and get it tested to the satisfaction of Engineer-in-Charge/client .
25. The civil contractor / Electrical Contractor combined shall appoint an Electrical Engineer / Diploma Holder / Foreman of sufficient experience not less than 3 years for the works to be executed at site as per the IE rules.
26. The contractor shall submit a sample board, incorporating in it all the samples of the Electrical Works, ie., Wires, Conduits etc. proposed to be used for approval of Engineer- in –charge before commencement of work. No extra payment shall be given for the same.

ADDITIONAL SPECIAL CONDITIONS OF CONTRACT :

1. The contractor shall take the responsibility of dismantling and disposal of existing civil, electrical and furniture work to the destination specified by the owner.
2. All electrical fixtures, equipment should be removed so as to be serviceable and handed over to the owners and these fittings and fixtures shall be the property of Oriental Insurance Limited.
3. The contractor shall take responsibility of getting approval of Building Authorities / Estate Officer and other Authority as required for executing the work during and off the office timings.
4. On partial completion of work the contractor shall be furnished with a certificate, but not such certificate be given nor shall the work be considered to complete until the contractor shall have removed from the area of the premises (to be distinctly marked by the Architect/ Divisional Manager in the site plan which, the work shall be executed) all scaffoldings, surplus materials and rubbish and clean the dirt from all wood work, doors, windows, walls, floors or other parts of any building, in or upon which the work is to executed, or of which he may have had in possession for the purpose of the execution hereof. If the contractor shall fail to comply with the requirements of the clause as to the removal of scaffoldings, surplus materials and rubbish and cleaning off dirt on or before the date fixed for the completion of the work, the architect may at the expense of the contractor remove such scaffolding, surplus materials, and the contractor shall forthwith pay the amount of all expense so incurred, and shall have no claim in respect of any such scaffolding or surplus materials aforesaid, except for any actually realized by the sale thereof.

5. SELECTION OF MATERIALS

On unavailability of any material in the list of approved materials for interior works, for any reason whatsoever may be, the Architects in consultation with OICL may permit the contractor to use the equivalent material.

6. In an event, the contractor fails to procure approval from statutory Authorities if needed by municipal authorities , as mentioned above/ otherwise required, the work shall not be deemed to be completed and 50% of the EMD payment due to the contractor shall stand forfeited.

SPECIFICATIONS FOR INTERNAL ELECTRICAL INSTALLATION

SECTION 1. GENERAL AND TECHNICAL

1. POINT WIRING

A point (other than a socket outlet point) shall include all work necessary in complete wiring to the following outlets from the controlling switch or MCB. The scope of wiring for a point shall however, include the wiring work necessary in tapping from another point in the same distribution circuit.

- a] Ceiling rose or connector (in the case of points for ceiling / exhaust fan points, prewired light fittings, and call bells).
- b] Ceiling rose (in the case of pendants except stiff pendants).
- c] Back plate (in the case of stiff pendants).
- d] Lamp holder (in the case of goose neck type wall brackets, batten holders and fitting which are not prewired).

Note:- In the case of call bell points the words "from the controlling switch board or MCB" shall be read as "from the ceiling rose meant for connection to bell push".

1.1 Scope

- a] Any special block required for neatly housing the connector in batten wiring system.
- b] Control switch or MCB, as specified.
- c] 3 pin or 6 pin socket, ceiling rose or connector as required. (2 pin and 5 pin socket outlet shall not be permitted)
- d] Connection to ceiling rose, connector, socket outlet, lamp holder, switch etc.

1.2 Point wiring for socket outlet points

- a] The light plug (5A / 6A) point and power (15A / 16A) point wiring shall be measured on linear basis, from the respective tapping points namely, switch box, another socket outlet point, or the sub distribution board as the case may be upto the socket outlet.
- b] The metal / PVC box with cover, switch / MCB, socket outlet and other accessories shall be measured and paid as separate item.

Note:- There shall normally be no "on the board" light plug point.

- c] The power point outlet may 15A/ 5A or 16A/ 6A six pin socket outlet, where so specified in the tender documents.

1.3 Twin control light points wiring

- a] A light point controlled by two numbers of two way switches shall be measured as two points from the fitting to the switches on either side.
- b] No recovery shall be made for non-provision of more than one ceiling rose or connector in such cases.

1.4 Multiple controlled call bell points wiring

- a] In the case of call bell points with a single call bell outlet, controlled from one more than one place, the points shall be measured in part i.e.(a) from one call bell outlet to one of the nearest ceiling rose meant for connection to bell push, treated as one point and classified from that ceiling rose to the next one and so on , shall be treated as separately point(s).
- b] No recovery shall be made for non- provision of more than one ceiling rose or connector for connection to call bell in such cases.

2. **CIRCUIT AND SUBMAIN WIRING**

2.1 Circuit Wiring

Circuit wiring shall mean the wiring from the distribution board upto the tapping point for the nearest first point of that distribution circuit, viz. upto the nearest first switch box.

2.2 Submain wiring

Submain wiring shall mean the wiring from one main / distribution switchboard to another.

2.3 Measurement of circuit and submain wiring

- a] circuit and submain wiring shall be measured on linear basis along the run of the wiring. The measurement shall include all lengths from end conduit as the case may, exclusive on interconnections inside the switch board etc. The increase on account of diversion or slackness shall not be included in the measurement.
- b] The length of circuit wiring with two wires shall be measured from the distribution board to the first nearest switch box in the circuit irrespective of whether the neutral conductor is taken to switchbox or not.
- c] When circuit wires and wires of point wiring are run in same conduit/ circuit wiring shall be measured on linear basis depending on the actual number and sizes of wires run in the existing conduit.

- d] Protective (loop earthing) conductors which are run along the circuit wiring and the submain wiring shall be measured on linear basis and paid for separately.

3. **SYSTEM OF DISTRIBUTION AND WIRING**

3.1 Distribution

- a] Main distribution board shall be controlled by a circuit breaker or linked switch with fuse. Each outgoing circuit shall be controlled by a switch with fuse, circuit breaker or only a fuse on the phase or live conductor.
- b] The branch distribution board shall be controlled by a linked switch fuse or circuit breaker. Each outgoing circuit shall be provided with a fuse or miniature circuit breaker (MCB) of specified rating on the phase or live conductor.
- c] Triple pole distribution boards shall not be used for final circuit distribution, unless specific approval of the Engineer-in-charge is obtained. In such special cases, the triple pole distribution boards shall be of HRC fuse type or MCB type only.
- d] The loads of the circuits shall be divided, as far as possible, evenly between the number of ways of the distribution boards, leaving at least one spare circuit for future extension.
- e] 'Power' wiring shall be kept separate and distinct from 'Lighting' wiring, from the level of circuits i.e. beyond the branch distribution boards.

3.2 Wiring system

- a] Unless and otherwise specified in the tender documents, wiring shall be done only by the "Looping system". Phase or live conductors shall be looped at the switch boxes and neutral conductors at the point outlets.
- b] Lights, fans and call bells shall be wired in the 'lighting' circuits. 15A/ 16A socket outlets and other power outlets shall be wired in the 'Power' circuits. 5A/ 6A socket outlets shall be wired in the 'lighting' circuits in non residential buildings and in the 'power' circuit in residential buildings.

3.3 Passing through walls or floors

- a] Where a wall pipe passes outside a building so as to be exposed to weather, the outer end shall be mounted and turned downwards and properly bused on the open end.

3.4 Joints in wiring

- a] There shall be no joints in the through-runs of cables. If the length of final circuit or sub-main is more than the length of a standard coil, thus necessitating a through joint, such joints shall be made by means of approved mechanical connectors in suitable junction boxes.

- b] Termination of multi-stranded conductors shall be done using suitable crimping type thimbles.

4. **RATING OF OUTLETS (TO BE ADOPTED FOR DESIGN)**

- a] Ceiling fans shall be rated at 60 W. Exhaust fan, fluorescent tubes, compact fluorescent tubes, HPMV lamps, HPSV lamps etc. shall be rated according to their capacity. Control gear losses shall be also considered as applicable.
- b] 5A / 6A and 15A / 16A socket outlet points shall be related at 100W and 1000W respectively, unless the actual values of loads are specified.

5. **CAPACITY OF CIRCUITS :**

- a] "Lighting" circuit shall not have more than a total of 10 points of light, fan and socket outlets, or a total connected load of 800W, whichever is less.
- b] "Power" circuit shall be designed with only one outlet per circuit in nonresidential buildings. The circuit shall be designed based on the load. Where not specified, the load shall be taken as 1 KW per outlet.
- c] "Power" circuit in residential buildings shall be designed for not more than two outlets (15A/ 16A and / or 5A/ 6A) per circuit. The ratings for load calculation purposed shall however be taken as per the type of outlets.
- d] Load more than 1 KW shall be controlled by an isolator or miniature circuit breaker.

6. **WIRING ACCESSORIES**

6.1 Control switches for points

- a] All the Switches, Sockets, TV socket and Computer Socket shall be modular type.
- b] Power (15A/ 16A) outlets shall be controlled by single pole modular type switches or by MCB's, where specified. Only MCB's shall be used for controlling industrial type socket outlets, and power outlets above 1 KW.

6.2 Socket outlets

- a] Socket outlets shall be of the same type, namely modular type, as their control switches. These shall be rated either for 5A/ 6A, or 15A/16A. Combined 5A/ 15A, or 6A/ 16A six pin socket outlet may be provided in 'power circuits only where specified.
- b] Outlet boxes for socket outlets (both 15A/ 16A and 5A/6A) points in residential buildings.

7. **FITTINGS**

7.1 Indoor type fittings

- a] Fittings using discharge lamps shall be complete with power factor correction capacitors, either integrally or externally. An earth terminal with suitable marking shall be provided for each fitting for discharge lamps.
- b] Fittings shall be installed such that the lamp is at a height of 2.5m above floor level, unless otherwise directed by the Engineer-in-charge.

7.2 Bulk head fittings

Bulk head fittings shall be of cast iron / cast aluminium body, suitably painted white inside and gray outside, complete with heat resistant glass cover, gasket, BC lamp holder for 100W incandescent lamp.

8. **MCB TYPE DISTRIBUTION BOARD (MCBDB)**

- a] MCBDB's may be of single phase, 3 phase (horizontal type) suitable for feeding single phase loads, or 3 phase (vertical type) suitable for feeding single phase as well as 3 phase loads, as specified. These shall be complete with accessories, but without MCB's which shall be specified as a separate item in the tender documents.
- b] The current ratings and the number of ways shall be as specified. Blanking plates shall be provided to close unused ways. These shall be indicated as separate item in the Schedule of work.

9. **PRE-WIRED MCB DISTRIBUTION BOARDS**

- a] The board shall also be provided with a loose wire box as a compartment for the complete width and , depth of the board, and of minimum height of 125mm in case of TPN DB's, and 100mm in case of SPN DB's.
- b] The board shall be provided with a hinged cover of 1.6mm thick sheet steel in the front. Only the knobs of the MCB's shall protrude out of the front covers through openings neatly machine made for the purpose.
- c] The board shall be complete with the following accessories:-
 - i) 200 A copper busbar (s).
 - ii) Neutral link.
 - iii) Common earth bar.
 - iv) DIN bar for mounting MCB's.
 - v) Elemex type terminal connectors suitable for incoming and outgoing cables.
 - vi) A set of indication lamps with HRC cartridge fuses for each phase of the incoming supply.
 - vii) Earthing stud.(s)

Note:- MCB's and blanking plates shall be specified as separate items, as required.

10. **SWITCH BOARD LOCATIONS**

10.1 Cubicle type switchboards

Cubicle type switchboards shall conform to section 4 of "General Specifications for Electrical Works (Part - IV - Substation), 1982".

11. **SWITCH BOARD INSTALLATION**

- a] Unless and otherwise specified in the tender documents, a switchboard shall not be installed so that its bottom is within 1.25 m above the floor.
- b] There shall be a clear distance of 1 m in front of the switch boards. The space behind the switchboards shall be either less than 20 cm or more than 75 cm. If there are any attachments or bare connections at the back of the switch board. Rule 51 (c) of the Indian Electricity Rules shall apply.
- c] Where it is required to terminate a number of conduits on a board. it may be convenient to provide a suitable MS adopter box for the purpose. Such boxes shall be provided with the prior approval of the Engineer-in-charge and this will be paid for separately.
- d] No apparatus shall project beyond any edge of the panel. No fuse body shall be mounted within 2.5cm of any edge of the panel.
- e] Busbars and interconnecting strips in fabricated boards shall be PVC tapped or sleeved in Red, Yellow and Blue for phases, and Black for neutral. The interconnecting cables shall also follow this colour coding.

12. **ATTACHMENT OF FITTINGS AND ACCESSORIES**

12.1 Conduit wiring system

- a] All accessories like switches, socket outlets, call bell pushes and regulators shall be fixed in flush pattern inside the switch/ regulator boxes.
- b] Aluminum alloy or cadmium plated iron screws shall be used to fix the accessories to their bases.
- c] The switch box/ regulator box shall normally be mounted with their bottom 1.25cm from floor level, unless otherwise directed by the Engineer-in-charge.

13 **FIXING TO WALLS AND CEILING**

- a] Wooden plugs for ordinary walls or ceiling shall not be used in view of the ban on use of timber in Govt. works. However, where so specified, these shall be of well seasoned teak or other approved hard wood not less than 5 cm long by 2.5cm square on the inner end, and 2cm square on the outer end. They shall be cemented into walls within 6.5mm of the surface, the remainder being finished according to the nature of the surface with plaster or lime punning.

- b] PVC sleeves/ dash fasteners should normally be used for fixing to walls or ceiling.

M.S. CONDUIT WIRING SYSTEM

APPLICATION

- a] Recessed conduit is suitable generally for all applications. Surface conduit work may be adopted in places like wiring above false ceiling / below false flooring, and at locations where recessed work may not be possible to be done. The type of work, viz. surface or recessed, shall be as specified in the respective works.
- b] Flexible conduits may only be permitted for interconnections between switchgear, DB's and conduit terminations in wall.

MATERIALS

Conduits

s

- a] All rigid conduit pipes shall be of MS and ISI marked. The wall thickness shall not be less than 1.6mm (16 SWG) for conduits up-to 32mm dia. and not less than 2mm (14 SWG) for conduits above 32mm dia.
- b] No MS conduit less than 20mm in diameter shall be used.

Conduit accessories

- a] All conduit accessories shall be of solid type.
- b] Saddles for surface conduit work on wall shall not be less than 0.55mm (24 gauge) for conduits upto 25mm dia. and not less than 0.9mm (20 gauge) for larger diameter. The corresponding widths shall be 19mm & 25mm.

Outlets

- a] The switch box or regulator box shall be made of metal on all sides, except on the front. In the case of cast boxes, the wall thickness shall be at least 3mm and in case of welded mild steel sheet boxes, the wall thickness shall not be less than 1.2mm (18 gauge) for boxes upto a size of 20cm x 30cm, and above this size 1.6mm (16 gauge) thick MS boxes shall be used. The metallic boxes shall be duly painted with anticorrosive paint before erection as per chapter 10 of these specifications.
- b] Outlet boxes shall be of one of the size, covered in the Schedule of Rates (Elect.), Part I- Internal.
- c] Where a large number of control switches and/ or fan regulators are required to be installed at one place, these shall be installed in more than one outlet box adjacent to each other for ease of maintenance.

- d] An earth terminal with stud and 2 metal washers shall be provided in each MS box for termination of protective conductors and for connection to socket outlet/ metallic body of fan regulator etc.
- e] Clear depth of the box shall not be less than 50mm, and this shall be increased suitably to accordance mounting of fan regulators in flush pattern.

INSTALLATION

Common aspects for recessed and surface conduit works.

a] Bends in conduit

- i) All necessary bends in the system, including diversion, shall be done either by neatly bending the pipes without cracking with a bending radius, or alternatively, by inserting suitable solid type normal bends or similar fittings, whichever is most suitable.
- ii) No length of conduit shall have more than the equivalent of four quarter bends from outlet to outlet.

Additional requirements for surface conduit work.

a] Fixing conduit on surface

Conduit pipes shall be fixed by saddles, secured to suitable approved plugs with screws in an approved manner at an interval of not more than one metre, but on either side of the couplers or bends or similar fittings, saddles shall be fixed at a distance of 30 cm from the centre of such fittings.

b] Fixing outlet boxes

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

Additional requirements for recessed conduit work**a] Fixing conduits in chase**

- i) The conduit pipe shall be fixed by means of J-hooks, or by means of saddles, not more than 60 cm apart, or by any other approved means of fixing.
- ii) All joints of conduit pipes shall be treated with some approved preservative compound to secure protection against rust.

b] Fixing conduits in RCC work

The conduit pipes shall be laid in position and fixed to the steel Reinforcement bars by steel binding wires before the concreting is done. The conduit pipes shall be fixed firmly to the steel reinforcement bars to avoid their dislocation during pouring of cement concrete and Subsequent tamping of the same.

- ii) Fixing of standard bends or elbows shall be avoided as far as practicable, and all curves shall be maintained by bending the conduit pipe itself with a long radius which will permit easy drawing in of conductors.

c] Fixing inspection boxes

1. Suitable inspection boxes to the minimum requirement shall be provided to permit inspection, and to facilitate replacement of wires, if necessary.
2. These shall be mounted flush with the wall or ceiling concrete. Minimum 65mm depth junction boxes shall be used on roofslabs and the depth of the boxes in other places shall be as per IS: 2667 - 1977.

d] Fixing switch boxes and accessories

Switch boxes shall be mounted flush with the wall. All outlets such as switches, socket outlets etc. shall be flush mounting type, unless otherwise specified in the Additional Specifications.

e] Fish wire

- i) To facilitate subsequent drawing of wires in the conduit, GI fish wire of 1.6mm / 1.2mm (16/18 SWG) shall be provided along with the laying of the recessed conduit.
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MEDIUM VOLTAGE DISTRIBUTION BOARDS FOR POWER AND LIGHTING DISTRIBUTION

General

Distribution board shall be suitable for 415 Volt, 3 phase AC supply or 230 volt single phase AC supply as required. Distribution boards shall generally conform to IS 2675 or BS 214. However, the specifications hereinafter described shall take precedence over the above wherever this specification call for a higher standard or material or workmanship.

Type and construction

Distribution boards shall be of totally enclosed dead front safety type. The enclosure be made of best quality sheet steel of not less than 14 gauge. The sheet steel shall be treated with a rigorous rust inhibited process before fabrication. The distribution boards shall comprise of MCB isolator or moulded case circuit breaker as incoming and required number of miniature circuit breaker as outgoing. The main and outgoing shall have rating as specified on the drawings and schedule.

Busbar

Suitable bus bars made of high conductivity copper strips and mounted on non-hygroscopic insulating supports shall be provided.

Circuit Breaker

Moulded case circuit breaker and miniature circuit breakers shall be of approved design and make. Circuit breakers shall be equipped with individually insulated, traced and protected connectors. The front face of all the breakers shall be flush with each other. Each breaker shall be provided with card holder and neatly printed card identifying the circuit. The position of handle of the breaker shall clearly indicate the condition of breakers such as **"ON/OFF/TRIPPED"**.

Safety & Interlocks

All the live parts shall be shrouded such that accident contacts with live parts are totally avoided. Distribution board shall be provided with a front hinged door. Distribution board shall be provided with a front hinged door. Distribution board interior assembly shall be dead front with the front cover removed. Main lugs shall be shrouded on five sides. Suitable insulating barrier made of arc resistant material shall be provided for phase separation. Ends of the bus structures shall also be shrouded.

Cabinet Design

The distribution board cabinet shall be totally enclosed type with dust and vermin proof construction. The cabinet shall be stove enamelled to grey shade finish. The interior surface shall be finished to an off-white shade. The interior components shall be mounted on a separate sheet steel which is mounted and locked on to the studs provided inside the cabinet. Over this, a cover made of hylam sheet or stove enamelled sheet steel shall be provided with slots for operating handles of breakers. The cabinet shall be provided with a front door having a spring latch and vault lock. Cabinets shall have detachable gland plates at both top and bottom.

Terminals

Distribution boards shall be provided with a terminal block of adequate size to receive mains and outgoing circuits. The location of the terminal block shall be so located that crowding of wires in the proximity of live parts is avoided. A neutral link having rating equal to that of phase bus shall be provided.

Directory

Distribution boards shall be provided with a directory indicating the area or loads served by each circuit breaker, the rating of breakers, size of conductors etc. The directory shall be mounted in metal holder with a clear plastic sheet on inside surface of the front door.

Installation

Distribution boards shall be surface mounted or recessed mounted as required by the Architects and at the locations shown on the drawings. The boards shall be fixed with suitable angle iron clamps and bolts. All the cables / conduits shall be properly terminated using glands / grips / check nuts etc. Wiring shall be terminated properly using crimping lugs / sockets and PVC identification ferrules. No bare conductor shall be allowed inside the boards. Distribution boards shall be bonded to the earth at least at two points using brass bolts and lugs. Suitable name plate, danger plate, indicating the voltage shall be fixed to the front cover.

Testing

Distribution board shall be tested at factory as per IS 2675 or BS 214. The tests shall include insulation test, high voltage test etc.

Distribution boards shall be tested for insulation resistance after the erection.

CUBICLE TYPE BOARDS

Cubicle type switch board shall be fabricated out of sheet steel not less than 2.0 mm thick. Wherever necessary, such sheet steel members shall be stiffened by angle iron frame work. General construction shall employ the principle of compartmentalization and segregation for each circuit. Unless otherwise approved, incomer and bus section panels or sections shall be separate and independent and shall not be mixed with sections required for feeders. Each section of the rear accessible type board shall have hinged access doors at the rear. Overall height of the board shall not exceed 2.0 meters. Operating levers, handle etc, of highest unit shall not be at a height more than 1.7 m. Multi-tier mounting of feeders is permissible. The general arrangement for multi-tier construction shall be such that the horizontal tiers formed present a pleasing and aesthetic look. The general arrangement shall be got approved before fabrication. Cable entries for various feeders shall be either from the rear or from the front through cable alleys located in between two circuit sections. All cable entries shall be through gland plates. There shall be separate gland start plate for each cable entry so that there will not be dislocation of already wired circuit when new feeders are added. Cable entry plates shall therefore be sectionalized. The construction shall include necessary cable supports for clamping the cable in the cable alley or rear cable chamber.

SWITCH BOARD INSTALLATION

- a] Switchboard shall not be installed so that its bottom is within 1.25 m above the floor.
- b] There shall be a clear distance of 1 m in front of the switch boards. The space behind the switchboards shall be either less than 20 cm or more than 75 cm. If there are any attachments or bare connections at the back of the switchboard. Rule 51 (c) of the Indian Electricity Rules shall apply.
- c] Where it is required to terminate a number of conduits on a board. it may be convenient to provide a suitable MS adopter box for the purpose. Such boxes shall be provided with the prior approval of the Engineer-in-charge and this will be paid for separately.
- d] No apparatus shall project beyond any edge of the panel. No fuse body shall be mounted within 2.5cm of any edge of the panel.
- e] Busbars and interconnecting strips in fabricated boards shall be PVC tapped or sleeved in Red, Yellow and Blue for phases, and Black for neutral. The interconnecting cables shall also follow this color coding.

TESTING OF INSTALLATION**GENERAL****Tests**

On completion of installation, the following tests shall be carried out:-

- a] Insulation resistance test.
- b] Polarity test of switch.

Witnessing of Tests

Testing shall be carried out for the completed installations, in presence of and to the satisfaction of the Engineer-in-Charge by the contractor. All test result shall be recorded and submitted to the Department.

INSULATION RESISTANCE

The insulation resistance in mega ohms measured as above shall not be less than 12.5 mega ohms for the wiring PVC insulated cables, subject to a minimum of 1 mega ohm.

A preliminary and similar test may be made before the lamps etc. are installed, and in this event the insulation resistance to earth should not be less than 25 mega ohms for the wiring with PVC insulated cables, subject to a minimum of 2 mega ohms.

The term "outlet" includes every point along with every switch, except that a switch combined with a socket outlet, appliance or lighting fitting is regarded as one outlet.

POLARITY TEST OF SWITCH

The installation shall be connected to the supply for testing. The terminals of all switches shall be tested by a test lamp, one lead of which is connected to the earth. Glowing of test lamp to its full brilliance, when the switch is in "on" position irrespective of appliance in position or not, shall indicate that the switch is connected to the right polarity.

DRAWINGS