

THE ORIENTAL INSURANCE COMPANY LIMITED

AHMEDABAD REGIONAL OFFICE

TENDER FOR

CIVIL +FURNITURE+ ELECTRICAL & AIRCONDITIONING WORKS
AT

REGIONAL OFFICE

3RD FLOOR, NAVJIVAN TRUST BUILDING

NAVRANGPURA AHMEDABAD.

TECHNICAL BID

ISSUED TO :

.....

.....

CLIENT :

DEPUTY GENERAL MANAGER
ORIENTAL INSURANCE CO.LTD.
3RD FLOOR, NAVJIVAN BUILDING,
OFF. ASHRAM ROAD,
AHMEDABAD – 380 006.
TEL NO: 2754 1953

ARCHITECTS :

SUKRUTI ARCHITECTS & ENGINEERS
45/5, BIMANAGAR CO.OP.HSC. LTD,
NR. SHIVRANJANI CROSS ROAD,
SATELLITE ROAD,AHMEDABAD – 380 015.
TEL NO: 94263 03303 , 2676 7459.

Notice of Invitation of Tender
TENDER FOR PROPOSED INTERIOR+ CIVIL + ELECTRICAL+AIR-
CONDITIONING WORKS FOR REGIONAL OFFICE OF THE ORIENTAL
INSURANCE COMPANY LIMITED, AHMEDABAD

Sir,

Sealed Tenders on Item rate basis are invited from the contractors having a branch office in Ahmedabad and who have qualified the minimum criteria subsequent to press advertisement dt. **22.05.2016** in TOI & local news paper, for comprehensive interior works involving Civil, Interior, Modular Furniture, Electrical and Air-Conditioning works at Regional office of The Oriental insurance Company Limited ,3RD floor, Navjiavan Press Building, off ashram road, Ahmedabad- 380014, against payment of Rs. 5000 (Non-refundable). **Contractor down loading Tender will have to submit separate a Demand Draft of Rs. 5,000.00 in favor of The Oriental Insurance Company along-with E.M.D.** The work comprises of Civil, Interior, Modular Furniture, Sanitary installation, Electrical and Air-Conditioning works.

The tender for such works will be prepared and issued

Part A : comprise of technical specifications, basis of design, description of the equipment, technical data, conditions of contract, commercial conditions etc.+ **E.M.D & TENDER FEES DRAFT.**

Part B : comprises of schedule of works i.e.[1] Bill of Quantities [2] Copies) ,drawings.

The tenders should be submitted in sealed envelopes each separate (Part A & Part B) with the superscription of the Name of the work. **The EMD + TENDER FEES in the form of DD shall be enclosed in the envelope A.** Tenders submitted without the EMD will be rejected.

Earnest Money Deposit : Rs. 90,000 (Ninety Thousand only) by **Crossed DD** drawn in favor of The Oriental Insurance Co Ltd payable at Ahmedabadi.

Time of Completion : **18 Weeks**

Issuing Date : **23.05.2016 to 10.06.2016** 10 AM to 4 PM

Time & Last Date of Submission: Before 3.00 PM on **13.06.2016**

Time and Date of Opening : Technical bid with EMD @ 4.30 PM on **14.06.2016 or any other day.**

Working Time During Weekdays - 6 PM to 6 AM - Holidays (Full Time)

T.O.I.C.L. will not be bound to accept the lowest tender and reserves the right to accept or reject any or all the tenders without assigning any reason whatsoever.

DEPUTY GENERAL MANAGER
ORIENTAL INSURANCE CO.LTD
3RD FLOOR, NAVJIVAN BUILDING,
OFF. ASHRAM ROAD,
AHMEDABAD – 380 014.
TEL NO: 2754 1953

GUIDELINES FOR TENDER PROCESS

1. The priced tender should be in sealed form and titled PROPOSED INTERIOR + CIVIL + ELECTRICAL + AIR-CONDITIONING WORKS FOR REGIONAL OFFICE OF THE ORIENTAL INSURANCE COMPANY LIMITED, AHMEDABAD
2. The Tender Deposit fee is interest free and is mandatory. This Amount would be converted in to security deposit for successful contractor and would be returned to unsuccessful contractor within ONE month of award of work.
3. The Contractor should have an experience of interior works along-with Electrical & Air-conditioning carried out in Govt./PSU organization not less than Rs 40 lacs or two works not less than Rs 30 lacs each should apply.
4. The Contractor should submit the Firm / Company profile highlighting similar works carried out in the past 3 years, the Client's / Architect's Completion Certificate, Total turnover of the past 3 years, IT clearance certificate, Banker's Guarantee limit etc.
5. The Contractor should acquaint himself with the site condition and fully understand the constraints of the existing building involving demolition of brick walls. The Contractor should include all sundries like underpinning of slab without endangering the structure.
6. The Validity of the offer should be up to 120 days.
7. The execution period of the Civil & Interior works (along with other agencies like Electrical & Air Conditioning Installation) is 18 weeks. The Contractor should take special note of this requirement before submission.
8. All the documents herein enclosed are the Company's property and should not be misused or divulged to any person or firm
9. The tender document along with the schedule of works will be supplied on non Refundable Tender fee of Rs. 5000/- at Regional Office of The Oriental Insurance Company Limited, Ahmedabad via DD.
10. For any Clarification regarding the tender, the Contractor should contact The Authority (Regional Office) or Architect directly on any of the following addresses:

DEPUTY GENERAL MANAGER

The Oriental Insurance Co.Ltd,
Regional Office 3rd floor,Navjivan Trust Bldg,
Road,Ahmedabad-380014

Contact number :(079) 27541901/27541953

M/s. Sukruti Architects & Engineers
45/5,Bimanagar Co.Op.Hsc. Ltd, Near Off.,Ashram
ShIvranjani Cross Road,Satellite,Ahmedabad.
Contact Person: Mr. Hemangbhai Panchal
Phone: (079) 26767459,Mobile: 9426303303
Email: sukruti2000@yahoo.com

Please note the tendering on comparative basis and will be decided by a committee constituting the Clients / Architects / Consultants.

For The Oriental Insurance Co Ltd

For Sukruti Architects & Engineers

DEPUTY GENERAL MANAGER

Architect

INSTRUCTIONS

1. The tender should be addressed to Deputy General Manager, The Oriental Insurance Company Limited, 3RD Floor, Navjivan Press Bldg, Off. Ashram Road, Ahmedabad-380 014.
2. The tenderer or their agents are expected to be present at the time of opening the tenders.
3. The tender receiving authority will be opening each tender and will attested **by Architect** any corrections therein and record the number of corrections in tender schedule.
4. Electric power and water shall be made available by the company at one point. The Contractor shall have to make his own arrangements for extension of power to different points at his own cost. Electric consumption charges shall be borne by the Contractor as per tariff fixed by the Electricity Department.

Contractor

For The Oriental Insurance Co Ltd

TERMS & CONDITIONS OF CONTRACT

1. Scope of Contract

The Contractor shall carry out the works strictly according to stipulated conditions to the entire satisfaction of the Authority. The Authority's instructions given at the site during visits and at office meetings will form part of contract. For confirmation of the Contractor may write within a week of instruction addressed to the Architect. If found necessary, any items of works shall have to be removed, modified and re-done.

2. Date of Starting & Completion

Date of handing over of site will be reckoned as date of starting and completion date is as stated in tender notice.

3. Fees to Local Municipal Authorities

The Contractor shall pay and indemnify the employer against any fees or Charges (including any rate and taxes) legally demandable in respect of works apart from building license fees.

4. Food and Working Hours

Food will NOT be provided for the workers or staff. Accommodation will not be provided by the Employer. **ONLY NIGHT WORK or ON HOLIDAYS work should be carried out by the contractor during (6 PM to 6 AM on weekdays and Holidays – Full time). Minor works (non noise producing) will be allowed between 9am and 6 pm only after the written permission from client and a copy forwarded to the architect.**

5. Site Order Book

The Contractor shall keep at site an order book for entering all site I instructions given by the Authority in triplicate and copy of the same to be sent to the Authority.

6. Quality of work

The materials and workmanship to confirm with specifications and bad work shall be removed on instruction by the Authority and no extra will be paid for redoing the same to the entire satisfaction of the Architects. The Contractor to get prior approval of sources of purchase, makes etc of all materials.

7. Safety and Insurance

The Contractor to take on his own account All Risks Policy and Workman Compensation as per insurance laws. All the safety measures against fire accidents, injuries to be insured by the contractor. He will also protect /safeguard the neighboring properties, structures etc. by proper supports etc. before starting the work.

8. Site Engineer & Quality Control

A Client's Engineer / Engineers will be posted at site full time who will supervise work on instruction from Authority. The Contractor should keep at site the required number of full time site engineers for recording measurement, quality control etc.

9. Rates for extra items

The rates for extra items to be derived from existing similar rates only, as far as possible. For entirely new items, sufficient data to be provided with vouchers, proof etc. Unless prior approval is got before starting the work extra items rates will not be considered.

10. Payment

The Payment will be made on certification of Authority, directly by Client, on the basis of detailed measurements accompanying the running bills.

- a) No Mobilization advance of will be given to contractor.
- b) Interim payment will be issued on reaching Rs. 15,00,000.00 completion only for work done by Contractor within 30 days of Architects Certificate
- c) Final payment on completion of works and handing over site.
- d) EMD + 1% as Security will be deposited with Company will be converted as security deposit. Security deposit will be released on handing over of completed drawings in CAD format and fixing of defects.

11. Termination of Contract

If in the opinion of the Authority, the Contractor has willfully neglected the work or committed fraud or default, will give termination notice and the contractor to vacate the site within 3 days of such notice. Authority's decision is final in computing amount due to the Contractor on termination.

Signature of the Contractor:
Address for Communication:
Date:
Seal:

Mandatory information required for Prequalification of the bidder for
Renovation works of Regional Office, The Oriental Insurance Co.Ltd
3rd Floor, Navjivan Bldg, Off, Ashram Road, Ahmedabad-380014.

- Important
1. Please type in or Handwrite in BOLD letters.
 2. Attach copies of supporting documents.
 3. Please use additional sheets if required.

1 Company/Firm name:

Address:

Contact Phone Number:

Land Line:

Mobile:

2 Status of the firm (Company / Firm / Proprietary)

3 Name of the Directors / Partners / Owners

3 Whether registered with Registrar of Companies / Firms?
If YES, mention the Number, Date and attach the copy of
the registration certificate.

4 Whether registered for Sales Tax / Service Tax?
If YES, mention the Number, Date and attach the copy
of the registration certificate.

5 Permanent Account Number (PAN)
Service Tax & VAT No:

6 EPF/ ESI

7 Turnover of the last THREE years. Attach the Audited
Balance Sheet and Audited Profit & Loss Account for
the last three years.

2013 – 14

2014 – 15

2015 – 16

8 Name and Address of the Bankers

9 Attach the SOLVENCY/CAPABILITY CERTIFICATE From the Bankers for an amount of 40 lacs,
if short listed for the work.

10 Details of at least two similar works costing not less than 30 lacs, including period of completion
with dates Or Details of at least one work costing not less than 40 lacs, Including period of
completion with dates

11 Detailed description and value of works done for the T.O.I.C.L.in the past

12 Feedback of your performance from your previous clients. (Attach the supporting testimonials)

13 Evaluation criteria of the tender:

- | | |
|---|-----------|
| 1) Two projects of 30 lac or One project for 40 lac - | 20 points |
| 2) Turnover over one crore - | 10 points |
| Turnover over two crore -20 points | |
| 3) Visit to contractors site by committee - | 40 points |
| 4) Experience on PSU/Interior (10+Years) - | 10 points |
| (5+Years) - | 5 points |
| 5) All contractors in house staff - | 5 points |
| 6) Awards/appreciation by PSU client - | 5 points |

14 Specify the maximum value of works executed in an year

15 Do your works involve Electrical Works? If YES, attach a copy of valid 'A' grade license issued by the concerned authority.

17 Remarks

Signature of the Contractor:

Address for Communication:

Date:

Seal:

TERMS & CONDITIONS OF THE TENDER

1. The Tender should be submitted in the prescribed tender schedule obtainable from the Company's Regional Office at Ahmedabad from the Administrative officer on payment of Rs.5000 per set.
2. While the tenders are opened, unattested correction if any will be noted by the company specifying the number of corrections on each page under his signature and date.
3. Tender should be submitted in Duplicate in the prescribed form in a sealed cover and should be addressed to The Deputy General Manager, The Oriental Insurance Co. Ltd, 3rd Floor, Navjivan Press Building, Off. Ashram Road, Ahmedabad-380014, and name of the work being distinctly super scribed on the cover. All the sheets of the tender papers should be signed by the contractor / Copartner / person authorized to do so and all entries to be filled in English and should be handwritten.
4. The tenderer should clearly mention his permanent address in his tender papers.
5. The tender deposit of the rejected tenders shall be refunded within **Two month** after the receipt of the tender or a week after the acceptance of tender whichever is earlier. No interest will be payable to the contractor on account of the tender deposit.
6. The accepted tenderer shall attend the office of the concerned institution on the date fixed by written intimation to him / them for executing the agreements etc.
7. Failure of the part of the successful tenderer to execute the correct agreement would entail forfeiture of tender deposit [E.M.D.].
8. Retention money i.e. further security deposit at **8%** shall be deducted from the running bill account as a security for satisfactory work and timely completion and the same will be refunded after successful completion of work and the defects liability period.
9. The tenderer should note that the quantities mentioned in the schedule Are only approximate and are liable to change either less or more.
10. The Contractor shall quote competitive rates for finished items
Specially for each item of work as per the estimate / tender schedule and shall be inclusive of materials, labor charges , machinery hire charges etc.,.
11. The quoted rates should be written both in words and in figures and the units in words. The tenderer should also show the rate of the item of work and the total cost of the work.
12. The tender shall be compared with the estimated rates which will be based on the district schedule of rate of the district in which the aforesaid work falls.
13. The contractor should keep open their offer at least for a period of 120 days.
14. The contractor must have a branch office in Ahmedabad with reasonable Staff strength.
15. The submission of tender by a contractor implies that he has read Tender notice and conditions of contract and made himself well aware of the scope and specifications of the work to be done and has satisfied himself with site conditions and acquainted himself with the quarried and availability of

materials, etc with lead and lifts.

16. The tenders not submitted in the prescribed form in due time or that Are defective and conditional will be summarily rejected.
17. The items not covered by the tender will be paid as per the district schedule of rates plus or minus the percentage of the tender.
18. **The Contractor shall be responsible for the payment of Compensation To Workmen working under him for any injury or death caused to the laborers etc during the execution of work as per rules in force of the state Government.**
19. The Contractor shall pay the sales and other usual taxes levied by Corporation / Municipalities and the royalties due to Government.
Contractor The Oriental Insurance Co. Ltd
20. **The Contractor shall be held responsible for the loss of the company's owned property during the execution of the work.**
21. The Contractor's bill shall be prepared in triplicate and submitted to The Authority for scrutiny. The Site Engineer / Consultant shall measure the work done in the presence of the Contractor or his duty authorized agent whose counter-signature in the measurement book shall be sufficient proof to the correctness of the measurement which shall be binding on the Contractor for acceptance in all respects.
22. **The Contractor shall have no legal right to claim any interest if there is any administrative delay for the payment due to correspondence of procedural matters.**
23. **The Tender Schedule is appended herewith in which the item-wise may be quoted both in words and figures which shall be inclusive of material, labor, machinery charges, incidental charges ,all taxes, service taxes as applicable etc.**
24. After the approval of the tender, letting out order will be issued to the contractor and simultaneously mark out will be given to him.
25. If the contractor does not commence work on site within **21 days** of issuing of work order, the entire EMD will be forfeited.
26. The period of completion of the said work shall commence from the date of mark and which the site engineer shall inform in writing to the Company duly taking the signature of the Contractor.
27. The Consultant shall be responsible for the quality control in accordance with the specifications prescribed therein and also to get pertinent test performed in a testing laboratory at the expense of the contractor to ensure the design and quality and maintain the standards as per design and specifications.
28. The Consultants or their representative at all reasonable times shall have access to the work and / or to the workshop or other places where work is being carried out for the contract.
29. Rates quoted shall be final and will not vary at any later date and will be valid till the completion of the said work.

30. Any defects in the workmanship and materials and any damage caused to the works thereby which may appear within the defects liability periods shall be repaired to good condition by the Contractor at his own cost.
31. No sub-letting of works by the Contractor shall be permissible.
32. Sub-standard materials shall not be accepted.
33. All debris shall have to be cleared off by the contractor from the premises building after completion of work and the building shall be handed over to the company in writing and obtain acknowledgement.
34. Any works risk and insurance should be borne by the Contractor.
35. **If the Contractor fails to complete the work and handover the work with a proposed completion time of 8 weeks or less, within stipulated time, contractor shall pay a penalty as mentioned below.**
After the proposed date of completion till the 7th day – 1% of the Final Bill

_ From 8th day to 14th day – 3% of the Final Bill

_ From 14th day to 21st day – 5% of the Final Bill

-- From 21st day onwards – 10% of the Final Bill
36. The Company shall grant extension of time for the delay caused by the contractor, if reasons exist. A written request by the contractors is to be forwarded to the Architect for the same.
37. Defects liability period will be 12 months from the date of completion of the work.
38. Liquidated damages for delay: Time shall be the essence of the contract. The time of completion allowed in the work shall be strictly observed by the contractor and it shall commence from the date of mark out.
39. The Authority will have power to make alterations or additions in the scope of original work and specifications and designs and the contractor shall be bound to carry out the works in accordance with the instructions given to him in writing by the consultants from time to time.
40. The Contractor shall give a list of works executed by him and that are on hand with description.
41. The contractor should give the list of machinery, tools and equipments he proposes to use. The contractor should employ technical persons to supervise his works and should give a list of technical personnel engaged by him.
42. The Contractor should give a physical program me of the work.
43. The rate quoted in the tender shall include all charges for single or double scaffoldings, centering materials, water charges, electrical charges, temporary plumbing, cost of cisterns, hire for any tolls and plants, sheds for materials, marking out and clearing of sites, watering concrete etc as required under the specification and for satisfactory completion of the work. The rates quoted

shall be deemed to be measured at site. The rates shall also be firm and shall not be subject to exchange, variations, labor conditions, fluctuations in railway freights or any other conditions whatsoever. Tenderer must include in their rate all taxes, duties other levies by the Central Government or local authority as applicable. No claim in respect of any such levies shall be entertained by the consultants.

44. If the contractors cause any damage to any building or materials or to any property inside the compound or to the adjoining premises they should pay for the damages as decided by the consultants besides setting right the damage. The Authority's decision shall be final in this respect.

Contractor

The Oriental Insurance Co. Ltd

TECHNICAL SPECIFICATION

1. Concreter

- Unless otherwise specified, the concrete mix shall be 1:2:4 ratio with minimum of M15 grade strength.
- The rates should include necessary formwork, centering and scaffolding and the reinforcement will be measured separately.
- The blue metal used shall have sharp edges free from dust etc., washed to the size specified.
- The brick jelly when used shall not have any brick powder mix and used bricks not to be used for the same.
- The columns (RCC) shall be measured full without deductions, beam to full depth including slab thickness between columns, and slabs in panels excluding beams.

2. Brick Masonry

- First class stock bricks giving a minimum of 30 Kg/cm² compressive strength to be used.
- For half brick walls 2 nos. 6mm MS rods or chicken mesh to be used as reinforcement at each layer up to 4 layers at bottom and at every 8th layer above.
- All rates to include scaffolding, lifts to upper floors etc.

3. Wood work & Carpentry

- Well seasoned wood of the specified species to be used free from knots, whites, cracks etc.
- Wood will be measured to the size as executed at site, planing margin will not be paid.
- All teak wood specified will be of first quality Burma teak.

4. Reinforcement

- Only tested steel to be used.
- Before using each sample of steel section to be tested in approved lab for sectional weight.
- The rate shall include cutting, bending, lifting, placing and tying and the cost of binding wire.
- The steel to be free from rust, oil stains etc.
- MS rolling shutters to include necessary hoods and gear operated with handle will be extra. (Diana or equivalent make is speed).
- Steel windows to be of IS sections and to include 1 shop coat of red oxide paint. (Agew or equivalent)

5. Weathering Course

- The brick jelly lime concrete to be laid to slope necessary beating with wooden knives to be done using jaggery, kadukkai etc.
- The country and pressed clay tiles to be fixed in CM (1:4) 20mm thick using waterproof mortar and pointing the same with 1:3 waterproof mortar.

- The flashing done in junctions of walls and floor will not be measured for separately and only surface area of floor only measured for payment.
6. Plastering
- All meeting places between concrete and brick walls joints should be covered with chicken mesh for a width of 4” on either side on concrete and brickwork and then plastering to be carried out.
7. Floor Tiles & Glazed Tiles
- The tiles shall be of approved make and shall generally conform to IS1237. They shall be flat, and true to shape and free from blisters crazing, chips, welts, crawling or other imperfections detracting from their appearance.
 - The top surface of the tiles shall be glazed or matt finish as per the approval of Employer / Architect. The underside of the tiles shall not have glaze on more than 5% of the area in order that the tile may adhere properly to the base. The size and thickness of tiles shall be as approved by the Architect /Employer.
 - White or colored glazed tiles shall comply with IS: 777. It shall be from a approved manufacturer and shall be flat and true to shape. They shall be flat, and true to shape and free from blisters crazing, chips, welts, crawling or other imperfections detracting from their appearance. The glazing and color shall be of uniform shade and unless otherwise specified the tile shall be min mm thick.
8. Painting
- Ready mixed oil paint, plastic emulsion paint, ready mixed synthetic enamel paint, Aluminum paint, etc., shall be brought in original containers and in sealed tins. If for any reason thinner is necessary the brand and quantity of thinner recommended by the manufacturer or as instructed by the Employer / Architects shall be used.
 - The surface shall be prepared as specified above and cost of approved primer shall be applied. After 24 hours, drying approved of specified quality paint shall be applied evenly and smoothly. If required filler putty coating may be given to give smooth finish. Each coat shall be allowed to dry out thoroughly and then lightly rubbed down with sand paper and cleaned of dust before, the next coat is applied. Number of coats shall be as specified in the item and if however, the finish of the surface is not uniform additional coats as required shall be applied to get good and uniform finish at no extra cost. After completion no hair marks from the brush or clogging of paint puddles in the corners of panel angles of moldings shall be left on the work. The glass panes floor etc. shall be cleaned of stains.
 - When the final coat is applied, if directed, the surface shall be rolled with a roller or if directed it shall be stippled with a stippling brush.
9. General
- All materials used shall confirm to relevant IS standards.
 - Concrete cube testing to be done at each stage and a register maintained at site.
 - Only tested water to be used which is good for construction in an approved lab.
 - Only approved quality of cement / lime to be used.

Signature of the Contractor:

Address for Communication:

Date:

Seal:

LIST OF APPROVED MAKE OF MATERIALS FOR INTERIOR

S.No.	Material	Approved Make
1	Ceramic tile	Johnsons / Asian / Kajaria
2	Vitrified Ceramics	Johnsons /Asian / Kajaria/ Marborite
3	Adhesive	Waber / Bal Endura
4	Door Closers / Floor spring	Ingersoll/Hafele / Ozone/Hardwyn/Dorma
5	Gypsum Board	La gyp / Saint gobain
6	Modular Ceiling	Armstrong /Daiken
7	Commercial Plywood	Green / Century / Mayur / Sharon
8	Water Resistant Plywood	Green / Century / Mayur / Sharon
9	Wood	Burma Teak wood / Africa Wood
10	Veneer	Green / Mayur / Euro
11	Fabric Protection coating over Upholstery	Scotchgard of “3” M”
12	Paints	Asian / ICI / Dulux/Nerolac/Nippon
13	Laminates	Marino / Green Lam
14	Screws Oxidized)	GKW
15	Furniture Hardware	Efficient Gadgets/Ebco/Ozone/4C/ Hettich
16	Adhesive	Fevicol SH, Araldite, Vamicol
17	Mortise Locks	Godrej / Ozone / Hafele / Hardwyn
18	Wood Preservatives	Wood guard / Termisil
19	Cement	Coromandel /L& T/Zuar/Penna/Ramco
20	Vertical blinds	Vista / Huntter douglas
21	Sun Control film	Garwar / 3M
22	Frosted film	3M
23	Vinyl	3M
24	Melamine / French Polish	Asian / Berger / ICI
25	Plain and Tinted Glass	Saint Gobain / Ashai/ Modi
26	Mirror	Modiguard / Saint Gobain / Ashai
27	Hardware Fittings such as Hinges SS:	Garg / Ingersoll / Ozone

knob Handle, Tower Bolts Castors etc.

28 Flush Door

Kutty / Sharon / Green

ARTICLES OF AGREEMENT

AGREEMENT made at.....

.....this.....
(Day) of....., 2016 between

.....
...(hereinafter referred to as the 'Employer' which expression shall include its successors and assigns) of the part and

..... (Hereinafter referred to as the Contractor which expression shall include his heirs, executors, administrators and assigns) on the other part, WHEREAS the Employer is desirous of

..... And
has caused drawings and specifications describing the work to be done to be prepared by.....

..... And
WHEREAS the said drawings as per list attached, the specifications and the priced schedule of quantities have been signed by or on behalf of the parties here to and WHEREAS the Contractor has agreed to execute upon and subject to the conditions set forth herein. (Hereafter referred to as the 'Said Conditions' and the 'Said priced Schedule of Quantities' at the respective rates mentioned in the 'Priced Schedule of Quantities'

NOW IT IS HEREBY AGREED AS FOLLOWS.

1. In the considerations of payment to be made to the contractors as hereinafter provided, they shall upon and subject to the conditions execute and complete the work shown upon the said drawings and such further detailed in the said detailed drawings may be furnished to them by the said EMPLOYER and described in the said detailed description and general specifications.
2. The Contractor shall pay to the Employer, a sum of On or before the execution of these payments paid by them along with the tender as deposit, to be dealt with as mentioned the same shall remain deposited with the owner and will not bear any interest.
- 3 The Employer shall pay to the contractors such sum as shall become payable here under at the time and in the manner specified in the said conditions.
- 4 The drawings, agreement and documents above mentioned shall form the basis of the contract and the decision of the Employer in reference to all the matters of dispute as the material, workmanship, on account and as to the intended interpretation of the clauses of this agreement or any other documents attached hereto, shall be final and binding on both the parties.
5. The said contract comprises the building above mentioned and all subsidiary works connected there within the same site as may be ordered to be done from time to time by the Employer even though such work may not be on the drawings or described in schedule of quantities.
6. The Employerreserves to himself the right of altering the drawings and nature of the work and adding or

omitting any items of work or of having portions of the same carries out departmentally or of otherwise and such alteration or variations shall be carried out without prejudice to the contract.

7. The said conditions shall be read and construed as forming part of this agreement and the parties here to will respectively abide by and submit themselves to the conditions and stipulations and perform the agreement on their part respectively hereinafter set out.
8. The Contractor will be allowed to enter upon the said plot of land for Construction only as a license and shall not be entitled to claim possession of or alien on the site of any construction there on not withstanding any claim the contractor may have against the contractor.
9. The said work will be deemed to have commenced from the date the work order is served on the contractor and shall be completed within a period of 8 weeks since then and if the time of completion is extended by mutual consent within such extended period time being essence of the contract.
10. The employer shall have right to terminate this contract by giving 1 week notice to that effect to the contractor if the contractor has suspended the work for more than two weeks or has committed breach of any item or terms and conditions of the agreement and on such termination the employer will be entitled to carry out the remaining work at the risk and liability of the contractor and will be entitled to claim such damages as the employer will suffer.
11. The several parts of the contract have been read and fully understood by us.
12. This contract is neither a fixed lump sum contract nor a piece work contract, but it is a contract to carry out the work in respect of the entire buildings to be paid according to actual measured quantities at the rates contained in the schedule of rates and probable quantities or as provided in the said conditions.
13. All disputes arising out of or in any way connected with this agreement shall be deemed to have arisen in Ahmedabad. Only Courts in Ahmedabad shall have the jurisdiction to entertain and determinate the same.

SIGNED SEALED AND DELIVERED BY

the within named in the presence of

SIGNED SEALED AND DELIVERED BY

the within named

in the presence of

CONTRACTOR

ELECTRICAL MATERIAL SPECIFICATION

DISTRIBUTION BOARDS

The scope of work shall cover supply, installation testing and commissioning of all
Standards :

AS PER SCHEDULE OF INDIAN STANDARDS, ATTACHED IN THE DOCUMENT.

Distribution Boards :

Distribution boards along with the controlling MCB's/Fuse or Isolator as shown shall be fixed in an M.S. Box with hinged door suitable for recessed mounting in wall. Distribution boards shall be made of 18 SWG steel sheet duly rust inhibited through a process of de-greasing, acid pickling, phosphating and powder coated to an approved colour of adequate micron rating duly approved by architect/consultant.

Three phase boards shall have phase barriers and a wire channel on three sides. Neutral bars shall be solid tinned copper bars with tapped holes and chase headed screws. For 3 phase DB's, 3. independent neutral bars shall be provided. All DB's shall be internally pre-wired using copper insulated PVC wires brought to a terminal strip of appropriate rating for outgoing feeders.

Conduit knockouts shall be provided as required/shown on drawings and the entire board shall be rendered dust and vermin proof with necessary sealing gaskets. The top and bottom side of DB should be detachable.

MCB's shall have quick make and break non-welding self wiping silver alloy contacts for 10 KA short circuit both on the manual and automatic operation. Each pole of the breaker shall be provided with inverse time thermal over load and instantaneous over current tripping elements, with trip-free mechanism. In case of multi-pole breakers, the tripping must be on all the poles and operating handle shall be common. Breakers must conform to BS 3871 with facility for locking in OFF position. Pressure clamp terminals for stranded/solid conductor insertion are acceptable upto 4 sq.mm. aluminum or 2.5 sq.mm. copper and for higher ratings, the terminals shall be suitably shrouded. Wherever MCB isolators are specified they are without the tripping elements.

Fuses shall be HRC link type re-wireable with necessary fuse carriers and with rating of not less than 25 MVA. Bottle type fuses are not acceptable. Fuse carrier terminals shall be suitably shrouded. Re-wireable fuse carriers shall be porcelain. HRC fuses for motor duty should be time lag type.

Distribution boards shall have HRC/re-wireable fuses as shown on the schedule and drawings. Board shall meet with the requirements of IS 2675 and marking arrangement of busbars shall be in accordance with I.S. standards.

Bus bars shall be suitable for the incoming switch rating and sized for a temperature rise of 35° C over the ambient. Each board shall have two separate earthing terminals. Circuit diagram indicating the load distribution shall be pasted on the inside of the DB

as instructed. One earthing terminal for single phase and two terminals for 3 phase DB's shall be provided with an earth strip connecting the studs and the outgoing ECU earth bar.

In the case of MCB distribution boards, the backup fuses wherever shown shall be not less than 63 A with a delayed characteristic and a minimum pre-arcing time of 0.5 sec. At 9 KA/3 KA fault current.

All outgoing feeders shall terminate on a terminal strip which in turn is interconnected to the MCB/Fuse base by means of insulated single conductor copper wires as follows :

Upto 15 A	2.5 sq.mm.	40 A	10 sq.mm.
25 A	4.0 sq.mm.	63 A	16 sq.mm.
32 A	6.0 sq.mm.		

RCCB / MCB :

The RCCB should suffices all the requirements of IS as per code IS – 12640 – 1988. The RCA should be current operated and not on line voltage.

The RCCB should ensure mainly the following functions.

Measurement of the fault current value.

Comparison of the fault current with a reference value.

The RCCB should have a torroidal transformer witch has the main conductors of primary (P – N) which check the sum of the current close to zero.

All metal parts should be inherently resistant to corrosion and treated to make them corrosion resistant.

It should be truly current operated.

It should operate on core balance torroidal transformer.

It's accuracy should be $\pm 5\%$.

It should operate even in case of neutral failure.

It should trip at a present leakage current within 30 M.S.

It's enclosure should be as per IP 30.

It's mechanical operation life should be more than 20,000 operations.

It should provide full protection as envisaged by IE rules – 61-A, 71 – ee, 73 – ee, 1985 and also rule 50 of IE rule1956.

It should conform to all national and international standards like IS 8828 : 1993, IS 12640 – 1988, BS 4293 – 1983, CEE 27 (International commission Rules for the approved of electrical equipment).

MEDIUM VOLTAGE CABLING

Scope :

The scope consists of Laying & testing L. T. Cable and its termination.

Standards :

AS PER SCHEDULE OF INDIAN STANDARDS; ATTACHED IN THE DOCUMENT

Cables :

All cables shall be 1100 Volt grade XLPE insulated, sheathed with or without steel armoring as specified and with an outer PVC protective sheath. Cables shall have high conductivity stranded aluminum or copper conductors and cores colour coded to the Indian Standards. All cables laid up to load should be without any joint.

All cables shall be new without any kind or visible damage. The manufacturers name, insulating material, conductor size and voltage class shall be marked on the surface of the cable at every 600 mm centers.

Cable joints and termination:

Connectors :

Cable terminations shall be made with copper Heavy duty long neck copper crimping lugs only crimped type solderless lugs for all aluminium cables and stud type terminals. For copper cables copper crimped solderless lugs shall be used.

Crimping shall be done with the help of hydraulically operated crimping tool. All cable lugs should be long neck type only.

Cable Glands :

Cable glands shall be of heavy duty brass single compression type as specified. Generally single compression type cable glands shall be used for indoor protected locations and double compression type shall be used for outdoor locations. Glands for classified hazardous areas shall be CMRS approved.

Ferrules :

Ferrules shall be of self sticking type and shall be employed to designate the various cores of the control cable by the terminal numbers to which the cores are connected, for ease in identification and maintenance.

Cable joints :

Kit type joint shall be done and filled with insulating compound. The joint should be for 1.1 KV grade insulation.

CONDUIT WIRING

- 1.0 Scope :
- 1.1 The scope of work shall cover supply, installation testing and commissioning of all.
- 2.0 Standards :
- As per annexure - iv
- 3.0 Rigid and Flexible conduits :
- 3.1 All PVC conduits shall be laid in open/concealed manner which are approved by F.I.A. & I.S.I. & of 25 mm. Diameter.
- 3.2 Flexible conduits shall be formed from a continuous length of spirally wound interlocked steel strip with a fused zinc coating on both sides. The conduits shall be terminated in brass adapters.
- 4.0 Accessories :
- 4.1 PVC conduit fittings such as bends, elbows, reducers, chase nipples, split couplings, plugs etc. shall be specifically designed and manufactured for their particular application. All conduit fittings shall conform to IS:2667-1974 and IS:3887-1966. All fitting associated with galvanized conduit shall also be galvanized.
- 5.0 Wires :
- 5.1 All wires shall be single core multi-strand/ flexible copper or single strand Aluminium/Copper, PVC insulated as per IS:694 and shall be 660v/ 1100V grade.
- 5.2 All wires shall be colour coded as follows :
- | | |
|------------------|--------------------|
| Phase | Colour of wire |
| R | Red |
| Y | Yellow |
| B | Blue |
| N | Black |
| Earth | Green (insulated) |
| Control (If any) | Grey |
| All off wires | Same as Phase wire |
- 5.3 Colour code should be strictly used for all wiring.
- ii) Installation, commissioning and testing.
 - iii) Cable marking.

For cable buried underground :

- i) Cables and protective bricks & tiles.
 - ii) Installation, commissioning & testing.
 - iii) Cable markers.
- 6.0 Switches & Sockets:
- 6.1 Switches shall be module type/ flush piano type with silver-coated contacts. Sockets shall be 3 pin with switch and plate type cover. Combination of multiple switch units and sockets should be used to minimize the switch boxes.
- 6.2 For heavy duty, metal clad sockets with M.C.B./ Isolator mounted in a galvanized steel box shall be provided.
- 6.3
- 7.0 Installation:
- 7.1 Conduits shall be kept at a minimum distance of 100 mm. From the pipes of other non-electrical services. And maintain minimum 300 mm distance between telephone, TV & Computer piping.
- 7.2 Separate conduits/raceways shall be used for:
- 1. Normal lights and 5 A 3 pin sockets on lighting circuit.
 - 2. Separate conduit shall be laid from D.B. to switch board or point.
 - 3. Power outlets – 15 A 3 pin 20 A/30 A, 2 pin scraping earth metal clad sockets.
 - 4. Emergency lighting.
 - 5. Telephones.
 - 6. Fire alarm system.

7. Public address system & Music system.
 8. For all other voltages higher or lower than 230 V.
 9. T.V. Antenna.
 10. Water level guard.
 11. Computer Wiring.
- 7.3 Call bell wiring layout of conduits shall be generally indicated on drawings and the layout shall be supplemented and complemented by contractor on site with approval of the Engineer.
 - 7.4 Wiring for short extensions to outlets in hung ceiling or to vibrating equipments, motors etc., shall be installed in flexible conduits. Otherwise rigid conduits shall be used. No flexible extension shall exceed 1.25 m.
 - 7.5 Conduits run on surfaces shall be supported on metal 12 mm. thick saddles which in turn are properly screwed to the wall or ceiling. Saddles shall be at intervals of not more than 500 mm. Fixing screws shall be with round or cheese head and of rust-proof materials. Exposed conduits shall be neatly run parallel or at right angles to the walls of the building. Unseemly conduit bends and offsets shall be avoided by using fabricated mild steel junction/pull through boxes for better appearances. No cross-over of conduits shall be allowed unless it is necessary and entire conduit installation shall be clean and neat in appearance.
 - 7.6 Conduits embedded into the walls shall be fixed by means staples at not more than 500 mm. intervals. Chases in the walls shall be neatly made and refilled after laying the conduit and brought to the finish of the wall but final finish will be done by the building contractor. The contractor shall provide wire mesh before making rough plaster.
 - 7.8 Conduits buried in concrete structure shall be put in position and securely fastened to the reinforcement and got approved by the Engineer, before the concrete is poured. Proper care shall be taken to ensure that the conduits are neither dislocated nor choked at the time of pouring the concrete suitable fish wires shall be drawn in all conduits before they are embedded.
 - 7.9 Inspection boxes shall be provided for periodical inspection to facilitate withdrawal and removal of wires. Such inspection boxes shall be flush with the wall or ceiling in the case of concealed conduits. Inspection boxes shall be spaced at not more than 12 meters apart or two 90° solid bends or equal. All junction and switch boxes shall be covered by 6 mm. clear Perspex plate truly cut and fixed with cadmium plated brass screws. These junction boxes shall form part of point wiring or conduit wiring as the case may be including the cost of removing the Perspex cover for painting and re-fixing. No separate charges shall be allowed except where specially mentioned.
 - 7.10 Conduits shall be free from sharp edges and burrs and the threading free from grease or oil. The entire system of conduits must be completely installed and rendered electrically continuous before the conductors are pulled in. conduits should terminate in junction boxes of not less than 32 mm. deep.
 - 7.11 An insulated earth wire of copper rated capacity shall be run in each conduit for entire length.
- 8.0 Lighting & Power Wiring:
 - 8.1 all final branch circuits for lighting and appliances shall be single conductor/ stranded/ flexi-cables run inside conduits. The conduit shall be properly connected or jointed into sockets, bends, and junction boxes.
 - 8.2 All circuits shall preferably be kept in a separate conduit upto the Distribution Board. No other wiring shall be bunched in the same conduit except those belonging to the same phase. Each lighting branch circuit shall not have more than ten outlets or 800 watts whichever is lower. Each conduit shall not hold more than three branch circuits of same phase.
 - 8.3 Flexible cords for connection to appliances, fans and pendants shall be 650/1100V grade (three or four cores i.e with insulated neutral wire of same size) with tinned stranded copper wires, insulated, twisted and sheathed with strengthening cord. Colour of sheath shall be subject to the Engineer's approval.

- 8.4 Looping system of wiring shall be used. Wires shall not be jointed. Where joints are unavoidable, they shall be made through approved mechanical connectors. No such joints shall be made unless the length of the sub-circuit, sub-main or main is more than the length of the standard coil.
- 8.5 Control switches shall be connected in the phase conductors only. Switches shall be fixed in 3 mm. thick painted or galvanized steel boxes with cover plates as specified. Cadmium plated brass screws shall be used.
- 8.6 Power wiring shall be distinctly separate from lighting wiring. Conduits not less than 25 mm. and wires not less than 2.5 sq. mm. copper shall be used.
- 8.7 Every conductor shall be provided with identification ferrules at both ends matching the drawings.
- 9.0 Testing :
- 9.1 The entire installation shall be tested for :
- a) Insulation resistance.
 - b) Earth continuity.
 - c) Polarity of single pole switches.
- A test certificate shall be submitted in the Performa shown under Appendix – I.
- 10.0 Mode of measurement:
- 10.1 The definition of point wiring shall be in accordance with sketch drawing and should wiring from D.B. onwards together with all junction boxes, connectors, earth wire, fixing accessories, connection to all light fittings switches etc. as specified and shown on drawings. The point rate shall include circuit wiring from distribution board to switch board and/or directly to the point. The circuit wire shall be in separate conduit. The contractor may draw maximum 2/3 circuits of the same phase in circuit mains conduit.

10.2 All switches sockets with boxes, earthing interconnection and plate type silver contact switch shall be inclusive in point wiring.

- 10.3 All empty conduit runs, including junction boxes fish wires etc. shall be paid on the basis of unit length. Measurements shall be along the conduit and concurrent length of sub-circuit wiring.
- 10.4 Buzzer indicator of the ways specified shall consist of indicating lamps, reset button, electromagnet, Perspex cover plate, chromium plated brass screws etc. shall be considered as on unit for measurement and payment.
- 10.5 Two way light points shall be classified according to and consist of 2 Nos. 2 way plate type switches, wiring from the 1 st 2 way switch to the 2nd 2 way switch to the first light controlled. Subsequent lights, if any, shall be measured as ordinary secondary point.

EARTHING

Scope :

The Scope of work shall cover supply of earthing stations, laying copper earth strips and connecting the power panels, DB's and switch boards.

Standards :

AS PER ANNEXURE – IV.

Plate Earthing Station :

The substation earthing shall be with copper plate earthing station unless otherwise specified.

The earthing station shall be as shown on the drawing. The earth electrodes shall be 450 x 450 x 3 mm / 600 x 600 x 6 mm. Copper plate – as specified in B.O.Q. The earth resistance shall be maintained with a suitable soil treatment as shown on drawings.

The resistance of each earth station should not exceed 1 ohms.

The earth lead shall be connected to the earth plate through copper/brass bolts as shown on the drawing.

Minimum distance between two earth pits shall be 2 Mts.

All earth pits shall be minimum 1 Mt. Away from building foundation.

Pipe Earthing Station :

The earth station shall be as shown on the drawing and shall be used for equipment earth grid. The earth electrode shall be 2.5 m. long 50 mm. Diameter galvanized steel

pipe. The earth resistance shall be maintained with a suitable soil treatment as shown on drawings.

The resistance of each earth station should not exceed 5 ohms.

The earth lead shall be fixed to the pipe with a and safety set screws. The clamps shall be permanently accessible.

Earth leads and connections :

Earth lead shall be bare copper or aluminium or galvanized steel as specified with sizes shown on drawings. At road crossings necessary hume pipes shall be laid. Earth lead run on surface of wall or ceiling shall be fixed on saddles or wall.

The complete earthing system shall be mechanically and electrically bonded to provide an independent return path to the earth source.

Equipment Earthing :

All apparatus and equipment transmitting or utilizing power shall be earthed in the following manner. Copper earth wires shall be used unless otherwise indicated in the schedule of work and drawings.

Power transmission apparatus :

Metallic conduit shall not be accepted as an earth continuity conductor. A separate insulated/bare earth continuity conductor of size 50% of the phase conductor subject to the minimum and maximum shall be provided.

Non-metallic conduit shall have an insulated earth continuity conductor of the same size as for metallic conduit. All metal junction and switch boxes shall have an inside earth stud to which the earth conductor shall be connected. The earth conductor shall be distinctly colored (green) for easy identification.

In the case of cable, an earth continuity conductor shall either be run outside along the cable or should form a separate insulated core of the cable.

Three Ph. Power panels and distribution boards shall have 2 distinct earth connections of the size correlated to the incoming cable size. In case of 1 Ph. DB's a single earth connection is adequate. Similarly for 3 Ph and 1 Ph isolating switches there shall be 2 and 1 earth connections respectively, sizes being correlated to the incoming cable.

Testing :

The following earth resistance values shall be measured with an approved earth meggar and recorded.

Each earthing station

Earthing system as a whole

Earth continuity conductors

Mode of measurements :

Providing earthing station complete with excavation, electrode, watering pipe, soil treatment, masonry chamber with cast iron cover etc. shall be treated as one unit of measurement.

The following items of work shall be measured and paid per unit length covering the cost of the earth wires/strips clamps, labor etc.

Main equipment earthing grid and connections to the earthing stations.

Connections to the switchboard, power panels, distribution boards etc.

The cost of earthing the following items shall become part of the cost of the item itself and no separate payment for earthing shall be made.

Isolating switches and starters should form part of mounting frame, switch starter etc.

Light fittings – form part of installation of the light fitting.

Conduit wiring cabling – should form part of the wiring or cabling.

TELEPHONE DISTRIBUTION

This cover supply ,installation, testing, commissioning of telephone system.

1) The scope of work shall cover supply, installation, commissioning and testing of :

Telephone cables

Telephone Tag Blocks

Telephone wiring in conduits

The telephone exchange and the hand sets shall be supplied by the clients.

2) Conduits :

Conduits shall be as given below :
Indoor : medium gauge Rigid PVC conduit.
If in flooring provide heavy gauge.

The conduit shall generally be as specified under section 'CONDUIT WIRING'.

3) Cables and Wires :

The type of cables and the services shall be as follows :
Indoor Multi pair, PVC insulated sheathed armored and sheathed.
Inside Twin core PVC insulated with conduit twisted cores.
All multi core cables and wires shall be of tinned copper conductor of not less than 0.5 mm dia and shall be colour coded twisted pairs with rip cord.
The conductor resistance shall be less than 150 ohms per KM and the insulation resistance between the conductors not less than 50 megohms and the nominal capacitance of about 0.1 micro farad per kilometer.
Cables laid under ground or locations subject to dampness and flooding shall be filled with polyethylene compound and shall have sufficient protection against moisture and water ingress.

All armoring shall be of galvanized steel wires and protected against corrosion by an outer sheath of PVC in the case of indoor cables and polyethylene in the case of outdoor cables. Outer sheathing must be fire retarding and anti-termite.

All unarmored single core cables and inner sheath of armored cables shall be provided with rip cord.

All single pair cables for final extension to the telephone outlet box shall be unarmored tinned copper conductors of not less than 0.6 mm. Diameter and shall be drawn in conduits. All telephone outlets shall consist of 2 A 2 pair polythene connector in G.I box with 6 mm 25usbar25 cover with 25usbar25 edges and chromium plated brass hardware.

Tag blocks :

The telephone tag blocks shall be suitable for the multi core telephone cables and shall have two terminal blocks, cross connect type. All incoming and outgoing cables shall be terminated on separate terminal blocks and termination shall be silver soldered. The cross connecting jumpers shall be insulated wires of same diameter and screw connected.

The tag blocks shall be mounted inside fabricated sheet steel boxes with removable hinged covers and shall be fully accessible. The enclosure shall be painted with 2 coats of red oxide and stove 25usbar25d.

Installation :

The installation of conduits shall generally be as specified under section 'CONDUIT WIRING'.

Telephone / Data pipes shall be kept 100 from power conduit.

Separate J.B. shall be provided for telephone & Computer.

All cables shall be on cable racks and neatly stitched together.

The connection at the tag blocks shall be silver soldered so as to achieve minimum contact resistance.

The final branch connections with single pair cables in conduits and the maximum number of cables in each conduit shall be as follows :

Conduit diameter		Max. No. of cables
inch	mm.	
3/4"	20	2 Nos. single pair
1"	25	6 Nos. single pair
1 1/4"	32	12 Nos. single pair
1 1/2"	40	18 Nos. single pair

DATA DISTRIBUTION

This cover supply, installation, testing, commissioning of computer distribution.

Conduits :

Conduits will be supplied by contractor

Data Cables and Wires :

Data cables & wires will be supplied by contractor

Hub & Rack

Hub & Rack will be supplied by contractor

Installation :

The installation of conduits shall generally be as specified under section 'CONDUIT WIRING'.

All cables shall be on cable racks and neatly stitched together.

The connection at the hub rack shall be crimped so as to achieve minimum contact resistance.

The final branch connections with single pair cables in conduits and the maximum number of cables in each conduit shall be as follows:

Conduit diameter Max. No. of cables

Inch mm.

3/4" 20	2 Nos. single pair
1" 25	6 Nos. single pair
1 1/4" 32	12 Nos. single pair
1 1/2" 40	18 Nos. single pair

LIGHT FIXTURES AND FANS

1.0 Scope :

1.1 The scope of work shall cover the providing, Assembly, and testing of fluorescent and incandescent light fixtures and ceiling fans.

2.0 Standards :

As per annexure – iv

3.0 General Requirements :

3.1 All fixtures shall be complete with accessories necessary for installation whether so detailed under fixture description or not.

3.2 Fixture housing, frame or canopy shall provide a suitable cover for the fixture outlet box or fixture opening.

3.3 Fixtures shall be installed at mounting heights as detailed on the drawings or instructed on site by the Architect/Consultant.

3.4 Fixtures and/or fixture outlet boxes shall be provided with hangers to adequately support the complete weight of the fixture. Design of hangers and method of fastening other than shown on the drawings or herein specified shall be submitted to the Architect/Consultant for approval.

3.5 Pendant fixtures within the same room or area shall be installed in plumb and at a uniform height from the finished floor. Adjustment of height shall be made during installation as per Architect's/Consultant's.

4.0 Ceiling Fans :

4.1 Ceiling fans shall be complete with fan suspension stem canopies and regulators. 30 cm suspension stem shall be standard accessory and stems shall be heavy duty galvanized steel tubes to IS 1239- 1958.

4.2 Fans shall be mounted on a pre-embedded hook with hard rubber isolator. Regulators shall be no-step type mounted in the switch box. The box in all such cases shall be large enough to accommodate the regulator and switches. One sample box with top cover shall be got approved before procurement.

5.0 Mode of measurement :

5.1 Each fixture shall be measured as a unit complete with accessories, lamp, connectors, earthing, mounting arrangement, clamps etc.

5.2 Suspension stems for light fittings shall be measured as bare conduits and paid at the rate per unit length.

5.3 Fans shall be measured as a unit complete with all accessories, Reqd size suspension rods, fan hook, etc.

INSTRUCTIONS FOR CONTRACTORS - TO BE PLEASE READ THIS CAREFULLY

- a. The rate for items in schedule of Quantities must be given in words and figures. Amount of each items must also be entered in column and grand total of amount must be stuck out by the tenderer.
- b. If the tenderer is taken in favour of the company, a power of attorney in favour of the person who may have signed the tender for the company must accompany the tender.
- c. All pages of schedule of quantities etc.should be initialed by the contractor.
- d. Discrepancies and adjustment of errors.

Any error in quantity or amount in schedule of quantities showing item or work to be carried out shall be adjusted in accordance with the following rules:

- . a In the event of a discrepancy between description in words and figures quoted by a tenderer in the rates column, the description in words shall prevail.

In the event of an error occurring in the amount column of the schedule of quantities showing items of work, as a result of wrong multiplication of the unit rate and quantity, the unit rate shall be regarded, as firm and multiplication shall be amended on the basis of the rate.

- . b All errors in totaling in amount column in carrying forward total shall be corrected.
- . c Any rounding of amount against 'items' or in 'totals' shall be ignored.

The tendered sum so altered shall for the purpose of the tender be substituted for the sum originally tendered and considered for acceptance.

c) The clients/consultants have right to:

- 1) Reject any no. of quantities in the tender.
- 2) To decrease or to increase or to delete any quantity in the tender.
- 3) In case extra items are there it will be settled as exact cost of material +exact cost of labour + 10% profit including wastage.
- 4) The contractor has to submit as built drawings in computerized manner to the following & have to be signed by electrical consultants.

Branch manager

Responsible desk officer

Premises engineer of bank

Floppy & a drawing to consultants

NOTE: Unless these four sets are not submitted with the final bill then the final bill will not be certified.

- 5) Contractor will have to use jarry cutter. The scope is making good the same.
- 6) The contractor will have to use the first brand specified in the specified make list. If the same s not available then be has to take written prior approval of the consultant before using the same.

APPLICABLE STANDARDS

<u>Sr. No.</u>	<u>IS No.</u>	<u>Description</u>
1	IS:2026-1977 IS 3639	:Distributing transformers & fittings. Fittings and acc. For P.T.
2)	IS:7886 IS:660	:Installation of Transformer.
3)	IS:2516-1972	:Specification for AC circuit breakers.
4)	IS:335	:Insulating oil for Transformers & switch gear.
5)	IS:2705	:CT for measuring and protection.
6)	IS:3155	:Voltage (Potential) Transformers.
7)	IS:3236 Part II	:Voltage Transformer.
8)	IS:373	:Busbar arrangement and marking.
9)	IS:2099	:Bushing
10)	IS:5621	:Large Hollow Porcelains
11)	IS:2544	:Insulators
12)	IS:2629 & 2633	:Hot Dip Galvanizing
13)	IS:3842	:Relays.
14)	IS:1248-1958	:Meters (measuring).
15)	IS:3072-1975	:Installation of Switch gears.
16)	IS:692	:HV cable.
17)	IS:1255	:Installation of HV cables and jointing.
18)	IS:3043	:Code of practice for earthing.
19)	IS:4047-1977	: HD Air breaker, Switch gears and fuses for Voltage not exceeding 1000 Volts.
20)	IS:8106-1966 :	Selection, installation and maintenance of fuses upto 650 Volts.
21)	IS:4237-1967	for voltage not exceeding 1000 Volts.
22)	IS:2607-1976 :	Air-break isolators for Voltage not exceeding 1000 Volts.
23)	IS:8623-1977	Factory built assemblies of switch gears and control gears for voltage upto and including 1000 Volts A.C. and 1200 Volts D.C.

24)	IS:375-1963	:	Marking and arrangement of switch gear busbars main connectors and auxiliary wiring.
25)	IS:2147-1962	:	Cubical Boards.
26)	IS:8084-1972	:	Insulated conductor rating.
27)	IS:2675-1983	:	Enclosed distribution fuse boards and cutouts for Voltage not exceeding 1000 Volts.
28)	IS:8828-1978	:	Miniature Circuit Breaker.
29)	IS:9926-1981	:	Fuse wire used in re-wearable type electric fuses upto 650Volts.
30)	IS:1554 (Part I)	:	PVC insulated electric cables Heavy duty.
31)	IS:3961 (Part II)	:	Recommended current rating for cables.
32)	IS:2982	:	Copper conductor in insulated cables and cores.
33)	IS:8130	:	Conductor for insulated electric cables and flexible cords.
34)	IS:3975	:	Mild steel wires, strips and tapes for armouring cables.
35)	IS:5831	:	PVC insulation and sheath of electric cables.
36)	IS:1753	:	Aluminum conductor for insulated cables.
37)	IS:4288	:	PVC insulated and PVC sheathed solid aluminum conductor cables of voltage rating not exceeding 1100 volts.
38)	IS:961	:	Recommended current rating for Cable.
39)	S:732	:	Code of practice for electrical wiring installation system Voltage not exceeding 650 Volts.
40)	IS:1646	:	Code of practice for fire safety of Buildings (general) electrical installation.
41)	IS:1653	:	Rigid steel conduits for electrical wiring.
42)	IS:2667	:	Fittings for rigid steel conduits for electrical wiring.
43)	IS:3480	:	Flexible steel conduit for electrical wiring.

44)	IS:3837	:	Accessories for rigid steel conduits for electrical wiring.
45)	IS:694	:	PVC insulated cables (wires).
46)	IS:2509	:	Rigid non-metallic conduits for electrical wiring.
47)	IS:6946	:	Flexible (playable) nonmetallic conduits for electrical installation.
48)	IS:1293	:	Three pin plugs and sockets.
49)	IS:8180	:	Conductors for insulated electrical cables and flexible codes.
50)	IS:9537-1980	:	Specification for conduit for electrical installation.
51)	IS:3419	:	Accessories for non-metallic conduits for electrical wiring.
52)	IS:3854	:	Switches.
53)	IS:6538	:	Plugs.
54)	IS:2834-1954	:	Shunt Capacitors for power systems.
55)	IS:2208	:	HRC cartridge fuse and links up to 660 volts.
56)	IS:1913-1969	:	General and safety requirement for lighting fittings.
57)	IS:2944-1981	:	Code of practice for lighting public thorough fares.
58)	IS:3528	:	Waterproof electric lighting fittings.
59)	IS:3553-1966	:	Water tight electric lighting fitting.
60)	IS:1239-1958	:	Mild Steel tubular and other wrought steel pipe fitting.
63)			IS:2149-1970 Luminaries for street light.
64)	IS:9224	:	HRC fuses having rupturing capacity of 90 KA.
65)	IS:2312-1967	:	Exhaust Fan.
66)	IS:374-1979	:	Class I Ceiling Fan.

NOTE : All codes and standards means the latest where not specified otherwise the installation shall generally follow the Indian Standard codes of practice or relevant British Standard Codes of Practice in the absence of corresponding Indian Standards.

PLEASE FOLLOW :

- a. Indian Electricity Act of 1910 and rules issued there under revised up to date.
- b. Special Attention should be given to Rule No. 50.
- c. Regulations for electrical equipment in building issued by The Bombay Regional Council of insurance Association of India.

AIR-CONDITIONING MATERIAL SPECIFICATION

TECHNICAL SPECIFICATIONS

UNITARY REFRIGERATION EQUIPMENT

AIR DISTRIBUTION

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UNITARY REFRIGERATION EQUIPMENTS

SCOPE

The scope under this section shall cover the unitary refrigeration equipments such as window air conditioners, split units and packaged units.

STANDARDS

The following standards shall be applicable

- a) IS : 4283 Hot air fans
- b) IS : 8272 Industrial cooling fans
- c) IS : 1391 Room Airconditioners
- d) IS : 8148 Packaged Air conditioners
- e) IS : 2997 Air circulator type electrical fan and regulator

GENERAL REQUIREMENTS

The unitary air conditioners shall include refrigeration compressor, drive motor, air cooled condensing unit, evaporator, refrigeration piping

automatic control system enclosure etc.

The equipment assembly shall be well balanced to achieve minimum vibration and noise. The condensing unit mounted outdoor shall be

suitable for the climate and atmosphere condition prevailing to avoid / minimize corrosion . Necessary anti corrosive treatments shall be

provided for the metallic components.

The equipments shall meet the requirements indicated in the equipment data and shall meet the cooling load specified at the outdoor

design data furnished and the distance / static head between the outdoor and the indoor units.

EQUIPMENTS

Assembled Units

The unitary air-conditioning units shall be of factory assembled and tested and of the following category as indicated on the drawing and bill of materials.

a) Window air conditioners having single unit to house compressor, condenser, evaporator refrigerant piping and control system.

b) Split air conditioners having compressor and condenser housed in one unit located outdoor evaporator and

controls house in another unit located indoor. Refrigerant piping and power / control wiring interconnecting

condensing unit and evaporators laid externally.

c) Packaged air conditioners having compressor and control evaporated

houses in one unit and located indoor and condenser housed in another unit located outdoor . The refrigerant

piping and power/control cabling interconnecting condenser and the indoor unit laid externally.

The components for the various equipment assembly shall be as specified in the following section.

COMPRESSORS

The compressors shall preferably be hermetically sealed scroll / rotary permanently lubricated.

CONDENSERS

The condenser shall be air cooled consisting of copper coils with aluminum fins, propeller fan with motor, sheet steel enclosure with air inlet and exhaust louvers mounting frame, platform/ brackets etc. The condenser and all its components shall be provided with suitable anticorrosive treatment. The enclosure shall be GI /Aluminum powder coated.

EVAPORATOR

The evaporators shall be ducted or non-ducted concealed or exposed as indicated in the drawing and bill of materials. The evaporators

shall include copper coils with aluminum fins, expansion valve, centrifugal fan with motor return air filter, supply and return air grilles and

louvers, automatic control panel with thermostat and enclosure. The enclosure for concealed unit shall be of GI powder coated whereas

that for exposed units shall be of ABS plastic.

The filters shall be antibacterial washable and shall be of minimum 20 micron filtration. The filters shall be easily removable for cleaning

without.

CONTROLS

The controls shall be automatic digital electronic LCD display having the following minimum requirements.

- a) Automatic capacity control
- b) Temperature and fan speed control with digital display
- c) Timer control
- d) Corded /corded remote control wherever specified.

The control system features shall be as shown below :

Sr.No. Feature Standard Regular Deluxe

1 Type of control Unit Mounted Remote

2 Temperature Setting Yes

3 Fan Speed Selection Yes

4 Timer Control Yes

5 Digital Display Yes

6 Delayed Starting Yes

7 Filter Cleaning Indicator No Yes

8 In built – ON /OFF No Yes

9 Quick Cooling Mode No Yes

10 Auto reset No Yes

11 Auto fan speed No Yes

12 Night set mode No Yes

13 Self Diagnosis No Yes

SUPPORTS & PIPING

Supports & Brackets

The equipment's shall be properly supported with brackets, hangers, platforms base frame etc. depending upon the type, location and capacity of the unit. The supports shall be MS fabricated duly treated and painted for anticorrosion.

The outdoor condensing units shall be properly supported on MS frame work/ platform properly grouted to the RCC Slab / brick walls using bracket. The floor mounted packaged unit shall be provided with base frame and pedestals with necessary ant vibration pads. The ceiling suspended evaporator shall be supported using anchor fasteners and suspension rods. The wall-hung evaporators shall have GI stenciled back plate for mounting the unit, grouted to the wall/beam using anchor fasteners.

REFRIGERANT PIPING

The refrigerant piping shall be of half – hard copper RS 250 conforming to EN .1057 Table Y. The fittings shall be of shot end capillary brazing conforming to EN 1254. The pipes shall be supplied on coils and cut to required length to achieve full length without joints between the condenser and evaporator. The fittings for connection to the condenser evaporator expansion valve etc shall be through copper – brass composite fitting. The brazing / soldering material shall conform to EN. 29453.

The refrigerant lines shall be insulated with 9mm Nitride rubber tubing to prevent heat loss and condensation .

Refrigerant piping running along the partition wall shall be concealed in the wall with necessary chasing in the wall and closing the same with sand cement plastic with chicken wire mesh.

DRAIN PIPING

The evaporator shall be piped to the nearest drain point / drain line using UPVC pipe conforming to 4985 . Necessary water seal trap shall be provided at the evaporator at the discharge point.

AIR DISTRIBUTION

SCOPE

The scope under this section covers air distribution system consisting of :

- a) Sheet metal ducting
- b) Dampers & Air balancing
- c) Grilles and diffusers

STANDARDS

The following standards shall be applicable:

- a) IS: 655 Metal air ducts
- b) IS: CP352 Mechanical ventilation and air conditioning in buildings
- c) IS: 2629 Recommended practice for hot-dip galvanizing of iron & steel
- d) SMACNA Standard for low-pressure duct construction

MATERIAL

The material for sheet metal ducting shall be cold rolled sheets continuous galvanize with Zinc coating of total 180 gm per SQ.MT for conforming to IS: 277.

The gasket for duct joints shall be 3mm formed rubber or expanded polyethylene. The bonding material shall be mastic sealant.

The duct flanges and supporting material shall be mild steel structure steel section. All duct hangers shall be mild rod with threaded end with adjustable nuts for leveling.

The material for various applications shall be as follows.

APPLICATION MATERIAL

1. Ducting for Air-conditioning Cold rolled sheets continuous galvanized with a zinc coating of 180 g/sq.m conforming to IS : 277
 - a) Indoor – Class 4
 - b) Outdoor insulated-Class 4
 - c) Outdoor un insulated-Class 3
2. Duct for ventilation & exhaust - do –
3. Kitchen exhaust C.R.C.A sheet
4. Supports & duct flanges Mild steel structural steel sections

Gasket Foamed rubber 3.2mm (1/8")

6. Bonding Master sealant

All galvanized plain sheets shall be reasonably flat and free from twist. The zinc coating shall be clean, even and free from un galvanized spots. Sheets shall not crack or peel during bending or fabrication. All sheets shall be procured from approved manufactures.

GENERAL REQUIREMENTS

The sheet metal ducting shall be done for the proper distribution of air in air-conditioned/ventilated space. The ducting shall be designed on the basis of equal pressure drop and shall incorporate necessary accessories like reducers, bends, splitters, dampers and guide vanes

for proper control and smooth air flow.

The selection of air diffusing attachments and their location shall be done to achieve uniform air distribution. The grilles and diffusers shall

be painted M.S or aluminum as specified and shown on the drawing.

The ducting shall be supported by means of hangers from the ceiling slab using anchor bolts and shall not rest on the false ceiling.

Duct crossing walls and slabs shall be encased in wooden frame work and the openings shall be closed properly unless indicated on the

drawing for the purpose of return air.

Volume control dampers of splitter or louver type shall be provided as shown on the drawings. Additional dampers if required shall be

provided for proper balancing of the air distribution system.

Fire dampers shall be provided at the AHU outlet and return air inlet to the Air Handling Equipment/room Additional fire dampers shall be provided as per the codes of local fire authorities. Access door shall be provided adjacent to the fire, splitter and louvered dampers. Air outlets shall be selected based on the air quantity, throw and aerodynamic noise power not exceeding NC 28. The location size and shape of the air outlets shall be co-ordinate with interior and false ceiling scheme.

DUCT FABRICATION

Duct shall be rectangular or circular as indicated on the drawings. The Duct shall be made of either galvanized steel sheet as specified in the BOQ and conform to IS:655. The galvanized steel sheet shall conform to IS:277. Aluminum sheet shall confirm to IS:737. The duct construction shall be as follow:

(A) Rectangular Duct Construction:

Mm	sheet	MAX.SIDE THICK.GSS	TYPE OF JOINT BRACKING	BRACKING (S.W.G)
Up to 750	24G	25mm GSS Flanges		
751 To 1500	22G	25mmX3mm Ms angle flange		25mmX 3mm Ms Angle
1501 To 2250	20G	40mmX3mm ms angle flange		40mmX 3mm ms angle at 1.24
center 2251 & above	18G	50mmX3mm ms angle flange		50mmX 3mm ms angle at 1.24

center

(B) Hanger for Duct:

Duct Size	Spacing	Size of ms angle	Size of Rod Dia
Mm	Not exceeding	m mm X mm	mm
Up to 750	2.5	25X25X3	6
751 to 1500	2.5	40X40X3	6

The companion flanges and girth angles shall be metered and Welded at corners and riveted to the duct at 75mm centers. The

longitudinal seams shall be inside groove or pits burg type. The Flanged joints shall be made air tight with 3mm rubber or 6mm felt gasket and secured with 10mm GI bolts at 150mm centers. Ducts shall not be cross-broken, if insulated.

The seams an joints shall be rendered air tight with mastic sealant.

The elbows shall have a minimum R/D ratio of 1:3. The elbows of R/D rate of less than 1:3 and square elbows wherever provided due to Site condition, shall be with equally spaced guide vanes for smooth flow. Splitter dampers shall be provided for all branch splits. All branches, feeding More than two outlets shall be provided with control dampers. Capped airflow connections shall be provided, wherever shown, for testing and balancing of air distribution.

DAMPERS & GUIDE VANES

The GUIDE VANES shall be provided as shown below:

- a) At every non-split branch take off
- b) At every bend/elbow of less than 1.3 R/D ratio
- c) At first 4 collars after the fans and first two collar after every bends.

The vanes shall be double walled and properly curved for smooth air flow and change indirection of flow and

shall be fabricated out of 0.8 mm GI sheets. The vanes shall be fixed to the side runners at equidistant and riveted/bolted to the ducts.

The SPLITTER DAMPERS shall be double walled aerofoil blade fabricated out 1.6mm (16 SWG) GI sheet. The damper shall be complete with flanged sheet metal enclosure to suit the upstream and down stream duct connections, hinge at the down stream and operating rod at the upstream end. The GI enclosure shall be one size thicker than the up stream duct.

The LOUVRED DAMPERS shall be multi blade aerofoil construction with opposed/parallel blades of maximum 250 x 1200 mm size. The blades shall be mounted on 50mm channel with suitable gang operated linkage and operating rod. The operation rod shall be terminated in a locking quadrant with position indicator.

The FIRE DAMPERS shall be rated for 2 hrs. fire resistance conforming to BS : 476-1 and CP-413 and shall be housed in a GI sheet enclosure flanged at both ends and shall include the damper blades, fusible link, holding spring, manual adjustable handle etc.

The material for fabrication of fire dampers shall be as shown below:

- a) Damper blades - 3mm (10 SWG) Galvanized sheet steel
- b) Casing - 2mm (14 SWG)
- c) Bearing – Sintered
- d) Spring - SS 284
- e) Fusible link - Set for 7 deg C fusing temperature

All dampers larger than 1200 mm width shall be fabricated in multiple sections.

The damper rods shall be MS epoxy coated with bronze bushes at one end and locking quadrant with damper position indicator at the other end. The damper rods shall extend beyond the enclosure frame and insulation wherein provided.

The access doors for dampers shall be 400 x 400mm steel bolted with rubber gasket.

AIR OUTLETS

The air outlets shall be grille or diffuser type as indicated on the drawing. The grilles and diffusers shall be MS painted, aluminum or aluminum powder coated as shown on the drawing and schedule of material.

Supply air grilles shall be double deflection type with horizontal face bars and vertical rear bars placed in a rigid marginal frame. Bars shall be shaped and spaced at 18mm centers with swaged pivot pins positively holding the deflections setting under all conditions of velocity and pressure. All grilles shall be provided with integral opposed blade, grille face kept-operated dampers.

Return grilles shall have fixed face bars shaped and set at 18mm centers. Bars shall be set at 5degree deflection for vision proof installation. The grilles shall be complete with rigid marginal frames and shall be matching with the supply grilles.

Ceiling diffusers shall be round/square/rectangular face flush type horizontal air Diffusion pattern. Diffusers shall have ample margins to minimize ceiling smudge.

Half diffusers shall be provided with face operated volume control dampers. Half diffusers shall be similar to full diffusers.

All MS grilles and diffusers shall be fabricated out of 1.0mm mild steel and painted with two coats of red oxide. All duct collars terminating on to a grill or diffuser shall be given two coats of black paint for a length of 280mm.

Aluminum grilles and diffusers wherever specified shall be of extruded aluminum with margins & GSS butterfly dampers. Grilles shall have horizontal face bars only.

Linear diffusers/grilles shall be die formed, flush mounted type with single or double directional airflow. The diffuser/grille shall be in a frame with minimum 20mm margin. All linear air diffusing equipment shall be fitted with a distribution sheet metal plenum as shown on the drawings.

AIR INTAKES & EXHAUST OUTLETS

The outside air intakes and exhaust air outlets shall consist of louvers, bird screen and enclosure, the total assembly fitted into wall with clear opening and the edges sealed with mastic sealant.

The sheet metal enclosure shall be made out of 1.25mm GI sheets flanged at both ends and with minimum 4 hold fast. The enclosure shall be minimum 250mm long or 100mm more than the width of the wall.

The louvers shall be 100mm wide mounted at 45 deg. and spaced at 100mm centers and shall be fabricated out of 1.25mm GI sheets. The bird screen shall be made out of 15 x 15mm 1.0 mm GI wire mesh inset with 0.8mm GI frame and bolted to the enclosure flange at 150mm centers using 12mm MS brass bolts and nuts.

INSTALLATION

The ducts shall be supported at the traverse joints as indicated below :

- a) Up to 1800 mm 40 x 40 x 3mm M.S angle with 10mm tie rod
- b) 1850 to 2500 mm 40 x 40 x 6mm M.S angle with 10mm tie rod
- c) 2550mm and above 50 x 50 x 6mm M.S angle with 10mm tie rod

Additional supports wherever considered necessary by the Engineer - in-charge shall be provided. Supports shall be taken from steel members grouted in the RCC work and fixing of steel members shall involve minimum damage. The entire supporting system shall be met with the approval of the Engineer-in-charge.

All duct supports, flanges; hanger shall be given two coats of red-oxide before installation and one coat of aluminum paint after erection. Where ducts are connected to the wall, such connections shall be made through mild steel frame fixed to the wall through suitable shear fasteners.

INSTALLATION

The ducts shall be routed as shown on the drawing or as instructed. Working drawing shall be got approved before taking up the fabrication and erection..

Ducts connecting to air moving apparatus shall be through 15 OZ mildew resistant double canvases directed by the Engineer. On all circular spigots the flexible material is to be screwed or clip band with adjustable screw or toggle fitting. For rectangular ducts the material is to be flanged and bolted with a backing flat or bolted to mating flange with backing flat. The flexible connection shall not be less than 75mm and not more than 200mm.

TESTING & BALANCING

The entire air distribution shall be adjusted and balanced for delivery of design air quantities or as required for achieving design space conditions. After all adjustments are made, the air readings shall be recorded on the drawings vis-à-vis the space conditions. All dampers after adjustment shall be set and locked in position. All air and static pressure measurements shall be done through problem type meters. Vane type meter readings are not considered reliable.

THERMAL INSULATION

SCOPE

The scope under this section covers thermal insulation of pipes, ducting, roof and walls.

STANDARDS

The following standards shall be applicable:

- a) IS : 7240 COP for application and finishing of thermal insulation material at temp. between 80degree C to 40 degree C.

b) IS: 7413 COP for application and finishing of thermal insulation material at temp. between 40degree C to 700 degree C.

c) IS: 10556 COP for storage and handling of insulation material

d) IS: 3346 Method of determination of thermal conductivity of thermal insulation material

e) IS: 3690 Specification for glass wool mats for thermal insulation

f) IS: 4671 Specification for expanded polystyrene for thermal insulation purposes

f) IS: 8183 Specification for bonded mineral wool

g) IS: 702 Specification for industrial bitumen

GENERAL REQUIREMENTS

The material and thickness for insulation shall be as specified and shown on the bill of material.

The thermal conductivity and the equivalent thickness of insulation shall be as shown below:

SL.NO.	MATERIAL	DENSITY	K VALUE	EQUIVALENT			THICKNESS
		Kg/cum	w/mk	mm	mm	mm	
1.	Resin bonded glass wool	32	0.037	125	100	50	28
2.	Expanded polystyrene TF-quality	18	0.0326	100	75	50	25
3	Expanded Polyurethane	32	0.025	80	40	40	20
4.	Rigid phenol foam	32	0.022	70	50	25	20
5.	Resin bonded mineral wool	48	0.041	125	100	60	28
6.	Expanded polyethylene foam	28	0.035	100	75	80	28

The insulation, bonding and the vapor barrier shall be suitable for the temperature of the surface to be insulated and the location.

All wooden bittens and plug used shall be teak wood ant termite treated with 3 coats of Shalimar clear liquid. All screws shall be of GI, brass or powder coated.

All surfaces to be insulated shall be thoroughly cleaned and dusted before applying the insulation and bonding material. The bonding material shall applied to both surfaces to be bonded.

The pipe insulation shall be carried out using performed circular/semi circular pipe sections of internal diameter matching the external diameter of the pipe.

Air pocket between the surface and insulation or between insulations shall not be acceptable. All joints shall be staggered and filled with bonding material. Minimum 50mm overlapping shall be provided for joints in vapor barrier and cladding.

MATERIAL

The material for cold insulation shall be as shown below:

a) Fire inhibiting expanded polystyrene of density 18 kg/cum having thermal

4671. Conductivity not exceeding 0.035 w/mk at 10 deg. C mean temperature conforming to IS :
- Specification.
- 10 deg.
- fixing.
- conductivity not
- b) Expanded polyurethane foam of density 32 kg/cum having thermal conductivity not exceeding 0.025 w/mk at 10 deg. C mean temperature conforming to
 - c) Rigid phenol foam of density 32 kg/cum having thermal conductivity not 0.022 w/mk at C mean temperature conforming to BS: 3927 with 50 micron aluminum foil
 - d) Expanded polyethylene foam of density 28 kg/cum having thermal exceeding 0.035 w/mk at 10C mean temperature.

The material for hot insulation shall be as shown below:

- a) Resin bonded glass wool of density 32 kg/cum having thermal conductivity not exceeding 0.037 w/mk 60 deg C mean temperature
- b) Expanded polyurethane foam of density 32 kg/cum having thermal conductivity not exceeding 0.025 w/mk at 10 deg. C mean temperature conforming to BS specification.
- c) Rigid phenol foam of density 32 kg/cum having thermal conductivity not exceeding 0.022 w/mk at 10 deg. C mean temperature conforming to BS: 3927 with 50 micron aluminum foil fixing.
- d) Resin bonded mineral wool of density 48 kg/cum having thermal Conductivity not exceeding 0.041 at 10 deg C mean temperature conforming to IS : 8183 with 50mm.

The material for fixing vapor barrier and other material shall be as shown below :

- a) BONDING MATERIAL
 - i) Industrial bitumen-85/40 and 85/25 conforming to IS:702.
 - ii) GI chicken wire mesh - 20 mm 24 SWG
 - iii) PRX compound
 - iv) 18 SWG GI binding wire
- b) VAPOUR BARRIER
 - i) Aluminum foil 50 micron.
 - ii) Aluminum cladding 28 SWG for pipe and 6 SWG for wall
 - iii) 2mm PYPKOTE with aluminum foil finish for surface exposed to the weather.
 - vii) 4mm PYPKOTE polymeric corrosion tape for anticorrosion treatment for underground.
- c) FIXING MATERIAL
 - i) Bituminous wood balk 50 x 50mm thick insulation and 50 x 100 up to 150mm thick insulation
 - ii) GI brass or powder coated.

INSULATION THICKNESS

The thickness of insulation and the cladding material for various utilities shall be as specified under each section.

REFRIGERANT PIPING

The refrigerant piping shall be of half – hard copper Rs 250 conforming to EN .1057 Table Y. The fittings shall be of shot end capillary brazing conforming to EN 1254. The pipes shall be supplied on coils and cut to required length to achieve full length without joints between the condenser and evaporator.

The fittings for connection to the condenser evaporator expansion valve etc shall be through copper – brass composite fitting. The brazing / soldering material shall conform to EN. 29453.

The refrigerant lines shall be insulated with 9mm Nitrile rubber tubing to prevent heat loss and condensation .Refrigerant piping running along the partition wall shall be concealed in the wall with necessary chasing in the wall and closing the same with sand cement plastic with chicken wire mesh.

DRAIN PIPING

The evaporator shall be piped to the nearest drain point / drain line using UPVC pipe conforming to 4985 . Necessary water seal trap shall be provided at the evaporator at the discharge point.

Condensate from the evaporator unit shall be drained through properly installed drain piping designed to prevent any accumulation of condensate in the drain pan.

Drain piping shall be made of 1.1/4" & /2" rigid pvc pipe of kg/cm² pressure rating with water tight threaded connection , leading from the room unit to a suitable drain point. Complete drain piping shall be made leak proof and water tight by means of precise installation and the use of leak proof sealant / adhesives. Insulation of drain piping by expanded polyethylene.

INSULATION OF DUCTING

THERMAL

Supply or Return air duct shall be insulated with 75 / 50 / 25 mm thick Fibre Glass of density 24 kg./ Cu.M. The Fibre Glass shall be of factory packed Aluminum foil.

Method of applying the insulation:-

Clean the duct surface to be insulated.

Apply a thin layer of Tar paint of Shali coat / Ticky tar.

Apply a thin coat of hot bitumen to stick the insulation.

Fix the insulation of specified thickness over the surface of the duct tightly and seal the joints with using BOPP tape. Secure the insulation with 16 Gauge G.I. wire or 10mm PVC box strapping at a distance of 280 mm.

ACOUSTIC

First 3-meter length of supply air duct shall be acoustically insulated with 12.5 mm thick fibreglass of density 48 kg/ Cu. M. and covered with 28 G perforated aluminum sheets from inside of the duct.

Method of applying the insulation: -

Apply a thin layer of Tar paint of Shall coat / Tricky tar.

Fix-up fiberglass slab.

Cover-up with perforated aluminum sheets with the help of G.I. screw washer.

CEILING/WALL INSULATION

The ceiling/wall insulation shall be as shown below :

SL.NO.	SURFACE	LAYER X THICKNESS	MATERIAL	
CLADDING				
1	Exposed concrete roof Plaster	1 x 50	Expanded	
2.	Over exposed concrete roof others	1 x 28	Polystyrene Polyurethane	By
3.	Exposed GI or ACC roof sheet	1 x 75	Foam Expanded	A/c
4.	Exposed wall Plaster	1 x 50	Polystyrene Expanded	
	others		Polystyrene	by
5.	False ceiling	1 x 50	Resin Fibre bonded glass glass wool tissue	

RCC ROOF

14.00.01 The thickness of insulation required is 50mm expanded polystyrene unless otherwise specified. Make wooden frame work at 600 to 750 mm centers on ceiling slab by fixing 50 x 50 wooden battens using 75mm long wooden screws and self expanding nylon tumbles. Clean the surface of slab and apply 3mm high softening grade R 85/25 bitumen.

Apply one coat of bitumen on the bonding surface of the insulation and press against the slab till the bonding is achieved. Fix 18 SWG 100 x 100 mm GI washers at the junction of the wooden framework and made GI melting in cross binding pattern to hold the insulation.

The insulation provided above false ceiling and non visible areas need not have cladding unless otherwise specified. The insulation provided in the visible areas shall be plastered by other agencies after providing chicken wire mesh.

WALLS

The thermal insulation for the walls shall be similar to RCC slab. The thermal insulation shall be provided on West, North West and East side exposed walls, if specified.

GI OR ACC ROOFING

The thickness of insulation required is 120mm resin bonded glass wool unless otherwise specified.

Weld 25 x 3 x 128mm M.S flats with 6mm hole at the free end to the purlins at intervals not exceeding 750mm. Apply 3mm bitumen to the roofing material and one coat to the insulation. Press the insulation against the roof till the bonding is achieved.

Make GI melting in cross bind pattern to hold the insulation. Clad the insulation with FRP tissue sheet or aluminum foil applying bitumen on the insulation as well as the cladding material. Care shall be taken the close all openings especially for corrugated sheets to ensure stoppage of hot air through the opening/corrugation

space place ACC sheet, if required, shall be provided below the insulation to avoid entry of heat and to hold the insulation in position. The ACC sheets shall be considered as separate item unless otherwise indicated in the bill of material.

MAKES OF MATERIAL

SCOPE

The scope of this section covers the recommended makes of equipments, material components. The final choice of makes shall be indicated at the time of finalization of the order.

The makes of material offered by the contractor shall be indicated at the space provided for proper evaluation of the offer and shall be one of the recommended makes. In the absence of such indication, the decision rests with the Consultants/Clients.

For items, make are not recommended contractor shall obtain approval from Consultant prior to procurement.

MAKES RECOMMENDED

The makes of material recommended are as shown below. The offers shall be strictly on the basis of the makes underlined. However, the bidders can offer alternative makes under section deviation. Such deviation shall follow with technical literature of the material/equipment offered.

REFERENCE DRAWING

SCOPE

The Scope under this section covers the basic drawings and details to understand.

- a) Scope of work
- b) Location of equipments
- c) General idea on the entire installation
- d) Material requirements and labour force required for the completion of work in the stipulated time

schedule.

The reference drawings are basically schematic/diagrammatic to give idea on general requirements prepared on the basis of preliminary requirements and data available. They are subject to undergo changes and modifications subject to the finalization of details and requirements of the clients.

The detailed working drawings and the drawings required for the submission to statutory authorities shall be the responsibility of the contractor. Contractor shall submit minimum four copies of the drawings to the Consultants for their scrutiny/approval before issuing to the statutory authorities and site for execution.

NOTE : This specification is of the general type only and must be used in conjunction with the drawing of the particular item being made. Anything shown on the drawing and not in the specification must be compiled with, and vice versa.

SPECIFICATION OF EQUIPMENT/MATERIAL & INSTALLATION STANDARDS FOR AIR CONDITIONING WORKS: DUCTABLE SPLIT / SPLIT UNITS:

CONDENSING UNIT (OUT-DOOR UNIT):

The compressor shall be hermetically or semi-hermetically sealed and designed for continuous operation even at high ambient temperatures of 46°C. The condenser shall be air-cooled made of CU tubes with extended aluminum fins. Cabinets shall be fabricated copper out of heavy gauge steel, properly formed for close fit and structural rigidity.

All access panels shall be so constructed as to be quickly and easily removable. All outside surface shall be finished with powder coating for protection against humid weather. The condenser fans shall be directly driven and designed to achieve low condensing temperatures, & operate continuously and silently.

EVAPORATING UNIT: (IN-DOOR UNIT)

The cooling coils shall be made of copper tubing having extended aluminum fins. The tube shall be mechanically expanded for positive bonding between tube and fins.

The cooling coils circuit shall be fed with liquid refrigerant through the expansion device and distributor.

The blower shall be statically and dynamically balanced and designed for silent operation at required airflow rates against required static pressure. The filters shall be washable synthetic media type arranged for convenient cleaning and replacement.

The drain pan shall be fabricated out of heavy sheet steel. The casing shall be of heavy gauge G.I. duly powder coated for weather protection.

NOTE: ALL OUT - DOOR UNITS SHALL BE MOUNTED ON BALCONY TYPES M.S. ANGLE FRAME STRUCTURE. THE M.S. ANGLE FRAME STRUCTURE SHALL BE PAINTED WITH ENAMEL PAINT. THE SHADE OF THE PAINT SHALL BE APPROVED BY THE ARCHITECT / CLIENT.
CONTROLS AND INTERLOCKING:

Electrically/electronically / operated controls shall be provided with all equipments. Auxiliary relays, capacitors including wiring for controls and interlocking.

DRAIN PIPING:

Condensate from the evaporator unit shall be drained through properly installed drain piping designed to prevent any accumulation of condensate in the drain pan. Drain piping shall be made of 1.1/4" dia. Connection, leading from the room unit to a suitable drain point. Complete drain piping shall be made leak proof & water tight by means of precise installation & the use of leak proof sealant / adhesives. Insulation of drain piping by expanded Polyethylene.

SHEET METAL WORK:

Ducts shall be made of galvanized steel sheet as specified in the BOQ and confirm to IS-655. The galvanized steel sheet shall confirm IS-277. The duct construction shall be as follows:-

RECTANGULAR DUCT CONSTRUCTION:

MAX SIDE (MM)	MAX SIDE (MM)	TYPE OF JOINT	BRACING
Up to 750	24G	25mm GSS flanges	NONE
751 to 1500	22G	25 x 3 MS angle flanges	25x3
M.S angles		40 x 3 MS angle flanges	40x3
1501 to 2550	20G	at 1.25 centres 50 x 3	50x3
M.S angles		MS angle flanges	

2551 & above	18G	at 1.25 centres	
M.S angles			

HANGERS FOR DUCT:

DUCT SIZE (MM)	SPACING	SIZE OF MS ANGLE NOT EXCEEDING	SIZE OF ROD DIA
Up to 750	2.5	25x25x3	6
751 to 1500	2.5	40x40x3	8
1501 to 2550	2.5	50x50x3	10
2551 & above	2.5	50x50x3	12

DAMPERS:

All dampers shall be of 18 S.W.G. G.I sheets louver dampers of robust construction and tight fitting. The design, method of handling and control, shall be suitable for the location and required. Dampers shall be provided with suitable links, levers and quadrants as required for their operating devices shall be made robust, easily operable and accessible through suitable access door.

GRILLS AND DIFFUSERS:

All grilles (SA & RA), diffusers (SA & RA), will be made from heavy gauge extruded Aluminum sections / M.S (As specified in the BOQ) duly powder coated to match the interior requirements of Architect / Client. All the supply air grilles/diffuser will be provided with opposed blade dampers fabricated from AL. The damper should be suitable for operation from front face of grille/diffuser.

INSTALLATION:

A good quality felt/expanded polyethylene / rubber of uniform thickness and width shall be used as gasket

between flange joints. The gaskets shall be fixed by a suitable adhesive and holes made by passing a heated rod through.

1 All ducts shall be rigid and shall be adequately supported and braced where required with standing

seams, tees or angles of ample size to keep the ducts true to shape and to prevent buckling, vibration or

breathing. All the joints shall be made tight and all interior surfaces shall be smooth. Bends shall be made

with radius not less than one half the width of the duct or with properly designed interior curved vanes

where metal ducts or with properly woodwork, brick or masonry openings, tight-flanged collars.

Ducting

over false ceiling shall be supported from the slab above beams. In no case a duct shall be supported

from the false ceiling hangers or to be permitted to rest on a hung ceiling.

2 All holes in concrete, masonry etc. made by A/C contractor for fixing supports etc. shall be made good

and restored to original finish by him.

3 Air handling units and fans shall be connected to duct work by inserting at air inlet & outlet a double canvass sleeve. Each sleeve shall be minimum 100 mm long, securely bolted to duct & units. Each sleeve shall be made smooth & the connecting ductwork rigidly held in the line with unit inlet or outlet.

TESTING:

1 After completion all such system shall be tested for leakage of air & water.
2 The entire air distribution system shall be balanced to supply the air quantities as required in various zones and rooms to maintain the specified room conditions. The final shall be recorded and submitted to the consultant for approval before acceptance and taking over of the entire system by the Architect.

PAINTING:

Angle iron flanges, stiffeners, hangers and supports shall be painted with 2 coats of anti rust primer and those remaining uncovered shall be further painted with 2 coats of synthetic enamel paints of black colour.

INSULATION:

(A) G.I DUCTING- THERMAL INSULATION:

The supply air duct shall be insulated with 24/18/12/6 mm thick expanded polyethylene (FR GRADE) of density 28 kg/cu/m. Method of applying insulation

- 1 Clean the duct surface to be insulated.
- 2 Apply a thin layer of tar paints of shale coat/ tacky tar.
- 3 Apply a thin coat of good quality adhesive / rubber solution to stick the insulation

Fix the insulation of specified thickness over the surface of the duct tightly and seal all the joints using BOPP tape. Secure the insulation with 16 Gauge G.I wire or 10 mm wire PVC box strapping at a distance of 280 mm.

(B) ACCOUSTICAL INSULATION:

First 3 meter length of supply air duct shall be acoustically insulated with 12.5 mm thick glass wood of density 48 KG.CU.M and covered with 28 G perforated Aluminum sheets from the inside of the duct.

- 1 Apply a thin layer of tar paints.
- 2 Fix-up glass wool sheet
- 3 Cover-up with perforated Aluminum sheets with the help of G.I Screw Washers.

ELECTRICAL WORK:

The electrical work will be carried out as per IE rules. The Electrical Contractor will provide incoming power cable with earthing near split units panel. And for the smaller units at their condensers, so as to avoid the fire due to electrical faults...

REFRIGERATION PIPING & INSULATION:

The refrigeration piping between indoor and outdoor units will be carried out with good quality soft/hard copper piping. The complete piping work shall be insulated with formed sections of expanded polyethylene. The piping shall be clamped with GI saddles with wooden strips with walls.

MODE OF MEASUREMENT:

All painting works shall form part of the cost equipment, piping, etc. No separate payment shall be provided.

TESTING OF AIR CONDITIONING SYSTEM:

1 Routine and types tests for various items of equipments shall be performed at the contractor's work and the test certificates furnished. Functional test shall be conducted at site

2 The performance test to determine whether or not the full indent of the specification is met shall be

conducted by the contractor. After notification to the Employers that installation has been completed

and the plant has run continuously for a period of at least two weeks the contractor shall conduct under

the direction of the Architect and in the presence of Employers representatives' test, such test as specified to establish the capacity of various equipment supplied and installed by the contractor.

3 The contractor shall operate test and adjust the air conditioning system units, fans, motors all air conditioning appliances including adjustment of regulators, dampers etc.

4 All test equipment labour, operating personnel, oil and refrigerant required for this test shall be furnished by the contractor to enable the plant to be put in continuous running test for a period of 3 days

after all other tests and adjustments have been made.

5 The contractor will be provided with electrical power water for testing by the client. The performance test

shall be conducted during peak summer and peak monsoon.

FUNCTIONAL TESTS:

ELECTRICAL EQUIPMENT:

1 All the cables shall be tested for continuity and absence of cross phasing. Insulation resistance between

the phase conductors and earth shall be measured with help of 500 v mugger.

MOTORS:

Insulation resistance of all the motors shall be tested with a mugger and the value shall not be less than 1 Meg-Ohms .If observed value is less than 1 Meg-Ohms, the voltmeter winding shall be tried out and

winding shall be given a coat of approved insulating varnish.

Starting current shall be recorded every time the motor is started.

Starter operation shall be checked for a single phasing by removing one of the phase.

Over load protection shall be checked by altering the starter thermal over load setting.

3 SAFELY DEVICES AND CONTROLS:-

- Interlocks for compressor motor with that of condenser fan, AHU /Indoor unit fan shall be checked.
- High pressure stat-shall be checked by varying the settings of the cutout.
- Low pressure stat-shall be tested by closing the pilot solenoid valve.
- Anti-freeze thermostat shall be tested by varying the settings.
- Oil failures switch shall be tested by varying the settings.

CAPACITY CONTROLS:

The capacity control arrangement shall be tested by varying the load on the system. Any other procedure recommended by the manufactures may be adopted with the prior permission of the and Architect.

MODE OF MEASUREMENT:

FOR DUCTABLE / NON DUCTABLE SPLIT A.C:

The entire split unit with out-door and in-door unit with DX coil and all accessories. Starters, Controls, Control panel. Control Wiring, Refrigerant charge ,Oil etc. Erection, Commissioning and testing shall be regarded as one unit for purpose of measurement.

SHEET METAL WORK:

DUCTING:

a All sheet metal ducting work will be measured in terms of final sheet area installed in S. Q. Feet.
b No measurement of Vanes, Splitters, Duct, Dampers deflectors, access doors etc. Which are required to be required to be installed in the ductwork will be made, as the same shall be deemed to be part of ducting work.

GRILLES:

All grilles will be measured in terms of **effective areas**, Example: 24" X 4" will be measured as 0.667Ft².

DIFFUSERS:

Diffusers will be measured in terms of diameter of each diffuser in centimeter or in terms of area of diffuser. Example: 24" X 4" will be measured as 0.667Ft².

DAMPERS:

- All duct dampers shall be measured separately in terms of effective area
- Fire dampers will be measured in terms of effective area in SQ. meters.
- Fresh air / exhaust vain dampers will be measured as. No separate measurement will be made for inlet / outlet louvers, bird screen etc.
- Example: 24" X 24" will be measured as 0.667 FT .

PIPING:

- Piping will be measured in running lengths (Meters)
- No special measurement of bends, elbows, reducer, expanders, tees, cross etc. will be made. All such fittings / accessories will be treated as normal piping.
- The length of the piping including accessories and fittings will be measured along the enter line of piping.

DUCTING INSULATION:

- Duct insulation will be measured on the basis of centerline of insulation and not the outer line of insulation.
- No special measurement shall be made for insulation of bends, transformation pieces, tap offs, elbows, etc. All such insulation shall be treated as standard duct insulation.
- Insulation items shall include all accessories and finishes as specified. No separate measurement will be made for many items.
- Duct fittings such as bends, transformation pieces, tap offs, elbows etc. shall be treated as ordinary duct pieces with their length measured along their center line.
- No duct support, stiffening, member etc shall be measured separately. All such supports / hangers shall form part of the ductwork.
- Equipment connections such as canvas / rein shall be deemed to be part of the ductwork and no separate measurement will be allowed.

PIPING INSULATION:

No separate measurement of insulation shall be made for fittings such as bends, elbows, reduces, expanders, tees, crosses, flanges, etc. All such insulation shall be linear in meters measurement along the center line of piping.

ELECTRICAL WORK:

- All cables shall be measured in running lengths as finally installed at site. No wastage measurement will be allowed.
- Control cable/ wiring for a plant inside the plant room shall be treated as a lump sum item.
- All measuring instruments indicating lamps, etc shall form part of the equipment specified and no separate measurement shall be made for such items.

NOTE:

Contractor should note that all the measurements should be carried out strictly as per mode of measurement stated above. However, all the work should be carried out as per relevant I.S codes specified.

COMPRESSOR:	
TYPE	

COMPRESSOR	
TYPE/ REFRIGERANT	
QUANTITY OFMACHINES	
Kw (MOTOR CONNECTED)	
MOTOR CONSUMED	
FULL LOAD CURRENT	

CONDENSER	
CONDENSOR	
Type	
Air Quantity	
Coil Face Area	
No. of rows	
By pass factor	
Fan Motor KW/RPM	
Full load current of fan motor	
St. pressure of fan	
Copper Tube thk/dia mtr	
Al. Fin spacing / Gauge	

EVAPORATOR:	
CONDENSOR	
Type	
Air Quantity	
Coil Face Area	
No. of rows	
By pass factor	
Fan Motor KW/RPM	
Full load current of fan motor	
St. pressure of fan	
Copper Tube thk/dia mtr	
Al. Fin spacing / Gauge	
OVERALL DIMENSIONAL DETAILS:	
Condensing Unit	
Evaporating Unit	

SAILENT FEATURES:	
Type of filter	
Filter Area	
Filtration level	
Any other details	

TOTAL POWER CONSUMPTION OF THE UNIT:

For 7.50 TR

Ductable 3 Phase

For 2.0 TR

(FCU type)

Voltage

Power Factor

Frequency

TOLERANCES:

Material

Thickness / Diameter

PIPES & FITTINGS:

INSULATION MATERIAL

Material

"K" Value at 10°C Mean temperature

Density

CABLES:

Make

Type

Grade

CONTRACTORS SCOPE OF WORK:-

NO DESCRIPTION

1. CEILING CONCEALED DUCTABLE TYPE SPLIT A.C.

Air cooled type complete with the following components;

The average distance between the Indoor & out door units max. 40 R. Ft.

Indoor evaporating unit comprising of cooling coils, insulated sand-witched drain tray, 20 Micron

HOPE washable filters, blower, electrical junction box etc

Outdoor condensing unit comprising of Rotary/ Reciprocating compressor, condenser coils, propeller

axial fans pressure switches / cutouts.

Necessary Refrigerant Gas and oil charge.

Inter connected refrigerating piping of copper duly insulated with EXPANDED POLYETHYLENSE

SECTION

- Complete electrical power wiring of AL. control wiring of copper required from indoor and outdoor units. Earthing of the complete system with 8 G G.I wire.
- Electrical panel will be completed with necessary starters, fuses, switches, timers, over-load relays, contactors, push button and indicating lamps, single phasing PREVENTOR etc and also with remote control with cording.
- The panel should have 1 no. potential free contractor to connect with central fire detection system.
The panel should also have voltage scanner to ensure stabilized power input to the machine.
- All outdoors units shall be mounted on MS angle base frame structure duly black painted with synethic epoxy paint.
- The ductable units to be provided with 2.5 TR each 3 nos. of compressors in single chasis.
- The frame structure shall be mounted on MS plate & serrated rubber pads. Complete clamping and saddling of cabling work and refrigerant piping, covered with PVC conducting.

Contractor's Sign & Stamp

LIST OF APPROVED MAKES

NO COMPONENT APPROVED MAKE

1 A.C. UNITS - DUCATBLE / CASSATTE BLUE STAR CARRIER HITACHI VOLTAS

2 A.C. UNITS (WINDOW & SPLIT AC UNITS)

BLUE STAR CARRIER HITACHI VOLTAS

WITH MIN. 3 (OR ABOVE) STAR RATING - THE 1.0 TR / 1.5 TR / 2.0 TR. SPLIT AC UNITS SHALL HAVE CERTIFICATION FROM THE BUREAU OF ENERGY

EFFICIENCY (BEE)

3 EXPANDED POLYTHYRENE ADPAK BEARDESELL COOLINE MODIFORM

4 FIBRE GLASS / GLASS WOOL FGP KIMMCO PILKNGTON THERMOGUARD TWIGA

5 CABLES / WIRES - ISI MARKED CCI FINOLEX GLOSTER / POLYCAB JAINSON

6 ELECTRICAL COMPONENTS /

SWITCH GEARS

EE L & T SIEMENS

7 CONTINUOUS GRILLS & DIFFUSERS AIR MASTER AJANTA CARYAIRE COSMOS DYNACRAFT

PRE APPROVED LOCAL MAKE

8 G.I SHEETS ESSAR JINDAL NATIONAL SAIL TATA

9 P.V.C PIPES PRAKASH PRINCE SUPREME

10 ELECTRICAL MOTOR ABB CROMPTON SIEMENS

11 VENTILATION FANS ABB CENTIMASTER COMEFRI KRUGER NICOTRA

PUNKER

12 AIR CURTAIN ACME ADC SAP

13 METERING DEVICE AE IMP MECO

14 INDICATTIONG LAMPS L & T SIEMENS

15 G I PIPE GST PRINCE ZENITH

16 DAMPERS AJANTA CARYAIRE CITIZEN DYNACRAFT GEORGE RAO

PRE APPROVED LOCAL MAKE

17 COPPER PIPE CITIZEN TOTOLINE

18 MILD STEEL FRESH & GOOD QUALITY

19 ARMER RAYNO SUPREME ROTOCAST ESSELL

20 CONDUITS & ACCERSORIES - ISI

MARKED

VRIJ PRECISION BENDS, TEES, ELBO ETC. SHALL BE OF THE SAME MAKE AS

THE CONDUITS

21 PAD LOCK GODREJ NAVTAL WITH MINIMUM 7 LEVER

NOTES: THE CONTRACTOR HAS TO SUBMITT THE SAMPLES OF ALL ITEMS & GET THE APPROVAL FROM THE ARCHITECT BEFORE PLACING THE ORDER & BEFORE STARTING THE EXECUTION OF WORK

2105 REFERENCE DRAWING

01.00.00 SCOPE

01.00.01 The Scope under this section covers the basic drawings and details to understand.

a) Scope of work

b) Location of equipments

c) General idea on the entire installation

d) Material requirements and labor force required for the completion of work in the stipulated time schedule.

01.00.02 The reference drawings are basically schematic/diagrammatic to give idea on general requirements prepared on the basis of preliminary requirements and data available. They are subject to undergo changes and modifications subject to the finalization of details and requirements of the clients.

01.00.03 The detailed working drawings and the drawings required for the submission to statutory authorities shall be the responsibility of the contractor. Contractor shall submit minimum four copies of the drawings to the Consultants for their scrutiny/approval before issuing to the statutory authorities and site for execution.

NOTE: This specification is of the general type only and must be used in conjunction with the drawing of the particular item being made. Anything shown on the drawing and not in the specification must be compiled with, and vice versa.

Signature of Contractors:

Witness:

SYSTEM DESIGN DATA

3.0 GENERAL

3.1 LOCATION :THE ORIENTAL INSURANCE CO.LTD [R.O] 3RD FLOOR,NAVJIVAN,
BUILDING,ASHRAM ROAD, AHMEDABAD.

3.2 HVAC DESIGN:

1) WEATHER DATA : AHMEDABAD

A) LATITUDE : 22'N

B) TEMP. : SUMMER MONSOON

D.B.= 43.3 'C 28'C

W.B.=26 'C 26'C

2) INSIDE CONDITION:

A) D.B. = 24'C + 1'C (76 + 2'F)

B) R.H. = 55 + 5%

3) **VENTILATION** : FRESH AIR WILL BE PROVIDED AT THE RATE OF ½ AIR CHANGE /
HR. OR 15 M3 / HR. PER PERSON WHICH EVER IS HIGHER.

4) **OCCUPANCY** : AS LISTED IN NEXT PAGE

5) **APPLIANCES LOAD**: KW.

6) **LIGHTING LOAD**: KW. (INCLUDING COMPUTERS, LIGHT FIXTURES, UPS ETC.)

TECHNICAL DATA SHEET - SPLIT PACKAGED UNIT – AIR COOLED

NO. DESCRIPTION 11.0 TR

A. COOLIN UNIT

TYPE

AIR QTY. - CFM

ST.PR. MM WG

RA FILTER SIZE (MM)

FILTRATION LVL.

MOTOR KW

SPEED (RPM)

NO. OF SPEEDS

COIL FACE AREA (SQM)

NO. OF ROWS

BY PASS FACTOR

OVERALL DIM. (LDH)

TOTAL WT. (KG)

B. COND. UNIT

COMP. TYPE

MAKE

MODEL

REFRIGERANT

SST (DEG. F)

SDT (DEG.F)

SPEED (RPM)

POWER CONS. (KW) (AT ABOVE COND.)

MOTOR INST. (KW)

CAPACITY (TR) (AT ABOVE COND)

B1 CONDENSER

COIL FACE AREA (SQM)

NO. OF ROWS

AIR QTY – CFM

SPEED (RPM)

MOTOR INST. (KW)

OVERALL DIM. (LDH)

TOTAL WT. (KG.)

CONNT. LOAD (KW)

C OVERALL POWER

CONSUMPTION

= (A+B+B1)

(AT ABOVE COND.)

**THE ORIENTALINSURANCE CO. LTD [R.O], AHMEDABAD - A.C. USAGE –
DATA SHEET – ARCHITECT SUKRUTI ARCHITECTS & ENGINEERS – MAY 2016**

1 LOCATION AHMEDABAD

2 Out side Temp. 43.3 Degree C

3 Inside Temp 25 + 2 Degree C

4 RH (REL. HUMIDITY) 55% Max (INSIDE)

5 FLOOR: THIRD FLOOR

**NO DESCRIPTION AREA OCCUPANCY COMPUTERS REQUIRED MACHINE REQUIREMENTSQ.FT.
STAFF
VISITORS PRINTERS TR.**

NOTE:

1 ALL EXTERNAL GLAZING WILL BE WITH VERTICAL BLIND & SUN CONTROL FILM

2 CFM / PERSON : 10 C.F.M.

GENERAL OBSERVATIONS & COMMENTS

1 The Machine which we have offered for General Area is very efficient machine in terms of air quantity. The ceiling concealed duct able which gives per Tr. Ideal CFM output. So we can design Air velocity up to 25 ft.

2 The Ceiling concealed duct-able are very good in aesthetic. The machine doesn't occupy any space on the wall. The looks of the machines will be like central plant.

3 These machines are very efficient in terms of power consumption. The compressor of the machine are of 3 Ph compressor so compare to 1 Ph compressor machine will save more power (appx. 15 %)

SUKRUTI ARCHITECTS & ENGINEERS

NO. DESCRIPTION

THE CONTRACTOR'S SCOPE OF WORK INCLUDES DESIGN, SUPPLY, INSTALLATION AND COMMISSIONING OF COMPLETE AIRCONDITIONING PLANT - WHICH INCLUDES FOLLOWING MAJOR ITEMS

NOTES:

01 THE UNIT RATE FOR ALL VARIABLE ITEMS, IF ANY, SHALL BE MENTIONED HEREWITH

02 THE TENDER SHALL BE QUOTED IN ONE NAME I.E. EITHER BY MANUFACTURING COMPANY OR ITS AUTHORISED DEALER ONLY WITHOUT DIVISION OF HIGH SIDE AND LOW SIDE WORK DIFFERENTATION.

ORDER SHALL BE PLACED TO ONE PARTY ONLY - BILLED FOR SITE I.E UIIC., L.C.B BRANCH, A'BAD

03 THE RATES QUOTED SHALL BE INCLUSIVE OF ALL TAXES, DUTIES, OCTROI, TRANSPORTATION, DELIVERY AT THE SITE & INSTALLATION, TESTING & COMMISSIONING OF ENTIRE SYSTEM

04 THE STANDARD INSTALLATION CHARGES FOR THE HIGH WALL SPLIT A.C. & CEILING SUSPENDED MULTI SPLIT UNIT SHALL INCLUDE 7.5 METERS EACH OF REFRIGERANT PIPE, DRAIN PIPE & ELECTRICAL CABELLING PER CIRCUIT

05 DELIVERY AND INSTALLTION: WITHIN 30 DAYS FROM THE DATE OF THE ORDER

06 GUARANTEE: AS GIVEN BY THE MANUFACTURER BUT MINIMUM ONE (01) YEAR FROM THE DATE OF SUCCESSFUL COMMISSIONING. FOR THE COMTRESSOR THE GUARANTEE SHOULD BE MINIMUM FIVE (05) YEARS FOR HIGH WALL SPLIT ONLY.

07 PAYMENT: AS PER THE SCHEDULE MENTIONED IN THE TENDER DOCUMENTS

08 THE INSTALLATION CHARGES FOR MULTI SPLIT DUCTABLE CONSEALED A.C. UNITS & HIGH WALL A.C. UNIT SHALL INCLUDE NECESSARY CIVIL WORK (DISMANTALLING / RETOUCHING) & ALL FABRICATION WORK

09 THE RATES SHOULD BE FILLED UP AND SUBMITTED BY THE RESPECTIVE MANUFACTURERS OR BY THEIR AUTHORISED DEALERS

10 THE OFFERS SHOULD BE SUBMITTED BEFORE 15.00 P.M. ON 13/ 06 / 2016. TECHNICAL BID WILL BE OPENED ON 14-06-2016 AT 14.30 PM & OPENING OF PRICED WILL BE INFORMED TO SUCESSFUL CONTRACTOR BY PHONE

11 ALL HIGH WALL A.C. UNITS SHALL BE WITH HIGH AMBIENT ROTARY COMPRESSOR & SHALL CARRY 5 YEARS WARRANTY ON COMPRESSERS

12 ALL CEILING SUSPENDED MULTI SPLIT / DUCTABLE A.C. UNITS SHALL HAVE MICROPROCESSARE BASED CONTROL PANEL, WITH REQUIRED CONTROLS FOR COMPRESSOR SAFETY AND RECIPROCATING COMPRESSURE. AND SHALL CARRY 1 YEAR WARRANTY.

SPECIAL NOTES FOR A.C. SYSTEM INSTALLATION

01 ALL CIVIL WORK SUCH AS MASONARY WORK SLIKE BREAKING AWAY AND MAKING GOOD OF WALLS, FLOORS, SLAB ETC. REQUIRED TO BE EXECUTED IN THE A.C. SYSTEM INSATLLATION IS THE PART OF THE SCOPE OF THIS PROJECT

02 ALL DUCTS / INSULATION ETC. WHICH IS VISIBLE FROM THE SUPPLY OR RETURN GRILL OR DIFFUSER SHALL BE PAINTED BLACK

03 THE ENTIRE JOB SHALL BE EXECUTED IN TOTAL CO.ORDINATION WITH THE OTHER AGENCIES WORKING ON THIS PROJECT MORE PARTICULARLY WITH THE FALSE CEILING AND ELECTRICAL WORK

04 VARIETY OF PIPE LINE IN THE EXPOSED AREA SHALL BE CONSEALED MANNER ONLY AND SHALL BE PROTECTED PROPERLY

05 ARCHITECT OF THE PROJECT SHALL BE KEPT INFORMED ABOUT THE PROGRESS OF THE WORK AT VARIOUS STAGES

06 THE JOB INCLUDES MINIMUM FOUR FREE S DURING THE WARRANTY PERIOD. ALSO ALL FAULT INFORMED BY THE CLIENT DURING THIS PERIOD SHALL BE IMMEDIATELY ATTENDED.

07 ALL MATERIAL ON SITE SHALL BE RESPONSIBILITY OF THE SUPPLIER UNTILL THE

FINAL COMPLETION OF THE WORK & HANDING OVER THE SITE TO THE CLIENT. CLENT IS NOT RESPONSIBLE FOR ANY CLAIM WHATSOEVER DURING ENTIRE EXECUTION PERIOD

08 THE TENDER SHALL BE QUOTED IN ONE NAME ONLY WITHOUT DIVISION OF HIGH SIDE AND LOW SITE WORK DIFFERENTIATION. ORDER SHALL BE PLACED TO ONE PARTY ONLY.

WE HEREBY ACCEPT THE ABOVE TERMS AND CONDITIONS AND SUBMITT OUR RATES ACCORDINGLY

CONTRACTOR'S SIGNATURE WITH SEAL

TECHNICAL BID

- 1 : NAME :
- 2 : WHETHER PROPRIETORSHIP / PARTNERS :
- 3 : ADDRESS :
- 4 : PHONE :
- 5 : PAN NUMBER :
- 6 : I. T. CLEARANCE CERTIFICATES :
- 7 : S. T. NO :
- 8 : EXCISE NO. (IF ANY) :
- 9 : TOTAL STAFF :
- A : TECHNICAL QUALIFIED WITH QUALIFICATION :
- B : ADMINISTRATIVE STAFF :
- C : OTHERS :
- 10 : EQUIPMENT'S DETAILS & INVESTMENT DETAILS :
- 11 : WORKING CAPITAL :
- 12 : BANKERS NAME & ADDRESS :
- 13 : DETAILS OF PROJECTS EXECUTED DURING :
LAST 3 YEARS i.e. (12-13,13-14,14-2015) WITH
NAME OF PROJECT, VALUE, EMPLOYER NAME,
WHETHER HANDLED INDIVIDUALLY OR IN
ASSOCIATION. :
- 14 : DETAILS OF PROJECTS ON HAND AT PRESENT :
- 15 : EMPANELLED WITH ANY BANK OR :
GOVERNMENT ORGANISATION :

SIGNATURE OF THE TENDERER & SEAL

TENDER NOTICE

TO,

Dear Sir(s),

SUB :“PROP. REPAIRING OF CIVIL WORK,FURNITURE WORK +ELECTRICAL & AIR-
CONDITIONING WORKS IN EXISTING REGIONAL OFFICE 3RD FLOOR, NAVJIVAN
TRUST BUILDING,NAVJIVAN ROAD,,OFF. ASHRAM ROAD, AHMEDABAD-380 014
BELONGING TO THE ORIENTAL INSURANCE CO. LTD. 3RD FLOOR, NAVJIVAN PRESS
BUILDING, OFF ASHRAMROAD, AHMEDABAD – 380 014. “

You are requested to submit your tender for the above mentioned work to Regional Office of The Oriental Insurance Co. Ltd. At Ahmedabad for which Tender Copy showing schedule of quantities, general conditions, special conditions/additional conditions can be purchased on payment of **Rs. 5,000.00** cash [Non-refundable] from REGIONAL OFFICE, THE ORIENTAL INSURANCE CO. LTD. 3RD FLOOR, NAVJIVAN PRESS BUILDING, OFF. ASHRAM ROAD, AHMEDABAD – 380 014 during working days from **Date:23 -05- 2016 to 10 -6- 2016** during office working hours from 10.00 Hours to 17.00 Hours. & drawings + other details can be seen at our appointed Architects : M/s. SUKRUTI ARCHITECTS & ENGINEERS, **45/5,Bimanagar Co.Op.Hsc.Ltd, Nr. Shivranjani Cross Road, Satellite, Ahmedabad – 380 015** during working days from **Date: 23 -05- 2016 to 10 - 06 - 2016** during office working hours from **16.00 Hours to 18.00 Hours.**

Sealed tenders accompanied by a bank draft for **Rs. 90,000.00** [without interest] in favor of “THE ORIENTAL INSURANCE CO. LTD. ”[Ahmedabad] as earnest money should reach REGIONAL OFFICE, THE ORIENTAL INSURANCE CO. LTD. 3RD FLOOR, NAVJIVAN PRESS BUILDING, OFF. ASHRAM ROAD, AHMEDABAD – 380 009. on or **before dated:13- 06 -2016** before 15.00 Hours in seal cover only by Registered Ad post or by Courier. The tenders will be opened on **Date:14-06 -2016 at 16.30 hours or will be informed in advance to all Tenderer.** The tenders received late on account of any reason whatsoever will not be entertained. The tender shall be valid for a period of not less than 90 days of opening of tender.

Time of completion 60 days from date of starting of work.

THE ORIENTAL INSURANCE CO. LTD. will not be bound to accept the lowest tender and reserves the right to accept or reject any or all the tenders without assigning any reason whatsoever.

Yours faithfully,

For & on behalf

DEPUTY GENERAL MANAGER
REGIONAL OFFICE
THE ORIENTAL INSURANCE CO. LTD.
3RD FLOOR, NAV-JIVAN TRUST BUILDING,
OFF. ASHRAM ROAD, AHMEDABAD – 380 014.

LETTER SUBMITTING TENDER

Dear Sir,

With reference to the tender invited by you for the work.

I/We hereby offer to execute the work under contract at the respective rates mentioned in the schedule of quantities. I/We have seen the site, understood the general conditions of contract, special conditions, additional conditions.

I/We agree to execute the work as per specifications, general conditions of contract, special conditions, additional conditions.

I/We deposit earnest money **Rs. 90,000.00** by demand draft payable at Baroda which amount shall not carry any interest. I/we do hereby agree that the sum shall be forfeited by THE ORIENTAL INSURANCE CO. LTD. event our tender is accepted & I/we fail to execute the contract when required to do so.

I/we understand that you are not bound to accept the lowest or any other tender that you received.

Yours faithfully,

(Contractor)

Signature of partner of the firm.

In the presence of our banker.

Submitted on

before

P.M.

GENERAL CONDITIONS

Sealed tenders should be addressed to DEPUTY GENERAL MANAGER, REGIONAL OFFICE, THE ORIENTAL INSURANCE CO. LTD. AHMEDABAD and super-scribed NAME OF WORK :“PROP. REPAIRING OF CIVIL WORK,FURNITURE WORK + ELECTRICAL & AIR-CONDITIONING WORKS IN EXISTING REGIONAL OFFICE 3RD FLOOR, NAVJIVAN TRUST BUILDING, NAVJIVAN ROAD,,OFF. ASHRAM ROAD, AHMEDABAD-380 014 & should reach the T.O.I.C.L. between dated:23-05 - 2016 to10- 06- 2016 before 15.00 P.M. only by Registered Post or by Courier.

1. No tenders will be received after 15.00 pm on dated 13- 06- 2016 & the tenders will be opened on the next working day i.e. Dated 14-06- 2016 at 14.30 pm at above mentioned address until otherwise informed.
2. The tenders will remain valid for a period of TWO months from the date of opening of tenders. T.O.I.C.L reserves the right to accept or reject any or all tenders without assigning any reason to Do so.
3. At the time of submission, every tender must be accompanied by a demand draft of Rs. 90,000.00 in favor of “THE ORIENTAL INSURANCE CO. LTD. [PAYABLE AT AHMEDBAD”] as earnest money. No interest will be paid on earnest money. Any tender which is not accompanied by the earnest money summarily rejected.
4. The tenders should quote the rates in figures as well as in words.
5. All erasures & alterations made while filling the tender must be attested initials of the tenderer. Overwriting of the figures is nor permitted.
6. The earnest money deposit of unsuccessful tenderer will be returned after the tender is decided or on expiry of validity period.
7. The earnest money of the successful tender shall be adjusted in the security deposit.
8. The T.O.I.C.L .reserves the right to reject any or all the tenders, accept part of any tender or entrust the entire work to any contractor or divide the work to more than one contractor (item wise) without assigning any reason or giving an explanation. The rate quoted by the contractor will hold good for this bifurcation & no compensation will be paid on this account.
9. Joint tenders shall not be considered.
10. In receipt of intimation from the T.O.I.C.L of the acceptance of his tender, the tenderer within 3 days should submit his acceptance of the work order. If the successful tenderer fails to undertake the work, the earnest money deposited by him will be forfeited & acceptance of his tender may be withdrawn.
11. The rates quoted in the tender shall include all charges of scaffolding, lift, any tool & plants, railway freight, labor conditions & fluctuations in the rates, excise duty, sales tax, octroi & any other taxes or expenditure for carrying out the work.
12. The contractor will arrange for water , electricity & night security for completing the work.
13. No escalation in rates will be allowed under any circumstances.
14. The successful tenderer is bound to carry out entire work within the period stipulated in the Appendix. The tenderer will have to pay liquidated damages for non-completion of job within

stipulated period at the rate mentioned in Clause no:35 of Terms & Condition of Tender per day after expiry of period of completion subject to maximum of 10% of the contract value.

15. The liquidated damages as mentioned above may not be enforced if the contractor applies for an extension of time mentioning the reasons for extensions. Extension of time limit in days will be granted by the T.O.I.C.L provided that contractor is not at fault for extending the work beyond stipulated date of completion.
16. The successful tenderer is bound to carry out items of work necessary for completion of job even though the same are not included in the schedule of quantity. Rates of extra items will be derived from the tender. In case the rates do not exist in the tender & extra item is not similar to tender item, then the rates will be worked out on the prevailing market cost of material & labor, including wastage plus 15% towards tax & contractor's profit.
17. The contractor shall cooperate with other contractors appointed by the T.O.I.C.L that entire work shall proceed smoothly with least possible delay & to the satisfaction of T.O.I.C.L
18. The contractor shall remove all melba etc. wash & clean the floors at his own cost & handover the site in proper manner on the completion of work.
19. The tenderer shall acquaint himself with the site conditions, making his own arrangements for storing of materials at site, lift cartage etc.
20. **Eight Percentage [8 %]** of the value of work done shall be deducted as security deposit from the running bills of the contractor & will be retained for defects liability period(as mentioned in the appendix) & shall be released after the defects liability period, provided no defects are noticed during the period. The security includes earnest money deposited by the contractor with the tender.
21. The contractor, will attend to all defects noticed during defects liability period. If the contractor fails to attend the defects, these defects will be rectified by T.O.I.C.L. the expenditure incurred on this account will be recovered from security deposit.
22. The contractor shall make adequate arrangement for watch & ward of his material & shall ensure the safety, breakage & any theft of material fixed or unfixed by or other sub-contractors.
23. The work executed should be got approved by the T.O.I.C.L as well as Consultant & contractor shall rectify any bad workmanship pointed out at any stage & remove from site all the rejected materials immediately.
24. The contractor shall be responsible for application of labor laws, compensation for injury & accident to person, whether employed by him or his sub-contractor.
25. The contractor will take necessary precautions for carrying out the work avoiding any damage to structures/decorative parts of the property. The contractor will rectify any damages done at his own cost.
26. **The contractor shall ensure that workmen employed by him for execution of work are suitable covered against Workmen's Compensation Act & that all liabilities arising out of Workmen's Compensation Act, ESIS & other legislative enactments applicable to such works & workmen shall be to contractor's account. Insurance policy for equal amount of Contract value should be submitted by the Contractor from Insurance Company.**
27. Civil, electrical & sanitary will be carried out as per T.O.I.C.L's standard drawings/specifications & to the entire satisfaction of T.O.I.C.L
28. The contractor shall give due notice to T.O.I.C.L to check measurements of any work which is likely to be hidden before covering the same.

- 29 The contractor will submit running bills for the value of work done not less than interim payment (as mentioned in appendix) mentioning full nomenclatures of items, rates, amount, measurements, sheets, reasons for part rates claimed, if any.
- 31 In-case of non-completion or delay in completion of work or removal of defects in time, T.O.I.C.L shall be free to appoint another agency to get the job done at the contractor's risk & cost.
32. For fixed as well as loose furniture, rates quoted by the contractor will be inclusive of all taxes, including sales tax, octroi, transportation, other taxes if applicable during the execution of work will be born by the Contractor & no extra amount will be paid in this account.
33. Income tax at the rate applicable of the bill amount will be deducted at source from the contractor's bill(i.e. T.D.S.) & will be deposited with the I.T.O. as per rules.
34. T.O.I.C.L.may delay the progress of work without, in any way, vitiating the contract & grant such extension of time for the time for the commencement/ completion of the contract as it may think proper & sufficient in consequence of such delay & the contractor shall not make claim for compensation or damage in relation thereof.
35. The contractor will not execute any extra item without T.O.I.C.L. permission in writing.
36. The quantities mentioned in the schedule of quantities are approximate. Payment will be made on actual work done by the contractor. However, the contractor should not deviate the quantity without T.O.I.C.L permission.
37. Conditional tenders quoted by the tenderer is liable to be rejected.
38. T.O.I.C.L has a right to alter the nature of work & to add or omit any items of work or to have the option of the same carried out departmentally or otherwise & such alterations or variations shall be carried out without prejudice of the contract.
39. T.O.I.C.L right to terminate the contract, if the contractor abandon the work, or fails to commence & complete the work in time, or fails to abide the contract conditions.
40. Arbitration:
In case of any dispute between T.O.I.C.L. & contractor, the decision taken by the arbitrator who will be appointed by T.O.I.C.L. will be final.
- 41 Those Contractors who has completed Single project worth approximately Rs. 40,00 lacs should apply or a contractor who has completed Rs. 30.00 lac two projects in year should apply. Also Contractor should have executed Civil, Furniture, Electrical & Air-conditioning work should only apply.

(T.O.I.C.L)

(CONTRACTOR)

SEAL

SEAL

PLACE :

PLACE :

DATE :

DATE :

GENERAL CONDITIONS

1 : DEFINITIONS

A : CONTRACT

The contract documents consist of the invitation to Tender, the Agreement, the General Conditions of the Contract, Special Conditions of Contract, Specifications, the Drawings & Schedule of Quantities, including all modifications thereof incorporated in the documents before their execution & the drawings prepared by the Architect from time to time. These forms the contract.

B : SUB-CONTRACTOR

The term sub-contractor, as employed herein, includes those having a direct contract with the contractor & it includes one who furnishes material work to a special design according to the plans of specifications of this work, but does not include one who merely furnishes material not so worked.

C : PROVISIONAL SUM

Provisional sum or the provisional lump-sum shall mean a lump-sum included in the Tender Documents & shall represent the estimated value of the work for which details are not available at the time of tender.

D : WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the Corporation for whom it is intended, or if delivered at & written delivery receipt obtained or sent by registered mail to the last business address known to him who gives the notice.

E : THE WORK

“The Work” shall mean the works in respect of which the Tender by the contractor has been accepted & which are set out in the conditions of Contract, Specifications, Schedule of Quantities & Drawings & including all additions, substitutions & variations ordered by the Architect.

F : WORK

The term “Work” of the Contractor or sub-contractor includes labour & materials or both.

G : VIRTUAL COMPLETION

“Virtual Completion” shall mean that the “Works” are ready & fit for occupation in every respect in conformity with the Contract Documents & to the full satisfaction of the Architect.

H : WORKING DAY

“Working Day” shall mean any day from Monday to Saturday (both days inclusive) excluding all public holidays as notified by the Central Government.

I : NORMAL WORKING HOURS

Normal working hours shall mean ten (10) hours per working day. The specific timings would vary depending upon the season.

J : THE SITE

“The Site” shall mean the site of the Contract works including any building & erections thereon & any other land allotted by the T.O.I.C.L for the Contractor’s use.

K : APPROVED EQUAL

“Approved Equal” shall mean equivalent approved by the Architect.

2 : EMPLOYER , CONTRACTOR & ARCHITECT

T.O.I.C.L., the Contractor & the Architect are those mentioned as such in the Agreement & shall include their legal representative /s, assign /s, successor /s. They are treated throughout the Contract Documents as if each were of the singular number & masculine gender.

3 : SCOPE EXTENT & INTENT

A: SCOPE

The general character & the scope of the work is illustrated & defined by the signed Drawings & Specifications herewith attached.

B: EXTENT

The Contractor shall carry out & complete the said work in every respect in accordance with the Contract & with the directions of & to the satisfaction of the Architect.

C: INTENT

The Contract Documents are complementary & what is called for by any one shall be as binding as if called for by all. The intention of the documents is to include all labor & materials, equipments & transportation necessary for the proper execution of the work described in words which so applied have a well know technical or trade meaning shall be held to refer to such recognized standards as applicable.

D: ARCHITECT’S INSTRUCTIONS

The Architect may from time to time issue further supplementary drawings & or written instructions, Subject to prior approval of T.O.I.C.L. details & directions & explanations which are collectively referred to the Architect’s instructions. The Contractor shall forthwith comply with & duly execute works comprised in such as Architect’s instructions provided always that verbal instructions, directions & explanations given to the contractor or his work’s representative by the Architect shall if involving a variation, be confirmed in writing.

E : VARIATIONS

T.O.I.C.L. reserves the right to increase or decrease the scope of work on any or all items or change the nature of work involved in any or all items of the Contract. The Contractor shall have no claim for loss of anticipated profit or for any other reason whatsoever on account of these variations.

4 : SITE ENGINEER

The Architect will be represented at the site when required who will be responsible for supervision of the Contract The Contractor shall afford him all necessary facilities for the performance of his duties.

Architect shall have power to give notice to the Contractor or his Engineer of non approval of any works or materials & such work shall be suspended or the use of such materials shall be discontinued until the Architects gives written instructions to recommence the work.

5 : SITE

A : CONTRACTOR TO SATISFY HIMSELF ABOUT SITE CONDITIONS

Before tendering the Contractor shall, at his own cost, visit & examine the Site & satisfy himself as to the nature of the existing roads or other means of communication & the character of the soil & of the excavations, the correct dimensions of the work & facilities for obtaining the special articles called for the Contract Documents & shall obtain generally his own information on all matters affecting the continuation & progress of the works. No extra a charge made in consequence of any

misunderstandings or incorrect information of any or these points or on the grounds of insufficient description, will be allowed. Should the Contractor after visiting the site, find any discrepancies, omissions, ambiguities or conflicts in or among the Contract Documents or to be in doubt as to their meaning he shall bring the question to the Architect's attention, not later than 10 (Ten) days before the closing of the Tenders.

B : POSSESSION

The possession of the site shall be given on the date specified in the Appendix 1 to these conditions. The Contractor shall thereupon commence the works & regularly & diligently proceed with the same & complete the same on or before the contract date of completion.

C : TREASURES, ANTIQUITIES -- PROPERTY OF OWNER

The fossils, antiquities & other objects of interest or value which may be found on the site or in excavating the same during the progress of the work shall become the property of T.O.I.C.L.. The Contractor shall carefully take out & preserve all such objects & shall immediately or as soon as conveniently after the possession of the Architect un-cleaned & as excavated.

6: SCHEDULE OF QUANTITIES

The quantities given in the schedule of quantities are provisional & are meant to indicate the intent of the work & provide a uniform basis for tendering. The Contractor shall be paid for the actual quantities of the work executed by him in accordance with Contract Documents at the Contract rates. T.O.I.C.L. reserves the right to increase or decrease any of the quantities or to totally omit any items of the work & the Contractor shall not claim any extra or damage on these grounds. Any error in description or in quantity or omission of item in the Schedule of Quantities shall not vitiate this Contract but shall be deemed to be a variation required by the Architect.

7 : CONTRACT AGREEMENT

The selected Contractor shall enter into a formal contract with T.O.I.C.L. for the execution of work within 03 days from the date of award of contract, failing which his tender may be rejected & the earnest money deposited by him will be forfeited.

8 : ROYALTIES & PATENT RIGHTS

All royalties or other payable in respect of the supply & use in carrying out the works as described by or referred to in the Contract Drawings, the Contract Specifications & the Contract Schedule of Quantities or any patented articles, processes or inventions shall be deemed to have been included in the Contract Sum. The Contractor shall indemnify the damages, costs & expenses which may be brought or made against T.O.I.C.L. or to which he may be put by reasons of the Contractor infringing or being held to have infringed any patent rights in relation to any such articles, processes & invention.

9 : FIRE & ACCIDENT INSURANCE & WORKMEN'S COMPENSETION ACT

A ; The Contractor shall insure the works against loss or damages by fire, accident, riot, civil commotion and or all acts of God, progressively up to the full amount of the Contract. Such insurance is to be effected from time to time in the name of T.O.I.C.L. & is to be for the mount of the full value of the work as determined by the Supervising Officer. All expenses incurred on insuring the works as described above shall be fully born by the Contractor. The Contractor shall submit for inspection by the Architect the policies & receipts of the premium for such insurance & shall maintain such policies in force until the possession of the works given to T.O.I.C.L.. All such policies /premium receipts shall be deposited with T.O.I.C.L. after inspection by the Architect.

B : If the Contractor fails to comply with the terms of this conditions, the N.I.C.L. may insure the works & may deduct the amount of the premium paid from any money that may be or become payable to the Contractor, or may, at his option, refuse payments of the certificate to the Contractor until the Contract shall have complied with the terms of this conditions.

C : Such insurance, whether effected by T.O.I.C.L. or the Contractor, is to be no limit or bar to the liability & obligation of the Contractor to deliver the works to T.O.I.C.L. completed in all respects according to this contract. In case of loss or damage due to any of the aforesaid clauses, the money

payable under any such insurance shall be received & retained by T.O.I.C.L. until the works are finally completed & shall then be credited to the Contractor in final settlement of account in the event of this contract not having been previously cancelled under those conditions.

11 : SEPARATE CONTRACTS

T.O.I.C.L. reserves the right to let other contractors in connection with his work. The Contractor shall afford other Contractors reasonable opportunity for the introduction & storage of their materials & the execution of their work & shall properly connect & co-ordinate his work & theirs. If any part of Contractor's work depends for proper execution or results upon the work of any other Contractor, the Contractor shall inspect & promptly report to the Architect any defects in such work that render it unsuitable for such proper execution & results. His failure to so inspect & report shall constitute in acceptance of the other Contractor's work as fit & proper for the reception of his work, except as to the defects which may develop in the other Contractor's work after the execution of the work.

12 : TAXES

The contractor shall include in his rates for various items, the amount of sales tax & any other taxes or levies legally payable on the works & or on the materials & equipments forming part of the works.

13 : NOTICES & FEES

The Contractor shall comply with all Government Acts including any bye-laws or regulations of local authorities relating to the works & shall give all notices & pay all fees & charges demandable by law there-under & indemnify T.O.I.C.L. against the same.

14 : TIME OF COMPLETION

- A: All time limits in the contract documents shall be the essence of the contract. The Contractor obligates himself to complete the work in all respects within the time schedule stipulated in the agreement subject to any adjustment granted by the Architect in writing under the conditions of the contract in concurrence with company & shall submit to the Architect periodic verified progress reports on the first & fifteenth of each & every month.
- B: Should the Contractor be delayed or impeded in the execution of works by reasons of :
- 1 : Force Majeure (see clause 47)
 - 2 : By the works or delay of other Contractors or traders engaged or nominated by T.O.I.C.L. & not referred to in the Contract Documents.
 - 3 : The non-delivery or delay in delivery to the Contractor of any material & equipments which under the contract , the Employer is to supply or
 - 4 : Any cause, whatever, arising out of the acts or defaults of the Employer or the Architect or
 - 5 : Any accident happening to the works during their progress not arising from the neglect, default of the Contractor or his workmen or sub-contractors or
 - 6 : Extras or variations being ordered by the Architect or T.O.I.C.L..
 - 7 : Any other cause which in the opinion of the Architect has caused delay, the Contractor may from time to time, within 14 working days of the happening of any aforesaid, apply in writing to the Architect for an extension of time on account thereof, setting forth the cause of such application & duration of extension, the Architect shall, if he thinks the cause sufficient but not otherwise, by writing within 14 days from the date of the Contractor reporting to the Architect the occurrence of any of the completion of the works for such period as he shall think adequate, & the time for completion of the works so extended, shall for all purposes of the Contract be deemed the time specified for completion of the works. For such extended time limit, no claims from the Contractor for any compensation will be entertained.
- C : Unless the Contractor shall apply for an extension of the time within the period & the manner aforesaid & unless & until the Architect shall extend the time as aforesaid the Contractor shall not by any reason of any delay arising from cause aforesaid, be relieved in any way or to any extent from his obligations to proceed with execute & complete the works within the time limit specified in the contract for the completion of the work

15 : LIQUIDATED DAMAGES

The Contractor shall pay T.O.I.C.L. such sum as stipulated under item no 35 in Appendix 1 as ascertained & liquidated damages for each day, Sundays & holidays inclusive that the works remain incomplete after the contract date for completion or any extended time limit as may be granted by the Architect provided that the total amount payable by way of damages shall not be more than 10% (Ten Percentage) of the total contract amount.

16 : CONTRACTOR'S LIABILITY REGARDING DAMAGES TO PROPERTY, INJURY TO PERSONS

A: T.O.I.C.L. shall not be liable or responsible for any accident, loss, injury resulting in death or damage of any kind whatsoever happening or accruing during the term of performance of the work herein referred to & in connection therewith to persons & or property, materials & equipments & the Contractor shall fully indemnify & protect T.O.I.C.L. from & against the same. In addition to the liability imposed by law upon the Contractor for injury (including death) to persons or damage to property by reason of the negligence of the Contractor or his agents, which liability is not impaired or otherwise affected hereby, the contractor hereby assumes liability for & agrees to save T.O.I.C.L. harmless & indemnify him from every expenses, liability or payment by reason of any injury (including death) to persons or damage to property suffered through any act or omission of the Contractor, or any of his sub-contractor or any person directly or indirectly employed by any of them or from the conditions of the premises or any part of the premises which is in the control of the contractor or any of his sub-contractors or any one directly or indirectly employed by either of them or arising in any way from the work called for by this contract.

Further, the Contractor here by agrees & undertake to indemnify T.O.I.C.L. from any loss or damage or death arising out of Architects instructions by ensuring that the insurance policy taken out under this clause covers this contingency.

B : The Contractor shall submit certificates to the Architect giving evidence that he is fully insured against claims for death, injury & property damage in connections with his operations under this contract for any reasons whatsoever including acts of nature.

C : The Contractor shall obtain written certificates of similar insurance from all sub-contractor & hereby assumes responsibility for any claim or losses to T.O.I.C.L. resulting from failure of any of the sub-contractors to obtain adequate insurance protection in connection with their work on this project.

D : The Contractor shall not proceed with the work until he has received in writing from the Architects approval of the certificates of insurance required by the preceding paragraph.

E : These certificates shall be fully executed & shall state that the policies can not be cancelled. All policies shall be with insurance companies acceptable to T.O.I.C.L.

F : The Contractor shall be responsible for anything which may be excluded from the insurance policies above referred to & also for all other damages to any property arising out of & incidental to his carrying out the contract in a negligent or defective manner. He shall also indemnify T.O.I.C.L. in respect of any costs, charges or expenses arising out of any claim of proceedings & also in respect of any Award of or compensation of damage arising there from. T.O.I.C.L. shall be at liberty to & is here by empowered to deduct cost, charges & 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.

G: The Contractor shall continuously maintain adequate protection of all his work, materials & equipments from damage, destruction's or loss & shall protect T.O.I.C.L.'s property from injury arising in connection with this Contract. He shall cover up & protect the works from weather & suspend all operations during adverse weather conditions which in the Architect's opinion will be detrimental to the works. In default, the Contractor shall make good any such damage, destruction, loss or injury.

H : When so ordered by the Architect, the Contract shall suspend any work that may be subjected to damage by climatic conditions.

17 : LABOUR REGULATIONS

A: The contractor shall be wholly & solely responsible for full compliance with the provisions under all

labor laws & or regulations such as Payments of Wages Act 1936. Minimum Wages Act 1948, Employers Liability Acts 1938, Workmen's Compensation Act 1923, Industrial Dispute Act 1947 & the Maternity benefit Act 1961, Contract Labor (Regulation & Abolition) Act 1970 & Central Rules 1971, Apprentice Act 1961 or any modifications thereof & rules there-under from time to time.

B : The Contractor shall at his own expense comply with or cause to be complied with Model Rules for Labor Welfare framed by Government or other local bodies from time to time. For the protection of health & for making sanitary arrangements for workers employed directly or indirectly on the works & the workers hutment's area. In case the contractor fails to make arrangements as aforesaid, T.O.I.C.L. shall be entitled to do so & recover the cost thereof from the Contractor.

C : The Contractor shall not employ any labor under 14 years of age on the job. If female labor is engaged, the Contractor shall make necessary provision at his own expenses, for safe guarding & care of small children & keeping them clear of the site of operations. No labor shall reside within the site except authorized guards.

18: CONTRACTOR'S SITE ORGANIZATION & EQUIPMENT

A : ENGINEER - INCHARGE

The Contractor shall ensure continued effective supervision with the help of a qualified, experienced & competent Engineer assisted by adequate staff as ascertained by the Supervising Officer for the entire duration of the works. The Engineer-in-charge will be responsible for carrying out the work to the true meaning of the drawings, conditions of contract, specifications, schedule of quantities & Architect's instructions & directions to the satisfaction of the Architect. Any direction or instruction given to the Contractor officially. Attention is called to the importance of requesting written instruction from the Architect's before undertaking any work where Architect's direction or instructions are required. Any such work done in advance of such instructions will be liable to be removed at the Contractor's cost. No staff shall be transferred from the work without the written permission from the Architect.

B : EQUIPMENT

The Contractor shall provide & install all necessary hoists, ladders, scaffolding, tools, tackles, plants & all transport for labor, materials & plant necessary for the proper carrying on, execution & completion of the work to the satisfaction of the Architect.

C : SECURITY

The Contractor shall provide adequate number of watchmen to guard the site premises, materials & equipment at all time at his expenses.

D : STORAGE OF MATERIALS

The Contractor shall provide, erect & maintain at his expense proper waterproof shade for storage & protection of construction materials & equipment's, both his own.

19 : SUB-CONTRACTORS

As soon as practicable & before awarding any sub-contractor, the contractor shall notify the Architect in writing the names of the sub-contractors proposed for principal parts of the work & for such other parts of the work as the Architect may direct for his approval. The contractor shall not employ any sub-contractor to whom the Architect may object.

20 : ASSIGNMENT & SUBLETTING

The Contractor shall not, without the written consent of the Architect as well as Company assign this contract or subject any portion of the work. Any permission to sublet parts of the work shall not absolve the contractor from any liability under this contract.

21 : CO-ORDINATION OF WORK

At the commencement of work & from time to time, the Contractor shall confirm with other contractors sub-contractors, persons engaged on separate contract in connection with the work. & with the Architect for the purpose of the co-ordination & execution of various phases of work. The

Contractor shall ascertain from other contractor, sub-contractors & persons engaged on separate contracts, in connection with the works, the extent of all chasing, cutting & forming of all opening, holes, grooves, etc as may be required to accommodate the various services. The Contractor shall ascertain the routes of all services & the position of all floors & wall outlets, traps etc in connection with the installation of plant, services & arrange for construction of work must not be done unless specifically authorized in writing by the Architect. All breaking shall be done by the Contractor for Civil work & no work shall be done over broken or patched work without first ascertaining that the broken surface is adequately prepared & reinforced to receive & hold the future work.

22 : PROGRESS PAYMENT

A : Unless otherwise provided in the contract & subject to these conditions, the Contractor shall from time to time be entitled to receive payment on the basis of the actual work executed, approved & certified by the Architect, subject to deduction as hereinafter mentioned. The T.O.I.C.L.'s decision shall be final & conclusive. The Contractor shall submit 4 (Four) copies of bills duly supported by actual measurements & duly verified by the site Engineer at intervals of not less than 20 (Twenty) days, provided the value of the bill is not less than minimum value stipulated in Appendix -1. If the bill value is less than the value specified in Appendix - 1 such bills will be not be considered. From every intermediate bill, a sum of five (%) percent of the value of the work done shall be retained un-till the expiry of the defects liability period. No interest shall be due to the Contractor for sums retained by the T.O.I.C.L. All intermediate payments shall be regarded as payment for work actually done & complete. Intermediate payments do not imply acceptance of the work for which payment is made, acceptance & final payment being subject to all clauses of this contract. The final bill shall be submitted by the Contractor within two months (2) of the date of virtual completion of the work taken by the Architect after due notice to each parties unless objected to within one month of their being recorded in the measurement books.

Half the amount of retention money & full earnest money shall be released to the Contractor after the entire work is certified as virtually complete by the Architect. Balance half of the retention money shall be released / refunded after expiry of defects liability period, provided that the Contractor have attended to all defects noticed during the defect liability period to the satisfaction of the Architect / T.O.I.C.L. The T.O.I.C.L. will not accept any performance bond or fixed deposit receipt in lieu of the money to be retained during the course of construction or during the defects liability period.

B : Unfixed materials in their interim bills, the contractor may claim advance against cost of imperishable material, that have been brought to site & stored permanently for incorporation of work, to the extent of 80% of the invoiced cost of such materials, provided claims for such payments are supported by all relevant vouchers, measurement books & receipts. Only such materials as are brought to site in reasonable time for incorporation in the work shall be recommended for payment under clause 25 (a). Such materials when paid for become the exclusive property of the T.O.I.C.L. & shall not be hypothecated to any party or removed from the site regardless of weather accepted or not.

The said materials shall remain in custody of the Contractor until the work is completed & delivered to the T.O.I.C.L. & any loss or damage shall be the sole responsibility of the Contractor. An insurance policy against theft, loss or damage by fire, accident & all materials at site for which the Contractor at his cost in the name of the T.O.I.C.L. The policy shall be kept in force till the materials are incorporated in the work. The policy & receipt for the premium shall be submitted to the Architect for his inspection & then lodged with the T.O.I.C.L.

23 : EXTRAS & VARIATIONS

A: If at any time whilst the works are in hand it shall be deemed expedient by the Architect to order material or work of a different description from that specified or to alter their situation or vary the form or dimensions of the works or of any parts thereof or to substitute one class of work for another, he shall have full power to do so & to order & direct any such variations & additions & the work involved in any such variations & additions shall be executed by the Contractor if the class of work provided for in the documents at the rates set out in the schedule of quantities & no such variations or additions shall in any way annually this contract to extend the time for in condition 17 (Seventeen) but such additions or variations shall be measured & paid for or deducted from the account of the Contractor as the case may require according to the rates set out in the Schedule of Quantities.

- B : If any of the work so ordered to be done shall not be, in the opinion of the Architect of the same value or class of work provided for in the Schedule Of Quantities, the same shall be executed by the Contractor at the rates computed in the following manner. The rates for such items of work not included in the contract shall be computed on the basis of estimated quantities of materials & labor & prevailing costs of materials & labor involved in the work & 15 % (Fifteen) percent added towards establishment, overheads & profits. But if Contractor & Architect can not agree as to the rate to be paid, the Architect may order & direct the same to be done by such person or persons as he may think fit. & such person or persons shall be permitted by the contractor to enter upon the works for the purpose of carrying out such work as is required.
- C : Before any extra work or work of an altered value or class is undertaken by the Contractor, he shall procure an order in writing from the Architect for carrying out such extra or variation of work & the Contractor shall not be entitled to any payment for such extras or variations unless he produces, if required to do so the written order from the same as aforesaid & he shall not be entitled to plead that the Architect omitted to provide such written order as it is to be distinctly understood that the responsibility for obtaining such order shall be with the Contractor.
- D : The Contractor shall not be entitled to any other rates than the rates set out in the Schedule Of Quantities on any plan that the work was in a more different position or of a different class from or in a more difficult position than that shown on the plan or described in the Specifications or schedule of quantities or carried out under circumstances not contemplated in the Specification or Schedule Of Quantities unless an agreement entitling him to payment at other than the rates set out in the Schedule of Quantities, shall have been previously made & signed by the Architect & the Contractor.

24 : OMISSION OF PORTION OF WORKS

The Architect shall have the power to direct the omission of carrying out of any part or parts of the works but not amounting to the omission of the whole. The Contractor shall not be entitled to claim any compensation on this ground.

25 : PAYMENTS WITHHELD

The Architect may withhold or account of subsequently discovered evidence nullify the whole or a part of any certificate to such extent as may be necessary to protect T.O.I.C.L. from loss on account of following :

- A : Defective work not remedied
- B : Failure of the Contractor to make payments properly to sub-contractors of for materials or labour or equipments.
- C : Damage to another Contractor or sub-contractor
- D : A reasonable doubt that the Contract can be completed for the balance unpaid.
- E : A reasonable doubt that the Contractor intend to leave work items incomplete.

26 : MATERIALS & WORKMANSHIP

- A : All materials & equipment's to be incorporated in the works shall be new materials equipment & workmanship are to be of the best quality of the specified type & to the entire satisfaction of the Architect. The contractor shall be immediately remove from the premises, any materials, equipment's & or workmanship which in the opinion of the Architect are defective or unsuitable & shall substitute proper materials, equipment's & or work man-ship for the rejected materials, equipment's & workmanship at his own cost. The term approval used in connection with this contract shall mean the approval of the Architect.
- B : The Contractor shall if required to submit satisfactory evidence as to the kind & quality materials & equipment's.
- C : Where special makes or brands are called for, they are mentioned as a standard. Others of equivalent quality may be used provided that the Architect considers the Substituted material as equivalent to the brand specified & approval is first requested in writing from the Architect. Unless substitutions are requested by the Contractor & approval by the Architect no deviation from the specification will be permitted.
- D : The Contractor shall indicate & submit written evidence of those materials or equipment called for in the specifications that are not obtainable for installation in the building within the time limit of the

contract. Failure to indicate the above within 15 days after the signing of the contract will be deemed sufficient cause for the denial of request for the extension of the contract time because of same.

E : All materials & equipment's shall be delivered so as to ensure a speedy & uninterrupted progress of the work. Same shall be stored so as to cause no obstruction & so as to prevent overloading of any portion of the structure & the Contractor shall be entirely responsible for damage or loss to the materials by weather or any causes.

F : Within 03 days after signing the contract the Contractor shall submit for approval of the Architect a complete list of all materials & equipment he & his sub-contractor propose to use in the work of definite brand or make which differs in any respect from those specified also in the particular brand of any article more than one in specified as a standard. He shall also list items not specifically mentioned in the specifications but which are reasonably inferred & necessary for the completion of the work.

G : The Contractor shall employ the right kind of workmen, tools & equipment for fabrication & install all materials & equipment whether locally purchased or imported & whether provided by T.O.I.C.L. or contractor himself. They shall be fabricated & installed without any damage & in accordance with the manufacturer's instructions & manuals. Unless specifically shown otherwise all items such as doors / windows frames suspended & other ceiling equipments etc. Shall be securely fixed to their support through expansion machine bolts, raw bolts or other approved means. Securing any items through wooden plugs shall not be permitted.

H: INSPECTION

All materials, equipment's & workmanship shall be subject to inspection examination & test by the Architect at any & all times during manufacture & or construction. The Architect shall have the right to reject defective materials, equipment's & workmanship or require its correction. Rejected workmanship shall be satisfactorily corrected & rejected materials & equipment shall be satisfactorily replaced with proper material & equipment without charge thereof & the Contractor shall promptly segregate & remove the rejected materials & equipment's from the premises. If the Contractor fails to proceed at once with the replacement of rejected materials and or the correction of effective workmanship. T.O.I.C.L. may by contract or otherwise replace such materials & equipment and or correct such workmanship & charge the cost thereof to the Contractor to proceed further with the work. The contractor shall furnish promptly without additional charge. All reasonable facilities, labour, materials & equipment's necessary for the safe & convenient, inspection & test that may be required by the Architect.

I : TESTING

All tests be conducted in a manner & through an organization selected by the Architect. The Contractor shall arrange for such tests & shall bear all expenses in connection therewith upon prior written approval to the Contractor.

27 : DEDUCTION OF UNCORRECTED WORK

The Architect deems it inexpedient to correct work damaged or not done in accordance with the contract, an equitable deduction from the contract price shall be made therefore & the Architect's decision in this respect shall be final.

28 : CORRECTNESS OF THE WORK BEFORE FINAL PAYMENTS

The Architect shall conduct a final inspection just before the virtual completion of the work & prepare a list of materials, equipment's & items of work which fail to conform to the Contract Specifications. The Contractor shall promptly replace & re-execute such items in accordance with the contract & shall bear all expenses of making good all work & the cost of all work of the other contractors destroyed or damaged by such replacement or removal. If the Contractor fails to remove & replace above rejected materials, equipment's and or workmanship within a reasonable time fixed by written notice, T.O.I.C.L. may Employ & pay other persons to amend & make good such defects at the expense of the Contractor. All expenses incurred by T.O.I.C.L. in rectifying the defects including all damages, loss & expense consequent to the defects shall be recoverable from any amount due or may become due to the Contractor.

29 : VIRTUAL COMPLETION

The work shall be conferred as virtually completed only upon fulfillment of the procedure laid down in clause above & when the Architect has certified in writing that the work has been virtually completed. The defects liability period shall commence from the date of such certificate.

30 : DEFECTS

A : The contractor shall make good at his own cost & to the satisfaction of the Architect. All defects, shrinkages, settlement or other faults, arising in the opinion of the Architect from work or materials not being in accordance with the Drawings or Specifications or Schedule Of Quantities or the instructions of the Architect, which may appear within one year after completion of the work, unexpected specialist items such as waterproofing, anti-termite treatment etc which call for longer guarantee periods.

B : Such defects, shrinkage, settlement & other fault upon directions in writing of the Architect & within such reasonable time as shall be specified therein, be amended and made good by the Contractor, at his own cost & in case of default T.O.I.C.L. may employ & pay other persons to amend & make good such defects, shrinkages, settlements of other faults & all damages, loss & expense consequent thereon incidental thereto shall be made good & born by the Contractor & such damage, loss or expense shall be recoverable from him by T.O.I.C.L. or may be deducted by T.O.I.C.L. upon the Architect's certificate in writing from an amount due to the Contractor or T.O.I.C.L. may in lieu of such amending & making good by the Contractor deduct from any moneys due to the Contractor, a sum to be determined by the Architect equivalent to the cost of amending such work. In the event of the retention money being insufficient recover the balance from the Contractor, together with any expenses T.O.I.C.L. may have incurred in connection therewith.

C : MAINTENANCE DURING DEFECTS LIABILITY PERIOD

The Contractor shall provide & maintain adequate staff & labor at his own expense to attend to defects arising in the works during the defects liability period. He shall attend the defects pointed out to him expeditiously.

31 : GUARANTEE

A : Besides guarantees required elsewhere, the contractor shall guarantee the work in general for one year as noted under clause of the General conditions.

B : All required guarantee shall be submitted to the Architect, the Contractor when requesting certification of account for payment by T.O.I.C.L..

C : All required guarantees shall be submitted to the Architect in the forms under Appendix as a per- requisite to acceptance & payment.

32 : SETTING OUT SITE SURVEYS

The Contractor shall establish, maintain & assume responsibility for grades, lines, levels & bench marks. He shall report any error or inconsistencies regarding grades, lines, levies & dimensions to the Architect before commencing work. Commencement of work will be regarded as the contractor's acceptance of such grades, lines, levels & dimensions & no claim will be entertained at a later date for any errors found.

Such surveys shall be carried out by a qualified surveyor. All bench marks to be erected by the Contractor in connection with the work shall be co-related to the permanent bench Marks established at the site.

33 : DRAWINGS, SPECIFICATIONS ETC.

A : After the Contractor has signed, the Contractor will be furnished with two copies of the plans, conditions of contract, specifications & schedule of quantities without cost to him for his own use until the completion of the contract. Additional copies of drawings & other documents will be supplied on payment to the Architect at actual cost.

- B : In general, the drawings shall indicate dimensions, positions & type of construction, the specifications shall indicate the quantities & the methods & the schedule of Quantities shall indicate the quantities & rate for each item of work. However, the above documents being complementary, what is called for by any one shall be as binding as if called for by all. In case of any discrepancies in or among the documents the most stringent of all shall apply.
- C : Any work indicated on the drawings & not mentioned in the Schedule of Quantities or Specifications or vice versa, shall be deemed as though fully set forth in each. Work not specifically detailed called for marked or specified, shall be the same as similar parts are detailed marked or specified.
- D : No deviation from the drawings, specifications & schedule of quantities shall be made. The Architect's interpretation of these documents shall be final & without appeal.
- E : Errors or inconsistencies discovered in the plans & specifications shall be promptly called to the attention of the Architect through the site engineer for interpretation or correction. Local conditions which may affect the work shall like wise be brought to the Architect's attention at once. If, at any time, it is discovered that work is being done which it is not in accordance with the approved Plans & specifications, the Contractor shall correct the work immediately. Correction of defective work shall not be a basis for any claim for extension of time. The contractor shall to carry on work except with the knowledge of the Site Engineer.
- F : Figured dimensions on the scale drawings & large scale details shall govern. Large scale details shall take precedence over scale drawings. Any work done before receipt of such details if not in accordance with the same shall be removed & replaced or adjusted as directed without expenses to the T.O.I.C.L..
- G : All drawings, Schedule of Quantities & Specifications & copies thereof furnished by the Architect are his property. They shall not be used on any other work & shall be returned to him at the request or at the completion of the contract.

34 : SAMPLES AND SHOP DRAWINGS

 After the award of the contract, the contractor shall furnish for approval of the Architect samples & shop drawings required by the specifications or by the Architect. Samples shall be delivered as directed by the Architect. No extra payment is due to the contractor for preparation of any samples. A schedule giving dates for submission shall be included in the time schedule described under section unless specifically authorized all samples must be submitted for approval within 03 days of signing the contract or not involved is schedule to begin.

35 : PROGRAM CHART

 C.P.M.CHART

The Contractor shall prepare integrated CPM Chart for individual buildings, showing clearly all activities from start of work to completion with details of manpower & equipment required for the fulfillment of the program & submit the same for approval to the Architect within 15 days of the award of the contract. The chart shall also indicate the scheduling of the samples, shop drawings & approvals. Thereafter on the first day of each month, for purpose of comparison, the contractor shall submit an identical chart showing the actual rate of progress as indicated in the charts, the contractor shall accelerate the work to the satisfaction of the Architect.

DAILY PROGRESS REPORT

The Contractor shall submit in duplicate on a form to be approved by the Architect a daily report giving an accurate record of the progress of the works, the number of men employed in each trade, the weather, temperature, visitors to the site & any other events influencing the progress of the works & together with copies of all delivery notes of materials & equipment delivered.

The Contractor shall impose a similar requirement on all his sub-contractors & shall incorporate such information in his own report.

36 : COVERING UP

 The Contractor must give at least three working days clear notice to the Architect & the Site Engineer before covering up any of the work in foundation & drains in order that proper measurements may be taken of the work as executed & in the event of the Contractor failing to provide such notice, he is at his own expense to uncover as required to allow the measurements to be taken & afterwards to reinstate.

37 : COMPLETION DRAWINGS

Upon completion of the whole work the Contractor shall furnish the Architect, in triplicate copies of the final survey showing final position of the buildings, roads, services, elevations of finished ground floors & grades at concerns of buildings.

38 : METHOD OF MEASUREMENT

Where work done is to be measured, the standard method of measurements in accordance with the Standard Institute shall be adopted unless otherwise specified. IN the event of any dispute with regard to the mode of measurement of the work executed the decision of the Architect shall be final & binding.

39 : TOLERANCES

The Contractor shall exercise every care to ensure that all structural members are plumb & true to dimensions called for on the drawings, to receive finishing elements such as doors, windows, fittings, fixtures, equipment's & similar items. The details of the above finishing items are based upon allowing tolerance of plus or minus 3mm from the given location. Any variations beyond this may require rectification in the structural members or may involve remarking or replacing the finishing elements, fabricated to fit into the opening or spaces as called for on the drawings. Such rectification shall be carried out by the Architect at no extra cost to the Employer. In case of separate contracts, the contractor whose work does not confirm to dimensions called for shall be liable for all the expenses which may have to be incurred for rectification or replacements as may be required by the Architect for the proper installation of finishing elements. The Architect's decision in this respect shall be final & binding on the Contractor.

40 : ARCHITECT'S STATUS & DECISIONS

A : STATUS

The Architects shall have general supervision & direction of the work. He has authority to stop the work whenever such stoppage may be necessary to ensure the proper execution of the work. As the Architect is in the first instance the interpreter of the conditions of the contract & judge of its performance, he shall side neither with the Employer nor with the Contractor but shall use his power under the contract to enforce its faithful performance by both.

B : DECISIONS

The Architect shall, within a reasonable time, make decision on all claims of the contractor & on all other matters relating to the execution & progress of the work or the interpretation of the contract documents. The decision, opinion, direction of the Architect in consultation with T.O.I.C.L. with respect to all or any of the following matters shall be final & without appeal.

- 1 : Variation or modifications of the design
- 2 : The quality or Quantity of works or the additions or omission or substitution of any work.
- 3 : Any discrepancy in the drawings or between the drawing and or specifications
- 4 : The removal and or re-execution of any works executed by the Contractor.
- 5 : The dismissal from the works of any persons employed thereon.
- 6 : The opening up for inspection of any work covered up.
- 7 : The amending & making good of any defects under defects liability period.
- 8 : Material & workmanship.
- 9 : The Contractor to provide everything necessary for the proper execution of the work.
- 10: Assignment & sub-letting
- 11: Delay & extension of time.
- 12: Termination of the contract by the owner.

C : DISMISSAL

The contractor shall on the request of the Architect immediately dismiss from the works any person employed thereon by him, who may, in the opinion of the Architect, be incompetent or misconduct's

himself & such persons shall not be re-employed on the works without the permission of the Architect.

D : ACCESS FOR THE ARCHITECT TO THE WORKS

The Architect & his representative shall at all reasonable times have access to the works & to the workshops or other places of the contractor where work is being prepared for the contract & when work is to be so prepared in workmanship or other places of sub-contractor, the Contractor shall by a term in the sub-contract so far as possible secure a similar right of access to those workshops or places for the Architect & his representatives & shall do all things reasonably necessary to make such right effective.

41 : INDIAN STANDARDS

A reference made to any Indian Standard Specifications in these documents, shall imply reference to the latest revision of that Standard, including such revisions / amendments as may be issued by the Indian Standard Institution during the currency of the contract & corresponding clause /s therein shall hold valid in place of those referred to.

42 : PROTECTION & CLEANING

- A : The contractor shall protect & preserve the works from all damage or accident by providing temporary roofs, windows and doors, covering, boxing or other construction as required by the Architect. This protection shall be provided for all property adjacent to the as well as on the site.
B : The Contractor shall properly clean the work as it progresses & shall remove all rubbish & debris from the site from time to time as is necessary & directed. On completion, the Contractor shall ensure that the premises and or site are cleaned, surplus material, debris, shades etc removed, areas under floors cleared of rubbish, gutters & drains cleared, doors & sashes cleaned, locks & fastenings oiled, keys clearly labeled & handed to the Site Engineer so that the whole is left fit for immediate occupation or use & to the satisfaction of the Architect.

43 : FORCE MAJEURE

- A : The right of the Contractor to proceed with the work shall not be terminated because of any delay in completion of the work due enforceable causes beyond the control & without the fault or negligence of the Contractor, including but not limited to acts of GOD or of the public enemy, restraints or a Governing State, fires, floods, unusually severs weather.
B : If the Contractor is wholly prevented from performance of the contract for a period in excess of thirty (30) consecutive days because of a force majeure, T.O.I.C.L. may terminate this contract by fifteen (15) days written notice delivered to the Contractor & if the period of the force majeure exceeds ninety (90) consecutive days, the Contractor may terminate this contract by fifteen (15) days written notice to T.O.I.C.L. In the event this contract is terminated, the Contractor shall be paid all costs actually incurred (which costs shall not include any other expense of the Contractor such as loss of profit, salaries of Contractor's employees. Expenses of Contractor towards maintenance of his establishment etc) for the work executed up to the date of termination. Failure to agree on an equitable adjustment shall be deemed to be dispute.

44 : TERMINATION OF THE CONTRACT BY T.O.I.C.L.

If the Contractor shall be adjudged, bankrupt or if he should make a general assignment for the benefit, if his creditors or if a receiver shall be appointed on account of his insolvency or if he should persistently or repeatedly refuse to carry on the work diligently or shall fail to accept in cases for which extension of time is provided, to supply enough, properly skilled workmen or proper materials or equipment for the progress of the work or if he should fail to make prompt payments to sub-contractors or for materials or equipment or labour or persistently disregard laws, ordinance or instructions of the Architect or otherwise by guilty of a violation of any provision of the contract or has abandoned the contract or has failed to commence the works or has suspended the works, then T.O.I.C.L. upon the recommendations of the Architect that sufficient causes exists to justify such action ,may without prejudice to any other right or remedy & after giving the Contractor seven days notice in writing, terminate the employment of the Contractor & take possession of the premises & of all materials, equipment's, tools & appliances thereon & finish the work by whatever method he may expedient. In such case the Contractor shall not be entitled to receive any further payment until the work carried out by him as per the contract terms shall exceed the expense of finishing the work including compensation for additional management & administrative services such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the

difference to T.O.I.C.L.. The expense incurred by T.O.I.C.L. & damage incurred through the Contractor's fault, shall be certified by the Architect & his decision for this matter shall be final & binding on the Contractor.

45 : TERMINATION OF THE CONTRACT BY THE CONTRACTOR

If the work should be stopped under an order of the court or either public authority for a period of three months though no act or fault of the Contractor or any one employed by him, then the Contractor may, upon, fourteen days send written notice to T.O.I.C.L. & the Architect to stop the work or terminate this contract from T.O.I.C.L. & submit claims for materials purchased & brought to site.

46 : ENTRY SITE

It is hereby expressly declared that the entry of the Contractor(s) on the site will merely as a license for carrying out the construction of work under this agreement & they shall not, by his / their being allowed such entry on the premises, acquire any right lien or interest either in the appurtenant or attached thereto & their claim found due & payable to them in accordance with the certificates issued by the Architect under the provisions contained hereafter.

50 : SETTLEMENT OF DISPUTES

All disputes & differences of any kind whatever arising out of or in connection with the contract or the carrying out of the works (whether during the progress of the works or after their completion & whether before or after determination, abandonment's or breach of the contract) shall be referred to & settled by the Architect who shall state his decision in writing. Such decisions may be in the form of a final certificate or otherwise. The decision of the Architect with respect to any or all of the following matters shall be final & without appeal.

- A: The variation or modifications of the design.
- B : The quality or quantity of works or addition or omission or substitution of any work.
- C : Any discrepancy in the drawings or between the drawings and or specifications & schedule of quantities
- D : The removal and or re execution of any works executed by the contractor.
- E : The dismissal from the works of any person employed thereupon.
- F : The opening up for inspection of any work covered up.
- G : The amending & making good of any defects under the defects liability period.
- H : Acceptability of materials, equipment & workmanship.
- I : Materials, labor, tools, equipment & appurtenances necessary for the proper execution of the work.
- J : Assignment and sub-letting.
- K : Delay & extension of work.

L : TERMINATION OF CONTRACT BY THE EMPLOYER

But if T.O.I.C.L. or the Contractor be dissatisfied with the decision of the Architect on any matter, question or dispute of any kind except the matters listed above, then & in any such case, either party (T.O.I.C.L. or the Contractor) may within fifteen days after receiving notice to such decision, give a written notice to the other party through the Architect requiring that such matters which are in dispute or difference of which such written notice has been given & no other shall be & is hereby referred to the arbitration & final decision of a single Arbitrator being a fellow of the Indian Institute Of Architect, to be agreed & appointed by the both parties or in the case of disagreement as to the appointment of a single Arbitrator to the arbitration of two Arbitrators both being Fellow of the Indian Institute Of Architects, one to be appointed by each party which Arbitrators shall before taking upon themselves the burden of reference appoint an Umpire who must also be a fellow of the Indian Institute Of Architects.

The Arbitrator, or the Arbitrators, or the Umpire have the power to open up, review & revise any certificate, opinion, decision, requisition or notice pertaining to the matters referred to them & to determine the same by his/their award. Upon every or any such references the cost of & incidental to the reference & award respectively shall be at the discretion of the Arbitrator or Arbitrator or Umpire who may determine the amount thereof or direct the same to be as between Attorney & client or as between party & party, & shall direct by whom & to whom & in what manner the same shall be borne & paid. The award of the Arbitrator or Arbitrators or the Umpire shall be final & binding on the both parties.

SPECIAL CONDITIONS

1 : GENERAL

These special conditions are intended to amplify the General Conditions of the Contract & shall be read in conjunctions with the same.

2 : ORDER OF PREFERENCE

If any discrepancy is noticed between these Special Conditions & General Conditions of the Contract, the Special Conditions shall take precedence.

3 : EMPLOYER AND ARCHITECTS

The name & address of the Owner & the Architects responsible for the preparation of the contract agreements are as follows :

EMPLOYER : “ THE ORIENTAL INSURANCE CO. LTD. “
(company, under the
Insurance Companies Acquisition &
Transfer of Undertaking Act, 1970)
Regional Office, 3RD floor, Navjivan Press Building,
Off. Ashram Road, Ahmedabad – 380 009.

ARCHITECT : SUKRUTI ARCHITECTS & ENGINEERS
45/5,Bimanagar Co.Op.Hsc.Ltd,Nr. Shivranjani Cross Road,
Satellite, Ahmedabad - 380 015.

4 : SITE & SITE VISIT

The site is situated at “PROPOSED CIVIL WORK, FURNITURE WORK + ELECTRICAL & AIR-CONDITIONING WORKS IN EXISTING REGIONAL OFFICE 3RD FLOOR, NAVJIVAN TRUST BUILDING,NAVJIVAN ROAD,,OFF. ASHRAM ROAD, AHMEDABAD-380 014 BELONGING TO THE ORIENTAL INSURANCE CO. LTD. 3RD FLOOR, NAVJIVAN PRESS BUILDING, OFF.ASHRAMROAD, AHMEDABAD – 380 014. “The Contractors are requested to visit the site for site conditions before quoting the Tender.

5 : SCOPE OF WORK

The scope of the work to be carried out under this contract shall be comprise of construction of civil work for building & civil work for installation of services , Electrical Works & interior works of furniture as called for in the documents.

6 : CONTRACT DRAWINGS

The Contractor shall keep at least one copy of each drawing, conditions of contract, specifications, instructions & schedule of quantities at the Site of works, available for reference by an authorized representative of the Architect at all times during the progress of the works. The drawings shall be displayed & arranged as directed by the Architect.

7 : SCOPE OF WORK

The scope of work to be carried out comprises of the :“PROPOSED CIVIL WORK, FURNITURE WORK + ELECTRICAL & AIR-CONDITIONING WORKS IN EXISTING REGIONAL OFFICE 3RD FLOOR, NAVJIVAN TRUST BUILDING,NAVJIVANROAD,,OFF. ASHRAM ROAD AHMEDABAD-380 014 BELONGING TO THE ORIENTAL INSURANCE CO. LTD.3RD FLOOR,NAVJIVAN PRESS BUILDING,OFF.ASHRAMROAD, AHMEDABAD–380014. as called for in the tender documents.

8 : CONTRACT DRAWINGS

The Contractor shall keep at least one copy of each drawing, conditions of contract, specifications instructions & schedule of quantities at the site of works, available for reference by an authorized representative of T.O.I.C.L / Architect at all times during the progress of the works. The drawings shall be displayed & arranged as directed by the Architect.

9 : SCHEDULE & MANNER OF OPERATIONS

Time being a very important consideration in the execution of this contract, the Contractor will be expected to furnish all labor & materials in sufficient at the work as required & so manage the operation that the work will be completed within the time stated in the contract.. In addition to providing a detailed Time & progress schedule the Contractor shall submit an outlined & graphic schedule of proposed procedures to T.O.I.C.L / Architect for approval.

The Contractor shall exercise extreme care of all items to maintain cleanliness in all operation, avoid free & accident hazards & remove all inflammable debris promptly. The site shall be kept clean of construction dirt, dust & debris & shall be maintained in a condition reasonably acceptable to the T.O.I.C.L at all times.

It shall be the SPECIFIC RESPONSIBILITY of the Contractor for Civil Work to fully advise other contractors what responsibility each has in so scheduling & performing his work as to confirm to the established progress schedule & the contract completion date approved by the Architect/T.O.I.C.L

10 : MAINTENANCE OF PUBLIC & PRIVATE ROADS

The Contractor shall make good at his own cost, all damage to private & public road, curbs & footpaths occasioned by heavy traffic, delivery of materials & building operations generally to the complete satisfaction of the Architect / Engineer-in-charge & the local authority.

11 : PRESERVATION OF TREES & SACRED TEMPLES

Protective fences for trees shall be constructed, as directed by the Architect / Engineer-in-charge as a part of the work of this contract but the Contractor should note that construction of such fences will not exonerate him of liabilities for damage in such protected areas nor in any other areas not specifically designate by the Architect / Engineer- in-charge to be protected.

The Contractor shall take all additional protective measures that may be necessary to protect all trees, bushes, shrubs, hedges & like & any other natural features & shall make good any damage at his own expense.

12 : POLICE REGULATIONS

Allow for complying with all police regulations in connection with the use of public roads & footpaths in so far they effect the works.

13 : TRESPASS

The Contractor is to take all necessary measure to prevent his workmen from trespassing upon buildings & other areas adjacent to the construction site & will be held entirely responsible for any loss or damage resulting such trespass.

14 : CLEANING & HANDING OVER

On completion of the work, the Contractor shall ensure that the premises & site are cleared of his surplus materials, debris etc, all floor cleared & cleaned thoroughly , doors & sashes cased, locks & fastenings oiled, keys clearly labeled & entire premises handed over to the Site Engineer in a condition fir for immediate occupation & use.

15 : EARNEST MONEY DEPOSIT

Earnest Money Deposit as shown in Appendix- 1 in the form given below shall accompany the Tender. Draft/Pay-order payable at Ahmedabad & drawn in favor of T.O.I.C.L. **Tenders not Accompanied by the said Earnest Money along-with Tender Fees pay order shall be liable for rejection.**

16 : SECURITY DEPOSIT

The successful tenderer shall furnish an initial Security Deposit equivalent to 2.0% (Two Percent) of the value of the contract before executing the contract agreement towards proper fulfillment of the Architect / T.O.I.C.L. This initial security deposit shall be inclusive of Earnest Money already deposited by him along with his Tender. Security Deposit shall be in one of the forms stipulated for the Earnest Money earlier or by cash.

Earnest Money/ Security Deposit is liable to be forfeited if the Contractor selected for the work fails to sign the Contract Agreements within 21 (Twenty One Days) of intimation to that effect to him or fails to commence the work within 10 (Ten Days) working days from the date of commencement given in the work order.

17 : PRICE ADJUSTMENTS

The rates quoted by the contractor & accepted by the T.O.I.C.L. shall hold good till the completion of the work & no additional claims will be admissible on account of fluctuation in the market rates, increase in taxes / any other levies / fees etc.

18 : MATERIALS ISSUED AT FIXED PRICES

No price variation will be due towards the cost of materials, supplied by the T.O.I.C.L. to the Contractor at a fixed price & also towards specific constancy charges if provided for in the accepted contract or towards extra items & Prime Cost Sum Items.

19 : PRIME COST ITEMS

-
- A : Prime Cost Sum items shall be executed by persons to be nominated by the Owner on the advise of the Architect selected in such a way as may direct.
 - B : The Contractor shall be paid actual prime cost plus the percentage addition quoted by him to cover all overheads & profits. He shall have to produce such quotations, invoices & receipts bills as may be necessary to show actual details of sum paid by him.

20 : INCOME TAX

An amount of 2% or equal to prevailing I.T.Rate of the value of the work done or as applicable will be deducted from all interim bills & the final bill of the Contractor & remitted to the Government treasury / Reserve Bank in accordance with the latest laws of lands.

21 : SCIENTIFIC & MEASURING INSTRUMENTS

Theodolite with optical plumbing arrangement, dumpy / tilting leveling Instruments, Prismatic Compass, Steel Tapes, Stales and all other surveying instruments found necessary on the work shall be provided by the Contractor & periodically calibrated at his expenses for the due performance of this contract as instructed by the Engineer-in-charge, throughout the period of this contract.

22 : BUREAU OF INDIAN STANDARD

A reference made to any Indian Standard Specifications in the Tender Documents, shall imply reference to the latest version of the standard including such revisions / amendments as may be issued by the Indian Standard Institution during the currency of the contract & corresponding clause therein shall hold valid in place of those referred to.

FOR WORKS EXCEEDING Rs.1.00 LAC AGREEMENT SHOULD BE DRAWN ON
STAMP PAPER

ARTICLES OF AGREEMENT

Agreement made at this day of between

THE ORIENTAL INSURANCE CO. LTD. [REGIONAL OFFICE , AHMEDABAD]

Herein referred to as T.O.I.C.L which expression shall include its heirs, executors, administrators & assigns) of the one part & herein referred to as the successful tenderer/ contractor which expression shall include his heirs, executors, administrators & assigns) of the other part. Whereas T.O.I.C.L. is desirous of carrying out the work & has caused specifications etc. describing the work to be done as per schedule of quantities, along-with the general conditions of contract, special conditions, additional conditions etc. & whereas the contractor has agreed to execute the work described in said priced schedule of quantities, along-with the general conditions of contract, special conditions, additional conditions at the respective rates mentioned in the priced schedule of quantities attached.

Whereas the contractor has deposited **Rs. 90,000.00** with the T.O.I.C.L. as earnest money for due performance of the agreement.

NOW IT IS HEREBY AGREED AS FOLLOWS :

1. In consideration of the payment to be made to the contractor as herein provided he shall upon & subject to the said conditions execute & complete the works as per the said conditions & priced schedule of quantities.
2. The T.O.I.C.L. shall pay the contractor such sums as shall become payable hereunder at the times & in manner specified in the conditions subject to verification of quantities & specifications & other parameter by Consultant
3. The said conditions shall be read & form part of the agreement & the parties hereto will respectively abide by & submit themselves to the conditions & stipulations & perform the agreement on their parts respectively on such conditions contained.

All disputes arising out of in connected with this agreement shall be deemed to have arisen in & only the court / arbitrator in shall have jurisdiction to determine the same.

The several parts of this contract have been read to us & fully understood by us.

SIGNATURES :

(T.O.I.C.L.)

(CONTRACTOR)

INFORMATION TO THE TENDERER

- 1 : Tender Validity Period : 4 Months (120 Days)
- 2 : **Amount of Tender Deposit** : **Rs. 90,000.00**
(Earnest Money Deposit) (E. M. D. will not carry any interest)
- 3 : Date of Commencement : 10 days from the date of issue of work order.
- 4 : Time of Completion : 18 WEEKS.
- 5 : Period of Defects Liability : 12 Months after the issuance of Completion Certificate.
- 6 : Compensation for Delay Liquidated Damages : **As per Clause no: 35 of Terms & Condition of Contract**
- 7 : Initial Security Deposit : **2 % of accepted tender value including Earnest Money Deposit.**
- 8 : Retention Money : 8 % of Gross Value of Interim Bill.
- 9 : Return of Retention Money : 50 % within 30 days after getting Completion certificate & 50 % after Defects Liability Period is over.
- 10 : Last Date of Issue of Tender : **23 -05 -2016 to 10 -06 -2016 up-to 14.00**
- 11 : Last Date of Receipt of Tender : **On or before 13- 06- 2016 up-to 15.00**
- 12 : Period of Honoring Bill : **30 Days from Architect's Certificate.**
- 13 : Interim Bill Amount : **Rs. 15,00,000.00**
- 14 : Remark : **DEPUTY GENERAL MANAGER ,**
THE ORIENTAL INSURANCE CO. LTD.
Reserves the right to accept or reject all or any tender without assigning any reason thereof.

DEPUTY GENERAL MANAGER
THE ORIENTAL INSURANCE CO. LTD.
REGIONAL OFFICE
3RD FLOOR, NAVJIVANPRESS BUILDING,
OFF. ASHRAM ROAD, AHMEDABAD-14

APPENDIX REFERRED TO IN THE GENERAL CONDITIONS

- 01 : DEFECTS LIABILITY PERIOD : TWELVE MONTHS
- 02 : WORK COMMENCEMENT : 10TH DAY FROM THE DATE OF ISSUE OF LETTER AWARDING THE JOB
- 03 : COMPLETION : WORK SHOULD BE COMPLETED IN 18 WEEKS
- 04 : PERIOD OF COMPLETION : AS MENTIONED ABOVE
- 05 : VALUE OF WORK DONE FOR PAYMENT : Rs. 15,00,000.00
- 06 : SECURITY DEPOSIT TILL COMPLETION : 8% (INCLUDING EARNEST MONEY)
- 07 : DEPOSIT FOR DEFECTS LIABILITY PERIOD : 5 % OF TOTAL VALUE OF WORK (INCLUDING EARNEST MONEY)
- 08 : LIQUIDATED DAMAGES FOR NON COMPLETION OF WORK WITHIN STIPULATED PERIOD : As per Clause no: 35 of Terms & Condition of Tender AS MENTIONED IN TENDER DOCUMENT

(CONTRACTOR)

Seal & signature

THE ORIENTAL INSURANCE COMPANY LIMITED

AHMEDABAD REGIONAL OFFICE

TENDER FOR

CIVIL,FURNITURE+ ELECTRICAL & AIR-CONDITIONING WORKS
AT

REGIONAL OFFICE

3RD FLOOR, NAVJIVAN TRUST BUILDING

NAVRANGPURA AHMEDABAD.

PRICED BID

ISSUED TO :

.....

.....

CLIENT :

DEPUTY GENERAL MANAGER
ORIENTAL INSURANCE CO.LTD.
3RD FLOOR, NAVJIVAN BUILDING,
OFF. ASHRAM ROAD,
AHMEDABAD – 380 006.
TEL NO: 2754 1953, 2754 1901.

ARCHITECTS :

SUKRUTI ARCHITECTS & ENGINEERS
45/5, BIMANAGAR CO.OP.HSC. LTD,
NR. SHIVRANJANI CROSS ROAD,
SATELLITE ROAD,AHMEDABAD – 380 015.
TEL NO: 94263 03303 , 2676 7459.

**ABSTRACT SHEET FOR CIVIL WORK ITEMS FOR REGIONAL OFFICE
BELONGING TO THE ORIENTAL INSURANCE CO. LTD. [A 'BAD. OFFICE] AHMEDABAD.**

BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016

NO	DESCRIPTION	QU'TY	RATE	UNIT	AMOUNT
01	REPAIRING EXISTING WORK STATIONS TABLES :				
	Repairing existing Tables as per new design & details. Applying 6 mm thick commercial plywood on which approved make/colour 1mm thick laminate to be pressed with all exposed sides with molding of t.w. as per design which will have polish of approved shade. All existing locks, hinges & other gadgets to be replaced. All internal surfaces will be polished/painted. The top of table will have wire management provision as per Architect's instructions. The table will have ready-made M.S. keyboard with mouse-pad fitted at the under-side of the table as shown in the drawings. These includes all required materials, labour, transportation & taxes etc. complete.				
A	D.G.M. TABLE 8'.0''X3'.0''X2'.6''	1.00		NOS.	
B	R.M.TABLES : 6'.0''X3'.0''X2'.6''	3.00		NOS	
C	ASS. MANAGERS OFFICER'S TABLE:5'.0''X2;.6''X2'.6''	30.00		NOS.	
D	RECEPTION CUM P.A.TABLE 4'.6''X2'.6''X2'.6''	1.00		NOS.	
E	EXI. CONFERENCE TABLE	1.00		NOS.	
F	EXI.CLERK'S TABLE 4'.0''X2'.0''X2'.6''	37.00		NOS.	
02	REPAIRING EXISTING SIDE TABLES :				
	Attached Side Table external surfaces will have 4 mm commercial plywood on which 1mm thick approved make/shade laminate will be pressed & all exposed surfaces will have T.W. molding of approved design which will have polish finished of approved shade etc. complete.				
A	D.G.MANAGER SIDE TABLE	1.00.		NOS.	Rs.
B	REGIONAL MANAGER SIDE TABLE	3.00		NOS.	Rs.
C	ASS. MANAGER & OFFICER'S SIDE TABLE	30.00		NOS.	Rs.
03	PROVIDING & SUPPLYING EXECUTIVEDINING TABLE	1.00		NOS.	Rs.
	Providing & supplying Dining Table Size: 8'.0'' x 3'.6'' with 3''x3'' T.W.legs & 1/5''x3'' t.w. frame with necessary support in-between with 19mm thick Plywood which will have 1.5''x1'' thick t.w.beading as support which will have 1.5mm thick laminate of approved make & shade as per Architects instructions. Table will be melamine polish of approved shade.Edge of plywood will have 2''x1/2'' thick t.w.beading on all four side of Table. Legs will have nylon 1'' buffer				
	TOTAL AMOUNT OF PAGE				Rs.

ABSTRACT SHEET FOR CIVIL WORK ITEMS FOR REGIONAL OFFICE					
BELONGING TO THE ORIENTAL INSURANCE CO. LTD. [A'BAD. OFFICE] AHMEDABAD.					
BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016					
NO	DESCRIPTION	QU'TY	RATE	UNIT	AMOUNT
04	PROV. & SUPPLYING XEROX MACHINE TABLE:				
	Providing & supplying Xerox Table Size: 8'.0" x 2'.0"X2'.6" "U" shape table as per new design & details. Applying 4 mm thick commercial plywood on which approved make/colour 1mm thick laminate to be pressed with all exposed sides with molding of t.w. as per design which will have polish of approved shade. All existing locks, hinges & other gadgets to be replaced. All internal surfaces will be polished. The top of table will have wire management provision as per Architect's instructions.				
05	PROV. & SUPPLYING NEW MODULAR TYPE CROSS TABLE UNIT OF FOUR FOR ASS. MANAGER SIZE: 5'.0"X2'.0"X2'.6" HT WITH MOBILE DRAWER UNIT SIZE: 1'.6"X1'.9"X2'.3"HT				
	P & S of work-station with ready made powder coated key board drawer with mouse pad, mobile drawer unit storage unit size: 2'.0"x1'.9"x2'.3" with 3 nos drawers[sides of 12mm th. & front of 19mm th. Plywood Sections] with group locking system & bottom mounting sliding channel & with all fixtures & fittings like handles ,stoppers, auto closing type hinges, cable manager etc. Complete. The top & vertical supports should be of 19mm thick plywood with 1.5mm thick laminate of approved shade & make on top The entire table made out of 19mm plywood. The all vertical sides are also 1mm thick approved shade laminate as per Architect's instructions. The table will have 12mm thick laminated apron as per details. There should be a provision of cable manager system with necessary cut-outs in top surface & CPU stand. The table should be complete in all respect & The table will be fixed with 50 mm thick partition which will have 5'.0" height. in position & installed at site as per the instructions. Item also includes P & S of 3'.0" x 1'.4" x 2'.6' credenza [Side Table] The basic structure of the credenza should be made out of 19mm Block-board & 06mm th. Plywood at back side. The top, front shutters, drawers front shall have 1.00mm thick laminate on both sides as per details/ instructions. This will have two front drawers on top & below will be two sliding shutters/ open able shatters. There will be one loose shelf in this credenza. The unit will have all necessary hardware such as locks, stoppers, handles, auto closing hinges etc. as per instructions. The credenza should have 6mm th.. plywood divider @ 8" c/c/ for files as instructed at below portion. The entire unit shall be laminated finished. The legs of the table should be provided with adjustable metal supports. The Table will have Melamine Polish of approved shade by the Architect.	2.00		NOS.	Rs.
	TOTAL AMOUNT OF PAGE				Rs.

**ABSTRACT SHEET FOR CIVIL WORK ITEMS FOR REGIONAL OFFICE
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BILLS OF QUANTITIES – SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016

NO	DESCRIPTION	QU'TY	RATE	UNIT	AMOUNT
06	FULL HEIGHT PARTITIONS				
A	FULL HEIGHT GLASS PARTITION FOR D.G.M.CABIN				
	Frame Size: 3" X 1.5 of Teak Wood Sections with suggested grooves. The entire portion above 0'.9" level of the partitions will have 10mm th. Glass Panels of full size fixed with T.W.Beading (molding) of Teak. The lower portion of the partition up to 0'.6" level & from 7'.0" level to ceiling level which will have internal frame work of 2"x2" C.P.Teak wood @2'.0" c/c on both the directions. The same shall be covered with 6 mm th. Commercial plywood panels on both the sides to get the flush type partition. The plywood have 1mm th. Laminate of approved shade & color as per instructions. The Partition includes a door with style of 5"x1.75" (full size) of Teak Wood Section with 8mm th. Glass as per pattern suggested. The partition includes all fixtures like doorstop, S.S.handles, hinges with s.s.pin, stoppers, lock, rubber spacer, door closure etc. Complete. The job includes filling the gaps either vertically or horizontally with proper material. The vertical members of the partitions shall be inserted / fixed in the floor & also to the structural ceiling for better grip.	650.00		SQ.FT	Rs.
B	PROVIDING & FIXING AEROCON DRY WALL 50MM THICK PARTITION.				
	Supply & fixing of 75/50 mm thk. Aerocon panels manufactured by HIL Ltd (Formerly M/s Hyderabad Industries Ltd) of size 2400/2700/3000 mm length and 600 mm wide having Tongue & Groove joint system for walls and partitions. The panels are laid using 1 mm /0.85 mm thick G.I Floor channel of size 14 x 50/75 x 25 mm and Ceiling channel of size 38 x 50/75 x 38 mm, hardware, Labor etc. Aerocon panels Tongue & Groove joints and both the sides' grooves are treated with fiber mesh tape and acrylic/polymer putty as per HIL laying procedure. The rate includes slandered accessories required for Panel installation, labor and wastages etc. as a complete item of work excluding finishing etc. Walls and partitions laid as per specification laid down by manufacturer& should study companies installation system before quoting their rates, approved drawing & as directed by Site engineer/consultant. This partition will have 5.5 mm thick fix glass in between two panels with with necessary frame & beading to hold glass. This will also have door frame with door with necessary fixtures. This includes three coats of acrylic washable painting with necessary base coat as specified by company. This partition will have electrical wiring with necessary piping & switch boards as required by Architect.				
1	FULL HEIGHT PARTITIONS	2000.00		SQ.FT	Rs.
2	LOW HEIGHT PARTITION	450.00		SQ.FT	Rs,
	TOTAL AMOUNT OF PAGE				Rs.

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BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016

NO	DESCRIPTION	QU'TY	RATE	UNIT	AMOUNT
C	OPENING EXI. T.W.PARTITION & RE-FIXING	2000.00		SQFT	Rs.
	Opening existing partition & Re-fixing the same as per instructions of Architects instructions. Partition will be melamine polish as per shade selected by Architect. While removing exi.partition if any member or plywood is damaged which will be also replaced by the Contractor at his own coat.				
07	MAIN ENTRANCE DOOR SIZE :	100.00.		SQFT	Rs.
	P & F ALUMINIUM MAIN DOOR WITH DOUBLE SHUTTER All aluminium doors, windows etc. shall be procured from an approved manufacturer. Aluminium section shall be extruded tubular hollow sections conforming to latest I.S. specifications including I.S.Code 1948 & 733. All sections shall be approved by the Architects before placing the order.All sections shall have minimum 1.8mm wall thickness. The aluminium sections shall be anodized in natural matt finish & the anodic film shall be 20micron with tolerance ± 2 microns. The door will have 6mm thick float glass of first quality & shall have necessary handles,hardwares,stoppers,hinges, floor spring as per Architects requirements. The glass will have 1 st quality rubber beading. Fabricated frames shall be handled with care & stacked on edge on level bearers & supported evenly so that no sagging,twisting, deformation or bending takes place. All sections are to be used of "Jindal Make" & shall be approved by the Architect. The door should have all necessary fixtures like doorstop, Brass heavy duty hinges with S.S.pin, 12" ht .handles, heavy duty locking system, stoppers etc complete. The job includes applying required coats of silicon sealant for air tightness. The door will have a heavy duty standard make floor springs (2 Sets) of approved make.				
08:	P. & FIXING PLAIN GYPSUM FALSE-CEILING AS PER DESIGN.				
	P & F suspended false ceiling as per design & shape suggested by using standard company sections [GYP-STEEL R], which includes P&F G.I.Perimeter Channels of size 0.55mmth. Having one flange of 20mm & another flange of with nylon sleeves& screws at 610mmc/c. Then suspending G.I.Intermediate channels of size 45mm, 0.9 mm th. With two flanges of 15 mm each from the soffits at 1220 mm c/c with ceiling angle of width 25mmx 10 mmx 0.55mmth.Fixed to soffits with G.I.cleats & steel expansion fasteners.Ceiling sectionsof 0.55mm thickness having knurled webof51.5mm&two flangesof 26mm. Each with lips of 10.5 mm area then fixed to the main intermediate channel with the help of connecting clips & in direction perpendicular to the intermediate channel at 457 mm c/c. 12.5 mm th. Tapered edge Gypsum Board (Confirming to I.S.-2095-1982) is then screw fixed to ceiling section with 25mm drywall screws at 230 mm c/c. Screws fixing is done mechanically either with screwdriver or drilling machine with suitable attachment. Standard company manufactured sections [GYPSTEEL R] should be used for the entire framework.Finally the board are to be joined & finished so as to have a finish look which includes filling & finishing the tapered & square edges of the boards with joining compound, paper tape & two coats of primer suitable for Gypsum Board (As per recommended practices of India Gypsum or equivalent].	9350.00		SQ.FT	Rs.
	TOTAL AMOUNT OF THIS PAGE :				Rs.

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BELONGING TO THE ORIENTAL INSURANCE CO. LTD. [A'BAD. OFFICE] AHMEDABAD.**

BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05-2016

NO	DESCRIPTION	QU'TY	RATE	UNIT	AMOUNT
	<p>GENERAL NOTES FOR THE ITEM RATE INCLUDES : The job includes applying two or more coats of acrylic emulsion paint in the standard procedure of painting job. The cut-outs for variety of light fixtures, A.C. continuos grills & diffusers, music speakers & other equipment's etc. & the same have to be made with the frame of perimeter channels of size:20 mm X 27 mm x 30 mm X 0.55mm thick ,supported suitably.Noextra will be paid for this.The visible area,visible overlapping&visiblevertical drops of the boards will be considered for the measurement purpose.The trap door made out of 19 mm plywood with proper teak wood frame fixed to the structural ceiling &all required hardware such as hinges,locks,stoppers,handles etc comp.in paint finishes surrounding ceiling finish[2NOS] Angle bead has to be used to at steps to get straight line.Edges bead has to be used to protect the exposed Gypsum core I.E. cut edges of opening for light fixtures, AC.grills,diffusers,speakers etc.“V“grooves should becut at every square edge joints/filled with joining compound & paper tape.</p>				
09	<p>PRO. & APPLYING “TEXTURED PLASTER “</p> <p>P & A wall textured finish plaster of suggested design & shade on walls & columns as per the manufacturers specifications. The texture should be “ TROVEL FINISH” type ANTONIOP” design pigmented decorative thick textured wall finish. It has quartz powder & marble chips with fine/mild rough cast appearance. It shall be of “ SPECTRUM” make having recessed texture in regular grades. It should be provided in complete line & level on all sides, in uniform thickness as specified in standard company specifications. The item also includes the rate for applying minimum 2 coats of acrylic emulsion paint of suggested shade & company.</p>	200.00		SQFT	Rs.
10	<p>PROVIDING & FIXING WOODEN PANELING</p> <p>P & F Wall Paneling should be made by providing T.W.Frame work (size 1” x 3/4”) at suggested interval[not more than 2’.0” c/c on both direction] covered with 6mm th. Commercial plywood fixed on entire framework & putting 1mm th. Laminate upto 3’.0” ht & remaining height upto 7’.0” to the shape in duco paint finish of suggested shade & finish. The paneling should have suggested grooves & Ghana teak molding (1.5” X 1”) to shape at 3’.0” level as suggested in melamine polish finish.</p>	500.00		SQFT	Rs.
11	<p>PROVIDING & FIXING COLUMN TREATMENT</p> <p>P & f Column treatment should be made by providing T.W. Frame work of (size1”x3/4”) at suggested interval[not more than 2’.0” c/c on both direction] covered with 6mm th. Commercial plywood fixed on entire framework & putting 1mm th. Laminate upto 3’.0” ht & remaining height upto 7’.0” to the shape in duco paint finish of suggested shade & finish. The paneling should have suggested grooves & Ghana teak molding (1.5” X 1”) to shape at 3’.0” level as suggested in melamine polish finish.</p>	1000.00		SQFT	Rs.
	TOTAL AMOUNT OF THIS PAGE :				Rs.

**ABSTRACT SHEET FOR CIVIL WORK ITEMS FOR REGIONAL OFFICE
BELONGING TO THE ORIENTAL INSURANCE CO. LTD. [A'BAD. OFFICE] AHMEDABAD.**

BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016

NO	DESCRIPTION	QU'TY	RATE	UNIT	AMOUNT
12	VERTICAL BLINDS :	1500.00		SQFT	Rs.
	P & F in position "TRAC" or "VISTA" make vertical blinds as per required color, shade ,design & type approved by the Architect. Fixing the same as per instructions of the Architects instructions & site conditions.				
13	STORAGE CABINETS OF VARIOUS TYPES/ SIZES				
	P & F 1'.4" deep Storage Cabinet. The structure of the cabinet is made out of 19mm th. Commercial plywood & back with 6mm thick plywood .All inside surfaces are finished with polish/paint. The front will have 19mm th. Commercial plywood with 1.0mm thick laminate with t.w. edge [all four sides] shutters as per drawings. The cabinet should 19mm th. Commercial plywood as per requirements finished with oil paint as per Architect's instructions & 6mm thick plywood dividers fixed on position for filing storage at 8" c/c or as per instructions. The cabinet should have all necessary fixtures like group locking system, brass stoppers & auto self closing hinges etc. As suggested. The cabinet will have 3" base not visible from outside. The cabinet will have adjustable metal legs fixed to vertical supports. Entire cabinet should be in enamel paint finish & all the wooden members shall be in melamine polish.				
A:	FILE CUPBOARDS FOR OFFICE	R.O.		SQFT	Rs.
	TOTAL AMOUNT OF THIS PAGE :				Rs.
	DISCOUNT IF ANY				Rs.
	TOTAL AMOUNT OF THIS PAGE :				Rs.
	ADD SERVICE TAX				Rs.
	TOTAL AMOUNT OF FURNITURE ITEMS.				Rs.

**ABSTRACT SHEET FOR CIVIL WORK ITEMS FOR REGIONAL OFFICE
BELONGING TO THE ORIENTAL INSURANCE CO. LTD. [A'BAD. OFFICE] AHMEDABAD.**

BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016

NO	ITEM	QUANT	RATE	UNIT	AMOUNT
A	DISMANTALLING WORK :- [ON LUMP-SUM BASIS]				
	Demolishing of Existing R.C.C.Slab carefully without damaging surrounding work, lowering down from any level, removing & carting away the debris & stacking the useful material as directed, clearing the site, repairing the damage surface with 1:1:2 R.C.C. & plastering in C.M. 1:4 with smooth finish etc. Complete as directed.				Rs.
	Dismantling of Glazed Tiles / Stone/ Plaster. from dado including base coat. The job includes disposal of scrap, making good surfaces plastering, finishing, cleaning, leveling etc. Complete. All the work to be carried out without damaging the existing electrical pipes /conduit plumbing pipes etc. Or the concealed drainage, plumbing & electrical lines should be disconnected/ removed as per the requirements & instructions.				
	Dismantling of Glazed Tiles/Stone/Plaster from floor including base coat. The job includes disposal of scrap, making good surfaces plastering, finishing, cleaning, leveling etc. Complete. All the work to be carried out without damaging the existing electrical pipes / conduits plumbing pipes etc. Or the concealed drainage, plumbing & electrical lines should be disconnected / removed as per the requirements.				
	Dismantling of various types of plaster including base coat. The job includes disposal of scrap, making good surfaces plastering, finishing, cleaning, leveling etc. Complete. All work to be carried out without damaging the existing electrical pipes/ conduits, plumbing pipes etc. Or the concealed drainage, plumbing & electrical lines should be disconnected / removed as per requirement.				
	Removal of sanitary fixtures with all fittings & fixtures from the toilet blocks with extra care				
a	Wash Basin				
b	Orissa Pan				
c	Urinal				
	Removing & dismantling of M.S. Ventilator The surface should be finished with cement plastering, cleaning etc. complete				
	4 1/2" +9" THICK BRICK WALL WITH PLASTER Dismantling of existing 4 1/2" thick brick wall with plaster. The job includes the disposal of scrap, making surface good by plastering, finishing, cleaning etc. Complete. All the work to be carried out without damaging the surrounding surfaces or components.				
	Dismantling of existing 9" thick brick wall with plaster. The job includes the disposal of scrap, making surface good by plastering, finishing, cleaning etc. Complete. All the work to be carried out without damaging the surrounding surfaces or components.				Rs.
	Removing & dismantling of existing t.w.partitions as per instructions of Architects. The surface should be finished with cement plastering, cleaning etc. Complete. All the work to be carried out without damaging the surrounding surfaces or components. Removing & carting away the debris & stacking the useful material as directed, clearing the site.				Rs.
	Removing & dismantling of existing False-ceiling & Removing & carting away the debris & stacking the useful material as directed, clearing the site.				Rs.
	Removing Existing M.S.Railing of Mezzanine floor & stacking properly at site. Removing debris from site & making area clean as per instructions.				Rs.
01	REMOVING EXI. FALSE-CEILING	L.S.		L.S.	Rs.
	Removing exi. Gypsum False-ceiling along-with removing electrical Fixture & keeping them at proper place for re-use. Removing debris from site & making site clean. This work will be done on when bank is closed.				
02	Dismantling everything requires for new work should be included along with shifting of any furniture etc included for all works				
	TOTAL OF CIVIL WORK DISMANTALLING WORK - PART " A "[ON LUMP-SUM BASIS]			LUMPSU M AMT	Rs.
	TOTAL AMOUNT [LUMPSUM AMOUNT TO BE QUOTED]				Rs.

**ABSTRACT SHEET FOR CIVIL WORK ITEMS FOR REGIONAL OFFICE
BELONGING TO THE ORIENTAL INSURANCE CO. LTD. [A*BAD. OFFICE] AHMEDABAD.**

BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016

NO	ITEM	QANTY	RATE	UNIT	AMOUNT
B	NEW WORK				
01	GLAZED TILES	200.00		SQ.FT	Rs.
	Providing & laying 1st quality plain coloured glazed tiles of 8" x 8" size & suggested make in dado including 12 to 18 MM thick cement plaster base (rough plaster) in ratio of 1:4 (1 Cement & 4 Coarse sand) as shade & design suggested by the Architect.The tiles will be in two colour - 80% in light colour & 20% in special dark colour as suggested in detail design drawings. The job includes joint finishinh, with the help of white cement & cement colour, cleaning etc. Complete. The shade, design, thickness & size of the tiles should be uniform. At all vertical or horizontal exposed right angled junctions. The tiles should be fixed after chamfering the tiles to get the hairline joint. The tiles are to be fixed in suggested pattern, joined with suggested colour cement slurry in joints. Full pieces have to be fixed except where small pieces are necessary.Small pieces are to be avoided as far as possible. The job include wetting tiles for six hours & roughing the base course to affix good key for fixing tiles as per specification, curing, cleaning etc. complete.				
02	PROVIDING & FIXING GLAZED TILES IN FLOOR	50.00		SQFT	Rs.
	Providing & laying 1st quality plain coloured glazed tiles of 8" x 8" size & suggested make in FLOOR including 25 to 40 MM thick cement plaster base (rough plaster) in ratio of 1:4 (1 Cement & 4 Coarse sand) as shade & design suggested by the Architect.The job includes joint finishinh, with the help of white cement & cement colour, cleaning etc. Complete.The shade, design, thickness & size of the tiles should be uniform. The floor shall be laid in the proper gradient & level drops as suggested.The tiles are to be fixed in suggested pattern, joined with suggested colour cement slurry in joints.Full pieces have to be fixed except where small pieces are necessary.Small pieces are to be avoided as far as possible. The job include wetting tiles for six hours & roughing the base course to affix good key for fixing tiles as per specification, curring, cleaning etc. complete.				
03	PRO.& CONSTRUCTION OF 4 1/2" TH. BK . PARTITION WALL	150.00.		SQFT	Rs.
	Providing & constructing 4 1/2" thick brick partition wall at all levels in C.M.1:4 including 2 Nos. 6mm DIA. M.S. BARS @ every 3rd course, using 1st class quality bricks. The job includes finishing of joints, curing etc. Complete.The job includes proper cutting of existing flooring in required width with the help of cutter machine & complete in line & level & also providing the key between the old construction & the new construction at all levels. The joints between the R.C.C. work & brick work should be provided with chicken wire mesh for better grip & to avoid cracks in the plastered surfaces.				
	TOTAL AMOUNT OF THIS PAGE :				Rs.

ABSTRACT SHEET FOR CIVIL WORK ITEMS FOR REGIONAL OFFICE

**BELONGING TO THE ORIENTAL INSURANCE CO. LTD. [A'BAD. OFFICE] AHMEDABAD BILLS OF QUANTITIES
- SUKRUTI ARCHITECTS & ENGINEERS - 15-05-2016**

NO	DESCRIPTION	QUAN'I	RATE	UNIT	AMOUNT
04	PRO.& CONSTRUCTION OF 9" TH. BRICK	100.00		SQFT	Rs.
	Providing & constructing 9" thick brick in wall at all levels in C.M.1:4 using 1st class quality bricks. The job includes finishing of joints, curing etc. Complete.The job includes proper cutting of existing flooring in required width with the help of cutter machine & complete in line & level & also providing the key between the old construction & the new construction at all levels. The joints between the R.C.C. work & brick work should be provided with chicken wire mesh for better grip & to avoid cracks in the plastered surfaces.				
05	PRO. & APPLYING DOUBLE COAT PLASTER	150.00		SQ.FT	Rs.
	Providing & applying double coat mala plaster in C.M.: 1:4 (1 Part cement & 4 Part of coarse sand) for first coat & second coat in C.M.:1:2 (1 Part cement & 2 part of coarse sand), finished with own slurry.The job includes necessary scaffolding, watering, curing etc. Complete. The plaster should be uniform in line & level with min. 12mm thickness.				
06	PRO./APPLYING CHEMICAL WATERPROOFING	100.00		SQFT	Rs.
	P & A water-proofing treatment in the floor in toilet area by the following process .First removing of existing floor, cleaning & preparation of floor upto existing R.C.C.slab. Then applying two coats of construction chemical [Polyurethane coating] on the R.C.C.slab, vata, cracks, floor etc. The all surfaces should be cleaned manually by using wire brush. All surfaces should be cleaned by using chemical to destroy all the fungal & organic deposites on the surface. The manufacturers standard technical specifications has to be followed for entire execution.				
07	PRO. & FIXING ALUMINUM VENTILATION	50.00		SQ.FT	Rs.
	Providing & fixing powder coated aluminum [Jindal make] sliding windows & ventilator of size suggested for toilet.The outer frame should be made out of 2.5" x1.5" powder coated aluminum section of minimum 2mm thick sections.One portion of the ventilation should have 5mm thick figure glass in operable louvers in aluminum frame work. The other small division will have fixed figure glass fixed by means of glazing clips of weight 30 grams/r.ft. One division will have provision of exhaust fan. The entire ventilation will have powder coated aluminum grill of smallest hole[design no: 101] fixed in "F" section. The entire ventilation should be finished in 55 to 65 micron powder coating by seven tank process. The entire ventilation shall be erected & fixed in position as per layout & design.The rate should include making necessary holes in the wall for proper fixing & re-touching the same. The job includes applying required coat of silicon sealant for weather protection.				
	TOTAL AMOUNT OF THIS PAGE :				Rs.

**ABSTRACT SHEET FOR CIVIL WORK ITEMS FOR REGIONAL OFFICE
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BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016

NO	DESCRIPTIONS	Q'TITY	RATE	UNIT	AMOUNT
08	PROV. & FIXING OF TOILET WOODEN DOOR	50.00		SQ.FT	Rs.
	Providing & Fixing door size: 2'.6" x 7'.0" Flush Door [Water-proof plywood] by fixing 1.5"x.75" T.W.Beading on all sides. The rate should include of providing & fixing the medium type S.S.Hinges with S.S.Pin& all other S.S.matt fittings such as stoppers,handles,rubber floor stoppers,latch etc. Complete & also minor repair to wherever required to put in well functioning position.The entire door should be finished to enamel paint finish. The job also includes providing a new aluminum powder coated "P"frame made out of minimum 2.4mm thick door sections with necessary ideal fixing facilities.				
09	PANTRY & WATER COOLER POLISH KOTAH STONE TOP PLATFORM	25.00		RFT	Rs.
	P & Erecting Pantry platform made out of Polish Kotah Stone vertical both side polish support. On vertical support a rough kotah stone with polish on one side should be kept on facing polish side towards floor. On top of this kotah stone 19 mm thick Kotah Stone of approved make should be put in-between with help of cement mortar. The granite will have front facia as per details or as per Architect's instructions. The platform will have 2'.0" high glazed tiles dado. The platform will have 3" high otta at floor level. The platform will have provision of S.S.Sink [16" x 16" x7"] fixed as per instructions.				
10	VITRIFIED TILES FLOORING WITH DESIGN	9000.00		SQFT	Rs.
	P & L of VITRIFIED TILES of "APPROVED" make[Design No: Size: 600mm X 600 mm],design,color & shade on existing flooring with the help of "BAL" or "ROOF" make flooring adhesive as per the Architects instructions,drawings & pattern in line & level & as per drawings.This will include carting,taxes, bedding material, labour,filling joints properly, curing etc complete. The flooring will have provision of Electrical/Data Cabelling/Telephone	750.00	SKIRTING	RFT	Rs.
11	KOTAH STONE FLOORING	150.00		SQ.FT	Rs.
	P & F Mirror finished KOTAH steps [Tread & Raiser]with constructing Brick steps as per instructions of the Architects on external side with help of "BAL" adhesive with necessary molding & design on steps to avoid slippery from steps as per instructions.				
12	PROVIDING ANTI TERMITE TREATMENT IN BANK	9000.00		SQFT	Rs.
	Providing & applying Pesticide Treatment in entire Bank premises area of "Godrej Brand " with necessary guarantee of 10 years. The work will be done after removing & re-placing existing furniture in position as per existing lay-out.				
13	GRANITE SLAB STAIR STEPS ON ENTRANCE AREA	400.00		SQ.FT	Rs.
	P & F Mirror finished Granite steps [Tread & Raiser]with constructing Brick steps as per instructions of the Architects on external side with help of "BAL" adhesive with necessary molding & design on steps to avoid slippery from steps as per instructions.				
	TOTAL AMOUNT OF THIS PAGE :				
	TOTAL OF CIVIL WORK NEW WORK-PART"B "				Rs.

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BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016

NO	DESCRIPTION	QANTTY	RATE	UNIT	AMOUNT
C	SANITARY INSTALLATION				
01	TATA “ C ” CLASS G.I.PIPES WITH “R” BRAND G.I.FITTINGS				
	Providing,laying,jointing,fixing,testing & finished with anti corrosive paint, TATA“C “ class approved quality con-sealed G.I.Pipeline for water supply including “R” brand fittings, in concealed center point fixing in walls, floors & finishing etc. Complete. The pipe should be covered with plastic coated cotten cloth after application of the paint. The job includes making zari & finishing the same with rich cement mortar.				
A	15 mm dia.	50.00		RFT	Rs.
B	25 mm dia.	50.00		RFT	Rs.
C	40 mm dia.	50.00		RFT	Rs.
02	PROVIDING & FIXING P.V.C. DRAIN LINES				
	Providing & fixing in position in ground or wall P.V.C (6KG/CM2) VENT / WASTE WATER PIPE LINE of approved make with necessary fittings, clamping on walls, joints filled with cement mixed linseed oil & making the joints watertight, testing the same etc. complete.				
A	75 mm dia	20.00		RFT	Rs.
B	110 mm dia.	20.00		RFT	Rs.
03	PROVIDING & FIXING SANITARYWARES				
A	PROVIDING & FIXING WASH - BASIN 16 “ X 12 “	01.00		NOS.	Rs.
	P & F in position of 1 st quality suggested colour & make vitreous glazed chinaware wash basin of size : 16” x 12”, with C.P. Perforated Grating & 30 to 32 MM bore steel C.P.Bottle trap of 1st quality complete with 32 MM diamenter G.I.Con-cealed waste pipe with all required connections.It also includes C.P. Brass angle cock, pillar cock, waste couplin,PVC connections of approved makes as per Architect’s instructions.				
B	PRO.FLAT BACK URNIAL[SMALLER SIZE]	01.00		NOS.	Rs.
	P & F in position 1 st quality of suggested color & make vitreous glazed chinaware Flat Back Urinal [Smaller Size] with necessary fittings & fixture. It includes C.P.Brass angle cock,waste pipe with necessary trap etc. Complete as per Architect’s instructions.				
C	PROVIDING & FIXING WALL HUNG E.W.C.	01.00		NOS.	Rs.
	Providing & fixing in position 1 st quality glazed vitreous chinaware, wall hung type E.W.C of approved colour & make including I.S.I. make solid plastic seat cover of suggested colour with brass hinges, chair brackets, brass screws. The job includes of provision 1# heavy duty flush cock of approved make with all required fittings complete in a perfect working order. The work also includes 15mm diameter C.P.angle cock of approved make & providing standard make jet spray with all required fittings & P.V.C.conncetions etc complete.				
D	Providing P.K.Svetical support for urinal	1.00		NOS.	Rs.
	TOTAL AMOUNT OF THIS PAGE :				Rs.

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BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016

NO	DESCRIPTION	QANTTY	RATE	UNIT	AMOUNT
E	PROVIDING & FIXING ORRISA PAN	R.O.		NOS.	Rs.
	P & Fin position 1st quality glazed vitreous chinaware, ANGLO INDIAN of approved shade & make. The job includes of provision 1# heavy duty flush cock of approved make with all required fittings complete in a perfect working order.				
04	PROVIDING & FIXING C.P.FIXTURES				
A	PROVIDING & FIXING BIB COCK	R.O.		NOS.	Rs.
	Providing & fixing 1/2" diameter C.P.brass heavy duty bibcock of approved make & quality with C.P. flange & extension pipe of required size.				
B	PROVIDING & FIXING ANGLE COCK	R.O.		NOS.	Rs.
	Providing & fixing 1/2" diameter C.P.brass heavy duty angle cock of approved make & quality with C.P. flange & extension pipe of required size.				
C	PROVIDING & FIXING PILLER COCK	R.O.		NOS.	Rs.
	Providing & fixing 1/2" diameter C.P.brass heavy duty piller cock of approved make & quality with C.P. flange & extension pipe of required size.				
D	C.I.NAHNI TRAP WITH 6" X 6"S.S.SIEVE [JALI]	R.O.		NOS.	Rs.
	Providing & fixing heavy duty sill type C.I.Nahni Trap including 6"X6"S.S.Sieve finishing cleaning etc. complete.				
E	CONTROL VALVE - 1 " DIAMETER	R.O.		NOS.	Rs.
	Providng & fixng Control Vlave of approved make with union connections finishing etc. complete.				
F	PRO & CONSTRUCTION G.T	R.O.		NOS.	Rs.
	Pro. & Constructing G.T. with all necessary connections ,C.I.Cover etc. complete in all respect at site as per Architects instruction.				
G	PRO. & CONSTRUCTING M.H./I.C CHAMBER	R.O.		NOS.	Rs.
	Providing & Constructing Man hole for drainage or Inspection Chamber as per Architects instructions which includes construction & all necessary items required.				
05	TOILET ACCESSORIES				
A	SOAP DISH OF CROME FINISH	R.O.		NOS.	Rs.
B	PROVIDING & FIXING MIRROR	R.O.		NOS.	Rs.
	Providing & fixing 5 mm thick mirror of Modi Float make to be fixed on 6mm thick BWP plywod with Burma teak moulding Patti of suggested design in lacquer polish finish. Size :2'.0"x 3'. 0"				
C	PROVIDING & FIXING NAPKIN RING	R.O.		NOS.	Rs.
6	PRO & INST. P.V.C. TANK [1000 LITER CAPACITY]	01.00		NOS.	Rs.
	Pro. & installing P.V.C. [SINTEX MAKE] TANK in existing loft with necessary pipe connection & installing with pump at site as per Architects instruction.				
	TOTAL AMOUNT OF THIS PAGE :				Rs.

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BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016

NO	DESCRIPTION	QANTTY	RATE	UNIT	AMOUNT
7	DISTEMPER PAINT :				
	PRO. & APPLYING DISTEMPER PAINTS	25000.00		SQFT	Rs.
	P & Applying Distemper paint to walls, ceiling & molding as per instructions & the process follows: Sand papering& cleaning the surface properly, filling the cracks /holes with plaster of paris, applying one coat of required primer, sand papaering & applying two coats of lapi/putty, applying second time required primer to the full surface, sand papering & applying third time touch-up lapi/puty works & painting 3 coats of approved colour/shade plastic paint after touch-up of lapi/putty in every coat. The make & shade of the company will be decided by the Architect / Branch Manager.				
8	PRO. & APPLYING OIL PAINT TO DOORS/WINDOWS	7500.00		SQFT	Rs.
	P & Applying oil paint to doors & windows/ molding as per instructions & the process below:- Do-As per item no:09 & painting 3 coats of approved colour /shade oil paint after touch-up of lapi/putty in every coat. The make & shade of the company will be decided by the Architect				
9	PRO. & APPLYING OIL PAINT GRILLS	2000.00		SQFT	Rs.
	P & Applying oil paint to grills,rolling shutters,collapsible gate etc as per instructions & the process below:- Do-As per item no:09 & painting 3 coats of approved colour /shade oil paint after touch-up of lapi/putty in every coat. The make & shade of the company will be decided by the Architect				
	TOTAL AMOUNT OF THIS PAGE :				Rs.
	TOTALOF SANITARY WORK ITEMS-PART “C				
	DISCOUNT IF ANY				Rs.
	TOTAL AMOUNT OF SANITARY WORKS :				Rs.
	ADD SERVICE TAX				Rs.
	TOTAL AMOUNT OF SANITARYWORKS.				Rs.
	SUMMARY OF ALL WORKS :-				
	TOTAL OF CIVIL WORK DISMENTALLING-PART“A “	LUMPS’M			Rs.
	TOTAL OF CIVIL WORK NEW WORK-PART“B “				Rs..
	TOTALOF SANITARY WORK ITEMS-PART “C “				Rs.
	GRAND TOTAL OF CIVIL WORK				Rs.
	THIS IS INCLUSIVE OF SERVICE TAX				

THE ORIENTAL INSURANCE CO. LTD.,3RD FLOOR, NAVJIVAN BUILDING AHMEDABAD
BILL OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS- 15-052-2016

SL. NO.	ITEM DESCRIPTION	QTY.	RATE	UNIT	AMOUNT
			Rs.		Rs.
1.0	ELECTRICAL WORK				
1.1	One light point controlled by one 5 Amp. Switch	40		1	
		nos		no	
1.2	Two light points controlled by one 5 Amp. Switch.	40		1	
		nos		no	
1.3	Three light points controlled by one 5 Amp. Switch.	30		1	
		nos		no	
1.4	Four light points controlled by one 5 Amp. Switch.	10		1	
		nos		no	
1.5	One 5 Amp. 5 pin socket outlet controlled by one 5 Amp. Switch looped on switch board.	55		1	
		nos		no	
1.6	Three 5 Amp. 5 pin socket outlet controlled by one 5 Amp. at other convenient location for computer.	100		1	
		nos		no	
1.7	One 5 Amp. 5 pin socket outlet controlled by one 5 Amp switch at other convenient location for wall fans.	40		1	
		nos		no	
1.8	One 5 Amp. 5 pin socket outlet controlled by one 5 Amp switch at other convenient location for exhaust fans.	3		1	
		nos		no	
1.9	One 5 Amp. 5 pin socket outlet controlled by one 5 Amp switch at other convenient location for ceiling fans.	3		1	
		nos		no	
1.10	One buzzer point controlled by one bell push, with electric type buzzer.	10		1	
		nos		no	
1.11	One 15 Amp 6 pin socket outlet controlled by one 15 Amp. Switch with indicator.	15		1	
		nos		no	
1.12	One 20 Amp. 6 pin socket outlet controlled by one 20 Amp. Switch with indicator for A. C. Unit/ Air cooler.	24		1	
		nos		no	
1.13	Wiring mains in open PVC pipe / Cassing - capping 1.2 mm thickness 25mm size complete with fitting, material & labout				
	a) 1.5 sq mm with 1.5 sq mm earth wire single phase	1500		1	
		mtr		mtr	
		800		1	
		mtr		mtr	
	b) 4.0 sq mm with 2.5 sq. mm earth wire single phase	200		1	
		mtr		mtr	
	c) 6.0 sq mm with 4 sq. mm earth wire single phase	40		1	
		mtr		mtr	
2.0	CABLES & CABLE TERMINATIONS :				
2.1	4c x 6 sq mm Copper Flexible cable (for UPS Input / Output)	10		1	

		mtr		mtr	
2.2	4c x 10 sq mm Copper armoured cable (Panel to UPS DB)	10		1	
		mtr		mtr	
2.3	4 x 16 sq mm Copper armoured cable (For UPS)	12		1	
		mtr		mtr	
2.4	4c x 25 sq mm Al. armoured cable (Panle to LP,UPSDB)	30		1	
		mtr		mtr	
2.5	3.5c x 35 sq mm Al armoured cable (Panel to ACDB)	30		1	
		mtr		mtr	
2.64	3.5c x 240 sq mm Al armoured cable (E Meter to Panel))	30		1	
		mtr		mtr	
3.0	EARTHING				
3.1	Providing & erecting earthing as per drawing complete earth plate with following size of copper Earthing strip at the technically respective position with digging of earth & refilling with charcoal & salt complete with masonry enclose made of cast - iron cover plate having lockable arrangement & waterring pipe & guide pipe of suitable size to earth pit. (Lighting & UPS separately)				
		2		1	
		nos		no	
3.2	Supply and laying of CU strip of 25 x 3 mm thick with proper saddling with minimum distance at 1.5 feet.	15		1	
		mtr		mtr	
4.0	FIXTURES AND FITTINGS :				
	Supplying, installation, testing and commissioning of the following luminaires, fixtures and fittings. The fixtures shall be installed on wall, false ceiling etc. and as per the manufacturer instructions. The job also includes the connection of the fixture with outlet point using 3 core flexible wire wherever the lighting fixtures are there.				
4.1	2 x 36 W Mirror optic reflector type tube light fitting. (2' x 2')	0		1	
		nos		no	
4.2	2 x 18 W CFL Down light fitting	105		1	
		nos		no	
4.3	1 x 18 W CFL Down light fitting	105		1	
		no		no	
4.4	Exhaust Fan fitting	3		1	
		nos		no	
4.5	1200 mm Ceiling fan fitting	3		1	
		nos		no	
4.6	16" Wall Fan	4		1	
		nos		no	
4.7	2' x 2' CFL light as per client's or architect requirment	110		1	

		no		no	
4.8	Decorative light fitting	2		1	
		no		no	
4.9	1x40 Tube light Fixture Patti type fixture [Phillips Make]	3		1	
				no	
4.10	1x11W Wall Mounted wash basin type light fixture	6		1	
				no	
5.0	PANEL BOARD / DISTRIBUTION BOARDS :				
	Supplying and erecting complete with 14/ 16 SWG complete floor / wall mountain type with required compartment including cable end box and gland / termination as required.	1		1	
	S.F.U. (HRC type) 250 A - 1 no.	no		no	
5.1	Supplying and erecting complete with 14/ 16 SWG complete floor / wall mountain type with required compartment including meters & lamps with following materials :				
	S.F.U. (HRC type) 250 A - 1 no. FP COS -1no.	1		1	
	El + MCB - 63 A 100 mA - 11 nos				
	A meter & V meter with selector switch (digital)	no		no	
	R Y B Lamp with indicator and required cable glands etc.				
5.2	Supplying and installing, testing and commissioning of DB with following ; (for lighting Purpose)				
	Incoming : 63 A FP EL+ MCB - 1no.				
	Outgoing : 40 A DP MCB - 3 nos	2		1	
	16/10/25 Amp. SP MCB -24 nos.	no		no	
5.3	Supplying and installing, testing and commissioning of DB with following ; (for UPSDB)				
	Incoming : 63 A FP EL+ MCB - 1no.				
	Outgoing : 40 A DP MCB - 3 nos	2		1	
	16/10/25 Amp. SP MCB -18 nos.	no		no	
5.4	Supplying, installing, testing & commission of Distribution Board with following : (for A. C. units)				
	Incoming : 63 A FP EL + MCB - 1no	2		1	
	Outgoing : 25 A SP MCB - 18 nos	no		no	
5.5	Supplying, installing testing & commission of Distribution board with following : (For UPS Units)				
	Industrial Plugs Socket boards with 40 DP MCB - 1no	2		1	
	(FOR UPS INPUT AND OUTPUT SUPPLY ONLY)	no		no	
6.0	INTERCOM TELEPHONE :				
6.1	Supply and laying of 2 pair telephone wire ISI marked PVC Insulated 0.63m sq mm. Copper conductor wire same as clause No. 1 of internal wiring from EPBEX to the various				
	tables as per the requirement complete in all respect as per	1500		1	

	the drawing an Architect or consultant.	mtr		mtr	
6.2	Supply & installation of RJ - 11 type Tel. Socket.	100		1	
		nos		no	
6.3	Supply & installation of 100 pair crone terminal DP Box.	1		1	
		nos		no	
6.4	Supply and alying of 10 pair telephone wire ISI marked PVC	R.O.		1	
	Insulated 0.63m sq mm. Copper conductor wire same as clause	nos		no	
	No. 1 of cabling / wiring from BSNL DP to the various location				
	as per the requirement, complete in all respect and as per the				
	drawing an Architect or consultant.				
7.0	LAN / STRUCTURE CABLING WORK :				
7.1	Supply and laying of 4 PAIR UTP LAN cable - CAT-6	1500		1	
	in underground /wall in 1.5mm thick PVC pipe of 25mm dia with	mtr		mtr	
	proper junction box for maintanance purpose from server room				
	to each work station (D - LINK make)				
7.2	Supply and installation at CAT -6 information outlet	100		1	
	with fore plate and surface making Box with crimping	nos		no	
	of LAN cable (Make D- link)				
7.3	Supply & testing at patch cord.				
a	Length 1 Meter (Make D- link)	100		1	
		nos		no	
b	Length 2 Meter (Make D- link)	100		1	
		nos		no	
7.4	Installation & testing of 15 U Rack with 2 farns	1		1	
	&power point having two shelf in the rack	nos		no	
7.5	Supply, intstallation & testing of patch panel.	R.O.		1	
		nos		no	
7.6	Testing and connection of patch panel/ switch/ router	1		1	
	and modem etc.	nos		no	
8.0	FLOOR PIPE FOR DATA AND VOICE				
8.1	Supply, Instalaltion, Testing and commissioning of 250 x 38 mm G.I.	300		1	
	Floor racway	nos		mtr.	
8.2	Supply, Instalaltion, Testing and commissioning of 300 x 300 x 60mm	35		1	
	G.I.Floor box with cover plate	nos		mtr.	
9.0	MUSIC SYSTEM				
9.1	Supply and laying 25mm dia. PVC medium gauge pipe in concealed	400		1	
	manner	mtr		no	
9.2	Supplying and laying 1.0 Sq.mm x 2 core shielded wire in prelaid pipe	700		1	
		mtr		no	

9.3	Supplying and fixing speaker suitable for recess mounting	35		1	
		mtr		no	
9.4	Supplying and fixing humming free speaker controller with base box and plate	20		1	
		mtr		no	
9.5	Supplying, installation, testing and commissioning of DVC Player with sutabal amlifiar	1		1	
		mtr		no	
		NET AMOUNT		Rs	
		DISCOUNT IF ANY IN %			
		NET AMOUNT			Rs.
		ADD SERVICE TAX			Rs.
		NET AMOUNT		Rs.	
	SIGNATURE OF CONTRACTOR				
	WITH SEAL				
	DATE :				
	PLACE :				

**ABSTRACT SHEET FOR AIR CONDITIONING WORKS ITEMS FOR REGIONAL OFFICE
BELONGING TO THE ORIENTAL INSURANCE CO. LTD. [A'BAD. OFFICE] AHMEDABAD.**

BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05-2016

NO	DESCRIPTION	QU'TY	RATE	UNIT	AMOUNT
01	SUPPLY OF EQUIPMENTS- AC UNITS				
1.0	AIR COOLED CEILING SUSPENDED TYPE DUCTABLE TYPE AND WALL MOUNTED TYPE SPLIT UNITS WITH FOLLOWING TECHNICAL SPECIFICATIONS				
A:	Indoor Unit with DX Cooling Coil, Fan with Motor, Nylon Pre Filter, Drain Tray, Corded Remote Control & Powder Coated unit enclouse etc.				
B	Outdoor Condensing Unit with Compressors, Condenser Coil, Condenser Fan with Motor & unit enclosure of Powder coated type.	1.00		NOS.	
C	Electrical Control Panel Board with Controls and internal wiring	3.00		NOS	
1.1	11.00Ton DUCTABLE SPLIT UNIT	2.00		NOS.	
1.2	8.5.00Ton DUCTABLE SPLIT UNIT	1.00		NOS.	
1.2.1	2.00 Ton with Cordless Remote Control[*** STAR]	8.00		NOS.	
1.2.2	1.50 Ton with Cordless Remote Control[*** STAR]	5.00		NOS.	
1.2.3	1.00 Ton with Cordless Remote Control[*** STAR]	11.00		NOS.	
	SUB TOTAL AMOUNT FOR SUPPLY OF AC UNITS				Ra.
	TOTAL AMOUNT OF PAGE				Rs.

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BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016

NO	DESCRIPTION	QU'TY	RATE	UNIT	AMOUNT
	INSTALLATIONS OF AC UNITS				
2.0	Installation, Erection, Testing & Commissioning of Duct able & Split with Following items :-				
A:	Inter connected Soft Copper Refrigerant Piping between Indoor & Outdoor unit upto 5.00 RMT distance with Rubber sleeve insulation.				
B	Armoured Electrical Cabel between Indoor & Outdoor Unit with earthing	1.00		NOS.	
C	The Pipes & Cables shall be concealed in flexible PVC conduit of 50/60 mm dia. With proper clamping /saddling work	3.00		NOS	
D	Fabricated M.S.Angle/Channel Mounting stand/Platform for Outdoor Unit with anti rust Paint.				
E	First Charge of Refrigerant Gas-22				
F	Double Canvas Connection with Zip				
G	Regid CPVC Drain piping with Black Armourer insulation covered with BOPP tape of 32/40 mm dia for split unit upto the indicated drain point				
H	20Gauge G.I.Sheet metal additional Drain Tray for the Duct able unit with drain connection with Black 9mm Nitrile Rubbler Insulation				
I	M.S.Bar & Angle Safety Cage with 2 coats of anti Rusting painting.				
2.1.1	CEILING DUCTABLE TYPE DUCTABLE UNITS				
2.2.1	11.00Ton DUCTABLE SPLIT UNIT	2.00		NOS.	
2.2.2	8.5.00Ton DUCTABLE SPLIT UNIT	1.00		NOS.	
2.2.3	2.00 Ton with Cordless Remote Control[*** STAR]	8.00		NOS.	
2.2.4	1.50 Ton with Cordless Remote Control[*** STAR]	5.00		NOS.	
2.2.5	1.00 Ton with Cordless Remote Control[*** STAR]	11.00		NOS.	
3.00	ADDITIONAL INSULATED REFRIGERENT PIPING & ELECTRICAL WIRINING WITH GAS CHARGING PER CIRCUIT PER RMT BASIS				
3.1.1	Beyond 5.00RMT for 11.00 Tn Ductable Unit	33.00		RMT	
3.1.2	Beyond 5.00RMT for 8.50 Tn Ductable Unit	17.00		RMT	
3.1.3	2.00, 1.5, 1.0 Ton Units with [*** STAR]	45.00		RMT	
4.00	AIR DFISTRIBUTION & INSUL;ATION WORK				
4.0	G.I.SHEETMETAL DUSCTING WORK AS PER IS:655 CODE WITH RUBBER GASKET.DULY GALVANISED HARDWARE,M.S.ROD & ANGLE SUPPORTS ETC.				
4.1	0.65 MM [24 GAUGE]	900.00		SQ.FT	
4.2	0.80 MM [22 GAUGE]	900.00		SQ.FT	
5.0	POWDER COATED ALUMINUM SECTIONS GRILLS/DIFFUSERD FOR SA & RA W/O VCD AS PER THE ANGLE & COLOUR GIVEN BY Company/consultant	80.00		SQ.FT	
6.0	Ms duly black painted volume control dampers for supply/exhaust air collar	22.00		SQ.FT	
7.0	Thermal Insulation of Ducting work from Outside with 9mm thk. Black Nitrile Rubber fixed with cold Adhesive & PVC Tape	1200.00		SQ.FT	
	TOTAL AMOUNT OF PAGE				Rs.

BELONGING TO THE ORIENTAL INSURANCE CO. LTD. [A'BAD. OFFICE] AHMEDABAD.					
BILLS OF QUANTITIES - SUKRUTI ARCHITECTS & ENGINEERS – 15-05 -2016					
NO	DESCRIPTION	QU'TY	RATE	UNIT	AMOUNT
8.00	Accoustic Insulation of Ducting work from inside with 12mm thick CR-300 resinbonded fiberglass regid boards & G.I.Screw washer & to be covered RP Tissue paper and 30 Gauge perforated aluminium sheet	400.00		SQ.FT	
9.00	Misc. Civil work like wall opening to pass ducts & pipe, Plastering & re-finishing of the same to the original finish as per the site requirement for all machines including split airconditioners piping & drain holes etc complete in all respect	1.00		LOT	
	TOTAL AMOUNT FOR INSTALLATION OF AC UNITS				Ra.
	TOTAL AMOUNT OF PAGE				Rs.
	SUMMARY OF AC WORK				
1.00	SUPPLY OF AC MACHINES AMOUNT				Rs.
2.00	INSTALLATION WORK AMOUNT				Rs.
	TOTAL AMOUNT OF AIRCONDITION WORK				Rs.
	DISCOUNT IF ANY GIVEN BY CONTRACTOR				Rs.
	TOTAL AMOUNT OF AIRCONDITION WORK				Rs.
	SERVICE TAX ON SUPPLY AS APPLICABLE				Rs.
	SERVICE TAX ON LABOR AS APPLICABLE				Rs.
	GRAND TOTAL OF AIRCONDITION WORK				Rs.
	CONTRACTOR SIGNATURE WITH SEAL				

THE ORIENTAL INSURANCE COMPANY LIMITED [REGIONAL OFFICE]],

3RD FLOOR, BUILDING, OFF ASHRAM ROAD,,AHMEDABAD – 380 014..
SUMMARY FOR FURNITURE & CIVIL WORKS + ELECTRICAL WORKS :-

SUKRUTI ARCHITECTS & ENGINEERS .11,Bimanagar Co.Op.Hsc.Ltd,Satellite Rd,Ahmedabad-380009.Tel: 267677459

NO	DESCRIPTION	AMOUNT	
	S U M M A R Y : -		
	MOVABLE & FIXED FURNITURE :-		
1.0	FURNITURE NEW FURNITURE ITEMS	Rs.	
2.0	CIVIL WORK ITEMS :-	Rs.	
3.0	ELECTRICAL ITEMS	Rs.	
4.0	AIR-CONDITIONING SUPPLY OF MACHINES	Rs.	
5.0	LABOR CHARGES FOR AIR-CONDITIONING WORKS:	Rs.	
	TOTAL AMOUNT OF PROJECT :-	Rs.	
	SHOULD BE INCLUSIVE OF SERVICE TAX		
	GRAND TOTAL AMOUNT OF PROJECT :-	Rs.	
RUPEES IN WORDS :			
SIGNATURE OF CONTRACTOR :			
NAME OF CONTRACTOR :			
ADDRESS :			
PLACE :	DATE:	SEAL OF COMPANY	
TENDER OPENED ON	DATE:	AT HOURS.	
TOTAL	CORRECTIONS &	OVER WRITINGS FOUND	
MANAGER [GAD]	REGIONAL..MANAGER	DEPUTY GEN. MANAGER	ARCHITECTS & INTERIOR DESIGNER
OICL R.O.	OICL [R.O.]	OICL [R.O..]	SUKRUTI ARCHITECTS & ENGINEERS.



CLIENT :THE ORIENTAL INSURANCE CO. LTD. [REGIONAL OFFICE], AHMEDABAD – 380 009.

ARCHITECTS :- SUKRUTI ARCHITECTS & ENGINEERS

11, MILAM PARK, CHHTRALAY ROAD, NAVRANGPURA, AHMEDABAD – 380 009. – 15-05 -2016

NO	DESCRIPTION
	IMPORTANT TERMS & CONDCTIONS :-
01	THE RATES SHOULD BE INCLUSIVE OF ALL GOVT. TAXES,LEVIES,OCTROI, SUPPLY OF MATERIAL, EXECUTION, INSTALLATION,TESTING,COMMISSIONING ETC. COMPLETE.
02	PENALTY WILL BE IMPOSED @ 1% OF THE TOTAL AMOUNT PER WEEK MAXIMUM 10% AFTER THAT T.O.I.C.L. WILL GET THE WORK DONE FROM OTHER AGENCIES . AT CONTRACTOR'S RISK & COST.
03	VALIDITY OF THE RATES SHOULD BE FOR 120 DAYS.
04	CONTRACTOR SHALL ARRANGE FOR THE SAFETY OF THEIR MATERIALS & LABOUR AT THEIR OWN COST. T.O.I.C.L / ARCHITECT SHALL NOT BE RESPONSIBLE FOR ANY LOSS OR DAMAGE WHATSOEVER.
05	0.5% OF ELECTRICITY & WATER CHARGES WILL DEDUCTED FROM THE FINAL BILL AMOUNT OF CONTRACTOR.
06	MODE OF MEASUREMENT WILL BE AS PER THE LATEST I.S.I. CODE OR AS PER T.O.I.C.L'S GUIDELINES.
07	QUALITY OF MATERIALS/WORK-MANSHIP & TIME SCHEDULE ARE IMPORTANT FACTORS FOR THIS WORK.
08	THE WORK IS TO BE CARRIED OUT IN A MULTI-STORIED BUILDING FROM THE EXTERIOR FACE OF THE BUILDING & ALSO IN THE INTERIOR PART OF THE BUILDING. HENCE THE CONTRACTOR SHOULD TAKE NECESSARY INSURANCE OF THE WORK, MATERIAL & LABOUR ETC T.O.I.C.L / ARCHITECT WILL NOT BE RESPONSIBLE FOR ANY INJURY OR LOSS OF LIFE OF THE PERSON THERE AT.
09	THE WORK TO BE CARRIED OU IN BOTH EXTERIOR & INTERIOR FACES OF THE BUILDING & CONTRACTOR SHALL TAKE EXTRA CARE OF THE SURROUNDING SURFACES & EXTRA CARE SHALL BE TAKEN SO THAT NO OTHER MATERIAL OTHER THAN THE SCOPE OF WORK IS REQUIRED.
10	THE WORK SHALL BE CARRIED OUT IN SUCH MANNER THAT THE RESIDENTS OF THE FLATS/OFFICE STAFF/ ADJOINING PREMISES ARE NOT PUT IN TO INCONVENIENCE. THE CONTRACTOR SHALL HAVE TO WORK AS PER THEIR CONVICIENCE OF THE RESIDENTS/ T.O.I.C.L'S STAFF & SHALL HAVE TO CARE EXTRA FOR THEIR ASSETS & ALL OTHER ITEMS. THE CONTRACTOR SHOULD PROTECT THEIR MATERIAL FROM DUST.THE CONTRACTOR SHALL RE-ARRANGE RESIENT'S/OFFICE ALL THE ITEMS AT ITS ORIGINAL PLACE & CLEAN THE PLACE EVERY-DAY BEFORE CLOSING THE WORK & SHOULD KEEP IN MIND THAT THE RESIDENT'S / OFFICE NORMAL LIFE/WORKING IS NOT DISTRUBED IN ANY CASE.
11	THE CONTRACTOR SHALL STACK HIS MATERIALS PROPERLY AT PROPER PLACES ENMARKED FOR THIS PURPOSE & DEBRIS ARE IMMEDIATELY REMOVED FROM THE SITE.
12	THE QUANTITIES MENTIONED IN THE TENDER ARE APPROXIMATELY & SHALL VARIFY BEFORE STARTING THE WORK. THE CONTRACTOR SHALL VISIT THE SITE TO GET AN IDEAN ABOUT THE SITE CONDITIONS BEFORE QUOTING THE RATES. THE QUANTITIES ARE LIKELY TO CHANGE DEPENDING UPON THE EXACT REQUIREMENTS OF WORK AT SITE.
13	THE CONTRACTOR SHALL ARRANGE FOR SAFETY EQUIPMENTS SUCH AS SAFETY BELTS, HALMET & OTHER REQUIRED SAFETY EQUIPMENTFOR HIS LABOURS AS THE WORK HAS TO BE CARRIED OUT IN MULTY STORIED BUILDING BY USING SCAFFOLDING & OTHER CONVENIENT DEVICE.
14	THE RATES ARE INCLUSIVE OF LADDERS, SCAFFOLDING [PIPE SCAFFOLDING IS RECOMMANDED] ETC. REQUIRED AS THE WORK HAS TO BE CARRIED OUT IN MULTY-STORIED BUILDING. PROPER CARE SHALL BE TAKEN FOR THE SMOOTH EXECUTION OF WORK.
15	THE CONTRACTOR SHALL SUBMIT THE SAMPLES OF ALL MATERIALS TO BE USED IN THIS PROJECT BEFORE STARTING THE WORK.
16	THE CONTRACTOR SHALL HAVE TO CARRY-OUT TEST OF REQUIRED ALL MATERIALS IN LABORATORY AT HIS OWN COST & SUBMIT TEST REPORTS OF THE MATERIALS TO THE ARCHITECT & T.O.I.C.L.
17	THE CONTRACTOR WILL HAVE TO GIVE BAR-CHART OF THE WORK GIVING DETAILS OF EACH ITEMS WITH TIME.
18	THE CONTRACTOR WILL HAVE TO USE THE SPECIFIED MATERIALS IN THE TENDER.
19	THE WORK SHALL BE CARRIED OUT DURING THE WORKING HOURS OR LATE HOURS OF THE T.O.I.C.L. & CONTRACTOR WILL HAVE ARRANGE FOR LATE NIGHT LABOUR FORCES TO COMPLETE THE WORK IN TIME LIMIT.
20	CONTRACTOR SHOULD INTIMATE ALL GOVERNMENT DEPARTMENTS BEFORE STARTING. IF ANY PROBLEMS OCCURS, CONTRACTOR/LABOUR CONTRACTOR WILL BE RESPONSIBLE.
21	CONTRACTOR SHOULD TAKE NECESSARY INSURANCE FOR THEI MATERIAL,LABOURS FOR THE VALUE OF WORK AWARDED TO THEM.
22	CONTRACTOR WILL BE RESPONSIBLE FOR ANY NARUTAL CALMITIES DUE TO RAIN, EARTH-QUAKE, FIRE,RIOTS, FLOOD ETC. FOR ALL THESE CONTRACTOR SHOULD TAKE NECESSARY INSURANCE & SHOW POLICY OF THE SAME BEFORE STARTING THE WORK.
23	CONTRACTOR SHOULD GIVE A BOND FOR ANY LIABILITIES SUCH AS TAXES/OCTOIR/SALESTAX/ VAT TAX/EXCISE /INCOME TAX/ETC. SHOULD BE BORN BY HIM/THEIR HEIRS AS PER T.O.I.C.L.'S LEGAL DEPARTMENT INSTRUCTIONS.
24	SPECIAL NOTE TO THE TENDERER The description item shall ,unless otherwise categorically stated , be held to include " Supply , Conveyance & Delivery , unloading & storing , hoisting , fixing & constructing , all labour for finishing to required shape & size , setting & fixing into position (as per Architects drawings & instructions) , cutting & wastage , return or packing , taxes & duties , overheads , profit & other charges ."
25	The ARCHITECTS / T.O.I.C.L. reserves the right to select the approved make from the above list & to make change [add or delete of other make] in this list during the execution.
26	Vendor / Contractor should quote rates of items considering listed only. Second preference make would be accepted by the Architects unless & if first preference make can not be available or any specific reason. However the final decision for accepting second preference make of accepting only First preference make be that of the Architect.
27	Contractor will have to submit purchase of specified materials from manufactures/distributors saying that they have used their product.
28	The work will have to be carried out 6 th floor. So contractor should visit site & check all conditions of work at site before quoting rates.
	CONTRACTOR'S SIGNATURE WITH SEAL OF COMPANY ADDRESS : PLACE : DATE :

LIST OF INDIAN STANDARD REFEREED TO

I.S. No 287 - 1973	Recommendation for maximum permission moisture content of timber used for different purpose in different climatic zones
I.S. No. 1141 - 1973	Practice for grading and inspection of timbers.
I.S. No 6534 - 1971	Guiding principles for grading and inspection of timber
I.S. No. 3845 - 1966	Code of practice for joints used in wooden furniture
I.S. No 4970 - 1973	Key for identification of commercial timbers
I.S. No 3364 - (Part II) - 1975	Method of measurement and valuations of defects in timber, part II converted timber
I.S. No. 1708 - 1969	Method of testing small clear specimens of timber
I.S. No. 2338 (part I) 1967	Code of practice for finishing of wood based materials part I operation and workshop.
I.S. No. 7360 - 1975	Methods of sampling of plywood
I.S. No. 303 - 1975	Specification for plywood for general purposes
I.S. No. 3129 - 1965	Specification for particle board for insulation purposes
I.S. No. 1659 - 1979	Block boards
I.S. No. 1734 (part to XX).	Plywood method of test for Part I - General Part II - Plywood Part III - Battens
I.S. No. 710	Marine ply
I.S. No. 848 - 1974	Specification for synthetic resin adhesives for plywood.(Phenolic & Amino plastic)
I.S. No. 2046 - 1969	Specification for decorative laminate.
I.S. No. 133 - 1975	Specification for ready mixed paint brushing, wooden coating, interior to Indian standard colors.
I.S. No. 129 - 1950	Specification for enamel interior (a) under coating (b) finishing
I.S. No. 101 - 1964	Methods of test for ready mixed paint and enamel.
I.S. No. 8756 - 1978	Ball catches for use in wooden almirahs.
I.S. No. 4116 - 1976	Joints used in wooden furniture code of practice for .
I.S. No. 348 - 1966	Joints used in furniture code of practice for.
I.S. No. 4414 - 1977	Table tops (wooden)

I.S. No. 5967 - 1969	Tables, wooden method of test for.
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I.S. No. 3569 - 1975	Door colures (hydraulically regulated).
I.S. No. 799- 1975	Drawer locks, cupboards and box locks.
I.S. No. 7981-(Part I) - 1975	Glossary of terms relating to builders hardware -part locks.
I.S. No. 204 - (Part I& II) 1978	Tower bolts ferrous metals and non-ferrous metals.
I.S. No. 3478 - 1966	Height density wood particleboards.
I.S. No.2835- 1977	Specification for flat transparent sheet glass.
I.S. No. 5391- 1969	Adjustable metal chairs for use of typist and operators in
I.S. No.8756 - 1978`	Ball catches for use in wooden almirahs.
I.S. No.3499 - 1976 (part II)	Chairs for office purposes metal revolving and titling.
I.S. No. 6185 - 1971	High chairs specification and safety requirements for.
I.S. No. 3564 - 1975	Door colures (hydraulically regulated).
I.S. No. 799 - 1979	Drawer locks, cupboards and box locks.
I.S. No. 7981 - (part I) -1975	Glossary of terms relating to builders hardware - part I locks
I.S. No. 204 -(part I&II) 1078	Towers bolt ferrous metals and non - ferrous metals.
I.S. No. 1761	Transparent sheet glass for glazing and framing purpose.
I.S. No. 1081	Code of practice for fixing and glazing of metal (steel and
I.S. No. 3458	Code of practice for glazing in building.

Note: The various items to be used in the interior decoration work shall be of ISI standard wherever Not have ISI marks standard, shall be got tested for its quality etc. at the laboratory and necessary Shall be borne by the contractor.

