

TENDER DOCUMENTS

**INTERIOR, FURNISHING, ELECTRIFICATION &
AIR CONDITIONING WORK
FOR**

SBI LIFE OFFICES

AT ARG CORPORATE PARK, JAIPUR

TENDER ISSUED TO : M/s _____

on _____
at __ am / pm

TENDER COST : Rs.2500/- (Rupees Two Thousand Five Hundred Only)
(For Both Parts "A" & "B")

ARCHITECTS : **THE GRID**
Architects and Interior Designers
E-326, GREATER KAILASH - II,
NEW DELHI - 110 048
PHONE : 011-29221089, 011-29221090
FAX : 011-47104393
WEBSITE : www.thegrid.co.in
EMAIL : info@thegrid.co.in

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Tender documents are in two parts (Volumes) i.e Part-A and Part-B

PART-A (TECHNICAL BID)

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NOTICE INVITING TENDER (NIT)

SBI LIFE invites sealed tenders under two cover system from empanelled **Interior, Furnishing** contractors on **SBI approved panels** from all India having executed composite works for the work of Interior, Furnishing, Civil, Electrification and Air conditioning works at **SBI LIFE INSURANCE CO. LTD. at ARG, CORPORATE PARK, JAIPUR.**

Details of tenders are as under :

1	Name of Work	Interior, Furnishing, Civil, Electrification and Air conditioning work at SBI LIFE INSURANCE CO. LTD. at ARG, CORPORATE PARK, JAIPUR.
2	Time allowed for completion	75 days from the date of commencement of work. The work shall commence not be later than 15 days from date of handing over of site or the date of Work Order, whichever is later.
3	Earnest Money Deposit	Rs.1,60,000.00 (Rupees One Lac Sixty Thousand Only) by way of DD / Banker's cheque of Nationalised Bank's payable to ' SBI Life Insurance Co. Ltd, DELHI
4	Total Security Deposit	Total Security Deposit shall be 5% of the Tender Value. The EMD of the successful contractor shall be converted in to Security Deposit. 2% Initial Security Deposit shall be submitted by the successful contractor within 15 days of the receipt of Work Order. The balance amount shall be recovered from the interim RA Bills @ 10 % of the Bill value subject to a total SD of 5 % of the tender value.
5	Cost of tender documents:	Rs. 2,500/- (Rupees Two Thousand Five Hundred only)
6	Last date & time of receipt of completed & filled tender	16.01.2017 at 3-00 PM at Office of The Regional Director, SBI Life 2nd Floor, Statesman House, BaraKhamba Road, New Delhi.
7	Address at which the tenders are to be submitted	REGIONAL DIRECTOR SBI Life Insurance Company Ltd. 2nd Floor, Statesman House, BaraKhamba Road, New Delhi-110001. Please mark " Tenders for Jaipur Offices" on the top of the envelope.
8	Date and time of opening of Technical Bid	17.01.2017 at 3-30 PM at Office of The Regional Director, SBI Life 2nd Floor, Statesman House, BaraKhamba Road, New Delhi - 110 001.
9	Date and time of opening of Financial Bid	Will be informed to qualified Agencies
10	Place of Opening tender	Office of The Regional Director, SBI Life 2nd Floor, Statesman House, BaraKhamba Road, New Delhi - 110 001
11	Defects liability period	12 months (Twelve Months)

12	Validity of offer	3 months from the date of opening of price bid
13	Liquidated Damages:	1.0% per Week subject to maximum of 10% of contract value
14	Rates	Rates Quoted by the tenderer shall remain firm throughout the contract period (including authorized extension). Rates quoted shall be inclusive of all existing & future (including variation) taxes, duties, levies, royalties, transportation, other incidental charges, WCT etc. except service tax. If any tenderers puts any condition/Loading / anything/any taxes extra over and above their quoted rates the tender shall be summarily rejected.
15	Payment Terms	Minimum value of interim bills shall be Rs.50.00 Lakhs & payment on ad hoc basis (70 % of the bill value) shall be made within 20 days of submission of the bill. Final bill shall be submitted by the contractor within 30 days from virtual completion of work. Payment shall be effected within 90 days from submission of the bill.
16	Duties of Architect	Overall Supervision, Issuing of drawings, Specifications, Details etc. Approval of Samples, makes, finishing items etc, Acceptance/Rejection of quality of work, Checking of Measurements/Bills, Issuing of Payment Certificate (submitting recommendations to the SBI Life to release the payment to the contractor)
17	Working Schedule	Since the work has to be carried out in a Mall the contractor has to execute the work without disturbing or creating nuisance for other occupants.
18	Insurance	The contractor shall obtain all necessary insurance policies as per the governing laws applicable at the centre & shall required to produce the original policy of the policies & receipt of the premium as applicable in the matter to the Architect/SBI Life.
19	Water and Electricity	Water & Electricity shall be arranged by Contractor at their own cost within the accepted tender amount.
20	Composite Tender	Work is composite tender for Furniture, Civil, Electrical & Air-conditioning work. Contractor shall appoint SBI panel contractor for Electrical & AC work and their name shall be got approved from SBI LIFE/Architect.

Note:

Tender documents can be purchased from the office of **M/s. THE GRID**, Architect, E-326, Greater Kailash-II, New Delhi- 110 048 from **04.01.2017** on working days between 11:00 hrs. to 17:00 hrs. on payment of Rs. 2500/- (Rupees Five Thousand only). In case of online tender is downloaded then contractor has to attach D.D. of Rs 2500/ in favour of " THE GRID" along with EMD deposit.

A) In case the date of opening of tenders is declared as a holiday, the tenders will be opened on the next working day at the same time and place.

B) Part-A (Technical Bid) shall be opened on above date and time and subsequent to which Part-B (Price Bid) shall be opened. However, SBI Life may decide to open the price bid on some other day, which shall be intimated to the tenderer.

C) Please refer tender documents for details of contents of this NIT. Tenderers are requested to go through the additional conditions with due care as the same are stipulated particularly for this project.

D) Rates quoted by the tenderers in variance with the NIT provision are liable to be rejected.

E) Clarification, if any, regarding the contents of these documents & this work can be obtained from Architect's office, before filling in the tenders. All bidders are supposed to visit the site, understand site conditions, seek clarification from the SBI Life & Architect

SBI LIFE has the right to accept/ reject any/ all tenders without assigning any reasons

REGIONAL DIRECTOR

SBI Life Insurance Company Ltd.
2nd Floor, Statesman House,
BaraKhamba Road, New Delhi.

PREQUALIFICATION CRITERIA

Contractor Should have completed One composite similar works of Rs.145 Lacs Or Two work of Rs.90 Lacs or 3 works of Rs.70.00 Lacs in last 3 years, for Banks / PSUs / Govt Bodies, Similar works means Interior, Furnishing, Electrical & Air Conditioning works of an Office, Banks, Commercial areas. Contractor to enclose Award letter and Completion certificate from employers (work done In Last 5 years). Please give details of completed work of minimum value of Rs. 70 Lacs and Above with photographs, Copy of work order and completion certificate from competent authorities must be enclosed. Application without certificate of work order and completion certificate will not be considered.

SBI Life Authorities may visit sites executed by Agency before qualifying them.

I/We confirm that to the best of our knowledge this information is authentic and accept that any deliberate concealment amount to disqualification at any stage.

Seal and Signature of the Bidder/s.

Date:

Place:

Please Note : SBI Life has a right to prequalify / disqualify any application without giving any reason to any applicants.

Enclosures :

FORM OF TENDER

TO

**The Regional Director
SBI Life Insurance Company Ltd.
2nd Floor, Statesman House,
Barakhamba road,
New Delhi - 110 001**

Dear Sir,

INTERIOR, FURNISHING, CIVIL, ELECTRIFICATION AND AIR CONDITIONING WORK, SBI LIFE INSURANCE CO. LTD. RO office at ARG, CORPORATE PARK, JAIPUR..

1. I/ We refer to the Notice Inviting Tender issued by you for the captioned work.
2. I/ We do hereby offer to perform, provide, execute, complete and maintain the works in conformity with Bill of Quantities, Drawings, Specification, Design, General and Special conditions of Contract, Instruction to tenderers, etc. as contained in the tender documents for the sum as arrived and filled, at the respective rates quoted by me/us in the Schedule of Quantities and/or at any other sum and rate subsequently negotiated and accepted / agreed by the SBI Life and me/us.
3. I/We have satisfied myself / our self as to the site conditions, examined site and drawings, and all aspects of tender documents / conditions and are acceptable to us. I/We do hereby agree, should this tender be accepted in whole or in part, to ,

(A) Abide by and full-fill the terms, conditions and provisions of tender documents annexed hereto.
(B) Complete the work within stipulated completion time at no extra cost to the SBI Life
4. I/We are enclosing herewith the Earnest Money Amount of **Rs. 1,60,000/-,(in words Rupees One Lac Sixty Thousand only)** in the form of SBI Life Draft / Pay order / Banks cheques no. _____ dt _____ drawn by _____ in favour of **SBI Life Insurance Co. Ltd.** payable at **DELHI**
5. I/We are submitting herewith duly filled up and signed tenders as per the following details.

“COVER – A”

Sealed cover marked as **“Technical Bid: Cover – A”** on the top of the cover and containing.

- (i) EMD and Tender fees.
- (ii) Complete set of **“PART-A”** of tender documents **WITHOUT FILLING RATES**
- (iii) My/our specific terms / clarifications / conditions / consideration (if any) on my / our letter head.
- (iv) **In case of partnership firm:** Attested copy of Partnership Deed and Special Power of Attorney, which contain specific powers authorizing under signed/s for tendering.
- (v) **In case of company:** Attested copies of Memorandum and Articles of Associations of the company along with Board Resolution authorizing undersigned for tendering.

“COVER – B:

Sealed cover marked as **“Price Bid: Cover-B”** on the top of the cover and containing:

- (i) Complete set of **“PART-B”** (Schedule of Quantities) of tender documents duly filled & signed **(Rates, Amount/s are to be filled in)**.

Both the **Cover – A** and **Cover – B** are kept in a third cover and are duly sealed. All the three covers are marked as **“Tender for Interior, Furnishing, Electrification and Air conditioning work for SBI LIFE RO Office at ARG, CORPORATE PARK, JAIPUR** And are addressed to **“Office of The Regional Director, SBI Life 2nd Floor, Statesman House, BaraKhamba Road, New Delhi - 110 001.** and are having seal & address of our firm/ company at bottom left corner of the envelopes.

I/We confirm that I/We are duly authorized to participate in the tendering /bidding and understand that my / our tender is liable to be rejected if,

- (i) At any times it comes to the notice of the SBI Life that I/We have concealed or / and have given any wrong information.
- (ii) The tender is not duly filed and /or signed and / or is incomplete and/or covers are not properly sealed.
- (iii) The price bid contains any condition / alteration / modification and/or any tempering with the tender documents is done at our end.
- (iv) Tender received by the SBI Life after due date and time
All the pages of the tender documents are affixed with the seal/stamp of my/our company and initialed / signed by the undersigned.

Signature of Tenderer/s with Seal /stamp of the firm/company
(Duly authorized for tendering)

PLACE:

DATE:

Name:

Designation:

Signature & Address & witness

a)

Signature _____

Name _____

Place:

Address _____

Date:

Signature & Address & witness

b)

Signature _____

Name _____

Place:

Address _____

Date:

(On Non -Judicial Stamp paper of appropriate value)

ARTICLES OF AGREEMENT

Articles of Agreement made this _____ day of _____ between **SBI Life Insurance Co. Ltd** a body, corporate constituted under the **SBI Life Insurance Co. Ltd. Act** and having its Office of The Regional Director, **SBI Life 2nd Floor, Statesman House, BaraKhamba Road, New Delhi - 110 001**. hereinafter called the SBI Life which expressions shall include its successors and assigns of the one part and _____ (name & address of contractor) hereinafter called the "Contractor" which expression shall include the successors and assigns of the other part.

WHEREAS the SBI Life is desirous of executing **INTEIOR, FURNISHING, CIVIL, ELECTRIFICATION AND AIR CONDITIONING WORK of their SBI LIFE INSURANCE CO. LTD. RO office at ARG, CORPORATE PARK, JAIPUR.** The work, and has caused drawings, specifications, and schedule of quantities etc. describing the works to be prepared by **M/s. THE GRID ARCHITECTS.**

AND WHEREAS for the said, **INTERIOR, FURNISHING, ELECTRIFICATION AND AIR CONDITIONING WORK of SBI LIFE INSURANCE CO. LTD. RO office at ARG, CORPORATE PARK, JAIPUR..** Terms & Conditions, Specifications and the Schedule of items quantities etc, have been signed by and on behalf of the parties hereto.

AND WHEREAS the Contractor has agreed to execute upon, subject to the conditions set forth herein and Schedule of Items and quantities, General & Special Conditions of Contract, specifications etc contained in the tendered documents including all correspondences exchanged by or between the parties from the submission of tender till the award of work, both letters inclusive, (all of which are collectively hereinafter referred to as "the said conditions" , details of which are described in the schedule attached hereto, the works shown upon the said drawings and/or described in the said specification and included in the schedule of items and quantities at the respective rates therein set forth amounting to the sum as therein arrived at or such other sum shall become payable there under arrived at or such other sum as shall become payable there under (hereinafter referred to as "the said contract amount")

NOW IT IS HEREBY AGREED AS FOLLOWS

1. In consideration of the said contract amount to be paid at the time and in the manner set forth in the said conditions, the contractor shall upon and subject to the said conditions execute and complete the work shown in the said drawings and described in the said specifications and the schedule of items and quantities, as per the terms and conditions contained in the said conditions
2. The SBI Life shall pay the Contractor the said contract amount, or such other sum as shall become payable, at the time and in the manner specified in the said conditions.
3. The Architects in the said condition shall mean the said **THE GRID ARCHITECTS** In the event of their ceasing to be the Architects for the purpose of this contract for whatever reason, such other person or persons as shall be nominated for that purpose by the SBI Life, provided always that no person subsequently appointed as Architects under this contract shall be entitled to disregard or over rule any previous decisions or approvals or directions given or expressed in writing by the Architects for the time being.
4. The said general condition, Special condition, technical drawings, Notice Inviting Tender, specifications, Guarantee, Instruction to Tenderers Price Bid (Schedule of Quantities), Correspondence

dences, Letter of Acceptance, Agreements and Appendices there to, contained in the tendered documents/said conditions shall be read and considered as forming part of this Agreement, and the parties hereto shall respectively abide by, submit themselves to the said conditions and perform the agreements on their part respectively in the said conditions contained therein.

The plans, agreements and documents mentioned herein shall form the basis of this contract. This contract is neither a fixed Lump Sum contract but is a contract to carry out the work in respect of **INTERIOR, FURNISHING, ELECTRIFICATION AND AIR CONDITIONING WORK SBI LIFE INSURANCE CO. LTD. at ARG, CORPORATE PARK, JAIPUR.**

5. As per the scope described and to be paid for according to actual measured quantities at the rates contained in the Schedule of Rates and / or negotiated rates and Probable quantities or as provided in the said condition.
6. The SBI Life reserves to itself the rights of altering the specifications and nature of the work by adding to or omitting any items of work or having portions of the same carried out without prejudice to this contract.
7. (a) The Contractors represent that they have experience and competent staff which will enable them to ensure proper quality check on the materials, whether brought by the contractors or supplied by the SBI Life to the contractors, and which will ensure that the contractor will carry out proper tests as required by the specifications and will supervise the day to day working and execution of the contract work.

(b) If the contractors have any doubt about the quality of the materials or any difficulty in supervision of the day to day work it shall be duty of the contractors to report the matter in writing forthwith to the SBI Life / Architect and for the time being suspend that portion of the work about which difficulty is experienced, and the contractors will abide by the directions given by the SBI Life.

(c) The contractors covenant and warrant that completed items of work as well as the entire work on completion will be in conformity with the specifications and the terms and conditions contained in the said conditions and will be of contract quality and description.
8. Time shall be considered as the essence of this contract and the contractor hereby agrees to commence the work on the day on which he is instructed to take possession of the site or from the fifteenth day after the day of issue of formal Work Order as provided for in the said conditions whichever is later and to complete the entire work within **75 Days** subject nevertheless to the provisions for the extension of time.
 1. All payments under this contract shall be made by the SBI Life.
 2. Any dispute arising under this Agreement shall be referred to arbitration in accordance with the stipulation laid down in the general conditions of contract.
 3. The contents of this agreement have been read by the contractor and fully understood by the contractor.

IN WITNESS WHEREOF the SBI Life and the Contractor have set their respective hands to these Presents and two duplicates hereof the day and year first herein above written (If the Contractor is a Partnership Firm or an Individual).

IN WITNESS WHEREOF the SBI Life has set its hands to these presents through its duly authorized official and the contractor has caused its common seal to be affixed hereunto and the said duplicates have /has caused these presents and the said two duplicates hereof to be executed on its behalf, the day and year first herein above written (If contractor is a Company).

Signature clause:

SIGNED AND DELIVERED

By the hand of Shri -----The Regional Director, SBI Life Insurance Co. Ltd., **SBI Life 2nd Floor, Statesman House, BaraKhamba Road, New Delhi - 110 001** (Name and Designation)

In presence of _____

1. _____

Address _____

2. _____

Address _____
(Witness)

SIGNED AND DELIVERED by (If the Contractor is a Partnership Firm or an individual, should be signed by all partners or by duly authorized person on behalf of all partners)

(1) _____

Address _____

(2) _____

Address _____

(Witness)

THE COMMON SEAL OF _____ was hereinto affixed pursuant to the resolution By Board of Directors at the Meeting held on _____ (If the Contractor signs under its common seal, the Signature Clause should tally with the sealing clause in the Articles of Association)

SIGNED AND DELIVERED by

(1) _____

(2) _____

1) _____

Address _____

(2) _____

Address _____
(Witness)

**SIGNED AND DELIVERED by _____ (If the Contractor has signed
by the hand of Power of Attorney , whether a Company or Individual)**

(1) _____
Address _____

(2) _____
Address _____
(Witness)

SCHEDULE

(i) Letter of Acceptance/Work Order No. _____ dt. _____

(ii) Your letter Nos _____ dt. _____

(iii) Our Letter Nos. _____ dt. _____

(iv) Architect's Letter nos. _____ dt. _____

(v) Minutes of Meeting dt. _____

(vi) Form of Tender, Notice Inviting Tender, Instructions to Tenderers, General Conditions of Contract, Special Conditions of Contract, Additional conditions & Specifications, Technical Specifications, Bill/ Schedule of Quantities, Price Bid, Safety Code, List of approved makes, Guarantee Agreements, Mode of Measurements, Appendices, Drawings, Testing of Materials & there Frequency, Bar Chart etc.

(vii) _____

(viii) _____

INSTRUCTION TO THE TENDERER

1.0 Scope of Work

Sealed tenders are invited by THE REGIONAL DIRECTOR, SBI Life, 2nd Floor, Statesman House, BaraKhamba Road, New Delhi - 110 001 for and on behalf of SBI Life for the work of **INTERIOR, FURNISHING, ELECTRIFICATION AND AIR CONDITIONING WORK of SBI LIFE INSURANCE CO. LTD. at ARG, CORPORATE PARK, JAIPUR.**

Site and its location:

The proposed work is to be carried out at **INTERIOR, FURNISHING, ELECTRIFICATION AND AIR CONDITIONING WORK AT ARG CORPPORATE PARK, 2nd Floor, 8-9 Gopalbari Main Ajmer Road JAIPUR.**

2.0 Tender Documents.

2.1 The work has to be carried out strictly according to the condition stipulated in the tender consisting the following documents and the most workmen like manner.

Instructions to tenderers
General Conditions of Contract
Special Condition of Contract
Additional Conditions
Technical Specifications
Drawings
Price Bid
NIT
Performance Guarantee Agreement

2.1 The above documents shall be taken as complementary and mutually explanatory of one another but in case of ambiguities or discrepancies, shall take precedence in the order given below:

- (a) Price bid / B.O.Q.& NIT
- (b) Additional Conditions & Approved Makes
- (c) Technical Specifications
- (d) Drawings
- (e) Special Condition of Contract
- (f) General Condition of Contract
- (g) Instructions to Tenders

2.2 Complete set of tender documents including relative drawings can be obtained in person from the office of the Architect as mentioned in NIT during the period and time as mentioned in the NIT on payment cost of tender document as mentioned in NIT by means of cash/ Cheque/ DD/ drawn in favor of M/s. **THE GRID ARCHITECTS, NEW DELHI 110 048.**

2.3 The tender documents are not transferable.

3 Site Visit

- 3.1 The tenderer must obtain himself on his own responsibility and his own expenses all information and data which may be required for the purpose of filling this tender document and enter into a contract for the satisfactory performance of the work. The tenderer is requested to satisfy himself regarding the availability of water, power, transport and communication facilities, the character quality and quantity of the materials, labour, the law and order situations, climatic conditions, local authorities requirement, traffic regulations etc;
The tenderer will be fully responsible for considering the financial effect of any or all the factors while submitting his tender.

4 Earnest Money Deposit (EMD)

- 4.1.1 The tenderer are requested to submit the Earnest Money as mentioned in NIT in the form of Demand Draft or Banker's Cheque in favour of **SBI Life Insurance Company Ltd, payable at DELHI**. Technical bid with personal cheque shall be summarily rejected & their price bid shall not be opened.
- 4.2 EMD in any other form other than as specified above will not be accepted. Tender not accompanied by the EMD in accordance with clause 4.1 above shall be rejected.
- 4.3 No interest will be paid on the EMD
- 4.4 EMD of unsuccessful tenderer will be refunded within 10 days of award of contract.
- 4.5 EMD of successful tenderer will be retained as a part of Initial security deposit (ISD).

5 Initial Security Deposit (ISD)

- 5.1 The ISD amount shall be 2% of the contract value + EMD. The successful tenderer will have to submit a sum equivalent to 2% of contract value (which shall be adjusted as part of ISD) by means of D/D drawn in favour of SBI Life Insurance Company Ltd. payable at Delhi, within a period of 15 days of acceptance of tender.

6 Total Security Deposit (TSD)

- 6.1 Total Security Deposit shall be 5% of contract value.
- 6.2 No interest shall be paid on the amount retained by the SBI Life as Security Deposit. (TSD/ ISD/ Retention Amount)

7 Signing of contract documents

The successful tenderer shall be bound to implement the contract by signing agreement and conditions of contract attached herewith within 30 days from the receipt of intimation of acceptance of his tender by the SBI Life. However, the written acceptance of the tender by the SBI Life will constitute a binding agreement between the SBI Life and successful tenderer whether such formal agreement is subsequently entered into or not.

8 Completion period

Time is essence of the contract. The work should be completed in all respects in accordance with the terms of contract within a period as mentioned in NIT, from the date of

handing over site or 15 days from the date of receipt of letter of acceptance whichever is later.

9.0 Validity of tender

Tenders shall remain valid and open for acceptance for a period (validity of offer) as mentioned in NIT. If the tenderer withdraws his/ her offer during the validity period or makes modifications in his/her original offer which are not acceptable to the SBI Life, without prejudice to any other right or remedy, the SBI Life shall be at liberty to forfeit the EMD.

10 Liquidated Damages

The liquidated damages shall be as mentioned in NIT.

11.0 Rate and prices:

11.1 In case of item rate tender

11.1.1 The tenderers shall quote their rates for individual items both in words and figures. In case of discrepancy between the rate quoted in words and figures the unit rate quoted in words will prevail. If no rate is quoted for a particular item the contractor shall not be paid for that item when it is executed.

The amount of each item shall be calculated and the requisite total is given. In case of discrepancy between the unit rate and total amount calculated from multiplication of unit rate and the quantity, the unit rate quoted will govern and the amount will be corrected.

11.1.2 The tenderers need not quote their rates for which no quantities have been given. In case the tenderer quote their rates for such items those will be ignored and will not be considered during execution.

11.1.3 The tenderers should not change the units as specified in the tender. If any unit is changed the tenders would be evaluated as per the original unit and the contractor would be paid accordingly.

The tenderers should not change or modify or delete the description of the item. If any discrepancy is observed he should immediately bring to the knowledge of the Architect/ SBI Life.

11.1.4 Each page of the BOQ shall be signed by the authorized person and cutting or overwriting shall be duly attested by him

11.1.5 Each page shall be totaled and the grand total shall be given.

11.1.6 The rate quoted shall be firm and shall include all costs, allowances, taxes, levies etc.

GENERAL CONDITIONS CONTRACT

1.0 Definitions:

“Contract” means the documents forming the tender and the acceptance thereof and the formal agreement executed between SBI Life Insurance Company Ltd. (client) and the Contractor, together with the documents referred therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Architects/ SBI Life and all these documents taken together shall be deemed to form one contract and shall be complementary to one another.

1.1 In the contract the following expressions shall, unless the context otherwise requires, have the meaning hereby respectively assigned to them.

1.1.1 **‘SBI Life Insurance Company Ltd’** shall mean SBI Life Insurance Co. Ltd. (client) having office of **Regional Director, SBI Life Insurance Co. Ltd. 2nd Floor, Statesman House, BaraKhamba Road, New Delhi - 110 001** and includes the Client’s representatives, successors and assigns.

1.1.2 "Architect / Consultant" shall mean **THE GRID ARCHITECTS, E-326, GREATER KAILASH-II, NEW DELHI 110 048.** and includes its representative, successors and assigns.

1.1.3 ‘Site Engineer’/ ‘Site Supervisor’ shall mean an Engineer/ Supervisor if any, appointed by the SBI Life / Architects as their representative to give instructions to the contractor.

1.1.4 ‘The Contractor’ shall mean the individual or firm or company whether incorporated or not, undertaking the works and shall include legal personal representative of such individual or the composing the firm or company and the permitted assignees of such individual or firm or company.

1.1.5 The Expression ‘Works’ or ‘Work’ shall mean the permanent or temporary work described in the ‘Scope of Work’ and / or to be executed in accordance with the contract and includes materials, apparatus, equipments, temporary supports, fittings and things of all kinds to be provided, the obligations of the contractor hereunder and work to be done by the contractor under the contract.

1.1.6 ‘Engineer’ shall mean the representative of the **SBI Life /Architect.**

1.1.7 ‘Drawings’ shall mean the drawings prepared by the Architects and issued by the Engineer and referred to in the specifications and any modifications of such drawings as may be issued by the Engineer from time to time ‘Contract value shall mean the value of the entire work as stipulated in the letter of acceptance of tender subject to such additions thereto or deductions there from as may be made under the provision herein after contained.

1.1.8 ‘Specifications’ shall mean the specifications referred to in the tender and any modifications thereof as may time to time be furnished or approved by the Architects/ consultant. “Month” mean calendar month.

1.1.9 ‘Week’ means seven consecutive days.

1.1.10 ‘Day’ means a calendar day beginning and ending at 00 hr and 24 hrs respectively.

CLAUSE

1.0 Total Security Deposit

Total Security Deposit comprising of:
Earnest Money Deposit (to be adjusted as part ISD.)
Initial Security Deposit
Retention Money

a) Earnest Money Deposit:

The tenderer shall furnish EMD as per NIT in the form of Demand Draft/Banker's Cheque of the firm's SBI account drawn in favor of the **SBI Life Insurance Co. Ltd. payable at DELHI**. No tender shall be considered unless the EMD is so deposited in the required form. No interest shall be paid on this EMD. The EMD of the unsuccessful tenderer shall be refunded soon after the decision to award the contract is taken without interest. The EMD shall stand absolutely forfeited if the tenderer revoke his tender at any time the period when he is required to keep his tender open acceptance by the SBI Life or after it is accepted by the SBI Life, the contractor fails to enter into a formal agreement or fails to pay the initial security deposit as stipulated or fails to commence the work within the stipulated time.

b) Initial Security Deposit (ISD)

The amount of ISD shall be as per clause 5 of Instructions to the Tenderer.

c) Retention Money:

Besides the ISD as deposited by the contractor in the above said manner the retention money shall be deducted from the running account bill at the rate of 10% of the gross value of work done by the contractor and claimed in each bill provided, the total security deposit i.e. the ISD plus Retention Money shall both together not exceed Total Security Deposit. 50% of the total security deposit shall be refunded to the contractor without any interest on issue of Virtual Completion Certificate by the Architect/ Consultant. The balance 50% of the of the total security deposit shall be refunded to the contractor without any interest within fifteen days after the end of defect liability period provided the contractor has satisfactorily attended to all defects in accordance with the conditions of contract including site clearance.

2.0 Language

The language in which the contract documents shall be drawn shall be in English.

3.0 Errors, omissions and discrepancies

In case of errors, omissions and / or disagreement between written and scaled dimensions on the drawings or between the drawings and specifications etc., the following order shall apply:

- i) Between scaled and written dimension (or description) on a drawing, the latter shall be adopted.
- ii) Between the written or shown description or dimensions in the drawings and the corresponding one in the specification the former shall be taken as correct.
- iii) Between written description of items in the specifications and description in bills of quantities of the same former shall be adopted.

a) In case of difference between rates written in figures and words, the rate in word shall prevail.

b) Between the duplicate/ subsequent copies of the tender, the original tender shall be taken as correct

4.0 Scope of work:

The contractor shall carryout complete the said work and maintain it in every respect strictly in accordance with this contract and with the directions of and to the satisfaction of the **SBI Life/ Architect** to be communicated through the Architect/ Consultant. The Architect/ Consultant at the directions of the **SBI Life/ Architect** from time to time, issue further drawings and/ or written instructions, detail directions and explanations which are hereafter collectively referred to as the Architect/ Consultant's instructions in regard to the variation or modification of the design, quality or quantity of work or the addition or omission or submission of any work. Any discrepancy in the drawings or between the BOQ and/ or drawings and/ or specifications, the removal from the site of any material brought thereon by the Contractor and any submission of any other materials thereof the removal and or re-execution of any work executed by him, the dismissal from the work of any person employed/ engaged there upon.

5.0

(I) Letter of acceptance:

Within the validity period of the tender, the SBI Life shall issue a letter of acceptance either directly or through the Architect/ Consultant by registered post or otherwise depositing at the address of the contractor as given in the tender to enter into a Contract for the execution of the work as per the terms of the tender. The letter of acceptance shall constitute a binding contract between the SBI Life and the contractor.

(II) Contract Agreement:

On receipt of intimation of the acceptance of tender from the SBI Life/ Architect the successful tenderer shall be bound to implement the contract and within fifteen days thereof. He shall sign an agreement on a non-judicial stamp paper of appropriate value.

6.0 Ownership of drawings:

All drawings, specifications and copies thereof furnished by the SBI Life through its Architect / Consultants are the properties of the SBI Life. They are not to be used on other work.

7.0 Detailed drawings and instructions:

The SBI Life through its Architect / Consultants shall furnish with reasonable promptness additional instructions by means of drawings or otherwise, necessary for the proper execution of the work. All such drawings and instructions shall be consistent with the contract document, true developments thereof and reasonably inferable there from.

The work shall be executed in conformity therewith and the contractor will prepare a detailed program schedule indicating therein the date of start and completion of various activities on receipt of the work order and submit the same to the SBI Life through its Architect / Consultant.

8.0 Copies of agreement

Two copies of agreement duly signed by both the parties (SBI Life & the Contractor) with the drawings shall prepared one each for both the parties. A photocopy of such agreement shall be kept by the Architects.

9.0 Liquidated damages:

If the contractor fails to maintain the required progress in terms of **clause 30 of GCC** or to complete the work and clear the site including vacating their office on or before the contracted or extended date or completion without justification in support of the cause of delay, he may be called upon without prejudice to any other right of remedy available under the law to the SBI Life on account of such breach to pay a liquidated damages **as per NIT**.

10.0 Materials, Appliances and employees:

Unless or otherwise specified the contractor shall provide and pay for all materials, labour, water, power, tools, equipment, transportation and any other facilities that are required for the satisfactory execution and completion of the work. Unless or otherwise specified. All materials shall be new and both workmanship and materials shall be of best quality. The contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the work any unfit person or any one not skilled in the work assigned to him. Workman whose work or behavior is found to be unsatisfactory by the SBI LIFE/ Architect/Consultant shall be removed from the site immediately.

11.0 Permits, laws and Regulations:

Permits and licenses required for the execution of the work shall be obtained by the contractor at his own expenses. The contractor shall give notice and comply with the regulations, laws, and ordinances, rules, applicable to the contract. If the contractor observes any discrepancy between the drawings and specifications, he shall promptly notify the SBI Life in writing under intimation of the Architect/Consultant. If the contractor performs any act, which is against the law, rules and regulations he shall meet all the costs arising there from and shall indemnify the SBI LIFE any legal actions arising there from.

12.0 Setting out work:

The contractor shall set out the work and shall be responsible for the true and perfect setting out the same and for the correctness of the positions, levels, dimensions, and alignment of all parts thereof and got it approved by the Architect/Consultant before proceeding with the work if at any time any error in this respect shall appear during the progress of the works, irrespective of the fact that the layout had been approved by the Architect/Consultant the contractor shall be responsible for the same and shall at his own expenses rectify such error, if so, required to satisfaction of the SBI Life.

13.0 Protection of works and property:

The contractor shall continuously maintain adequate protection, of all his work from damage and shall protect the SBI Life 's properties from the injury or loss arising in connection with contract. He shall make good any such damage, injury, loss, except due to causes beyond his control and not due to his fault or negligence.

He shall take adequate care and steps for protection of the adjacent properties. The contractor shall take all precautions for safety and protections of his employees on the works and shall comply with all applicable provisions of Govt. and local body's safety laws and building codes to prevent accidents or injuries to persons or property on about or adjacent to his place of works. The contractor shall make insurance covers as per clause 26.0 of GCC at his own cost. **The policy will be taken in joint name of the contractor and the SBI Life and the original policy may be lodges with SBI Life.**

14.0 Inspections of work:

The SBI LIFE/ Architect/Consultant or their representatives shall at all reasonable times have free access to the work site and/ or to the workshop, factories, or other places where materials are laying or from where they are obtained and the contractor shall give every facility to the SBI Life/ Architect/Consultant and their representatives necessary for inspection and examination and test of the materials and workmanship. No person unless authorized by the SBI Life/ Architect/Consultant except the representative of Public authorities shall be allowed on the work at any time. The proposed work either during its construction stage or its completion can also be inspected by the Chief Technical Examiner's organization a wing of Central Vigilance commission.

15.0 Assignment and subletting:

The whole of work included in the contract shall be executed by the contractor and he shall not directly entrust and engaged or indirectly transfer, assign or underlet the contract or any part or share thereof or interest therein without the written consent of the SBI Life though the Architect and no undertaking shall relieve the contractor from the responsibility of the contractor form active superintendence of the work during its progress.

16.0 Quality of materials, workmanship & Test

i) All materials and workmanship shall be best of the respective kinds described in the contract and in accordance with the Architect/Consultant's instruction and shall be subject from time to time to such test as the Architect/Consultant may direct at the place of manufacture or fabrication or on the site or in an approved testing laboratory. The contractor shall provide such assistance, instruments, machinery, labour and materials as are normally required for examining, measuring, sampling and testing any material or part of work before incorporation in the work for testing a may be selected and required by the Architect/Consultant.

ii) Samples

All samples of adequate numbers, size, shades & pattern as per specifications shall be supplied by the contractor without any extra charges. If certain items proposed to be used are of such nature that samples cannot be presented or prepared at the site detailed literature/ test certificate of the same shall be provided to the satisfaction of the Architect/Consultant,. Before submitting the sample/ literature the contractor shall satisfy himself that the material/ equipment for which he is submitting the sample/ literature meet with the requirement of tender specification. Only when the samples are approved in writing by the Architect/Consultant the contractor shall proceed with the procurement and installation of the particular material/ equipment. The approved samples shall be signed by the Architect/Consultant for the identification and shall be kept on record at site office until the completion of the work for inspection/ comparison at any time. The Architect/Consultant shall take responsibility time to approve the sample. Any delay that might occur in approving the samples for reasons of its not meeting the specifications or other discrepancies, inadequacy, delay in furnishing samples of best qualities from various manufactures and such other aspects causing delay on the approval of the material/ equipment etc. shall be to the account of the contractor.

iii) Cost of Tests

The cost of making any test shall be borne by the contractor.

17.0 Obtaining information related to execution of work:

No claim by the contractor for additional payment shall be entertained which is consequent upon failure on his part to obtain correct information as to any matter affecting the execution of the work or any misunderstanding or the obtaining incorrect information or the failure to obtain correct information relieve him from any risks or from the entire responsibility for the fulfillment of contract.

18.0 Contractor's superintendence

The contractor shall give necessary personal superintendence during the execution of the works and as long, thereafter, as the Architect/ Consultant may consider necessary until the expiry of the defects liability period, stated hereto.

19.0 Quantities:

i) The bill of quantities (BOQ) unless or otherwise stated shall be deemed to have been prepared in accordance with the Indian Standard method of Measurements and quantities. The rate quoted shall remain valid for variation of quantity against any individual item.

20.0 Works to be measured

The Architect/Consultant may from time to time intimate to the contractor that he requires the work to be measured and the contractor shall forthwith attend or send a qualified representative to assist the Architect in taking such measurements and calculations and to furnish all particulars or to give all assistance required by any of them. Such measurements shall be taken in accordance with the mode of Measurements detailed in the specifications. The representative of the Architect/Consultant shall take the joint measurements with the contractor's representative and the measurements shall be entered in the measurement book. The contractor or his authorized representative shall sign all the pages of the measurement book in which the measurements have been recorded in token of his acceptance. All the corrections shall be duly attested by both representatives. No over writings shall be made in the measurement book. Should the contractor not attend or neglect or omit to depute his representative to take measurements then the measurements recorded by the representative of the Architect/Consultant shall be final. All authorized extra work; omissions and all variations made shall be included in such measurement.

21.0 Variations

No alteration, omission or variation ordered in writing by the Architect/ Consultant shall vitiate the contract. In case the SBI Life/ Architect/Consultant thinks proper at any time during the progress of works to make any alteration in, or additions to or omissions from the works or any alteration in the kind or quality of the materials to be used therein, the Architect/Consultant shall give notice thereof in writing to the contractor or shall confirm in writing within seven days of giving such oral instructions, the contractor shall alter to, add to, or omit from as the case may be in accordance with such notice, but the contractor shall not do any work extra to or make any alterations or additions to or omissions from the works or any deviation from any of the provisions of the contract, stipulations, specifications or contract drawings without previous consent in writing of the Architect/Consultant and the value of such extras, alternations, additions or omissions shall in all cases be determined by the Architect/Consultant and the same shall be added to or deducted from the contract value, as the case may be.

22.0 Valuation of variations:

No claim for an extra shall be allowed unless it shall have been executed under the authority of the Architect/Consultant with the concurrence of the en a shall be allowed unless it shall have SBI Life as herein mentioned. Any such extra is herein referred to as authorized extra and shall be made in accordance with the following provisions.

a)

i) The net rates or prices in the contract shall be determine in the valuation of the extra work where such extra work is of similar character and executed under similar conditions as the work priced herein.

ii) Rates for all items, wherever possible should be derived out of the rates given in the priced BOQ.

b) The net price of the original tender shall determine the value of the items omitted, provided if omissions do not vary the conditions under which any remaining items of works are carried out, otherwise the prices for the same shall be valued under sub-clause (c) he-reunder.

c) Where the extra works are not of similar character and/ or executed under similar conditions are aforesaid or where the omissions vary the conditions under which any remaining items or works are carried out, then the contractor shall within 7 days of the receipt of the letter of acceptance inform the Architect/Consultant of the rate which he intends to charge for such items of work, duly supported by analysis of the rate or rates claimed and the Architect/Consultant shall fix such rate or prices as in the circumstances in his opinion are reasonable and proper, based on the market rate.

d) Where extra work cannot be properly measured or valued the contractor shall be allowed day work prices at the net rats stated in the tender of the BOQ or, if not, so stated then in accordance with the local day work rates and wedges for the district; provided that in either case, vouchers specifying the daily time (and if required by the Architect/Consultant) the workman's name and materials employed be delivered for verifications to the Architect/Consultant at or before the end of the week following that in which the work has been executed.

e) It is further clarified that for all such authorized extra items where rates cannot be derived from the tender, the Contractor shall submit rates duly supported by rate analysis worked on the "market rate basis" for material, labour, hire/ running charges of equipments and wastage etc. plus 15% toward establishment charges, contractor's overheads and profits. Such items shall not be eligible for PVA.

23.0 Final measurements:

The measurements and the valuation in respect of the contract shall be completed within 1 month of the virtual completion of the work. Payments shall be made within 90 days of Virtual completion.

24.0 Virtual Completion Certificate (VCC)

On successful completion of the entire works covered by the contract to the full satisfaction of the **SBI LIFE/ Architect**, the contractor shall ensure that the following works has been completed to the satisfaction of the SBI LIFE.

a) Clear the site of all scaffolding, wiring, pipes, surplus materials, contractor's labour, equipment and machinery.

b) Demolish, dismantle and remove the contractor's site office, temporary works, structure including labour sheds/ camps and construction of other items and things whatsoever brought upon or erected at the site or any land allotted to the contractor by the SBI LIFE and not incorporated in the permanent works.

c) Remove all rubbish, debris etc. from the site and the land allotted to the contractor by the **SBI LIFE/ Architect** and shall clear, level, and dress, compact the site as required by the **SBI LIFE/ Architect**.

d) Shall put the **SBI Life** in undisputed custody and possession of the site and all land allotted by the **SBI Life**.

e) The contractor shall hand over the work in a peaceful manner to the **SBI Life**.

f) All defects/ imperfection have been attended and rectified as pointed out by the **SBI LIFE/ Architect** to the full satisfaction of the **SBI LIFE/ Architect**.

Upon the satisfactory fulfillment by the contractor as stated above, the contractor shall be entitled to apply to the Architect/Consultant is satisfied of the completion of the work. Relative to which the completion certificate has been sought, the Architect/Consultant shall within fourteen (14) days of the receipt of the application for virtual completion certificate, issue a VCC in respect of the work for which the VCC has been applied.

This issuance of a VCC shall be without prejudice to the SBI LIFE's rights and contractors liabilities under the contract including the contractor's liability for defect liability period nor shall the issuance of VCC in respect of the works or work at any site be construed as a waiver of any right or claim of the SBI LIFE against the contractor in respect of works or works at the site and in respect of which the VCC has been issued.

25.0 Work by other agencies:

The SBI LIFE / the Architect/Consultant reserve the rights to use premises and any portion of the site for execution of any work not included in the scope of this contract which it may desire to have carried out by other persons simultaneously and the contractor shall not only allow but also extend reasonable facilities for the execution of such work. The contractor however shall not be required to provide any plant or material for the execution of such work except by special arrangement with the SBI LIFE Life. Such work shall be carried out in such manner as not to impede the progress of the works included in the contract.

26.0 Insurance of works:

26.1 Without limiting his obligations and responsibilities under the contract the contractor shall insure the joint names of the SBI LIFE and the contractor against all loss or damages from whatsoever cause arising other than the excepted risks, for which he is responsible under the terms of contract and in such a manner that the SBI LIFE and contractor are covered for the period stipulated in clause 8 of Instruction to the tenderers and are also covered during the commencement of the period of maintenance and for any loss or damage arising from a cause, occurring prior to the commencement of the period of maintenance and for any loss or damage occasioned by the contractor in course of any operations carried out by him for the purpose of complying with his obligations under clause.

- a) The work for the time being executed to the estimated current Contract Value thereof, or such additional sum as may be specified together with the materials for incorporation in the work at their replacement value.
- b) The constructional plant and other things brought on to the site by the contractor to the replacement value of such constructional plant and other things.
- c) Such insurance shall be effected with an insurer and in terms approved by the SBI Life which approval shall not be unreasonably withheld and the contractor shall whenever required produce to the Architect/Consultant the policy of insurance and the receipts for payment of the current premiums.

26.2 Damage to persons and property

The contractor shall, except if and so far as the contract provides otherwise indemnify the SBI LIFE against all losses and claims in respect of injuries or damages to any person or material or physical damage to any property whatsoever which may arise out of or in consequence of the execution and maintenance of the works and against all claims proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto except any compensation of damages for or with respect to:

- a) The permanent use or occupation of land by or any part thereof.
- b) The right of SBI LIFE to execute the works or any part thereof, over, under, in or through any lands.
- c) Injuries or damages to persons or properties, which are unavoidable result of the execution or maintenance of the works in accordance with the contract.
- d) Injuries or damages to persons or properties resulting from any act or neglect of the SBI LIFE Life, their agents, employees or other contractors not being employed by the contractor or for or in respect of any claim, proceedings damages, costs, charges and expenses in respect thereof or in relation thereto or where the injury or damage was contributed to by the contractor, his servants or agents. Such part of the compensation as may be just and equitable having regard to the extent of the responsibility of the SBI LIFE, their employees, or agents or other employees, or agents or other contractors for the damage or injury.

26.3 Contractor to indemnify SBI Life

The contractor shall indemnify the SBI Life against all claims, proceedings, damages, costs, charges and expenses in respect of the matters referred to in the provision of this sub-clause 26.2

26.4 Contractor's superintendence

The contractor shall fully indemnify and keep indemnified the SBI Life against any action, claim, or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the contract. In the event of any claim made under or action brought against SBI Life in respect of such matters as aforesaid the contractor shall be immediately notified thereof and the contractor shall be at liberty, at his own expenses to settle any dispute or to conduct any litigation that may arise there from, provided that the contractor shall not be liable to indemnify the SBI LIFE if the infringement of the patent or design or any alleged patent or design right is the direct result of an order passed by the Architect/Consultant in this behalf.

26.5 Third party Insurance

26.5.1 Before commencing the execution of the work the contractor but without limiting his obligations and responsibilities under clause 26.0 of GCC shall insure against his liability for any material or physical damage, loss, or injury which may occur to any property including that of SBI Life, or to any person, including any employee of the SBI LIFE Life, by or arising out of the execution of the works or in the carrying out of the contract, otherwise than due to the matters referred to in the proviso to clause 26.0 thereof.

26.5.2 Minimum amount of third party Insurance

Such insurance shall be effected with an insurer and in terms approved by the SBI Life which approval shall not be reasonably withheld and for at least the amount stated below. The contractor shall, whenever required; produce to the Architect/Consultant the policy or policies of insurance cover and receipts for payment of the current premiums.

26.6 The minimum insurance cover for physical property, injury, and death is **Rs. 10 lacs per occurrence with the number of occurrence limited to four**. After each occurrence contractor will pay additional premium necessary to make insurance valid for four occurrences always.

26.7 Accident or Injury to workman:

26.7.1 The SBI Life shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other person in the employment of the contractor or any sub-contractor, save and except an accident or injury resulting from any act or default of the SBI Life or their agents, or employees. The contractor shall fully indemnify and keep indemnified the SBI Life against all such damages and compensations, save and except as aforesaid and against all claims proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

26.7.2 Insurance against accidents etc. to workmen:

The contractor shall insure against such liability with an insurer approved by the SBI Life during the whole of the time that any person are employed by him on the works and shall, when required, produce to the Architect/Consultant such policy of insurance and receipt for payments of the current premium. Provided always that, in respect of any persons employed by any sub-contractor, the contractor's obligation to insure as aforesaid under this sub-clause shall be satisfied if the sub contractor shall have insured against the liability in respect of such persons in such manner that SBI Life is indemnified under the policy but the contractor shall require such sub-contractor to produce to the Architect/Consultant when such policy of insurance and the receipt for the payment of the current premium.

26.7.3 Remedy on Contractor's failure to insure:

If the contractor fails to effect and keep in force the insurance to above referred to above or any other insurance which he may be required to effect under the terms of contract, then and in any such case the SBI Life may effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount so paid by the SBI LIFE as aforesaid from any amount due or which may become due to the contractor, or recover the same as debt from the contractor.

26.7.4 Without prejudice to the other rights of the SBI Life against the contractor, in respect of such default, the employer shall be entitled to deduct from any sums payable to the contractor the amount of any damages, costs, charges, and other expenses paid by the SBI Life

and which are payable by the contractor under this clause. The contractor shall upon settlement by the insurer of any claim made against the insurer pursuant to a policy taken under this clause, proceed with due diligence to rebuild or repair the works destroyed or damaged. In this event all the monies received from the insurer in respect of such damage shall be paid to the contractor and the contractor shall not be entitled to any further Payment in respect of the expenditure incurred for rebuilding or re pairing of the materials or good destroyed or damaged.

27.0 Commencement of Works:

The date of commencement of the work will be reckoned as the date of handing over site or fifteen days from the date of issue of letter of acceptance of the tender by the SBI LIFE whichever is later.

28.0 Time of completion:

Time is essence of the contract and shall be strictly observed by the contractor. The entire work shall be completed within a period as mentioned in NIT from the date of commencement. If required in the contract or as directed by the Architect/Consultant, the contractor shall complete certain portions of work before completion of the entire work. However the completion date shall be reckoned as the date by which the whole work is completed as per the terms of the contract.

29.0 Extension of time:

If, in the opinion of the Architect/Consultant, the work be delayed for reasons beyond the control of the contractor, the Architect/Consultant may submit a recommendation to the SBI Life to grant a fair and reasonable extension of time for completion of work as per the terms for contract. If the contractor needs an extension of the time for completion of the work or if the completion of work is likely to be delayed for any reasons beyond the due date of completion as stipulated in the contract, the contractor shall apply to the **SBI LIFE** through the Architect/Consultant in writing at least 30 days before the expiry of the scheduled time and while applying for extension of time he shall furnish the reasons in detail and his justification if any, for the delays. The Architect/Consultant shall submit their recommendations to the **SBI LIFE** in the prescribed format for granting extension of time. While granting extension of time the contractor shall be informed the period of extended times, which will qualify for levy of liquidated damages. For the balance period in excess of original stipulated period and duly sanctioned extension of time by the **SBI Life**, the provision of liquidated damages as stated under clause 9 of GCC shall become applicable. Further the contract shall remain in force even for the period beyond the due date of completion irrespective whether the extension is granted or not.

30.0 Rate of progress:

Whole of the materials, plant and labour to be provided by the contractor and the mode, manner and speed of execution and maintenance of the works to be of a kind and conducted in a manner to the satisfaction of the Architect/Consultant should the rate of progress of the work or any part thereof be at any time be in the opinion of the Architect/Consultant too slow to ensure the completion of the whole of the work by the prescribed time or extended time for completion the Architect/Consultant shall thereupon take such steps as considered necessary by the Architect/Consultant to expedite progress so as to complete the works by the prescribed time or extended time. Such communications from the Architect/Consultant neither shall relieve the contractor from fulfilling obligations under the contract nor will he be entitled to raise any claims arising out of such directions.

31.0 Work during nights and holidays:

Subject to any provision to the contrary contained in the contract no permanent work shall save as herein provided be carried on during the night or on holidays without the permission in writing of the Architect/Consultant, save when the work is unavoidable or absolutely necessary for the saving of life or property or for the safety of the work in which case the contractor shall immediately advise the Architect/Consultant. However, the provisions of the clause shall not be applicable in the case of any work which becomes essential to carry by rotary or double shifts in order to achieve the progress and quality of the part of the work being technically required/ continued with the prior approval of the Architect/Consultant at no extra cost to the SBI LIFE.

All work at night after obtaining approval from competent authorities shall be carried out without unreasonable noise and disturbance.

32.0 No compensation for restrictions of work:

If at any time after acceptance of the tender **SBI LIFE** shall deduct to abandon or reduce the scope of work for any reason whatsoever and hence not required the whole or any part of the work to be carried out, the Architect/Consultant shall give notice in writing to that effect to the contractor and the contractor shall act accordingly. In the matter the contractor shall have no claim to any payment of compensation or otherwise whatsoever on account of any profit or advantage which he might have derived from the execution of the work fully but which he did not derive in consequences of the foreclosure of the whole or part of the work. Provided that the contractor shall be paid the charges on the cartage only of materials actually and bona fide brought to the site of the work by the contractor and rendered surplus as a result of the abandonment, curtailment of the work or any position thereof & taken back by the contractor, provided however that the Architect/Consultant shall have in such cases the opinion of taking over all or any such material at their purchase price or at local current rate whichever is less. "In case of such materials having been issued FROM **SBI LIFE** stores and returned by the contractor to stores, credits shall be given to him at the less rate not exceeding those at which were originally issued to the contractor after taking into consideration and deduction for claims on account of any deterioration or damage while in custody of the contractor and in this respect the decision of the **SBI LIFE/ Architect** shall be final.

33.0 Suspension of work:

i) The contractor shall, on receipt of the order in writing of the **SBI LIFE/ Architect** (whose decision shall be final and binding on the contractor) suspend the progress of work or any part thereof for such time and in such manner as the **SBI LIFE/ Architect** may consider necessary so as not to cause any damage or injury to the work already done or endanger the safety thereof for any of the following reasons:

a) On account any default on the part of the contractor.

OR

b) For proper execution of the works or part thereof for reasons other than the default the contractor.

OR

c) The contractor shall during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the **SBI LIFE/ Architect**.

ii) If the suspension is ordered for reasons (b) and (c) in sub-Para (i) above:
The contactor shall be entitled to an extension of time equal to the period of every such suspension. No compensation whatsoever shall be paid on this account.

34.0 Action when the whole security deposit is forfeited

In any case in which under any clause or clauses of this contract, the contactor shall have rendered himself liable to pay compensation amounting to the whole of his security deposit the Architect/Consultant shall have the power to adopt any of the following course as they may deem best suited to the interest of the **SBI Life**.

a) To rescind the contact (of which rescission notice in writing to the contactor by the Architect/Consultant shall be conclusive evidence) and in which case the security deposit of the contactor shall be forfeited and be absolutely at the disposal of SBI Life.

b) To employ labour paid by the SBI Life and to supply materials to carry out the work, or any part of the work, debiting the contactor with the cost of the labour and materials (the cost of such labour and materials as worked out by the **SBI LIFE/ Architect** shall be final and conclusive against the contractor.) and crediting him with the value of the work done, in all respects in the same manner and at the same rates as if it had been carried out by the contractor under the terms of this contract, the certificate of the **SBI LIFE/ Architect** as to the value of work done shall be final and conclusive against the contractor.

c) To measure up the work of the contractor, and to take such part thereof as shall be un-executed, out of his hands, and to give it to another contractor to complete in which case any expenses which may be incurred in excess of the sum which would have been paid to the original contractor, if the whole work had been executed by him (of the amount of which excess the certificates in writing of the Architect/Consultant shall be final and conclusive) shall be borne by original contractor and may be deducted from any money due to him by the **SBI LIFE** under the contract or otherwise, or from his security deposit or the proceeds of sale thereof, or sufficient part thereof.

In the event of any of above courses being adopted by the **SBI Life** the contractor shall have no claim for compensation for any loss sustained by him by reasons of his having purchased or procured any material or entered into any engagements or make any advances on account of, or with a view to the execution of the work or the performance of the contract and in case the contract shall rescind under the provision aforesaid, the contractor shall not be entitled to recover or to be paid any sum or any work thereto for actually performed under this contract, unless, and until the **SBI LIFE/ Architect** will have certified in writing the performance of such work and the value payable in respect thereof, and he shall only be entitled to be paid the value so certified.

35.0 Owner's right to terminate the contract:

If the contractor being an individual or a firm commit any 'Act of Insolvency' or shall be adjudged an Insolvent or being an incorporated company shall have an order for compulsory winding up voluntarily or subject to the supervision of Govt. and of the Official Assignee of the liquidator in such acts of insolvency or winding up shall be unable within seven days after notice to him to do so, to show to the reasonable satisfaction of the Architect/Consultant that he is able to carry out and fulfill the contract and to give security therefore if so required by the **SBI LIFE/ Architect**.

Or if the contractor (whether an individual firm or incorporated company) shall suffer execution to be issued or shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the contractor.

Or shall assign or sublet this contract without the consent in writing of the **SBI LIFE** through the Architect/Consultant or shall charge or encumber this contract or any payment due to which may become due to the contractor there under:

- a) Has abandoned the contract;
OR
- b) Has failed to commence the works, or has without any lawful excuse under these conditions suspended the progress of the works for 14 days after receiving from the **SBI LIFE/ Architect** written notice to proceed,
OR
- c) Has failed to proceed with the works with such diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or has failed to remove the materials from the site or to pull down and replace work within seven days after written notice from the **SBI LIFE** through the Architect that the said materials were condemned and rejected by the **SBI LIFE/ Architect** under these conditions; or has neglected or failed persistently to observe and perform all or any of the acts, matters or things by this contract to be observed and performed by the contractor for seven days after written notice shall have been given to the contractor to observe or perform the same or has to the detriment of good workmanship or in defiance to the **SBI Life's** or the Architect instructions to the contrary subject any part of the contract. Then and in any of said cases the **SBI Life** and or the Architect, may not withstanding any previous waiver, after giving seven days notice in writing to the contractor, determine the contract, but without thereby affecting the power the **SBI Life** or the Architect or the obligation and liabilities of the contractor the whole of which shall continue in force as fully as if the contract had not been so determined and as if the works subsequently had been executed by or on behalf of the contractor. And further the **SBI Life** through the Architect their agents or employees may enter upon and take possession of the work and all plants, tools, scaffoldings, materials, sheds, machineries lying upon the premises or on the adjoining lands or roads use the same by means of their own employees or workmen in carrying on and completing the work or by engaging any other contractors or persons to complete the work and the contractor shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other contractor or other persons employed for completing and finishing or using the materials and plant for the works.

When the works shall be completed as soon thereafter as convenient the **SBI Life** or the Architect shall give a notice in writing to the contractor to remove his surplus materials and plants and should the contractor fail to do so within 14 days after receipt thereof by him the **SBI LIFE** sell the same by public auction after due publication, and shall adjust the amount released by such auction. The contractor shall have no right to question any of the acts of the **SBI Life** incidental to the sale of the materials etc.

36.0 Certificate of payment:

The contractor shall be entitled for payments under the certificates to be issued by the Architect to the contractor, within 15 working days from the date of receipt of certificate to the payment from **SBI Life** from time to time. The **SBI LIFE** shall recover the statutory recoveries other dues including the retention amount from the certificates of payments.

Provided always that the issue of any certificate by the Architect during the progress of works or completion shall not have effect as certificate of satisfaction or relieve the contractor from his liability under clause.

The Architect/Consultant shall have power to withhold the certificate if the work or any part thereof is not carried out to their satisfaction.

The Architect may by any certificate make any corrections required in previous certificate.

The SBI LIFE shall modify the certificate of payments as issued by the Architect from time to time while making the payment.

The contractor shall submit interim bills only after taking actual measurements and properly recorded in the Measurement books.

The contractor shall not submit interim bills when the approximate value of work done by him is less than **as mentioned in NIT** and the minimum interval between two such bills shall **as mentioned in NIT**.

The final bill may be submitted by the contractor within a period of one month from the date of virtual completion and the Architect shall issue the certificate of payment within a period of two months. The **SBI LIFE** shall pay the amount within a period of three months from the date of issue of certificate provided there is no dispute in respect of rates and quantities etc. The contractor shall submit the interim bills in the prescribed format with all details.

37.0 SETTLEMENT OF DISPUTES AND ARBITRATION:

Except where otherwise provided in the contract all questions and disputes relating to the meaning of the specifications, design, drawings and instructions herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instruction, orders or these conditions or otherwise concerning the work or the execution or failure to the same whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter.

i) If the contractor consider that he is entitled to any extra payment or compensation in respect of the works over and above the amounts admitted as payable by the Architect or in case the contractor wants to dispute the validity of any deductions or recoveries made or proposed to be made from the contract or raise any dispute, the contractor shall forthwith give notice in writing of his claim, or dispute to the **Office of The Regional Director, SBI Life 2nd Floor, Statesman House, BaraKhamba Road, New Delhi - 110 001.** and endorse a copy of the same to the **Architect**, within 30 days from the date of disallowance thereof or the date of deduction or recovery. The said notice shall give full particulars of the claim, grounds on which it is based and detailed calculations of the amount claimed and the contractor shall not be entitled to raise any claim nor shall the **SBI Life** be in any way liable in respect of any claim by the contractor unless notice of such claim shall have been given by the contractor to the **The Regional Director** in the manner and within the time as aforesaid. The contractor shall be deemed to have waived and extinguished all his rights in respect of any claim not notified to the **The Regional Director** in writing in the manner and within the time aforesaid.

ii) **The Regional Director** shall give his decision in writing on the claims notified by the contractor. The contractor may within 30 days of the receipt of the decision of **The Regional Director** submit his claims to the conciliating authority namely the **The Regional Director** for conciliation along with all detail and copies of correspondence exchanged between him and the **Regional Director**.

iii) If the conciliation proceedings are terminated without settlement of the disputes, the contractor shall, within a period of 30 days of termination thereof shall give a notice to the **The Regional Director, SBI Life Insurance Co. Ltd. 2nd Floor, Statesman House, BaraKhamba Road, New Delhi - 110 001**. for appointment of an arbitrator to adjudicate the notified claims failing which the claims of the contractor shall be deemed to have been considered absolutely barred and waived.

iv) Except where the decision has become final, binding and conclusive in terms of the contract, all disputes or differences arising out of the notified claims of the contractor as aforesaid and all claims of the SBI Life shall be referred for adjudication through arbitration by the Sole Arbitrator appointed by the **The Regional Director** . It will also be no objection to any such appointment that the Arbitrator so appointed is a **SBI Life Officer** and that he had to deal with the matters to which the contract relates in the course of his duties as **SBI Life Officer**. If the arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another sole arbitrator shall be appointed in the manner aforesaid by the said **The Regional Director**. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.

It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator.

It is also a term of this contract that no person other than a person appointed by such **Regional Director** as aforesaid should act as arbitrator.

The conciliation and arbitration shall be conducted in accordance with the provisions of the Arbitration & Conciliation Act 1996 or any statutory modification or reenactment thereof and the rules made there under.

It is also a term of this contract that if any fees are payable to the arbitrator, these shall be paid equally by both the parties. However, no fees will be payable to the arbitrator if he is a **SBI Life Officer**.

It is also a term of this contract that the arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties calling them to submit their statement of claims and counter statement of claims. The venue of the arbitration shall be such place as may be fixed by the arbitrator in his sole discretion. The fees, if any, of the arbitrator shall, if required to be paid before the award is made and published, be paid half and half by each of parties. The cost of the reference and of the award (including the fees, if any, of the arbitrator) shall be in the discretion of the arbitrator who may direct to any by whom and in what manner, such costs or any part thereof, shall be paid and fix or settle the amount of costs to be so paid.

38.0 Force Majeure:

38.1 Neither contractor nor SBI Life shall be considered in default in performance of their obligations if such performance is prevented or delayed by events such as but not to war, hostilities revolution, riots, civil commotion, strikes, lockout, conflagrations, epidemics, accidents,

fire, storm, floods, droughts, earthquakes or ordinances or any act of god or for any other cause beyond the reasonable control of the party affected or prevented or delayed. However a notice is required to be given within 30 days from the happening of the event with complete details to the other party to the contract, if it is not possible to serve a notice, within the shortest possible period without delay.

- 38.2 As soon as the clause of force majeure has been removed the party whose ability to perform its obligations has been affected, shall notify the other of such cessation and the actual delay incurred in such affected activity adducing necessary evidence in support thereof.
- 38.3 From the date of occurrence of a case of force majeure obligations of the party affected shall be suspended during the continuance of any inability so caused. With the cause it and inability resulting there from having been removed, the agreed time of completion of the respective obligations under this agreement shall stand extended by a period equal to the period of delay occasioned by such events.
- 38.4 Should one or both parties be prevented from fulfilling the contractual obligations by a state of force major lasting to a period of 6 months or more the two parties shall each other to decide regarding the future execution of this agreement.

39 Local laws, Acts, Regulations:

The contractor shall strictly adhere to all prevailing Labour laws inclusive of contract Labour (regulation and abolition act of 1970) and other safety regulation. The contractor shall comply with the provision of all Labour legislation including the latest requirements of all the Acts, Laws, and any other regulations that are applicable to the execution of the project.

- i) Minimum Wages Act 1948 (Amended)
- ii) Payment of Wages Act 1936 (Amended)
- iii) Workmen's Compensation Act 1923 (Amended)
- iv) Contract Labour regulation and abolition act 1970 and central rules 1971 (amended)
- v) Apprentice act 1961 (amended)
- vi) Industrial employment (standing order) Act 1946 (amended)
- vii) Personal injuries (compensation insurance) act 1963 and any other modifications
- viii) Employees' provident fund and miscellaneous provisions Act 1952 and amendment thereof
- ix) Shop and establishment Act
- x) Any other act or enactment relating thereto and rules framed there under from time to time.

40 Accidents:

The contractor shall immediately on occurrence of any accident at or about the site or in connection with in execution of the work report such accident to the Architect/ Consultant. The contractor shall also such report immediately to the competent authority wherever such report is required to be lodged by the law and take appropriate actions thereof.

SPECIAL CONDITION OF CONTRACT

SCOPE OF WORK:

1.0 The scope of work is to carry out **INTERIOR, FURNISHING, CIVIL, ELECTRIFICATION AND AIR CONDITIONING WORK AT SBI LIFE INSURANCE CO. LTD. at ARG, CORPORATE PARK, JAIPUR.**

2.0 As defined in these documents: **The site is located at ARG CORPPORATE PARK, 2nd Floor, 8-9 Gopalbari Main Ajmer Road JAIPUR.**

3.0 Dimensions and levels

All dimensions and levels shown on the drawings shall be verified by the contractor on the site and he will be held responsible for the accuracy and maintenance of all the dimensions and the levels. Figured dimensions are in all cases to be accepted and no dimension shall be scaled. Large-scale details shall take precedence over small-scale drawings. In case of discrepancy the contractor shall ask for clarification from the **Architect/Consultant** before proceeding with the work.

4.0 Notice of operation:

The contractor shall not carry out any important operation without the consent in writing from the **Architect/Consultant**.

5.0 Construction records:

The contractor shall keep and provide to the Architect/Consultant full and accurate records of the dimensions and positions of all new work and any other information necessary to prepare complete drawings recording details of the work as constructed.

6.0 Facilities for Contractor's employees

The contractor shall make his own arrangement for the housing and welfare of his staff and workmen including adequate drinking water facilities. The contractor shall also make the arrangement at his own cost for transport where necessary for his staff and workmen to and from site of work at his own cost.

7.0 Lighting of works

The contractors shall at all times provide adequate and approved lighting as required for the proper execution and supervision and inspection of work

8.0 Site order book

The Site order book shall be maintained at the site for the purpose of quick communication with the Architect/ Consultant. Any communication relating to the works may be conveyed through records in the site order book. Such a communication from one party to the other shall be deemed to have been adequately served in terms of contract. Each site order book shall have machine numbered pages in triplicates and shall carefully maintained and preserved by the contractor and shall be made available to the Architect/ Consultant as and when demanded. Any instructions which the Architect/ Consultant may like to issue to the contractor or the contractors may like to bring to the Architect/ Consultant Two copies of such instructions shall be taken from the site order book and one copy will be handed over to the party against proper acknowledgement and the second copy will be retained for their record.

9.0 Site meetings:

Site meetings will be held to review the progress and quality evaluation. The contractor shall depute a senior representative along with the site representative and other staff of approved sub-contractors and suppliers as required to the site meetings and ensure all follow up actions. Any additional review meetings shall be held if required by the Architect/ Consultant.

10.0 Disposal of refuse:

The contractor shall cart away all debris, refuse etc. arising from the work from the site and deposited the same as directed by the Architect/ Consultant at his own cost. It is the responsibility of the contractor to obtain approval from the local authorities concerned to the effect that all rubbish arising out of contractor's activities at the construction site or any other site activities borrow pits has been properly disposed off.

11.0 Contractor to verify site Measurements:

The contractor shall check and verify all site measurements wherever requested by other specialist contractors or other sub-contractors to enable them to prepare their own shop drawings and pass on the information with sufficient promptness, as will not in any way delay the works.

12.0 As built drawings:

- i) For the drawings issued to the contractor by the Architect/ Consultant. The Architect/ Consultant will issue two sets of drawings to the contractor for the items for which some changes have been made from the approved drawings as instructed by the **SBI LIFE/ Architect**. The contractor will make the changes made on these copies and return these copies to the **SBI LIFE/ Architect** for their approval. In case any revision is required or the corrections are not properly marked, the **SBI LIFE/ Architect** will point out the discrepancies to the contractor. The contractor will have to incorporate these corrections and/or attend to discrepancies either on the copies as directed by the Architect/ Consultant and resubmit to him for approval. The **SBI LIFE/ Architect** will return one copy duly approved by him.
- ii) For the drawings prepared by the contractor, The contractor will modify the drawings prepared by him wherever the changes are made by the **SBI LIFE/ Architect** and submit two copies of such modified drawings to the **SBI LIFE/ Architect** for approval. The **SBI LIFE/ Architect** will return one copy of the approved drawing to the contractor.

13.0 Approved make:

The contractor shall provide all materials from the list of approved makes at his own cost and also appoint the specialized agency for the waterproofing, anti-termite, aluminum doors and windows and any other items as specified in the tender. The **SBI LIFE/ Architect** may approve any make/ agency within the approved list as given in the tender after inspection of the sample/ mock up.

14.0 Procurement of materials:

The contractor shall make his own arrangement to procure all the required materials for the work. All wastages and losses in weight shall be to the contractor's account.

15.0 Excise duty, Taxes, Levies etc.:

The contractor shall pay and be responsible for payment of all taxes, duties, levies, royalties, fees, cess or charges (**except Service tax**) in respect of the works including but not limited to sale taxes, tax on works contract excise duty and octroi, payable in respect of material, equipments plant and other things required for the contract. All the aforesaid taxes, duties, levies, fees and charges shall be to the contractor's account and the **SBI Life** shall not be required to pay any additional or extra amount on this account. Variation of taxes, duties, levies, etc. if any, till completion of work shall be deemed to be included in the quoted rates and no extra claim on this account will in any case be entertained. If a new tax or duty or levy or cess or royalty or octroi is imposed under as statute or law during the currency of the contract/ work/ project the same shall be borne by the contractor.

16.0 Acceptance of tender:

The **SBI LIFE/ Architect** shall have the right to reject any or all tenders without assigning any reason. They are not bound to accept the lowest or any tender and the tenderer or tenderers shall have no right to question the acts of the SBI LIFE. However adequate transparency would be maintained by the SBI LIFE.

17.0 Defects after virtual completion and defects liability period:

Any defect, shrinkage, settlement or other faults which may appear within the "Defects Liability Period" which shall be as per NIT from the date of the virtual completion of the works, arising in the opinion of the Architect from materials or workmanship not in accordance with the Contract, shall upon the direction in writing of the Architect, and within such reasonable time as shall be specified therein, be amended and made good by the Contractor, at his own cost and in case of default then **SBI LIFE/ Architect** may employ and pay other person/ agency to amend and make good such defects, shrinkage, settlement or other faults, and all damages, loss and expenses consequent thereon or incidental thereto shall be made good and borne by the Contractor and such damage, loss and expenses shall be recoverable from him by the **SBI LIFE/ Architect** or may be deducted by the **SBI LIFE/ Architect**, upon the Architect's certificate in writing, from any money due or that may become due to the Contractor, or the **SBI LIFE/ Architect** may in lieu of such amending and marking good by the Contractor deduct from any money due to the Contractor a sum, to be determined by the Architect equivalent to the cost of amending such work and in the event of the amount retained under clause 1 of GCC hereof being insufficient, recover the balance from the Contractor, together with any expenses the **SBI LIFE/ Architect** may have incurred in connection therewith. Should any defective work have been done or material supplied by any Sub-Contractor employed on the works, who has been nominated or approved by the Architect as provided in Clause 15 of GCC the contractor shall be liable to make good in the same manner as if such work or material has been done or supplied by the Contractor and been subject to the provisions of this Contract. The Contractor shall remain liable under the provisions of this Contract notwithstanding the signing of any Certificate or the passing of any accounts, by the Architect,

SAFETY CODES

General Safety Codes:

1. First aid appliances including adequate supply of sterilized dressing and cotton wool shall be kept in a readily accessible place.
2. An injured shall be taken to a Public Hospital without loss of time, in cases where the injury necessitates hospitalization.
3. Suitable and strong scaffolds should be provided for workman for all works that cannot safely be done from the ground.
4. No portable single ladder shall be over 8meters in length. The width between the side rails shall not be less than 30cms. And the distance between two adjacent rungs shall not be more than 30cms. When a ladder is used an extra majdoor shall be engaged for holding ladder.
5. The excavated material shall not be placed within 1.5meters of the edge of the trench or half of the depth of trenches whichever is more. All trenches and excavation shall be provided with necessary fencing and lighting.
6. Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be one meter.
7. No floor, roof or other part of the structure shall be so overloaded with debris or materials as to render it unsafe.
8. Workers employed on mixing and handling material such as asphalt, cement mortar or concrete and lime mortar shall be provided with protective footwear and rubber hand-gloves.
9. Those engaged in welding work shall be provided with welder's protective eye-shields and gloves.
10.
 - (i) No paint containing lead or lead products shall be used except in the form of paste and readymade paint.
 - (ii) Suitable facemasks should be supplied for use by the workers when the paint applied in the form of spray or surface having lead paint dry rubbed and scrapped.
11. Overalls shall be supplied by the contractor to the painters and the adequate facilities shall be provided to enable the working painters to wash during the periods of cessation of works.
12. Hoisting machine and tackle used in the works, including their attachments, anchors and supports shall be in perfect condition.
13. The ropes used in hoisting or lowering material or as a means of suspension shall be of durable quality and adequate strength free from defects.

SCAFFOLDS

- i) Suitable double type steel H frame scaffolds or suitable alternative arrangements shall be provided for workmen for all works that cannot be done safely from the ground, or from solid construction except in the case of short duration work which can be done safely from ladders. When a ladder is used, it shall be of rigid construction made either of good quality wood or steel. The steps shall have a minimum width of 450 mm and a maximum rise of 300mm. Suitable hand holds of good quality wood or steel shall be provided and the ladder shall be given an inclination not steeper than $\frac{1}{4}$ to 1 (1/4 horizontal and 1 vertical).
- ii) Scaffolding or staging more than 4 m above the ground floor, swung or suspended from an overhead support or erected with a stationary support shall have a guard rail properly bolted, braced or otherwise secured, at least 1 m above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened so as to prevent it from swaying from the building or structure.
- iii) Moving or Suspended type scaffolding specifications: Instead of Double type H frame steel scaffolding, if any Contractor desires to use suspended type of scaffolding or any other type of arrangement, they may do so but it should be supported by the full specifications, methodology and other relevant details in order to study and approve the same by the Consultant. No such arrangement of scaffolding will be altered unless the same is approved by the Consultant/SBI Life.
- iv) Working platforms, gangways and stairways shall be so constructed that they do not sag unduly or unequally and if the height of the platform, gangway or stairway is more than 4 m above ground level or floor level, they shall be closely boarded and shall have adequate width and be suitably fenced as described in (ii) above.
- v) Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1m.
Wherever there are open excavations in ground, they shall be fenced off by suitable railing and danger signals installed at night so as prevent persons slipping into the excavations.
- vi) Safe means of access shall be provided to all working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9m in length while the width between side rails in rung ladder shall in no case, be less than 290mm or for ladder up to and including 3m in length. For longer ladders the width shall be increased at least 20mm for each additional meter of length.

OTHER SAFETY MEASURES

- i) All personnel of the contractor working within the plant site shall be provided with safety helmets. The welder's goggles while welding works and all metal workers shall be provided with safety gloves. Persons employed in metal cutting and grinding shall wear safety glasses. For polymer application suitable hand gloves and other safety equipment/devices shall be provided.
- ii) Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or the public.

PERSONNEL, SAFETY, EQUIPMENTS.

- i) All necessary personal safety equipment as considered adequate by the Engineer should be kept available for the use of the person employed on the site and maintain in a condition suitable for immediate use and the contractor should take adequate steps to ensure proper use of equipment by those concerned.
 - a) Workers employed on mixing asphaltic materials, Cement and Chemicals/Polymer shall be provided with protective footwear, goggles and hand groves as per the requirements etc.
 - b) Those engaged in white washing and mixing or stacking of cement Bags or any materials shall be provided with protective goggles.
 - c) Those engaged in welding works shall be provided with welder's Protective eye-sight lids.
 - d) Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
 - e) When workers are employed in sewers and manholes, which are in use, the contractor shall ensure that the manhole covers are opened and are ventilated at least for an hour before the workers are allowed to get into manholes and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to the public.
 - f) The contractor shall not employ men below the age of 18 years and women on the work of painting with products containing lead in any form, Where ever men above the age of 18 are employed, on the work of lead painting the following precautions should be taken:
 - i. No paint containing lead or lead products shall be used except in the form of paste or readymade paint.
 - ii. Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint dry rubbed and scraped.
 - iii. Overalls shall be supplied by the contractor t the workmen and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.
 - iv. When the work is done near any public place where is risk of drawings all necessary equipments should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.

PROFORMA OF HINDRANCE REGISTER

Name of Work : Date of start of work :

Name of Contractor : Period of completion :

Agreement No : Date of completion :

Sr. No.	Nature of hindrance	Date of occurrence of hindrance	Date of which hindrance was removed	Period of Hindrance	Signature Architect/SBI Life	Remakrs
1	2	3	4	5	6	7

ADDITIONAL CONDITIONS

Notwithstanding anything contained herein above, except NIT & Price Bid, the following ADDITIONAL CONDITIONS shall be applicable for this contract/ work.

1. WORKING SCHEDULE / BAR CHART:

The Bar chart enclosed with these tender documents is indicative only. Detailed working date schedule and bar chart for the work shall be prepared by the contractor and got approved from the SBI Life. A detailed flow chart of activities highlighting curing, setting time / period, pot life period / predecessor, successor & critical activities etc. shall also be prepared by the contractor for effective management of work and also to make a realistic bar chart / working date schedule.

2. RATES:

It may be noted that it is an item rate contract. Rates accepted by the SBI Life are shall be for all levels/height and lead unless otherwise specified in the schedule of quantities and shall be inclusive of all man, labour, supervision, materials, tools, equipment, taxes, insurances, arrangements, temporary works, over heads, collection & carting away & final disposal of rubbish & debris etc. required to complete the works in all respect to the satisfaction of the architects and nothing additional or extra shall be paid on these accounts and / or on account of variation in rates / taxes and / or imposition of new tax / levy during currency of contract / work. The Rates will remain firm throughout the contract period PVA shall not be admissible.

3. ADHOC PAYMENT: As per NIT

4 SITE ENGINEERS / SUPERVISORS BY CONTRACTOR :

The contractor shall post at least one full time site engineer /Site supervisor at site.

5. BASIC RATE:

Wherever for any item of work basic rate of materials are specified, the materials of that basic rates as selected by the **SBI Life/Architect** at any commercial establishment/ seller of Jaipur or nearby centre, if such materials are not available at Jaipur, shall be procured and used by the contractor.

Basic rate of any material(Without processing) is the rate offered by seller against Bill and credit period not exceeding 15 days, including any applicable taxes ex-godown. Payments for procurement of materials shall be made by the contractor themselves.

If the basic rate of any material actually used for the work is more or less than the basic rate given in schedule of quantities, in that case adjustments in the rate admissible to the contractor shall be modified by adding or subtracting, as the case is, from the accepted tender rates an amount equivalent to difference in the basis rates plus 15 % of difference of the basic rate.

6. BRANDED/ FINISHING ITEMS:

Branded items such as tiles, construction chemicals, hardware, sanitary wares and other finishing items shall be used as per the samples selected and approved by the architects from the brands/makes mentioned in the tender document. If the contractor intend to use an equivalent substitute than, they have to produce necessary documentary evidences establishing the equivalency to the satisfaction of the architect and shall use the same only after approval of the architect.

7. INSURANCE

The contractor shall be required to take insurance policy under workman compensation acts compulsorily. For rest of the policies relating to insurance, it will be the discretion of the contractor whether to take or not. However the contractor shall keep the **SBI Life** indemnify from all the claims arising out of damage to person & property and the **SBI LIFE** shall have right to recover the cost of such damages /claim from any amount due to the contractor. If the claim amount exceeds the amount due to be paid to the contractor, the contractor shall immediately pay such excess amount to the SBI Life. Decision of the SBI Life regarding determination of the amount of claim/damage shall be final & binding to the contractor.

8. SITE CONDITION & WORKING HOURS.

The work is to be executed in coordination with the other contractor working at site same or different site. The contractor must plan the working in such way that if asked by **SBI LIFE/ Architect**, the work be executed after office hours.

9. GENERAL:

(i) Unless otherwise specified in these tender documents mode of measurements specifications etc. shall be as per relevant IS codes.

(ii) Source of materials / samples / brands / makes etc. shall be got approved from the **Architects/SBI Life** before using. In case of deviations, decision of the **SBI LIFE/ Architect** shall be final and binding and shall not be open for arbitration.

(iii) The Architects have their specific role/duties/rights as defined in these tender documents However in the event of any dispute arising out of differences between the opinion of the Architects and also their role/duties/rights, the SBI Lifes' decision shall be final & binding on the Architects and the Contractor and shall not be open to arbitration.

(iv) The Contractor will extend full co-operation, support and all required assistance to Architect/SBI Life for discharging their duties and responsibilities efficiently and effectively.

(v) The contractor has to supply and adhere to the specific makes and specifications of all the items, which are mentioned in the separate list of approved makes. Any work found not as per the tender specifications and list of approved the contractor has to replace the same without any delay. The contractor is instructed of get approval of all the materials to be used on this site before starting the work. He should provide different sample of material for approval, before execution of work.

(vi) All quantities indicated in the tender are approximate & are likely to change. The contractor must take actual measurement at site and billing shall be done as per the actual measurement of the work done at site.

(vii) Work has to be got executed at site in coordination with various agencies working at site.

(viii) The contractor is instructed to get the approval of the materials to be used on this site before starting the work. He shall provide different sample of materials for approval before execution of the work

(ix) All material have to be used in full size/length only. Joints should be avoided as far as possible.

(x) Any item mentioned in the BOQ with "TO THE SHAPE" will have measurement of onsite executed to the shape area only.

- (xi) The contractor's qualified & authorized representative shall remain on site during the entire execution process for coordination with various agencies/ Architect/SBI Life & execution of work
- (xii) Making various levels & line out for total layout on site for the items in scope of the work shall be done by the contractor
- (xiii) The site shall be cleaned on day to day basis & all debris shall be disposed away at the location beyond the limit as approved by the local authority.

(xiv) Hidden measurement. it is contractor's responsibility to get the measurement checked immediately on completion of such items. This shall be done before finishing the same & before ceiling boarding is done. The Architect shall be provided with such details well in advance so that the other work is not held up due to last moment action.

(xv) MTC (Manufacturer Test certificate) Where ever applicable shall be arranged & submitted by the contractor. Testing of wood for moisture, knot % etc. shall be carried out by the contractor at his own cost.

(xvi) Depending upon the availability / working condition of Lift/s, the contractor shall be allowed to use (fee of cost) an identified lift after office hours (as permitted by the SBI Life) for carrying non-spoiling, non-spilling & packaged goods not exceeding 500 kg per trip, The contractor shall be required to take due care of lift & shall keep it neat & clean all the times. Loose Debris, Sand, cement or such materials shall not be allowed in the lift.

(xvii)

- [a] In all furniture work contractor shall make necessary cutout in paneling/partitions wooden members to facilitate electrical/data cabling and No extra amount shall be paid for this
- [b] Size of the wooden member mentioned in tender are the FINISH SIZE
- [c] All wooden members shall be provided with Termite control treatment at site after cutting, sizing and finishing but before fixing Termite control treatment shall be provided by applying chlorpyriphos 1 % (1 part of chlorpyriphos 20 % E.C. + 19 parts Turpentine oil) on all side of wooden members by brush application and repeat twice after drying.
- [d] Laminates shall be as approved by the **SBI LIFE/ Architect.**
- [e] Drawings enclosed are for tender purpose only. Execution shall be done as per execution drawings, site conditions & instructions.

SPECIFICATION OF MATERIALS

All the material to be used shall be from the list of ISI approved Brand. Any deviation from this shall be got approved from owner, the contractor shall submit samples of materials used for verifications and produce Bill in original.		
1	SAMPLES	After receipt of the bids but prior to award of the contract, bidder shall, upon notification from SBI LIFE/ Architect submit samples of materials he intends to use. The SBI LIFE/ Architect shall reserve the right to evaluate the sample with regard to the specification before award of work. Sample as directed by the SBI LIFE/ Architect for various items shall be prepared/brought for approval without any cost.
2	BLOCK BOARD/PLYWOOD	Should be Termite and powder proof.
3	GLASS	Glass shall be Float glass of Modiguard/ Ashi Company
4	TIMBER	Wherever specified shall be Teak wood from Central Province (C.P)/Ghana best quality. It shall be well seasoned, uniform in colour, free from sap wood, wares, free from large and loose knots, cracks, shakes and other defects.
5	HARDWARE	Hinges, Handles, Stoppers, Stays, etc. wherever required shall be SS Brush finish of approved shape and size only. Sample shall be got approved before fixing.
6	UPHOLSTRY	Fabric or upholstery material wherever called for shall be of the colour, texture and manufacture approved by the owner.
7	WORKMAN SHIP	The work involved calls for high standard of workmanship and shall be carried out and completed in the best possible manner keeping modern trend of artistic finishes and designs in view so as to make the entire work/furnishing aesthetic looking, keeping in harmony with other furnishing in the area.

8	DIMENSION AND JOINTS	The dimensions mentioned in the schedule of quantities and drawings are approximate. The contractor may suggest small deviations in the dimension so as to make the individual items as also the entire job functionally sturdy, comfortable as well as aesthetic in look. The final decisions regarding sizes of various members and working dimensions etc. will, however, be taken at the time of approval of sample, The contractor should take actual dimensions available at site before fabrication. The joints shall be perfect and sturdy and shall preferably be machine made and assembled with approved quality synthetic glue. The structural design of different members and also the items as a whole shall be sturdy and capable of with- standing the various loads likely to be subjected to in day to day use.
9	ADDITIONAL MEMBERS AND FIXTURES	The contractor shall provide additional members wherever necessary for providing, door, opening, cut-outs, etc. to facilitate fixing of light fixtures, plug points, air-conditioning supply and return grilles etc. The work includes cost of fittings and fixtures & fixing the various items in position in floors, walls, ceiling etc., in the Building in accordance with the drawings or as directed by the Owner's Architect. It will be also necessary to make holes, chases, etc. in floors,. Wall, ceiling, R.C.C etc. as may be required for fixing the partitions. The contractor shall allow for such provisions in his quoted rate. It will be deemed that while quoting rates the contractor has taken into account all foreseeable contingencies which will include making good disturbed floors, walls, ceiling, etc. to their original condition.
10	POLISHING	All visible Wood members shall have Lacquer polish, other surface may have French polish as directed complete.
11	DRAWER`	All Drawers in counters, Tables, side Tables shall have Ebco (Earl Bihari make)/ Haffele/ Ozone Or Equivalent sliding channels for smooth movement.
12	Locks	All Locks in Tables, Cupboards and Drawers must be group locks of Godrej or approved make.

TECHNICAL SPECIFICATIONS

GENERAL

This specification is for work to be done, item to be supplied and materials to be used in the works as shown and defined in the drawings and described herein, all under the supervision and to the satisfaction of the **SBI LIFE/ Architect**.

SECTION 'A' MATERIAL AND WORKMANSHIP

1. All Materials brought on site of works and meant to be used in the same shall be the best of their respective kinds and to the approval of the **SBI LIFE/ Architect**.
2. Samples of all materials shall be got approved by the **SBI LIFE/ Architect** and shall be deposited with him before the order for the material is placed with the suppliers. The material brought on the works shall conform in every respect with approved samples.
3. The contractors shall check each fresh consignment of materials as it is brought on the site of the works, to see that they conform in all respects to the satisfactions and/or samples approved by the Architects.
4. The **SBI LIFE/ Architect** will have the option to have any of the materials tested to find whether they are in accordance with the satisfaction and the contractor will bear all expenses in that connection. All bills, vouchers and test certificates which, in the opinion of the **SBI LIFE/ Architect** or the representative, as necessary to convince him as to the quality of the materials of their suitability shall be produced for his inspection on requisition. Testing charges, if any, shall have to be borne by the contractor.
5. Any material that has not been found to conform to the specification will be rejected forthwith and shall be removed from the site by the contractors **within 48 hours at** their own cost.
6. The Architect/Employer shall have power to cause the contractors to purchase and use such materials, from any particular source, as may in his opinion be necessary for the proper execution of the work.
7. Workmanship: All works shall be to level plumb and square corners, edges and joints in all cases shall be unbroken and finished neat.
8. Skilled workmen for the respective trades shall be employed by the contractors to check the work in progress and to instruct and extract the right kind of workmanship from the men employed on the works. Instructions given to such workmen by the architect or his representative shall be carried out with a view to get the work executed in a neat and workmanlike manner according to these specifications.
9. The **SBI LIFE/ Architect** may order the inspection of any finished work as he chooses and in a manner he decides, and the contractors shall bear all expenses in the connection. If the results of such inspection prove that the workmanship is not of the standard required, the work will be rejected and removed forthwith and be replaced by works of the accepted standard of quality.

2.11 HARDWARE & METALS:

2.12 Tables side units back units consoles or other articles as per schedule of quantities shall be deemed to be inclusive of all the hardware required e.g. locks, sliding channels handles / knobs, bolts screws PVC buffers for the legs of sofas chairs tables etc. as per instructions of engineer in charge.

2.13. Screws are to match the finish of the articles to be fixed and to be round or flat headed or counter sunk as required.

2.14 The contractor should cover up and protect the brass and bronze surfaces with a thick grease or other suitable protective materials renew as necessary and subsequently clean off and clear away join completion.

2.15 Aluminium and stainless steel shall be of approved manufacturer and suitable for its particular application. Generally, surface of aluminum shall have an iodized finish or powder coated finish and both shall comply with the samples approved by the Architects/Employer All stainless steel sheets shall be 304 S.S. Japan or equivalent with gauge as specified but not thinner than 16 gauge. All exposed steel surfaces shall also have powder coated finish.

2.16 All steel, brass, bronze, aluminum and stainless steel articles shall be subjected to a reasonable test for strength if so required by the **SBI LIFE/ Architect** at the contractor's expense.

2.17 All branching and welding are to be executed in a clean and smooth manner rubbed down and left in the flattest and tidiest way, particularly where exposed.

2.18 Chromium plating shall be in accordance with IS standard or as per approved specification for normal outdoor conditions and shall be on a base material of copper brass or as specified.

3.0 GLAZING:

3.1 All glass is to be of approved manufacturer of approved quality and shall be free from bubbles, smokes, waves, air holes and other defects.

3.2 While cutting glass, proper allowance by made for expansion. Each square of glazing to be in one whole sheet. On completion of work, all glass shall be cleaned inside and outside and all cracked scratched and broken panes shall be replaced and left in a good condition.

3.3 All exposed edges of glass shall be lead polished.

4. JOINERY

4.1 Joinery is to be taken up immediately after the placing of the contract frame-up, bonded and wedged up. Any portions that are warped or found with other defects are to be replaced before wedging up. The whole of the work is to framed and finished in a proper workman like manner in accordance with the detailed drawings, wrought and whenever required, fitted with all necessary metal ties, straps, bolts, screws glue etc. Jointers work, generally to be finished with fine sand glass paper.

4.2 JOINTS: All joints will be standard mortise and tenon, dowel, dovetail, and cross halved. Nailed or glued butt joint will not be permitted. Screws nails etc. will be standard iron or oxidized and of nettle fold make joint less state otherwise. Where mortise and tenon joints are used, tenons should fit the

mortises exactly. In respect of points in the hollock timber frame wash in sofas the joints should conform to the best practice in the trade.

4.3 Nailed or glued butt joints will not be permitted, except in exceptional cases with approval of Architects/Employer

4.4 Where screws shown on a finished surface, these will be sunk and the hole plugged with a wood plug of the same wood and grain of the finished surfaces unless detailed otherwise. Nails on finished surfaces will be nearly punches and the hole filled with wood filler to match the color.

4.5 Should joints in joiner's work open, or other defects arise within the period stated for defect liability in the contract and the clause thereof, such defective joinery shall be taken down and refilled, redecorated and/or replaced necessary and any work disturbed shall be made good at the contractor's expense.

4.6 The contact surface of dowel, wedges etc. shall be glued with an approved adhesive.

4.7 Where glued Joinery and carpentry work is likely to come into contact with moisture, the glue shall be waterproof.

4.8 All dovetail joints shall be further strengthened with M.S. Cleats for cabinet furniture like tables, storage units etc.

4.9 Where boards/plywood has to be fixed on another boards/plywood the two surfaces shall be fixed together by applying special carpenter's adhesive and headless nails.

5.0 PAINT AND POLISHES:

5.1 All materials required for the works shall be of specified and approved manufacturer, delivered to the site in the manufacturer's containers with the seals, etc., unbroken and clearly marked with the manufacturer's name or trade mark with a description of the contents and colour. All materials are to be stored on the site of the work.

5.2 Spray painting with the approved machines will be permitted only if written approval has been obtained from the **SBI LIFE/ Architect**. The paint used for sparing is to be specially prepared by the manufacturer for spray Thinning of paint made for brushing will not be allowed.

5.3 Wood preservative shall be Ascu Green Saver or any other equal and approved impregnating wood preservative at all concealed wood work shall be treated with wood preservative.

5.4 All brushes, tools pots, kettles, etc. used in carrying out the work shall be clean and free from foreign matter and are to be thoroughly cleaned out before being used with a different type of class of material.

5.5 All iron or steel surfaces shall be thoroughly scraped and rubbed with wire brushes and shall be entirely free from rusting mill scale etc. before applying the priming coat.

5.6 Surfaces of new wood work which are to be painted are to be rubbed down and cleaned to the approval of the Architects/Employer.

5.7 All exposed teakwood surfaces and teak ply surfaces and surfaces which are not treated otherwise shall be finish with stained polish to the required shade and melamine matt finish.

5.8 All exposed cedar wood surfaces and clear ply surfaces shall be finished with ready mixed wax polish to give nature shade.

5.9 The tendered rates shall include cost of seasoning and providing wood preservative and as given in the specification

6. POLISH:-

6.1 Pure shellac varying from pale orange to lemon yellow color free from resin or dirt shall be dissolved methylated spirit at **the rate of 140 gm of shellac to 1 litre of spirit.** Suitable pigment shall be added to get the required shade.

6.1.1. The surface shall be cleaned. All unevenness shall be rubbed from smooth with the sand paper and well sets if variable shall be covered with a preparation of red lead and the size land on white hot Hoes and mgehtations on the surface shall be stopped with plazsr's putty. The surface shall then be given a coat of won filler by mixing whiting (ground chalk) in methylated spirit at the rate of 1.50kg of whiting per litre of spirit. The required staining agent shall be added to get the required sand. The surface shall again be rubbed down perfect smooth with glass paper and wiped clean.

6.1.2. The polishing rubber, the most important implement in French polish shall consist of a pad of cotton wool, which acts as a reservoir for the polish and a soft white linen or cotton fabric similar to a well worn handkerchief, which acts as a filter. The rubber must never be dipped in to the polish. It should be charged by pouring the polish on the pad with the cover remove.

6.1.3. The surface shall be worked upon evenly a slow figure of eight motion until the surface is coated with a thin layer of polish. The object shall be to apply a series to thin coats, allowing only a few minutes for drying between the coats, when a level and even bodied surface is obtained the work is considered ready for the second stage is spiriting off.

Allowing the work to stand for at least eight hours, a fresh rubber with a double thickness of cover material shall be rubber with a double thickness or cover shall be taken and charged with methylated spirit. The surface shall be sprite off to remove the rubber marks and to give the brilliance of finish. The rubber shall be worked in the direction grain an continued till the surface is free from smears and rubber marks and left to harden off.

7.1 MALAMINE FINISH:

7.2. The malamine finish shall be applied on the French spirit polished surface.

7.3. The malamine coat of clean hard glaze shall be applied with a cloth pad. The surface shall then be left in or/any for at least six hours and further coats area applied with a paint brush. If the duration of gap is more than 2 hours between coats, the previous coat shall be rubbed down 24 hours between paper or a medium grade of steel wool. The matt finish shall be contained by giving a final coat of clean Ronseal matt coat.

8.0 TIMBER:

8.1 The timber shall be of the species stipulated in the schedule of Quantities/Drawings.

8.2 (a) Teak wood shall be of C.P. Teakwood variety.

8.3 (b) Wood for frame work/roughwood shall be hollock even though drawings may show Kail.

8.4 All dimensions given in the schedule of quantities and drawings are the required finished size.

8.5 Timber shall be well seasoned and kiln dried with a moisture content of 12% nominal +2% for teakwood. The contractor should get the timber tested for moisture content of wood at his own cost as per the directions of the Architects/Employer.

8.6 All timber shall be treated with preservatives as directed.

8.7 All timber shall be free from worm holes, loose or dead knots or other defects and shall not suffer from warping splitting or other defects. All timber shall be approved by the **SBI LIFE/Architect** before use.

8.8 MDF BOARD/BLOCK BOARD/PLYWOOD/PARTICLE BOARD:

8.9 MDF boards block boards/plywood/particle board etc. as specified in the approved list of manufacturers shall only be used.

8.10 Only B.W.R. grade phenol formaldehyde bonded boards to be used.

8.11 MDF board shall comply with I.S. 12406-1988. Manufacturers specification shall be followed in the use of MDF boards for the various usages.

9.0 SHOP DRAWINGS:

The contractor shall submit for approval all joinery details for total furniture. Shop drawings shall relate to site measurements and shall show in detail the construction of various parts of the work, the method of jointing, thickness and type of material, the finishes to be applied to the various exposed surfaces, details of anchoring, joints, welds, fastening and all other relevant information.

11. LAMINATES:

11.1 Thickness of the laminate to be used shall be 1.0 mm. Unless otherwise specified.

11.2 Joints in laminates will not be permitted until and unless the same is unavoidable or is required as per the drawings.

Measurements: Length and breadth of the plan area of the finished work shall be measured correct to a cm. no defections shall be made for openings provided, nor shall extra material or labour involved in such openings. Rate shall include provision access panel with MDF panel.

Rate to include decorative work with sunk raised levels in false ceiling. Rate shall include all scaffoldings staging etc.

Great care must be exercised in cutting the RCC slabs/beams to locate suitable reinforcement for welding the M.S. flats to be provided for suspension of false ceiling system. The damage to the R.C.C. member shall be made good with cement mortar 1:2 (1cement:2coarse sand). The projecting portion of the M.S. flat below the R.C.C. member and any other steel member in the false ceiling system shall be painted with one coat of red oxide paint.

The tendered rates shall apply for all floors heights. The Tendered rates shall include backing of plastered surface wherever Dado/wall lining with marble/granite stone slabs are envisaged and the back has been plastered.

LIST OF APPROVED BRAND AND / OR MANUFACTURE FOR INTERIOR FURNISHING WORK

No.	Particulars and Specifications	Approved Make/ model
1.a	Gypsum Board	India Gypsum (saint gobain), USG BORAL
	Framing with complete system	Gyp steel ultra (saint gobain), USG Boral 5.5 MM thick sections
1.b	Calcium silicate Board	Hilux, Armstrong. India Gypsum
	Framing with complete system	India Gypsum
2	Mineral fibre tiles ceiling with complete system	Armstrong/Saint Gobain/USG
3	Laminates (IS-2046)	Archidlam, Sunmica ,Green Lam , Century, Formica.
4	Commercial Ply (IS-303) / Waterproof ply (IS-710) / Block board (IS-1659) / Flush door (IS- 2202)	Century/ Green Lam/Archid/ Alpro
4.a	MDF BOARD	Green Lam / Action Tessa
5	Adhesives	Fevicol / Araldite or equivalent
6	Locks	
	Auto latch Lock	Ebco/EG/Godrej / Ozone or equivalent
	Multipurpose group Lock	Ebco/EG/Godrej / Ozone or equivalent
	Night latch	Godrej/Doorset / Ozone SS brush Finished or equivalent
	Cylindrical lock (SS matt finish)	Godrej/Doorset / Ozone SS brush Finished or equivalent
	Mortise dead lock (two way)	Godrej/Doorset / Ozone SS brush Finished or equivalent
	Mortise lock with door handle	Godrej/Doorset / Ozone SS brush Finished or equivalent
7	Drawer channels	

	Telescopic channels (zink plated)	Ebco/Doorset / Ozone SS brush Finished or equivalent
8	General hardware	SS matt finish
	Door stopper	i) Black/ivory/brown/silver color Powder coated DS1 (Ebco) ii) Spring type black/brown/ivory color powder coated (ECGL's sterling) or equivalent
	'D' bracket	50x12 mm
	Hinges	i) 3"/4"/5"/6" 1.8mm th. SS matt finish of Ozone/ Ebco or equivalent ii) 75x12x19 1.2 mm th. SS matt finish for sto-
	Handles 'D' or 'C' type	1) 3"/4"/6"10mm dia SS 202 matt finish Ozone
	Tower bolt	3"/4"/6"/8" brass extruded SS matt finish Ozone /
9	Floor spring	
	60 kg	Ozone / Ebco
	80 kg	Ozone / Ebco
	100 kg	Ozone / Ebco
10	Door closer	
	60 kg	Ozone / Ebco
	Fire rated 60 kg	Ozone / Ebco
11	Patch fittings for door and fixed glass partition (top/bottom patch, pivot, patch lock, L arm, L connect, connector, floor spring, handle, plastic profile)	Ozone / Ebco
12	Glass / Mirrors	Saint Gobain / Modi
13	Aluminum section	Jindal / Hindalco/Indal
14	Window Blinds	Vista/Mac
15	Polish / Paint	Asian paints / Berger / Nerolac

16	Particle boards	Novapan / Deco board
17	Computer accessories	
	Keyboard tray with mouse tray	KTE-1-45M (Ebco) / Hettich or equivalent
	CPU hanger/ shelf	Side mounted IS CPU HL SM (Innofitt) /CPUSM(Ebco) , 4/2-SMCS (Zipco)
	cable manager (60mm)	i) metal - CO60ZN1(Ebco) ii) PVC - CO 60 (Ebco) black/ivory/grey color
18	ACP panel	Euro/Flexi Bond/Euro Bond/Alubond
19	Foam	Sleepwell / Feather foam
20	Wall paper	Marshal or equivalent
21	Glass film	Garware /3M
22	Wooden For Partition and Paneling Frame	Teak wood or Steam Beach.
23	Wooden for Visible surface (ie Beading,jams, etc.	Teak wood or Steam Beach
24	Vitrified tiles flooring	Kajaria/Johnson/Nitco/ Somani or equivalent
25	Cement	Ambuja/Ultratech/ACC
26	Sand	Clean Sand
27	Anti-Termite Treatment	Chlorpyrifos 20 EC of Pest Control (I) Ltd

Note:

[a] Where other Material are proposed to be used these should be got Approved from the Architect before execution of particular item. In case of Non- Availability of any material of specified make, The Alternative should be used only after it is Approved in writing by the Employer or the Architect.

[b] Before starting of work contractor must get all samples/make approved from Architect before using at site.

[c] Consultants reserve the right to add or delete name of any manufacturer as and when required.

[d] Consultants reserve rights to select any of the specified brands mentioned above.

TECHNICAL SPECIFICATIONS (AIR CONDITIONING)

SCOPE

GENERAL REQUIREMENTS

1.0 REFRIGERANT PIPING

- 1.1 The refrigerant piping shall be of half – hard copper 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 fall length without joints between the condenser and evaporator.
- 1.2 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.
- 1.3 The refrigerant lines shall be insulated with 9mm Nitride rubber tubing to prevent heat loss and condensation .
- 1.4 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.

2.00 DRAIN PIPING

- 2.01 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

1.00 SCOPE

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

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

2.00 STANDARDS

2.01 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

1.0 MATERIAL

- 1.1 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.
- 1.2 The gasket for duct joints shall be 3mm formed rubber or expanded polyethylene. The bonding material shall be mastic sealant.
- 1.3 The duct flanges and supporting material shall be mild steel structure steel section.

1.4 All duct hangers shall be mild rod with threaded end with adjustable nuts for levelling.

1.5 The material for various applications shall be as follows.

APPLICATION	MATERIAL
1. Ducting for Air-conditioning a) Indoor – Class 4 b) Outdoor insulated-Class 4 c) Outdoor un insulated-Class 3	Cold rolled sheets continuous galvanized with a zinc coating of 180 /sq.m conforming to IS : 277
2. Duct for ventilation & exhaust	- do -
3. Supports & duct flanges	Mild steel structural steel sections
4. Gasket	Foamed rubber 3.2mm (1/8")
5. Bonding	Master sealant

3.05 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.

4.00 GENERAL REQUIREMENTS

- 4.01 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.
- 4.02 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.
- 4.03 The ducting shall be supported by means of hangers from the ceiling slab using anchor bolts and shall not rest on the false ceiling.
- 4.04 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.
- 4.05 Volume control dampers of splitter or louvred type shall be provided as shown on the drawings. Additional dampers if required shall be provided for proper balancing of the air distribution system.
- 4.06 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.

- 4.07 Access door shall be provided adjacent to the fire, splitter and louvred dampers.
- 4.08 Air outlets shall be selected based on the air quantity, throw and aerodynamic noise power not exceeding NC 30. The location size and shape of the air outlets shall be co-ordinate with interior and false ceiling scheme.

5.00 DUCT FABRICATION

- 5.01 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:

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

(B) Hanger for Duct:

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

- 5.02 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.
- 5.3 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.
- 5.4 Capped airflow connections shall be provided, wherever shown, for testing and balancing of air distribution

6.00 DAMPERS & GUIDE VANES

6.01 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.

6.02 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.

6.3 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.

6.4 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
- c) Spring - SS 304
- d) Fusible link - Set for 7 deg C fusing temperature

6.5 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.

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

07.00.00 AIR OUTLETS

7.0.1 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.

7.0.2 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.

7.0.3 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.

7.0.3.1 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.

7.0.4 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 grille or diffuser shall be given two coats of black paint for a length of 300mm.

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

7.0.6 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.

08.00.00 AIR INTAKES & EXHAUST OUTLETS

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

08.00.02 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.

08.00.03 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.

08.00.04 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.

09.00.00 INSTALLATION

09.00.01 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

9.0.2 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 meet with the approval of the Engineer-in-charge.

9.0.3 All duct supports, flanges; hanger shall be given two coats of red-oxide before installation and one coat of aluminum paint after erection.

9.0.4 Where ducts are connected to the wall, such connections shall be made through mild steel frame fixed to the wall through suitable shear fasteners.

10.00.00 INSTALLATION

10.00.01 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.

10.00.02 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.

11.00.00 TESTING & BALANCING

11.00.01 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.

2103 THERMAL INSULATION

1.0.0 SCOPE

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

2.0.0 STANDARDS

2.0.1 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
- e) IS: 8183 Specification for bonded mineral wool

- f) IS: 702 Specification for industrial bitumen

3.0.0 GENERAL REQUIREMENTS

3.0.1 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 Kg/cum	K VALUE w/mk	EQUIVALENT THICKNESS			
				mm	mm	mm	mm
1.	Resin bonded glass wool	32	0.037	125	100	50	30
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	30
6.	Expanded polyethylene foam	30	0.035	100	75	80	30

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

03.00.03 All wooden bittren 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.

03.00.04 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.

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

3.0.5 Air pocket between the surface and insulation or between insulations shall not be acceptable. All joints shall be staggered and filled with bonding material.

3.0.6 Minimum 50mm overlapping shall be provided for joints in vapor barrier and cladding.

04.00.00 MATERIAL

4.0.1 The material for cold insulation shall be as shown below:

- a) Fire inhibiting expanded polystyrene of density 18 kg/cum having thermal Conductivity not exceeding 0.035 w/mk at 10 deg. C mean temperature conforming to IS : 4671.
- 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 Specification.
- c) Rigid phenol foam of density 32 kg/cum having thermal conductivity not 0.022 w/mk at 10 deg. C mean temperature conforming to BS: 3927 with 50 micron aluminum foil fixing.
- d) Expanded polyethylene foam of density 30 kg/cum having thermal conductivity not exceeding 0.035 w/mk at 10C mean temperature.

4.0.2 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.

4.0.3 The material for fixing vapour 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 bars

05.00.00 INSULATION THICKNESS

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

5.2.1 REFRIGERANT PIPING

- 05.02.01 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.
- 05.02.02 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.
- 05.02.03 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.

05.03.00 DRAIN PIPING

- 5.3.1 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.
- 5.3.2 condensate from the evaporator unit shall be drained through properly installed drain piping designed to prevent any accumulation of condensate in the drain pan.
- 5.3.3 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.

07.00.00 INSULATION OF DUCTING

7.0.1 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 or 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 300 mm.

7.0.2 ACOUSTIC INSULATION

First 3-meter length of supply air duct shall be acoustically insulated with 12.5 mm thick fibre glass 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 Shali coat / Ticky tar.

Fix-up fiberglass slab.

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

2104 MAKES OF MATERIAL

01.00.00 SCOPE

01.00.01 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.

01.00.02 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.

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

02.00.00 MAKES RECOMMENDED

2.0.2 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.

LIST OF APPROVED MAKES FOR HVAC EQUIPMENT AND MATERIALS

Sl. No.	Details of the Items	Manufacturer's name
1.	Ductable units	Daikin, HITACHI, Carrier Aircon.
2.	GI Sheet	Sail/TATA/ Jindal
3.	Grilles/Diffuser	Caryaire/Ravistar/Dynamic
4.	MS Dampers/Louvers	Tristar/Cherub
5.	Control Cables	Grandlay/POLYCAB/ Havells
6.	Power Cable	Finolex/Polycab/ Havells
7.	Nitrile rubber Insulation	Eurabatax/Aeroflex/Totaline for ref pipe insulation
8.	Flexible Duct Connection	Airflow/Pyroguard
9.	Gaskets	Neoprene rubber
10.	Adhesives	Fevicol / Superlon
11.	Vibration Isolator	Resistoflex/Dunlop
12.	Filters/Air Showers	Dyna/Thermadyne/Cherub
13.	Polyethylene for duct insulation	Supreme/Trocellene/Totaline
14.	Centrifugal / Axial fan	Flaxt/ PAF/ Chakshu
15.	Refrigerant Pipes	Rajco/Parasmani
16.	Cassette Units and Wall Mounted Split AC Unit	Daikin, HITACHI, Carrier Aircon.

REFERENCE DRAWING

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 complied With and vice versa.

TECHNICAL SPECIFICATIONS (ELECTRICAL)

SPECIFICATION OF MATERIAL

All the material to be used shall be as per the specified make of the materials list and ISI approved Brand. Any deviation from this shall be got approved from Architect / Owner, the contractor shall submit samples of material to be used for verifications and Produce Bill in original.

1. **SAMPLES** : After receipt of the bids but prior to award of the contract, bidder shall, Upon notification from owner submit samples of materials he intends to Use.

The owner shall reserve the right to evaluate the sample with regard to the specification before award of work. Samples as directed by the **SBI LIFE/ Architect** for various items shall be prepared / brought for approval without Any additional cost.

Special Notes :

- a) The successful tendered will have to supply the make of the materials as recommended and in consultation with the **SBI LIFE/ Architect** without any extra cost. **SBI LIFE/ Architect** reserve the rights to choose any make out of above list.
- b) Tenderer should have to specify the list of makes considered in the tender while quoting the rates in the tender, in covering letter of separate letter enclosure. However, the final decision for accepting make specified by tenderer would be of **SBI LIFE/ Architect**.
- c) As far as possible, the successful tenderer will have to place order directly to the manufacturer or its authorized dealer.
- d) The **SBI LIFE/ Architect** have right to Check the Challans of supplier.
- e) The RCCB, RCBO, MCB and MCB DBs must be of same make.
- f) Make of components required to be used by contractor to complete the installation, if not mentioned anywhere, shall be required to GOT it Approved by **SBI LIFE/ Architect** before installation in writing manner.
- g) Within a week of work order, the contractor shall submit the sample of each item / component of above-mentioned approved make for the approval of the **SBI LIFE/ Architect**.

APPLICABLE STANDARDS

<u>Sr. No.</u>	<u>IS No.</u>	<u>Description</u>
1)	IS:2026-1977	: Distributing transformers & fittings. IS 3639 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. & 1200 volts D.C.

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|-----|-------------------|---|--|
| 24) | IS:375-1963 | : | Marking and arrangement of switch gear bus bars 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 & flexible rods. |
| 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. |

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|-----|--------------|---|---|
| 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.

ELECTRICAL MATERIAL SPECIFICATION

DISTRIBUTION BOARDS

The scope of work shall cover supply, installation testing and commissioning of all distribution boards -

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, phosphate and powder coated to an approved color 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 up to 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-wire able 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-wire able fuses as shown on the schedule and drawings. Board shall meet with the requirements of IS 2675 and marking arrangement of bus bars 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 :

Up to 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 color 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 solder less lugs for all aluminum cables and stud type terminals. For copper cables copper crimped solder less 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 Aluminum / Copper, PVC insulated as per IS:694 and shall be 660v/ 1100V grade.

5.2 All wires shall be color 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 Color code should be strictly used for all wiring.

- ii) Installation, commissioning and testing.
- A) 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.
- 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.
- 7.11.1 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/ flexibles 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 up to 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. Color 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 1st 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 aluminum 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 color 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 mega ohms and the nominal capacitance of about 0.1 micro farad per kilometer.

Cables laid underground 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 bus bar cover with bus bar 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 bus bar.

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 inch / mm.	Max. No. of cables
--	---------------------------

¾" 20	2 Nos. single pair
1" 25	6 Nos. single pair
1¼" 32	12 Nos. single pair
1½" 40	18 Nos. single pair

INSTALLATION TESTS CERTIFICATE

BY ELECTRICAL CONTRACTOR

This contractor is to certify that the work is carried Out work confirming to IE Rules and code of practice. He has to give the test report is under.

(i) Insulation Resistance test is R - N M. Ohms

Y - N M. Ohms

B - N N. Ohms

(ii) Load test : -

5A - 1000 W Power Point - 15 Minutes

15A - 3000 W Power Point - 15 Minutes

(iii) Earth resistance for each electrode - 1 Ohm

- 2 Ohm

- 3 Ohm

- 4 - N - E Volts

(iv) Certificate of makes of materials used in the work

(v) Circuit diagram

(vi) Certified that the electrification work has been carried out under the supervision of licensed Electrical supervision.

(vii) Certified that the earthing plate / pipe has been verified and Placed at correct depth confirming to IE Rules.

Signature of Electrical Supervision Signature of Contractor

Name :

License No.

IMPORTANT POINTS TO BE NOTED

1. Rates for **LIGHT, FAN, EX. FAN, CALL BELL, RAW POWER ETC. POINTS** includes the cost of main wires and PVC pipes from **LDB-ROW POWER DB** to **DIFFERENT SWITCHBOARDS WITH REQUIRE CIRCUITS**.
2. Rates for **COMPUTER POWER POINTS** include the cost of wires and PVC pipes from **UPS DB** to **COMPUTER POWER POINTS**.
3. Rates for **COMPUTER I/O** include the cost of **DATA** cables and PVC pipes from **SERVER SWITCH** to **COMPUTER NODES**.
4. Rates for **TELE POINTS** include the cost of TELEPHONE Wires and PVC pipes from **EPABX/CRONE BOX** to **TELE. POINTS**.
5. Rates for **A.C. / POWER POINTS** include the cost of wires and PVC pipes from **A.C.DB** to **DIFFERENT A.C. AND POWER POINTS WITH REQUIRE CIRCUITS**.
6. THE CONTRACTOR SHOULD SUBMIT THE BUILTUP **SLD OF PANEL, SLD OF DIFFERENT DBS TO DIFFERENT SWITCHBOARDS WITH NUMBERING, SLD OF DATARACK TO DIFFERENT I/O POINTS WITH NUMBERING, TELE. KRONE BOX TO DIFFERENT TELE. POINTS WITH NUMBERING, ETC.** AFTER EXECUTION OF THE BRANCH. – 2 SETS OF COPIES – 1 WITH LAMINATION.
7. THE CONTRACTOR SHOULD USE MAX. 3 CIRCUITS IN ONE CONDUIT FOR UPS & RAW POWER POINTS.
8. THE CONTRACTOR SHOULD USE MAX. 3 WIRES OF DATA & TELE. IN ONE CONDUIT.
9. EVERY CONDUIT FOR UPS , RAW POWER , DATA & TELE., POWER POINTS, AC POINTS , LIGHTING POINTS SB SHOULD BE SEPARATE.
10. FOR DATA & TELE. POINTS, BIG JUNCTION BOX MUST BE REQUIRED.
11. FOR UPS & RAW POWER POINTS, BIG/ SMALL JUNCTION BOX MUST BE REQUIRED.
12. EMPTY CONDUIT MUST BE LAID FOR SECURITY SYSTEM.
13. PVC CONDUITS MUST BE CLAMPED WITH SADDLES IN CEILING ONLY.
14. ELE. CONTRACTOR MUST SUBMIT CERTIFIED LOAD LIST WITH ELE. LICENSE NO. / SUPERVISOR CERTIFICATE NO.
15. CONTRACTOR SHOULD SUBMIT TEST REPORT.
16. CONTRACTOR SHOULD PRESENT EARTHING PLATES BEFORE EXECUTION.

APPROVED MAKE LIST OF ELECTRICAL EQUIPMENT AND ACCESSORIES		
1	PVC rigid conduits & Accessories	1.5 mm thick ISI and FIA approved - Precision / Kalpdeep / Vraj / Nihir / BLP / PFI make. (Only white coloured pipes to be used.).
2	L.T. Cables	CCI / Havells / KEI / Finolex./Poly Cab
3	Wires (FRLS)	Finolex / R. R. Kable / Havells / L & T / KEI./Poly Cab
4	Main Distribution Boards	MDS Legrand / Hager / Crabtree /Schnider
5	Miniature Circuit Breaker	MDS Legrand / Hager / Crabtree / Schnider
6	ELCB / RCCB	MDS Legrand / Hager / Crabtree XPRO / Schnider
7	Domestic fittings	
	a) 5A one / two way switch	MK Wrapped Wround Plus / Schneider Vivace / L & T ORIS / Crabtree Verona / Salzer Elite / Legrand Myris.
	b) 5A 5 pin socket	MK Wrapped Wround Plus / Schneider Vivace / L & T ORIS / Crabtree Verona / Salzer Elite / Legrand Myris.
	c) 16A one / two way switch	MK Wrapped Wround Plus / Schneider Vivace / L & T ORIS / Crabtree Verona / Salzer Elite / Legrand Myris.
	d) 6A/16A socket	MK Wrapped Wround Plus / Schneider Vivace / L & T ORIS / Crabtree Verona / Salzer Elite / Legrand Myris.
	e) fan step regulator	MK Wrapped Wround Plus / Schneider Vivace / L & T ORIS / Crabtree Verona / Salzer Elite / Legrand Myris.
	f) Telephone RJ - 11 socket + Box	MK Wrapped Wround Plus / Schneider Vivace / L & T ORIS / Crabtree Verona / Salzer Elite / Legrand Myris.
	g) Holders / ceiling roses	Anchor / Maru make.
	h) Adhesive Tape	Bhor (Steel Grip) or approved .
8	10 - 30 A Polycarbonate Socket & Top	MDS Legrand (Lexic) / Hager / Crabtree XPRO /
9	Telephone Wires / Cable	Finolex / R. R. Kable / Havells / L & T.
10	Telephone tag block	Krone make.
11	Cable Lugs	Dowell / Lotus / Jainson / 3 D.
12	Cable gland Single / Double Compression	HMI / Comet / 3D.
13	Switch gears / MCCB	MDS Legrand (Lexic) / Hager / Crabtree XPRO /
14	Ammeter / Voltmeter	AE / HPL /MECO/ Enercon make.
15	Selector switches	L & T salzer / Kaycee make.

16	Indicator lamps	LED type Teknic / Precifine/ Binay.
17	Change Over Switch	HPL Socomac/ Havells / L & T.
18	Connector strips	Wago / Elmex make.
19	Lighting Fixtures	Wipro / Philips / GE / Crompton/ Bajaj
20	Exhaust fan (Light duty)	Khaitan / Crompton / Havells.
21	Ceiling Fan	Orient (PSPO) / Crompton / Havells / Luminious.
22	Wall mounted Fan	Crompton / Khaitan / Havells / Luminious.
23	Data Cable - I / O Unit	Molex, Systemax
	LIGHTING FIXTURES - SEE CAT NO. & SPECIFIED MAKE IN THE FINANCIAL BID. OR APPROVED EQUIVALENT AS PER APPROVED MAKE LIST DIRECTED BY ARCHITECT/ BANK	

Note:

[a] Where other Material are proposed to be used these should be got Approved from the Architect before execution of particular item. In case of Non- Availability of any material of specified make, The Alternative should be used only after it is approved in writing by the Employer or the Architect. The Material shall be used in preferential Order only

[b] Before starting of work contractor must get all samples/make approved from Architect before using at site

[c] Consultants reserve the right to add or delete name of any manufacture as and when required.

[d] Consultants reserve rights to select any of the specified brands mentioned above.