INDIAN INSTITUTE OF TROPICAL METEOROLOGY
PASHAN, PUNE-411 008

Tender No. CE//IITM/Project/NDB/2012-13/04

e-TENDER NOTICE

Director, Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, Pashan, Pune-411 008,(India) . Invites sealed separate tenders for following work (Part-I – Technical Bid, Part-II – Commercial Bid) in separate sealed covers from Contractors registered in the approved list of contractors of PWD/MES/ CPWD/ Railways/P&T/Experienced contractors and any other government departments inappropriate class for following work.

Name of work: Construction of Laboratory Building and Guest House at Indian Institute of Tropical Meteorology, Branch office Rajinder Nagar, New Delhi, India.

Tender documents can be down loaded from e – procurement web site http://eprocure.gov.in or from the institute website http://www.tropmet.res.in/ and can also be obtained from the civil wing of the institute. The bidder has to submit the tender document fee of Rs 1000-/, (Rs one thousand only) in the favour of Director, IITM Pune.

Date of issue of tender documents	**:**	**30/04/2012**
Pre - Bid Meeting	**:**	**08/05/2012 at 1000 hrs.**
Venue of Pre-Bid meeting	**:**	Indian Institute of Tropical Meteorology, Branch Office), Rajendra Nagar, New Delhi, PIN-110060,India
Last date of receipt of Tender at IITM, Pune:		**22/05/2012 at 1230 hrs.**
Opening of Tenders (Technical Bids only):		**22/05/2012 at 1500 hrs.**

The Institute reserves the right to reject any or all tenders without assigning any reason thereof.

Civil Engineer
For Director
Email:anupam@tropmet.res.in

TENDER FOR CONSTRUCTION
OF
LABORATORY BUILDING AND GUEST HOUSE BUILDING AT
INDIAN INSTITUTE OF TROPICAL METEOROLOGY,
RAJINDER NAGAR, NEW DELHI

Volume 1

(TECHNICAL BID)

INDIAN INSTITUTE OF TROPICAL METEOROLOGY,
DR.HOMI BHABA ROAD, PASHAN, PUNE-411008

TENDER FOR CONSTRUCTION
OF
LABORATORY BUILDING AND GUEST HOUSE AT INDIAN INSTITUTE OF TROPICAL METEOROLOGY, RAJINDER NAGAR, NEW DELHI

Tender No. CE//IITM/Project/NDB/2012-13/04

NAME OF WORK: TENDER FOR CONSTRUCTION OF LABOROTARY BUILDING AND GUEST HOUSE AT INDIAN INSTITUTE OF TROPICAL METEOROLOGY, RAJINDER NAGAR, NEW DELHI.

Date of issue of tender documents from:		30/04/2012
Pre - Bid Meeting	:	08/05/2012 at 1000 hrs.
Venue of Pre-Bid meeting	:	Indian Institute of Tropical,Meteorology, Branch Office, Rajendra Nagar, New Delhi, PIN-110060,India
Last date of receipt of Tender at IITM, Pune:		22/05/2012 at 1230 hrs.
Opening of Tenders (Technical Bids only):		22/05/2012 at 1500 hrs.

COMPLITION PERIOD : 45 DAYS from THE DATE OF RECIPTOF L.O.I.

INVITATION FOR BID

(IFB)

NOTICE INVITING TENDER FOR CONSTRUCTION OF LABORATORY BUILDING AND GUEST HOUSE AT INDIAN INSTITUTE OF TROPICAL METEOROLOGY, RAJINDER NAGAR, NEW DELHI TWO COVER SYSTEM

Tender Notice No.CE/IITM/Project/NDB/2012-12/09

Indian Institute of Tropical Meteorology, Pune, Maharashtra is setting up a Guest House building at existing Indian Institute of Tropical Meteorology, building at, Rajinder Nagar, New Delhi.
Director Indian Institute of Tropical Meteorology, Pune Invites bid for Civil construction works under the **Two Cover System** From the contractors who meet the following criteria.

The BIDDER should be a well-established and reputed Civil Contractor, registered as a Legal entity in India for a minimum period of five years, and having experience of minimum Ten years in the Civil construction work of Buildings.

The BIDDER should have an annual turnover of Rs.1.00 Crores (Rupees One Crores) in all Kinds of civil works or civil and electromechanical works during any two of the past Five financial years, ending on 31st March 2012.

The bidder should have satisfactorily completed as a prime contractor at least one single Project of Civil construction & Electrical, Plumbing work not less than Rs.1.00 Crores (Rupees One Crores).

The bidder should produce Banker's Solvency Certificate or Revenue Solvency Certificate of The value of Rs.30.00 Lakhs. Solvency Certificate must have been obtained not earlier than 1st Apr 2012.

The successful bidder shall ensure that, the direct subcontractors engaged in the works, Complies with all conditions as specified in the Agreement between the employer and the Successful bidder.

Other details can be seen in the bidding document

1. Salient Features

Name of Work	LABORATORY BUILDING AND GUEST HOUSE BUILDING AT INDIAN INSTITUTE OF TROPICAL METEOROLOGY AT RAJINDER NAGAR, NEW DELHI.
Period of Completion	08 months from the date of receipt of LOI

2. Tender documents can be purchased from the office of Director, Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, NCL post, Pashan, Pune – 411008.INDIA

A	Cost of Tender Documents (Non – Refundable)	Rs. 1000/-(Rupeesone Thousand only) By Demand Draft drawn from any Nationalized or Scheduled Banks In India payable at Pune in favors of Director, Indian Institute of Tropical Meteorology, Dr. Homi BhabhaRoad, NCL post, Pashan Pune – 411008 .INDIA
B	Period of Issue of Tender Documents	30-04-2012
C	Earnest Money Deposit (EMD)	Rs 2,00,000/-(Rupees Two Lakhs Only) By Demand Draft, drawn from any Nationalized Or Scheduled Banks in India payable at Pune in favor Of The Director, IITM (or) By Irrevocable Bank Guarantee from any Nationalized or Scheduled Banks in India.
D	Pre-Bid Meeting	08-05-2012 TIME 11.00 HOURS
E	Last date for submission of bids	22-05-2012 TIME 12.30 HOURS • Bids to be submitted on or before the mentioned time and date at ―DISPATCH SECTION‖ Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, NCL post, Pashan Pune – 411008. INDIA
F	Opening of Technical bid	22-05-2012 TIME 15.00 HOURS

*Only one set of document will be issued. Contractors have to take additional copies.

1. The Director, Indian Institute of Tropical Meteorology, reserves the right to accept/reject Anyone /all the tenders without assigning any reason thereof.

DIRECTOR,

INDIAN INSTITUTE OFTROPICAL METEOROLOGY,
DR. HOMI BHABHA ROAD,NCL POST, PASHAN
PUNE – 411008.INDIA

Definitions

Terms which are defined in the Contract Data are not defined in the Conditions of Contract But keep their defined meanings. Capital initials are used to identify defined terms.

The **Adjudicator** is the person appointed jointly by the Employer and the Contractor to Resolve disputes in the first instance. The name of the Adjudicator is defined in the Contract Data.

Bill of Quantities means the priced and completed **Bill of Quantities** forming part of the Bid.

Compensation Events are those defined in Clause 44 of Conditions of Contract (Vol-II).

The **Completion Date** is the date of completion of the Works as certified by the Architect And IITM Authorities in accordance with Sub Clause 55.1 of Conditions of Contract (Vol-II).

The **Contract** is the contract between the Employer and the Contractor to execute, complete And maintain the Works. It consists of the documents listed in Clause 2.3 of Conditions of Contract (Vol-II).

The **Contract Data** defines the documents and other information which comprise the Contract.

The **Contractor** is a person or corporate body who's Bid to carry out the Works has been accepted by the Employer.

The **Contractor's Bid** is the completed Bidding document submitted by the Contractor to the Employer.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; **months** are calendar months.

A Defect is any part of the Works not completed in accordance with the Contract.

Defects Liability Period is the period named in the Contract Data and calculated from the Date of handing over of site to the Institute.

The **Employer** is the party who will employ the Contractor to carry out the Works. In this Contract The Managing Director, Indian Institute of Tropical Meteorology, Dr. HomiBhabha Road, NCL post, Pashan, Pune. is the Employer

The **Architect** shall mean the Consultants engaged by the Employer.

Contractor's Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The Initial Contract Price is the Contract Price listed in the Employer's Letter of Acceptance.

Drawings mean the employer's drawings of the works included in the contract and any

Variations to such drawings given by an Architect.
Party means either employer or contractor.

Country means the country in which the site is located.

Employer's Liabilities means those mentioned in sub clause 11.1 of Conditions of Contract (Vol-II).
Force Majeure means an exceptional events or circumstance which is beyond a Party's control, which such Party could not reasonably have provided against before entering in to the contract; which, having arisen, such party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other party.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall Complete the Works. The Intended Completion Date is specified in the Contract Data. H
Materials are all supplies, including consumables, used by the contractor for incorporation in the Works.

Plant is any integral part of the Works which is to have a mechanical, electrical, electronic or chemical or biological function.

The **Site** is the area defined as such in the Contract Data.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Architect.

The **Start Date** it is the date from the date of receipt of LOI.

A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract which includes work on the Site.

Temporary Works are works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

A **Variation** is an instruction given by the Architect with the approval of IITM authorities which varies the Works.

The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the Contract Data.

SECTION 1:

INSTRUCTIONS TO BIDDERS

(ITB)

A. General

1. Scope of Bid

1.1 On behalf INDIAN INSTITUTE OF TROPICAL METEOROLOGY. The Director, INDIAN INSTITUTE OF TROPICALMETROLOGY, DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 , India invites bids for the Civil Construction works of Guest House, Building at Indian Institute of Tropical Meteorology, Rajinder Nagar, New Delhi .INDIA

1.2 The successful bidder will be expected to complete the works by the intended Completion date specified in the Contract data.

2. **Source of Fund:** INSTITUTE OF TROPICAL METEOROLOGY.

3. Eligible Bidders`

3.1 This Invitation for Bids is open to all reputed well established and experienced Contractors, who satisfy the qualifying criteria stipulated in Clause 4

3.2 All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a statement that the Bidder is not associated, nor has been associated in the past, directly or indirectly, with the Consultant or any other entity that has prepared the design, specifications, and other documents for the Project or being proposed as Project Manager for the Contract. A firm that has been engaged by the Employer to provide consulting services for the preparation of tender documents, supervision and certification of the works, and any of its affiliates, shall not be eligible to bid.

3.3 Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by Government in accordance with sub-clause 34.1.

4 Qualification of the Bidder

4.1 All bidders shall be provided in Section 2 Forms of Bid and Qualification Information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.

4.2 Since the Employer has not undertaken pre-qualification of potential bidders, all bidders shall include the following information and documents with their bids in Section 2

(a) Copies of original documents defining the constitution or legal status, place of registration and principal place of business.

(b) Written power of attorney of the signatory of the Bid to commit the Bidder.

(c) Total monetary value of construction work performed for each of the last five years.

(d) Experience in works of a similar nature and size for each of the last five years, and details of works under way or contractually committed; and clients who may be contacted for further information on those contracts;

(e) Major items of construction equipment proposed to carry out the Contract;
(f) Qualifications and experience of key site management and technical personnel proposed for the Contract;

(g) Reports on the financial standing of the Bidder, such as profit and loss statements and auditor's reports for the past five years;

(h) Evidence of adequacy of working capital for this contract (access to line (s) of credit and availability of other financial resources);

(i) Information regarding any litigation or arbitration resulting from contracts executed by the Bidder in the last five years or currently under execution. The information shall include the names of the parties concerned, the disputed amount, cause of litigation, and matter in dispute;

(j) Proposals for subcontracting components of the Works which in aggregate add to more than 20 percent of the Bid Price (*for each, the qualifications and experience of the identified sub-contractor in the relevant field should be annexed; no vertical splitting of work for sub-contracting is acceptable*); and

(k) The proposed methodology and program of construction including Environmental Management Plan backed with equipment, materials and manpower planning and deployment, duly supported with broad calculations and quality control procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated period of completion as per milestones.

4.3 ‗Bids from Joint ventures are not acceptable'.

4.4 A. To qualify for award of the contract, each bidder in its name should have in the last five years *i.e.* 2007-08, 2008-09, 2009-10, 2010-11 and 2011-2012.

(a) The BIDDER should be a well-established and reputed Civil Contractor, registered as a legal entity in India for a minimum period of five years, and having experience of minimum ten years and capacity in Civil Construction Work.

(b) The BIDDER should have an annual turnover of Rs.2.00 Crores (Rupees Two Crores) in all kinds of Civil works or Civil and electromechanical works during any two of the past five financial years, ending on 31st March 2012.

(@) *at* 2011-12 *price level*. Financial turnover and cost of completed works of previous years shall be given weight age of 5% per year based on rupee value to bring them to* 2011-12 *price level*.*

** The financial year in which bids are received.*

4.4 B The bidder should produce Banker's Solvency Certificate or Revenue Solvency Certificate of the value of Rs.50.00 Lakhs. Solvency Certificate must have been obtained not earlier than 1st Jan. 2011.

4.4 C. Each bidder should further demonstrate:
(a) Availability (either owned or leased or by procurement against mobilization advances) of the following key and critical equipment for this work:

NOTE: Based on the studies, carried out by the Engineer the minimum suggested major equipment to attain the completion of works in accordance with the prescribed construction schedule are shown in the above list. The bidders should, however, undertake their own studies and furnish with their bid, with addition if any a detailed construction planning and methodology supported with layout and necessary drawings and calculations (detailed) as stated in clause 4.2 (k) above to allow the employer to review their proposals. The numbers, types and capacities of each plant/equipment shall be shown in the proposals along with the cycle time for each operation for the given production capacity to match the requirements.

(b) availability for this work of 1 Project Manager with not less than FIVE years' experience in construction of similar civil engineering, Mechanical, Electrical and allied works and other key personnel with adequate experience as required. The bidders are to produce organization chart for the execution of the project with responsibilities included.

4.5 Sub-contractors experience and resources shall not be taken into account in determining the bidder's compliance with the qualifying criteria except to the extent stated in 4.4 (A) (e to h) above.

4.6 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or

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Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.; and/or

- participated in the previous bidding for the same work and had quoted unreasonably high bid prices and could not furnish rational justification to the employer.

4.7 Each bidder shall submit only one bid for one contract.

5 Cost of Bidding

5.1 The bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will in no case be responsible and liable for those costs.

6. Site visit

6.1 The Bidder, at the Bidder‘s own responsibility and risk is encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be
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necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

B. Bidding Documents

7. Content of Bidding Documents

7.1 The set of bidding documents comprises the documents listed in the table below and addenda issued in accordance with Clause 10:

Invitation for Bids Section

1 Instruction to Bidders

2 Forms of Bid and Qualification information

3 Conditions of Contract
4 Contract Data
5 Specifications
6 Drawings
7 Bills of Quantities
8 Forms of Securities

7.2 Bidding documents supplied should be completed and returned with the bid.

8. Clarification of Bidding Documents

8.1 A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing at the employers address indicated in invitation to Bid.

8.2 Pre-bid meeting

8.2.1 The bidder or his official representative is invited to attend a pre-bid meeting,

8.2.2 The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

8.2.3 The bidder is requested to submit any questions in writing or by cable to reach the Employer not later than one day before the pre bid meeting.

8.2.4 Minutes of the meeting, including the text of the questions raised (without identifying the source of enquiry) and the responses given, will be transmitted without delay to all purchasers of the bidding documents. Any modification of the bidding documents listed in Sub-Clause 8.1 which may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause 10 and not through the minutes of the pre-bid meeting.

8.2.5 Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder. However bidder must attend the pre-bid meeting to get the clear understanding about the project requirements.

9. Amendment of Bidding Documents

9.1 Before the deadline for submission of bids, the Employer may modify the bidding documents by issuing addenda.

9.2 Any addendum thus issued shall be part of the bidding documents and shall be communicated in writing to all the purchasers of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum in writing to the Employer.

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9.3 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer shall extend as necessary the deadline for submission of bids, in accordance with Sub-Clause 19.2 below.

C. Preparation of Bids

10. Language of the Bid

10.1 All documents relating to the bid shall be in the English language.

11. Documents comprising the Bid

11.1 The bid submitted by the bidder shall comprise the following:

A. Technical Bid.

(a) Technical Bid documents duly signed on each page with company seal.
(b) EMD, Tender fee;
(c) Priced Bill of Quantities, duly signed on each page with company seal.
(d) Qualification Information Form Documents and company profile.

(e) Copy of pre bid M.O.M. duly signed on each page with company seal.
(f) Bar chart of 45 days to complete the work and handing over of completed work site to the IITM.
And any other materials required be completing and submitting by bidders in accordance with these instructions. The documents listed under Sections 2, 4 and 7 of Sub-Clause 8.1 shall be filled in without exception.

B. Commercial Bid.
Commercial Quote hard copy in duplicate and one soft copy in the form of C.D.

12. Bid Prices
12.1 The contract shall be for the whole works as described in Sub-Clause 1.1, based on the priced Bill Quantities submitted by the Bidder.
12.2 The bidder shall fill in rates and prices and line item total (both in figures and words) for all items of the Works described in the **Bill of Quantities** along with total bid price (both in figures and words). *Items for which no rate or price is entered by the Bidder will not be paid for by the Employer when executed and shall be deemed Covered by the other rates and prices in the Bill of Quantities.* Corrections, if any, Shall be made by crossing out, initialing, dating and rewriting.
12.3 All duties, taxes, and other levies payable by the contractor under the contract, or for any other cause shall be included in the rates, prices and total Bid Price submitted by the Bidder.
12.4 The rates and prices quoted by the bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of Clause 47 of the Conditions of Contract.
12.5 The rates of electrical part of the work shall include guarantee for 2 years for spares and labor, as specified by manufacturer.

13. Currencies of Bid and Payment
13.1 The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees.

14. Bid Validity

14.1 Bids shall remain valid for a period not less than ninety days after the deadline date for bid submission specified in Clause 19. A bid valid for a shorter period shall be rejected by the Employer as non-responsive.
14.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing or by cable. A bidder may refuse the request without forfeiting his bid security.
14.3 Bid evaluation will be based on the bid prices only.

15. Bid Security
15.1 The Bidder shall furnish, as part of his Bid, a Bid security in the amount as shown in column 4 of the table of IFB for this particular work. This bid security shall be in favor of the **DIRECTOR** INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR.HOMI BHABA ROAD, PASHAN, PUNE-411008. and may be in one of the following forms:
- Demand draft/Bank Guarantee from nationalized / scheduled bank located in India in favor of. **DIRECTOR** INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR. HOMI BHABA ROAD, PASHAN, PUNE-411008.

16.2 Bank guarantees issued as surety for the bid shall be valid for 60 days beyond the validity of the bid.
16.3 Any bid not accompanied by an acceptable Bid Security and not secured as indicated

in Sub-Clauses 16.1 and 16.2 above shall be rejected by the Employer as nonresponsive.
16.4 The Bid Security of unsuccessful bidders will be returned after award of work to successful bidder.
16.5 The Bid Security of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.
16.6 The Bid Security may be forfeited
(a) If the Bidder withdraws the Bid after Bid opening during the period of Bid validity;
(b) If the Bidder does not accept the correction of the Bid Price, pursuant to Clause 26; or
(c) In the case of a successful Bidder, if the Bidder fails within the specified time limit to
(i) sign the Agreement; or
(ii) furnish the required Performance Security.

17. Format and Signing of Bid

17.1 The Bidder shall prepare one original and one copy of the documents comprising the bid as described in Clause 12 of these *Instructions to Bidders*, bound with the volume containing the Form of Bid, and clearly marked "**ORIGINAL**" and "**COPY"** as appropriate. In the event of discrepancy between them, the original shall prevail.
17.2 The original and copy of the Bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder, pursuant to Sub-Clauses 4.2. All pages of the bid where entries or amendments have been made shall be initialed by the person or persons signing the bid.

17.3 The Bid shall contain no alterations or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

D. Submission of Bids

18. Sealing and Marking of Bids

18.1 The bid shall be two cover / two part Bid system. Part-I Technical Bid (Volume-1) and Conditions of contract, Contract Data and Forms of Securities (Volume-2) and Part-II Price Bid. Both the parts each in separate sealed cover duly marked Part-I (Cover-1) and Part-II (Cover-2). Both the sealed covers have to be submitted together in a common third sealed cover.
Part-I: - Technical Bid (Volume-1) and Conditions of contract, Contract Data and Forms of Securities (Volume-2).
Part-II:-The Price bid along with Bill of Quantities (Volume-3), Drawings (Volume-4) and Technical specifications (Volume-5).
18.2 The inner and outer envelopes / cover shall

(a) be addressed to the Employer at the following address:

The Director,
Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, NCL post,
Pashan, Pune– 411008 .INDIA so as to reach on or before **22-05-2012 Time 1230hrs** Hours.

(b) bear the following identification:
- Bid for ..... [name of contract]
- Bid Reference No.....[insert number]

- DO NOT OPEN BEFORE.....[time and date for bid opening, per Clause 22]

18.3 In addition to the identification required in Sub-Clause 18.2, the inner envelopes shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared late, pursuant to Clause 20.

18.4 If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the bid.

18.5 Bidder will be supplied with one set of Bid Document the Bidder should treat this as **Original.** One additional copy of the Bid Document will be taken by the Bidder and make this copy as duplicate. The Duplicate copy will also contain one inner and outer cover like the Original.

19 Deadline for Submission of the Bids

19.1 Bids must be received by the Employer at the address specified above. In the event of the specified date for the submission of bids declared a holiday for the Employer, the Bids will be received upto the appointed time on the next working day.

19.2 The Employer may extend the deadline for submission of bids by issuing an amendment in accordance with Clause 10, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.

20. Late Bids

20.1 Any Bid received by the Employer after the deadline prescribed in Clause 20 will not be considered.

21. Modification and Withdrawal of Bids

21.1 Bidders may modify or withdraw their bids by giving notice in writing before the deadline prescribed in Clause 19.

21.2 Each Bidder's modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with Clause 17 & 18, with the outer and inner envelopes additionally marked "**MODIFICATION**" or "**WITHDRAWAL**", as appropriate.

21.3 No bid may be modified after the deadline for submission of Bids.

21.4 Withdrawal or modification of a Bid between the deadline for submission of bids and the expiration of the original period of bid validity specified in Clause 15.1 above or as extended pursuant to Clause 15.2 may result in the forfeiture of the Bid security pursuant to Clause 16

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21.5 Bidders may offer discounts to, or modify the prices of their Bids only by submitting Bid modifications in accordance with this clause, or included in the original Bid submission.

D. Bid Opening and Evaluation

22. Bid Opening

22.1 The Employer will open all the technical Bids received (except those received late), including modifications made pursuant to Clause 21, in the presence of the Bidders or their representatives who choose to attend on 22-05-2012 at 15.00 hours. at Indian Institute of Tropical Metrology, Dr.Homi Bhaba Road, Pashan, Pune-411008 In the event of the specified date of Bid opening being declared a holiday for the Employer, the Bids will be opened at the appointed time and location on the next working day.

22.2 Envelopes marked "**WITHDRAWAL**" shall be opened and read out first. Bids for which an acceptable notice of withdrawal has been submitted pursuant to Clause 21

shall not be opened. Subsequently all envelopes marked —Modification‖ shall be opened and the submissions therein read out in appropriate detail.

22.3 The Bidders' names, the Bid prices, the total amount of Bid, any discounts, Bid modifications and withdrawals, the presence or absence of Bid security, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening. No bid shall be rejected at bid opening except for the late bids pursuant to Clause 20. Bids [and modifications] sent pursuant to Clause 21 that are not opened and read out at bid opening will not be considered for further evaluation regardless of the circumstances.

22.4 The Employer shall prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Sub-Clause 22.3.

23. Process to Be Confidential

23.1 Information relating to the examination, clarification, evaluation, and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any effort by a Bidder to influence the Employer's processing of Bids or award decisions may result in the rejection of his Bid.

24. Clarification of Bids

24.1 To assist in the examination, evaluation, and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his Bid, including breakdowns of the unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids in accordance with Clause 26.

24.2 Subject to sub-clause 24.1, no Bidder shall contact the Employer on any matter relating to its bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, it should do so in writing.

24.3 Any effort by the Bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidders‘ bid.

25. Examination of Bids and Determination of Responsiveness

25.1 Prior to the detailed evaluation of Bids, the Employer will determine whether each Bid (a) meets the eligibility criteria defined in Clause 3; and 4.4 A, (b) has been properly signed; (c) is accompanied by the required securities and; (d) is substantially responsive to the requirements of the Bidding documents.

25.2 A substantially responsive Bid is one which confirms to all the terms, conditions, and specifications of the Bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the Bidding documents, the Employer's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

25.3 If a Bid is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

26. Correction of Errors

26.1 Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:

(a) where there is a discrepancy between the rates in figures and in words, the rate in words will govern; and
(b) where there is a discrepancy between the unit and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.

26.2 The amount stated in the Bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, with the concurrence of the Bidder, shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount the Bid will be rejected, and the Bid security may be forfeited in accordance with Sub-Clause 16.6 (b).

27. Evaluation and Comparison of Bids

27.1 The Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with Clause 25.

27.2 In evaluating the Bids, the Employer will determine for each Bid the evaluated Bid Price by adjusting the Bid Price as follows:
(a) making any correction for errors pursuant to Clause 26; or
(b) making an appropriate adjustments for any other acceptable variations, deviations; and
(c) making appropriate adjustments to reflect discounts or other price modifications offered in accordance with Sub Clause 21.5.

27.3 The Employer reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the Bidding documents or otherwise result in unsolicited benefits for the Employer shall not be taken into account in Bid evaluation.

27.4 The estimated effect of the price adjustment conditions under Clause 47 of the *Conditions of Contract*, during the period of implementation of the Contract, will not be taken into account in Bid evaluation.

27.5 If the Bid of the successful Bidder is seriously unbalanced in relation to the Architect's estimate of the cost of work to be performed under the contract, the Employer may require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analysis, the Employer may require that the amount of the performance security set forth in Clause 31 be increased at the expense of the successful Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.

E. Award of Contract

28. Award Criteria

28.1 Subject to Clause 29, the Employer will award the Contract to the Bidder whose Bid has been determined to be substantially responsive to the Bidding documents and who has offered the lowest evaluated Bid Price, provided that such Bidder has been determined to be (a) eligible in accordance with the provisions of Clause 3, and (b) qualified in accordance with the provisions of Clause 4.

29. Employer's Right to Accept any Bid and to Reject any or all Bids

29.1 Notwithstanding Clause 28, the Employer reserves the right to accept or reject any Bid, and to cancel the Bidding process and reject all Bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or

Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Employer's action.

30. Notification of Award and Signing of Agreement

30.1 The Bidder whose Bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the *Conditions of Contract* called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").

30.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause 31.

30.3 The Agreement will incorporate all agreements between the Employer and the successful Bidder. It will be signed by the successful within 28 days following the notification of award along with the Letter of Acceptance.

30.4 Upon the furnishing by the successful Bidder of the Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful.

31. Performance Security

31.1 Within 7 days of receipt of the Letter of Acceptance, the successful Bidder shall deliver to the Employer a Performance Security in any of the forms given below for an amount equivalent to 5% of the Contract price plus additional security for unbalanced Bids in accordance with Clause 27.5 of ITB and Clause 52 of Conditions of Contract:

- a bank guarantee in the form given in Section 8; or

Demand draft/Bank Guarantee, from nationalized / scheduled bank located in India in favour of **DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008**.**

31.2 Failure of the successful bidder to comply with the requirements of sub-clause 31.1 shall constitute a breach of contract, cause for annulment of the award, forfeiture of the bid security and any such other remedy the Employer may take under the contract, and the Employer may resort to awarding the contract to the next ranked bidder.

32 Advance Payment and Security

32.1 No advance payment will be made.

32.2 Running payment will be made towards completed work up to value of Rs. 20.00 lakhs and above.

33. Corrupt or Fraudulent Practices

33.1 The Employer requires that Bidders, Suppliers, Contractors, and Consultants observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy, the Employer

(a) Defines, for the purposes of this provision, the terms set forth below as follows:

(i) —Corrupt practice‖ means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;

(ii) —Fraudulent practice‖ means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;

(iii) —Collusive practice‖ means a scheme or arrangement between two or more Bidders, with or without the knowledge of the employer, designed to establish bid prices at artificial, non competitive levels.

(iv) —Coercive practice‖ means harming or threatening to harm, directly or indirectly persons or their property to influence their participation in the procurement process or affect the execution of a contract;

(b) Will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the Contract in question;

(c) will have the right to require that a provision be included in Bidding Documents and in contracts requiring Bidders, Suppliers, Contractors to permit
the Employer to inspect their accounts and records and other documents relating to the bid submission and contract performance and to have them audited by auditors appointed by the Employer

34. Penalty Clause:

If the work is not completed within the aforesaid period the contractor shall pay liquidated damage of 1% per week subject to a maximum 10% of value of work order in case of delays beyond the accepted completion period for reasons solely attributed to him.

35. Extra Items

The rate of extra items shall be worked out in accordance with the following rulesa.

The rates for the extra items shall be derived from the rate of an appropriate item of the similar class for which the rate has already been accepted, where same can be directly derived.

b. The contractor shall be bound to carry out any extra items of work as per site requirement. The rate for extra items shall be derived from the rate already quoted. Where the items are not specified in the BOQ the rate shall be worked out at cost of material+labour+10% overheads, wastage and transportation & profit.

c. Wherever applicable the basic rate difference in materials (mentioned in tender) shall be payable plus-minus without any profits, overheads etc., on said rate difference.

d. Variation and Non- Tendered items, if any, shall be carried out under specific written instruction by architects and prior sanction by the Institute. Sanction for all extra items shall be sought by the contractor within seven days from the occurrence of such necessity.

SECTION 2:

FORMS OF BID, QUALIFICATION INFORMATION AND LETTER OF ACCEPTANCE

Table of Forms:

Contractor's Bid

NAME OF WORK: **Proposed Laboratory Building and Guest House at Indian Institute of Tropical Meteorology, Rajinder Nagar, New Delhi, India.**

To : The Director,
Address : INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR.HOMI BHABA ROAD, PASHAN, PUNE-411008.

Sir,
Having examined the bidding documents including addendum, we offer to execute the Works
Described above in accordance with the Conditions of Contract, Specifications, Drawings and Bill of Quantities accompanying this Bid.

This Bid and your written acceptance of it shall constitute a binding contract between us. We understand that you are not bound to accept the lowest or any Bid you receive.
We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

We also undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely —Prevention of Corruption Act 1988‖.

We hereby confirm that this Bid complies with the Eligibility, Bid Validity and Bid Security required by the Bidding documents.

Yours faithfully,

Authorized Signature:
Name & Title of Signatory:
Name of Bidder:

Qualification Information

The information to be filled in by the Bidder in the following pages will be used for purposes of qualification criteria as provided for in Clause 4 of the Instructions to Bidders. This information will not be incorporated in the Contract.

To be eligible for Qualification, BIDDERS shall provide evidence to suitability of their meeting the Criteria indicated in Clause 4.0 and furnish details giving their full bio-data, organizational set up, technical experience, availability of plant and equipments etc. to establish their capacity and competence, and possession of adequate resources to carry out the contracts effectively and for this, the BIDS submitted shall include the following:**(•)**

1 Letter of tender ; as in Appendix A

2. **For Individual Bidders**

2.1 Constitution or legal status of Bidder
Information shall be submitted in the **Statement –A attached** separately

2.2 Total value of Interior Engineering construction work executed and payments received in the last three years (in Rs. Crores)
2009-2010_____
2010-2011_____
2011-2012_____

2.3.1 Year wise work performed as prime contractor (in the same name) on works of a similar nature over the last five years. •• Information shall be submitted in the **Statement –D attached** separately

•*Attach certificate(s) from the Employer*

•• *Immediately preceding the financial year in which bids are received.*
Attach certificate from Chartered Accountant.

2.4 Information on Bid Capacity (works for which bids have been submitted and works which are yet to be completed) as on the date of this bid.
(A) Existing commitments and on-going works:
Information shall be submitted in the **Statement–E** attached separately.

(B) Works for which bids already submitted but yet to be finalized. Information to be given
in the statement given below.

Description of Work (1)	Place& State (2)	Name and Address of Employer* (3)	Estimated value of works (Rs. Crores) (4)	Stipulated period of completion (5)	Date when decision is expected (6)	Remarks if any (7)

***** *Attach certificate(s) from the Employer*.

2.5 Information of Contractor's Equipment, available Plant and Machinery is essential for carrying out the Works. The Bidder should list all the information requested below. Refer also to Sub Clause 4.2 (d) of the Instructions to Bidders.
Information shall be submitted in the **Statement –F** attached separately

2.6 Qualifications and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data. Refer also to Sub Clause 4.2 (e) and 4.4 (B) (b) of instructions to Bidders and Sub Clause 9.1 of the Conditions of Contract. Information shall be submitted in the **Statement –B** attached separately

2.7 Proposed subcontracts and firms involved. [Refer ITB Clause 4.2 (j)] Information to be given in the statement given below.

Sr. No.	Sections of the works	Value of Sub-contractor	Sub-contractor (name and address)	Experience in similar work

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2.8 Financial reports for the last five years: balance sheets, profit and loss statements, auditors' reports (in case of companies/corporation), etc
Information shall be submitted in the **Statement –C** attached separately

2.9 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List them below and attach copies of support documents *[sample format attached]*.

2.10. Name, address, and telephone, telex, and fax numbers of the Bidders' bankers who may provide references if contacted by the Employer.

2.11 Information on litigation history in which the Bidder is involved. Information shall be submitted in the **Statement –H attached** separately

2.12 Details of termination of contract by previous client if any in last five years
Information shall be submitted in the **Statement –G attached** separately

2.13 Statement of compliance under the requirements of Sub Clause 3.2 of the Instructions to Bidders.

2.14 Proposed work method and schedule. The Bidder should attach descriptions, drawings and charts as necessary to comply with the requirements of the Bidding documents. [Refer ITB Clause 4.1 and 4.2 (k)].

3.0 Additional Requirements

3.1 Bidders should provide any additional information required to fulfill the requirements of Clause 4 of the Instructions to the Bidders, if applicable.

3.2 Certificates in support of suitability, technical know-how and capability for having successfully completed the works during the last five years under Annexure ‗A'.

3.3 A detailed description on the approach, methodology to the construction technology proposed, schedule and type of equipment to be used, names and responsibilities and
detailed qualifications of the proposed subcontractors, if any etc.

3.4. A detailed description of any method of approach specially devised by the contractor to speed up the work.

3.5 Current solvency certificate or letter of support from the BIDDER'S Banker for an amount of Rs 30 Lakhs, not older than three months from the last date of submission of Bid.

3.6 Details of cases of having been barred or black listed from the Bidding process, if any. Black-listed Agencies' Tender is liable to be rejected.

3.7 The tender should be submitted in English only. Supporting documents such as Annual accounts, Balance sheets, Client's certifications, Testimonials etc., if attached in any
other language, should be translated in English.

4.0 The BIDDERS must provide evidence of having adequate experience. This should include supporting certificates of reports relating to financial, technical and other capability of the BIDDERS. At least three certificates to be produced.
5.0 The BIDDERS for qualification shall provide all facilities to **THE DIRECTOR,** INDIAN
INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008. for verification of the information / details furnished by them and also for inspection of their works carried out / in progress if requested.

6.0 Nature of Submissions:

1. The submissions from the BIDDER in response to the Clause-4 shall be in the form of a statement signed by the authorized signatory on behalf of the BIDDER, who shall hold the Power of Attorney to sign such documents. The Power of Attorney documents shall also be attached.

Note : 1) **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 or his authorised representatives reserves the right to verify any part of the information furnished by the BIDDER in the above statements without any prejudice to the terms and conditions of the Contract. The BIDDER is deemed to have given his consent for the right of verification by the **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 or his authorised representative when the BIDDER submits the above statements.
If it comes to the notice of **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 that the BIDDER has suppressed any information or furnished misleading or inaccurate information, or in case whether any litigation currently in progress at the time of submission of BIDS lead to the decree by the Court of Law against the BIDDER, the **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 reserves the right to nullify the Qualification and to disqualify the BIDDER. If such information becomes available to **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 prior to issue of Letter of Intent, the BIDDER will be disqualified and will not be considered for award of work. If such information comes to the knowledge of the Client after

the award of work, **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 of the BIDDER and such action would include but not Ltd to forfeiture of all deposits, guarantees etc. furnished in any form. **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 will also reserve the right to recover any Retention Money, Mobilisation Advance paid by invoking of Bank Guarantees submitted, including invoking of the Performance Bond.

The entire work executed upto the stage of such termination including materials procured and delivered at site will be taken over by **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 and adjusted towards any payment due, as per contract conditions **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 can thereafter arrange for a bidding process for completion of the balance works, for which any additional financial burden to be met by **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 will also be recovered from the Contractor, who has been terminated, without prejudice to the other rights of **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 under the Contract.

7.0 PARTICULAR ATTENTION

7.1 Employer reserves its rights to disqualify any BIDDER if:

- The BIDDERS have made untrue or false representation in the forms, statements and attachments submitted in proof of the qualification and requirements ;
- The BIDDER's track record of poor performance such as abandoning the work, not properly completing the contract, inordinate delays in completion or financial failures etc.
- The BIDDERS have suits lodged / admitted / pending against it in a Court of Law for proceedings for declaration of Bankruptcy, etc or any suit which challenges the basic existence of the BIDDER and substantially influences its capacity to implement the **Works** satisfactorily. Information on the legal matters is to be submitted as per

Statement-I.

- The BIDDER shall unconditionally waive all rights in respect of challenging in any court
  any matter concerning this BID evaluation and award/termination of Contract. The aggrieved bidder can approach **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METEOROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 for their appeal against any order.

8.0 FINAL DECISION MAKING AUTHORITY

8.1 The main criteria for the selection of Contractors for the work will be on the consideration of their ability to fulfill their obligations under the contract. and

competence to do good quality works within specified time schedule resources committed, evaluation of technical submission etc. in addition to consideration given for competitiveness of bid price.

8.2 Selection for qualification will be made by a Tender evaluation committee on the basis of competence of individual bidders.

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8.3 The DIRECTOR, INDIAN INSTITUTE OF TROPICAL METROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 reserves the right to accept or reject any Bid or to reduce the scope/ cancel the exercise without having to incur any cost or to assign any reason for its decision to any party whatsoever and **The DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 decision on qualifying contractors will be final and binding on all the contractors.

APENDIX – A

LETTER OF TENDER

Date:
To
The Director,
Indian Institute of Tropical Metrology,
Dr.HomiBhaba Road,
Pashan, Pune.

Sir,

Sub: Submission of Bid For PROPOSED LABORATORY BUILDING AND GUEST HOUSE AT INDIAN INSTITUTE OF TROPICAL METROLOGY, RAJINDER NAGAR, NEW DELHI.

1 I / We ……..having examined the details given in the Invitation to BIDDERS, we hereby submit the following information and relevant documents.

a I/We hereby certify that all the statements, information and data provided in the enclosed Statements A to G. and accompanying sheets are true and correct to the best of my / our knowledge.

B I/We ……. have read the instructions appended with the qualification document and I/We understand that any contract made between ourselves and **THE DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 on the basis of the information given by me / us is liable to be cancelled if any false information is detected at a later date.

c I/We ……..have also no objection if enquiries are made on all the projects and works listed by me / us in the accompanying sheets or any other enquiry on the information furnished herewith in the accompanying sheets.

d I/We have furnished all information and details as asked for and have no further pertinent information to provide.

E I/We submit the requisite certified solvency certificate and authorize **THE DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 to approach the Bank issuing the solvency certificate to verify the correctness thereof. I/We also authorize **THE DIRECTOR,** INDIAN INSTITUTE OF TROPICALMETROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 to approach individuals, employers, companies, and corporation to verify my / our competency and general reputation.

F I/We submit in Annexure ‗A' the certificates in support of my / our suitability, technical know-how and capability for having successfully completed the works during the last five years.

g I/We also agree that the decision of **THE DIRECTOR,** INDIAN INSTITUTE OF TROPICALMETROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 in the Qualification and selection of Contractors will be final and binding upon me / us.

H I/We agree that **THE DIRECTOR,** INDIAN INSTITUTE OF TROPICAL METROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008 reserves the right to qualify any contractor or to cancel the exercise without assigning any reason for doing so or to incur any liability to any party whatsoever.

I I/We agree not to withdraw from the contract after issue of LOI and before signing the agreement. If so we abide by the condition that liquidated damages shall be claimed against us by THE DIRECTOR, INDIAN INSTITUTE OF TROPICAL METROLOGY,DR.HOMIBHABA ROAD,PASHAN,PUNE-411008

j The following are enclosures to the letter of tender

1. Certificate of Incorporation from Registrar of Companies
2. Memorandum of Association
3 Annual Report / Audited Balance Sheet & Profit and Loss Statement for the past5 years
4. Solvency Certificate from Bankers for the value of Rs ------ LAKHS, current and dated not earlier than three months from the last date of submission of bid.
5. Support Certificate from Bankers for Credit facilities available and cash flow of Rs ------- LAKHS per month.
6. Proof of filing Income Tax returns for the previous three years.
7. Sales Tax /Works Contract Tax / VAT / PAN Registration and Clearance certificate.
8. PERT/BAR Charts and quality Formats used at site such as pour card for Concrete etc.,
9. Testimonials from Clients / Consultants for completion of works included in Statement -D
10 LOI / Work Order issued by the Clients for ongoing works included in Statement _E‘
11. Organization Chart of Company showing the Officer in-Charge who will have direct link with and control of, site organization.
12. Organization Chart and Curriculum Vitae of top two officers, viz, .Project Manager and Coordinator.
13. Method Statement : Programming & Planning and Progress monitoring plan, weekly and monthly ; Management of direct subcontractors from selection through execution of work; Coordination with Specialist contractors like Electrical, Air-conditioning, lifts etc. ;Quality control & quality Assurance at site; Safety Plan;
14. Statements _A _ to _H _ with complete details., and any certificates other than that listed above.

I / we hereby agree to abide by the decisions of The Director, INDIAN INSTITUTE OF TROPICAL METROLOGY,DR.HOMI BHABA ROAD,PASHAN,PUNE-411008. in all matters relating to this Qualification

Date of Submission **Signature of BIDDER with Official Seal**

SAMPLE FORMAT FOR EVIDENCE OF ACCESS TO OR AVAILABILITY OF CREDIT FACILITIES –CLAUSE 4.5 [B] [c] OF ITB

BANK CERTIFICATE

This is to certify that M/s. …… is a reputed company with a good financial
Standing. If the contract for the work, namely
……. is awarded to the above firm, we shall be able to provide overdraft/credit facilities to the extent of Rs. to meet their working capital requirements for executing the above contract.

__ Sd. __

Name of Bank
Senior Bank Manager
Address of the Bank

STATEMENT – A

ORGANISATION STRUCTURE (BIDDER)

S.No	Details required	To be filled by the Bidder
1	Name of the Bidder's Company	
2	Nationality of Bidder	
3	Establishment of the Company	
	i) Year	
	ii) Location	
4.	The Bidder is a company (Please enclose attested copy of registration / incorporation under appropriate laws of the Bidder‘s country)	Yes / No Enclosed/ Not enclosed
5	Address of the Bidder :	
i)	Registered Office Address Telephone Number Fax Number E-mail Address Web site	
ii)	Local office address: Telephone Number Fax Number E-mail Address	
iii)	Office address through which this work will be handled and name of officer in-charge. Telephone Number Fax Number E-mail Address	
iv)	The Bidder has to furnish a detailed note on how it will handle the project in India, if successful bidder, in terms of (i) Finance,	

	(ii) Manpower, (iii) Tools & equipment, (iv) Use of local agencies and labour, (v) Project control and management plan	
6	Details of the Board of Directors i) Name of the Director ii) Qualification iii) Organization iv) Office address v) Telephone Number vi) Fax Number vii) E-mail Address	
7	Enclose Company's Organization Chart showing the structure of the organization including the names of the Directors / Chief Executive Officer and position of Officers.	Enclosed / Not Enclosed
8	Number of years of experience and other Details.	
a.	As a Principal Contractor (Contractor shouldering major responsibility)	Yes / No
	i. In own country	Yes / No No. of Years :
	ii. Other countries (If yes, pl. specify country)	Yes / No No. of Years : Country :
9	Average number of permanent employees in the last 12 months .	
	i) Managerial	Nos.
	ii) Technical iii) Administration	Nos. Nos.
	iv) Financial	Nos.
	v) Quality Control and Quality Assurance Engineer	Nos.
	vi) Safety Officer	Nos.

	vii) Industrial Relations Officer	Nos.
	viii) Supervisors	Nos.
	ix) Foreman	Nos.
	x) Skilled Labours	Nos.
	xi) Un Skilled Labours	Nos.
	xiii) Others (to specify)	1. Nos. 2. Nos. 3. Nos.
10	i) How many years has your Company been in business of similar work under its present name & address.	.....Years
	ii) What were your fields of activities from when your Company was established?	1. 2. 3.
	iii) Whether any new fields were added in your Company? and if so, when and in what fields?	1. 2. 3.
11	Area of business activities other than construction works, if any. (If yes please furnish specific information).	Yes / No
12	In which fields of Interior engineering works do you claim specialization and interest?	1. 2. 3.
13	Whether registered with any Government / Public Sector Undertaking / Local bodies like CPWD / MES / PWD or equivalent applicable in the Bidder's country. If yes, please furnish details class and type of Registration.	1. 2.Yes / No. 3.

14	Registration Details : i) Sales Tax Registration No or equivalent applicable in the Bidder's country & Valid up to ii) PF Registration No or equivalent applicable in the Bidder's country & Valid up to iii) ESI Registration No or equivalent applicable in the Bidder's country & Valid up to iv) Service Tax registration No or equivalent applicable in the Bidder's country & Valid up to	
15	Whether adequate and satisfactory evidence to indicate financial capacity of the organization to undertake the said construction work is enclosed.	Yes / No
16	Do you have plans for sub-contracting the work including specialised nature of building / infrastructure works? If yes, pl specify the quantum of contract in terms of percentage of works. Also, pl furnish the value of work sub-contracted in various works. Details of credentials of the subcontractors proving their ability to handle the component of this project.	Yes / No % Rs.....
17	Do you have Latest Survey instruments and Equipment to set out levels at any heights and all type of Special structures?	Yes / No If yes mention the name of equipment and the quantity possess.
18	Do you material in stock? If yes, pl. furnish details of your own plant. If no, please specify name of manufacturer for sourcing and the dependency of the manufacture	Yes / No

	by the Bidder.	
19	Do you have R & D department?. If yes, give details.	Yes / No
20	i) Do you have and adopt Quality Control and Quality Assurance Manual?	Yes / No Enclose QA Plan
	ii) Is your company an ISO certified Company? If yes, please furnish the ISO certification no.	Yes / No
	iii) Do you follow Quality Assurance System as per the appropriate ISO series of standards?	Yes / No
21	i) Do you have and follow Safety Manual? If yes, please give details of health and safety facilities available with you.	Yes / No Enclose Environmental Health and Safety Plan.
	ii) Was there any major, fatal accident during execution in the last five years? If yes, furnish Details.	Yes / No
	iii) Whether corrective action taken immediately and first-aid facilities provided in the site?	Yes / No
22	Propose Methodology:	Enclose Statement
	i) Whether the Programming and planning plan will be prepared in the form of Pert Chart or Bar Chart?	Yes / No
	ii) Whether the coordination plan & report plan will be prepared in the standard format?	Yes / No
	iii) Whether the technically qualified Sub-Contractors are engaged to carryout the work?	Yes / No
	iv) Please specify method for control and management of Sub-Contractors.	
23	Were you ever required to suspend work	Yes / No.

	for a period of more than three months continuously after you started? If yes, Please furnish the name of project and reasons thereof.	1. Name of Project : Reasons 2. Name of Project : Reasons
24	Have you ever left the work awarded to you incomplete? If yes, Please furnish the name of project and reasons thereof.	Yes / No. 1. Name of Project : Reasons 2. Name of Project : Reasons
25	Were any penalties imposed for delays on the completion of the project? If yes, Please furnish the name of project and reasons thereof	Yes / No. 1. Name of Project : Reasons 2. Name of Project : Reasons
26	Were there any termination of Contracts by the Employer? If yes, please furnish the details	Yes / No. 1. Name of Project : Reasons 2. Name of Project : Reasons.
27	Litigation initiated by the Company and against the Company if any?	
	i) Whether cases of litigation proceedings have arisen in your projects during the last three financial years?	Yes / No
	ii) If Yes, How many cases of litigation arisen during the last three financial years?	Nos.
	iii) Furnish the details of the highest claim of Litigation during the last three financial years	. Rs.
	iv) If the Bidder is a multinational company, please furnish the litigation history initiated by the Company and against the company in India, if any	

28	Arbitration :	
	i) Whether cases of arbitration proceedings have arisen in your projects during the last three years?	Yes / No
	ii) If Yes, How many cases of arbitration arisen during the last three years. Furnish name of work, name of the Client, cost of work, amount of claim.	Nos.
	iii) Furnish the details of the highest claim of arbitration during the last three years.	Rs.
29	Details of the Banker	
	Name of the Banker	
	Contact person	
	Office Address	
	Telephone Number	
	Fax Number	
30	Are you a Recipient of any Award in appreciation of your work? If yes, please furnish the details	Yes / No
31	Please give atleast three references of Clients (Engineers, Architects or top Officials of Organisation) for whom you may have executed construction works of importance and similar nature from whom Superintending, Engineer, P.W.D, Building (Construction & Maintenance)Circle can verify	1) Name : Designation : Company : 2) Name : Designation : Company : 3) Name : Designation : Company :
32	Any special information, which you may like to provide.	

Place : **Signature of the Bidder**

Date : **Common seal of the Company**

STATEMENT-B

PERSONNEL TO BE DEPLOYED FOR THE PROJECT

S.No.	Details required	To be filled by Bidder
A	**Managerial Level – General**	
1	Individual's Name	
2	Age	
3	Qualification	
4	Present position	
5	Professional experience in the similar nature of works.	
6	Years with the Bidder	
7	Language known	
8	Name two recent works and nature of involvement of the person	
B	**Managerial Level – Technical**	
1	Individual's Name	
2	Age	
3	Qualification	
4	Present position	
5	Professional experience in the similar nature of works.	
6	Years with the Bidder	
7	Language known	
8	Name two recent works and nature of involvement of the person	
C	**Managerial Level - Administration & Finance**	
1	Individual's Name	
2	Age	
3	Qualification	
4	Present position	
5	Professional experience in the similar nature of works.	
6	Years with the Bidder	

7	Language known	
8	Name two recent works and nature of involvement of the person	
D	**Managerial Level - Quality Control and Quality Assurance**	
1	Individual‘s Name	
2	Age	
3	Qualification	
4	Present position	
5	Professional experience in the similar nature of works.	
6	Years with the Bidder	
7	Language known	
8	Name two recent works and nature of involvement of the person	
E	**Managerial Level - Safety Officer & Industrial Relation Officer**	
1	Individual‘s Name	
2	Age	
3	Qualification	
4	Present position	
5	Professional experience in the similar nature of works.	
6	Years with the Bidder	
7	Language known	
8	Name two recent works and nature of involvement of the person	
F	**Managerial Level – Planning**	
1	Individual‘s Name	
2	Age	
3	Qualification	
4	Present position	
5	Professional experience in the similar nature of works.	
6	Years with the Bidder	
7	Language known	
8	Name two recent works and nature of involvement of the person	

Note

1) CV of each of the above key personnel and details of their experience should be included in the submission.

2) Organization Chart (both office and site) specific for this project for all the divisions of work (Main works & Direct Sub works) as an Annexure to this format must be attached.

Place :

Signature of the Bidder

Date :

Common seal of the Company

STATEMENT-C

Financial Information

S. No	Description	Details to be filled in by Bidder
A	Annual Turnover in the last five financial years (In INR crores)	
1	Year : April 2009 - to March 2010	
2	Year : April 2010 - to March 2011	
3	Year : April 2011 - to March 2012	
B	Financial Information (In INR Crores)	
I	Year : April 2009 - to March 2010	
	a. Total assets	
	b. Current assets	
	c. Total Liabilities	
	d. Current Liabilities	
	e. Profits before taxes	
	f. Profits after taxes	
	g. Net worth	
	h. Working Capital	
II	Year : April 2010 - to March 2011	
	a. Total assets	
	b. Current assets	
	c. Total Liabilities	
	d. Current Liabilities	
	e. Profits before taxes	
	f. Profits after taxes	

	g. Net worth	
	h. Working Capital	
III	Year : April 2011 - to March 2012	
	a. Total assets	
	b. Current assets	
	c. Total Liabilities	
	d. Current Liabilities	
	e. Profits before taxes	
	f. Profits after taxes	
	g. Net worth	
	h. Working Capital	
C	Solvency Certificate (in INR Crores) a. Name of Banker with address	
	b. Date of Certificate	
	c. Amount	
D	Credit facilities available to Bidder – Fund and non-fund based such as Cash Credit, Working capital term loans, LCs and Bank Guarantees - Banker's or Bankers' Letter must be produced - (In INR Crores)	
	a. Name of Banker with address	
	b. Date of Letter of Support	
	c. Amount	
E	Bidder's Financial resources for this project	
	a. Own resources	
	b. Banker's or Bankers' credits	
F	a. Approximate total value of on-going works	
	b. Total Value of works to be completed as of now	

	Note: 1) The Bidder should furnish the value of work to be completed as of now along with break-up details of each work. 2) The Bidder has to ensure that the list of works covered in this Proforma should be same as the ones listed in STATEMENT - E (List & details of Ongoing works) with Performa of each work.	
G.	Anticipated total value of new works for the next financial year.	

Place : Signature of Bidder

Official Seal

Date :

Note: Balance sheet, Profit and loss statement, auditor's report etc. duly signed by
Charted Accountant is required to be attached separately

STATEMENT-D

Details of completed works in last five years

S.No	Details required	To be filled by the Bidder
1	Name of work	
2	Country and location	
3	Client's name and address	Name: Address :
4	Consultants name and address.	Name: Address :
5	Total tendered cost of work Agreement No. Date	INR ..... Crores Agreement No: Date :
6	Total actual cost of work after completion.	INR ..... Crores
7	Excess / less in percentage.	.....%

8	Explain if Excess / less is higher by 20% of the tendered cost of work.	
9	Date of commencement	
10	Period of completion	
11	Stipulated date of completion	
12	Actual date of completion	
13	Extended by the contractor, if any. Reason for non-completion of work in stipulated time limit / extended time limit, if so furnish details	Yes / No
14	Extension of time granted by the Client, if any. If yes, please specify the reason for extension of time.	Yes / No
15	Brief description of works including principal features and quantities of main items of the work	
16	Name of Contractor's Engineer in-charge of the Project & Qualifications	Name : Qualification :
17	Details of specialised work executed under this Contract.	
18	Details of specialised work executed by their own divisions under the Contract	
19	Whether the Programming and planning plan was followed in the form of Pert Chart or Bar Chart?	Yes / No
20	Whether the Quality Control and Quality Assurance function was carried out? If yes, Please give details and copies of quality formats used in anyone project	Yes / No
21	Whether the safety measures were followed? If yes, Please give details	Yes / No
22	i) Were there any labour strikes? If yes, Please give details.	Yes / No
	Whether corrective action taken immediately?	Yes / No
23	Were there any penalties / fines / stop notice / compensation / liquidated damages imposed during execution of the project?	Yes / No Amount :

	If Yes, Please give amount, details and reason.	Reason :
24	Whether the contract of the work was terminated? If Yes, furnish the details.	Yes / No Name of the Project : Reason :
25	Please specify the details of litigation / arbitration cases, if any, pertaining to works completed. If Yes, furnish the details i.e. Nature of litigation / arbitration. Please furnish whether the litigation is initiated by the Company or against the Company.	Yes / No
26	Attach client's certificate, as may be available (Not below the rank of Director or equivalent)	Yes / No

Date:

Signature of Bidder

Place :

Official Seal

STATEMENT-E

Details of On-Going works

S.No	Details required	To Be filled by the Bidder
1	Name of work	
2	Country and location	
3	Client's name and address	Name : Address :
4	Consultants name and address	Name : Address :
5	Total tendered cost of work (Agreement No. and Date)	INR ..... Crores
6	(a) Brief description of works including principal features and quantities of main items of the work.	

7	i) Percentage of physical completion	
	ii) Amount billed for the work completed.	
	iii) Cost of work remaining to be executed as on the date of submission	
	iv) Stipulated date of completion	
	v) Anticipated date of completion	
8	Name of Contractor's Engineer in-charge of the Project & Qualifications.	Name : Qualification :
9	Details of specialised works under this Contract	
10	Specialised works being executed by their own divisions	
11	a. Details of the sub-contracted specialised works by the Bidder	
	i) Total value of work sub-contracted.	INR …….. Crores
	ii) Trade-wise value of work sub-contracted.	1.INR…….. Crores 2.INR…….. Crores. 3.INR…….. Crores. 4.INR …….. Crores.
	iii) Trade-wise Name of sub-contractors Use separate sheet for details of such subcontractors experience, capability, testimonial.	1. 2. 3. 4.
12	15 i) Were there any labour strikes? If yes, Please give details.	Yes / No
	ii) Whether corrective action taken immediately?	Yes / No
13	Were there any penalties / fines / stop notice / compensation / liquidated damages imposed? If Yes, Please give amount, details and reason.	Yes / No Amount :

		Reason :
14	Please specify the details of litigation / arbitration cases, if any, pertaining to works ongoing	Yes / No
15	Attach client's certificate, as may be available (Not below the rank of Director or equivalent)	Yes / No

Place : **Signature of the Bidder**

Date : **Official seal**

STATEMENT- F

A - PLANT, MACHINERY & EQUIPMENT

S.No.	Item of Equipment	Qty	Equipment Information				Current Position			Source of the equipment t. Pl. mention Owned / Leased / Rental
			Name of Manufacturer	Make & Model	Capacity	Year of Manufacture	Location n	Present Condition	Availability for this Project	
1										
2										
3										
4										
5										
6										
7										
8										
9										

10										
11										
12										
13										

B – Details of manpower like carpenters, false ceiling agency, Electrical agency, etc. If the Machinery, Equipments, Plants etc are leased or rental attach copy of agreement

Place : **Signature of the Bidder**

Date : **Common seal of the Company**

STATEMENT-G

Details of Termination of contract by previous Client in the past, if any

S.No.	Particulars	To Be filled by the Bidder
1	Name of works	
2	Name of the Client	
3	Value of Contract in INR Crores	
4	Period of Contract	
5	Terminated at what stage	
6	Reasons / grounds for termination	

7	Approx. value of work completed at the time of termination in INR Crores	
8	Approx. value of balance work not completed in INR Crores	
9	Remarks	

Place :

Date :

STATEMENT- H

STATUS OF CURRENT LITIGATIONS, IF ANY

The Bidder is required to disclose as part of bid submission all cases filed against the BIDDER in any Court of Law in any country. The BIDDER shall give the information in the following format in separate sheets for each litigation as applicable:

I General Information

(1) Name of the Petitioner :

(2) Name of the Court in which case has been admitted.

(3) Name / designation of the Presiding Authority of the Court

(4) Date of Filing of the case and date of Admittance of the case.

(5) Expected date of next hearing :

(6) Has hearing already commenced? If so, when was the last hearing?

(7) Name & Address of the BIDDER'S Counsel

(8) Name & Address of the Petitioner's Counsel

(9) Current status of the litigation – Whether any interim injunction or injunction award has been given. If so, give the details?

(10) Has any appeal been filed against any interim injunction or such award?

(11) Value of litigation / damages claimed / out standings and disputes, as per the Petitioner

(12) Any arrest warrant or any property attachment or any insolvency proceedings or any such decree issued against the BIDDER? Give the details.

II. Financial Value of Dispute / Claim / Damages:

The BIDDER should furnish the sum total of claims / damages involved, on account of the litigations currently in operation.

III. Net Worth:

The BIDDERS shall furnish the percentage of the total sum of disputes / litigations / claim, currently under litigation in proportion to the average net worth of the Company for the last three years.

STATEMENT-I

IV. BIDDER'S Legal Status on account of the Litigation :

The BIDDERS shall furnish information whether the litigation in question affects /

threatens the fundamental existence / operation of the company (For E.g.: insolvency, decree of criminal nature etc.)

ANNEXURE – 'A'
CERTIFICATES

Enclose Certificates in support of suitability, technical knowhow and capability for having
successfully completed similar nature of works in the last five years.

Also furnish the following details in the enclosed certificate.

S.No	Name of Works	Period of Construction	Name of Client / Owner.

.

Place : **Signature of the Bidder**

Date : **Common seal of the Company**

Letter of Acceptance

(letterhead paper of the Employer)

_____[date]

To:

_____
[name and address of the Contractor]

Dear Sirs,

This is to notify you that your Bid dated _____ for execution of the _____ [name of the
contract and identification number, as given in the Instructions to Bidders] for the Contract
Price of Rupees ———————— _____
(_____) [amount in words and figures], as corrected and modified in accordance
with the Instructions to Bidders1 is hereby accepted by our Agency.

We accept/do not accept that _____ be appointed as the Adjudicator2.

We note that as per bid, you do not intend to subcontract any component of work.
[OR]

We note that as per bid, you propose to employ M/s. ..... as
sub-contractor for executing ….....

[Delete whichever is not applicable]

You are hereby requested to furnish Performance Security, plus additional security for unbalanced bids in terms of ITB clause 27.5, in the form detailed in Para 31.1 of
ITB for an amount of Rs.———— within 21 days of the receipt of this letter of acceptance
valid up to 28 days from the date of expiry of Defects Liability Period i.e. up to ..... and
sign the contract, failing which action as stated in Para 31.2 of ITB will be taken.
We have reviewed the construction methodology submitted by you along with the bid in
response to ITB Clause 4.2[k] and our comments are given in the attachment. You are
requested to submit a revised Program including environmental management plan as per
Clause 27 of General Conditions of Contract within 14 days of receipt of this letter.

Yours faithfully,

Authorized Signature
Name and Title of Signatory

Name of Agency

1 Delete "corrected and" or "and modified" if only one of these actions applies. Delete "as
corrected and modified in accordance with the Instructions to Bidders" if corrections or
modifications have not been effected.
2 To be used only if the Contractor disagrees in his Bid with the Adjudicator proposed by
the Employer in the "Instructions to Bidders."

Issue of Notice to proceed with the work

(letterhead of the Employer)

———— (date)

To

———————————— (name and address of the Contractor)
————————————
————————————

Dear Sirs:

Pursuant to your furnishing the requisite security as stipulated in ITB clause 31.1 and
signing of the contract agreement for the construction of ———————— @ a Bid Price of Rs.—
————, you are hereby instructed to proceed with the execution of the said works in
accordance with the contract documents.

Yours faithfully,

(Signature, name and
title of signatory
authorized to sign on
behalf of Employer).

Agreement Form

Agreement

This agreement, made the _____ day of _____19_____,
between_____[name and address of Employer]
(hereinafter called —the Employer)‖ of the one part and
_____[name and address of contractor]
(hereinafter called
—the Contractor‖) of the other part.

Whereas the Employer is desirous that the Contractor execute Proposed Laboratory building and Guest House At Indian Institute of Tropical Metrology, Rajinder Nagar, New Delhi. [name and identification number of Contract] (Hereinafter called —the Works‖) and the Employer has accepted the Bid by the Contractor for the execution and
completion of such Works and the remedying of any defects therein, at a contract price of
Rs.....

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and
they shall be deemed to form and be read and construed as part of this Agreement.

2. In consideration of the payments to be made by the Employer to the Contractor as

hereinafter mentioned, the Contractor hereby covenants with the Employer to execute
and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the Contract.

3. The Employer hereby covenants to pay the Contractor in consideration of the execution
and completion of the Works and the remedying the defects wherein the Contract Price
or such other sum as may become payable under the provisions of the Contract at the
times and in the manner prescribed by the Contract.

4. The following documents shall be deemed to form and be read and construed as part of
this Agreement, viz.:

i) Letter of Acceptance;
ii) Notice to proceed with the works;
iii) Contractor‘s Bid;
iv) Contract Data;
v) Conditions of contract (including Special Conditions of Contract);
vi) Specifications;
vii) Drawings;

.

viii) Bill of Quantities; and
ix) Any other document listed in the Contract Data as forming part of the contract.

In witness whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The Common Seal of

_____
was hereunto affixed in the presence of:

Signed, Sealed and Delivered by the said

_____
in the presence of:

Binding Signature of Employer

_____ ___

Binding Signature of Contractor

Conditions of Contract
&
Contract Data

Conditions of Contract

A. General
B.

1. Definitions

1.1 Terms which are defined in the Contract Data are not defined in the Conditions of Contract but keep their defined meanings. Capital initials are used to identify defined terms.

The **Adjudicator** is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in Clauses 24 and 25. The name of the Adjudicator is defined in the Contract Data.

Bill of Quantities means the priced and completed **Bill of Quantities** forming part of the Bid.

Compensation Events are those defined in Clause 44 hereunder.

The **Completion Date** is the date of completion of the Works as certified by the Engineer in accordance with Sub Clause 55.1.

The **Contract** is the contract between the Employer and the Contractor to execute, complete and maintain the Works. It consists of the documents listed in Clause 2.3 below.

The **Contract Data** defines the documents and other information which comprise the Contract.

The **Contractor** is a person or corporate body who's Bid to carry out the Works has been accepted by the Employer.

The **Contractor's Bid** is the completed Bidding document submitted by the Contractor to the Employer.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; **months** are calendar months.

A Defect is any part of the Works not completed in accordance with the Contract.

Defects Liability Period is the period named in the Contract Data and calculated from the Completion Date.

The **Employer** is the party who will employ the Contractor to carry out the Works. In this contract The Managing Director, Indian Institute of Tropical Meteorology, Dr. HomiBhabha Road, NCL post, Pashan ,Pune. is the Employer

The **Architect** shall mean the Consultants engaged by the Employer. In this case
Virender Sharma & Associates, A-3/205A, Janakpuri, New Delhi- 110058.

Contractor's Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The Initial Contract Price is the Contract Price listed in the Employer's Letter of Acceptance.

Drawings means the employer's drawings of the works included in the contract and any variations to such drawings given by an Architect.

Party means either employer or contractor.

Country means the country in which the site is located.

Employer's Liabilities means those mentioned in sub clause 11.1.

Force Majeure means an exceptional events or circumstance which is beyond a Party's control, which such Party could not reasonably have provided against before entering in to the contract; which, having arison, such party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other party.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Engineer by issuing an extension of time.

Materials are all supplies, including consumables, used by the contractor for incorporation in the Works.

Plant is any integral part of the Works which is to have a mechanical, electrical, electronic or chemical or biological function.

The **Site** is the area defined as such in the Contract Data.

specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Architect.

The **Start Date** It is the date when Issue of notice to proceed with the work is given to the Contractor shall commence execution of the works.

A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract which includes work on the Site.

Temporary Works are works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

A **Variation** is an instruction given by the Architect which varies the Works.
The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the Contract Data.

2. Interpretation

2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Architect will provide instructions clarifying queries about the Conditions of Contract.

2.2 If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion date for the whole of the Works).

2.3 The documents forming the Contract shall be interpreted in the following order of priority:
(1) Agreement
(2) Letter of Acceptance, notice to proceed with the works
(3) Contractor‘s Bid
(4) Contract Data
(5) Conditions of Contract including Special Conditions of Contract
(6) Specifications
(7) Drawings
(8) Bill of Quantities and
(9) any other document listed in the Contract Data as forming part of the Contract.

3. Language and Law

3.1 The language of the Contract and the law governing the Contract are stated in the Contract Data.

4. Engineer's Decisions

4.1 Except where otherwise specifically stated, the institute authorities will decide Contractual matters between the Employer and the Contractor in the role representing the Employer.

5. Delegation

5.1 The Architect/Employer may delegate any of his duties and responsibilities to other people except to the Adjudicator after notifying the Contractor and may cancel any delegation after notifying the Contractor.

6. Communications

6.1 Communications between parties which are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

7. Subcontracting

7.1 The Contractor may subcontract with the approval of the Architect but may not assign the Contract without the approval of the Employer in writing. Subcontracting does not alter the Contractor's obligations.

7.2 The contractor shall not be required to obtain any consent from the employer for:
a) the sub-contracting of any part of the Works for which the Sub-contractor is named in the contract;
b) the provision of labour; and
c) the purchase of materials which are in accordance with the standards specified in the Contract.
Beyond this if the contractor proposes sub-contracting any part of the work during execution of works, because of some unforeseen circumstances to enable him to complete the work as per terms of the contract, the Engineer will consider the following before according approval:
- The contractor shall not sub-contract the whole of the Works.
- The contractor shall not sub-contract any part of the Work without prior consent of the Engineer. Any such consent shall not relieve the contractor from any liability or obligations under the contract and he shall be responsible for the acts, defaults and neglects of any sub-contractor, his agents or workmen as fully as if they were the acts, defaults or neglects of the contractor, his agents or workmen.

- The Architect should satisfy whether (a) the circumstances warrant such subcontracting;
and (b) the sub-contractors so proposed for the Work possess the experience, qualifications and equipment necessary for the job proposed to be entrusted to them in proportion to the quantum of work to be sub-contracted.
- If payments are proposed to be made directly to that sub-contractor, this should be subject to specific authorization by the prime contractor so that this arrangement does not alter the contractor's liability or obligations under the contract.

(Note: 1. All bidders are expected to indicate clearly in the bid, if they propose sub-contracting elements of the works amounting to more than 20 percent of the Bid Price. For each such proposal the qualification and the experience of the identified sub-contractor in the relevant field should be furnished along with the bid to enable the employer to satisfy himself about their qualifications before agreeing for such sub-contracting and include it in the contract. In view of the above, normally no additional sub-contracting should arise during execution of the contract.
2. However, [a] sub contracting for certain specialized elements of the work is not unusual and acceptable for carrying out the works more effectively; but vertical splitting of the works for subcontracting is not acceptable. [b] In any case, proposal for sub-contracting in addition to what was specified in bid and stated in contract agreement will not be acceptable if the value of such additional sub-contracting exceeds 25% of value of work which was to be executed by Contractor without sub-contracting.
3 Assignment of the contract may be acceptable only under exceptional circumstances such as insolvencies/liquidation or merger of companies etc.

8. Other Contractors

The Contractor should employ only the approved sub contractors.

9. Personnel

9.1 The Contractor shall employ the key personnel named in the STATEMENT – B in Instruction and Information to Bidders (Volume-1).The Engineer will approve any proposed replacement of key personnel only if their qualifications, abilities, and relevant experience are substantially equal to or better than those of the personnel listed in the Schedule.

9.2 If the Architect/Employer asks the Contractor to remove a person who is a member of the Contractor‘s staff or his work force stating the reasons the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.

10. Employer’s and Contractor's Risks

10.1 The Employer carries the risks which this Contract states are Employer‘s risks, and the Contractor carries the risks which this Contract states are Contractor‘s risks.

11. Employer's Risks

11.1 The Employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the Works in the Employer‘s country, the risks of war, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, interior war, riot commotion or disorder (unless restricted to the Contractor‘s employees), and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive, or (b) a cause due solely to the design of the Works, other than the Contractor‘s design.

12. Contractor's Risks

12.1 All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.

13. Insurance

13.1 The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, for the following events which are due to the Contractor's risks:
(a) loss of or damage to the Works, Plant and Materials;
(b) loss of or damage to Equipment;
(c) loss of or damage of property (except the Works, Plant, Materials and Equipment) in connection with the Contract; and
(d) Injury or death of a person working on the site of work. This also includes the supervisory staff employed by the Employer.

13.2 Policies and certificates for insurance shall be delivered by the Contractor to the Employer for the Architects approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

13.3 If the Contractor does not provide any of the policies and certificates required, the Employer may effect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

13.4 Alterations to the terms of an insurance shall not be made without the approval of the Architect/Employer

13.5 Both parties shall comply with any conditions of the insurance policies.

14. Site Investigation Reports

14.1 The Contractor, in preparing the Bid, shall rely on any site Investigation Reports referred to in the Contract Data, supplemented by any information available to the Bidder.(Site Investigation Report is enclosed as Annexure in Technical Specifications-Volume 5)

15. Queries about the Contract Data

15.1 The institute authorities will clarify queries on the Contract Data.

16. Contractor to Construct the Works

16.1 The Contractor shall construct and install the Works in accordance with the Specification and Drawings, and as per instructions of an Architect

17. The Works to Be Completed by the Intended Completion Date

17.1 The Contractor may commence execution of the Works after fulfilling the contract conditions and shall carry out the Works in accordance with the program submitted by the Contractor, as updated with the approval of the Engineer, and complete them by the Intended Completion Date.

18. Approval by the Architect

18.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Architect and Institute authorities and take approval from the Architect /Institute authorities who are to approve them if they comply with the Specifications and Drawings.

18.2 The Contractor shall be responsible for design of Temporary Works.

18.3 The Architects approval shall not alter the Contractor's responsibility for design of the Temporary Works.

18.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works where required.

18.5 All Drawings prepared by the Contractor for the execution of the temporary Works, are subject to prior approval by the Architect before their use.

19. Safety

19.1 The Contractor shall be responsible for the safety of all activities on the Site ,as per safety norms and Building Code No:…...

20. Discoveries

20.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site is the property of the Employer. The Contractor is to notify the Engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

21. Possession of the Site

21.1 The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the Contract Data the Employer is deemed to have delayed the start of the relevant activities and this will be Compensation Event.

22. Access to the Site``

2. The Contractor shall allow the Employer / Engineer / Architect and his / their authorized representative access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plant are being manufactured / fabricated / assembled for the works.

23. Instructions

23.1 The Contractor shall forthwith comply with and duly execute any work as instructed by the Employer / Engineer / Architect. All instructions will be in writing. Instructions if orally given then contractor shall confirm them within seven days from the date of such instructions.

24. Disputes

24.1 If the Contractor believes that a decision taken by the Engineer /Architect was either outside the authority given to the them by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within 14 days of the notification of the Engineer's / Architect's decision.

25. Procedure for Disputes

25.1 The Adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute.

25.2 The Adjudicator shall be paid daily at the rate specified in the Contract Data togetherwith reimbursable expenses of the types specified in the Contract Data and the costshall be divided equally between the Employer and the Contractor, whatever decisionis reached by the Adjudicator. Either party may refer a decision of the Adjudicator toan Arbitrator within 28 days of the Adjudicator's written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator's decision will be final and binding.

25.3 The arbitration shall be conducted in accordance with the arbitration procedure stated will be final and binding. in the Special Conditions of Contract in page 21.

26. Replacement of Adjudicator

26.1 Should the Adjudicator resign or die, or should the Employer and the Contractor agree that the Adjudicator is not fulfilling his functions in accordance with the provisions of the Contract, a new Adjudicator will be jointly appointed by the Employer and the Contractor. In case of disagreement between the Employer and the Contractor, within 30 days, the Adjudicator shall be designated by the Appointing Authority designated in the Contract Data at the request of either party, within 14 days of receipt of such request.

C. Time Control

27. Program

27.1 Within the time stated in the Contract Data the Contractor shall submit to the Architect for approval a Program including Environmental Management Plan showing the general methods, arrangements, order, and timing for all the activities in the Works along with monthly cash flow forecast.

27.2 An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.

27.3 The Contractor shall submit to the Architect /Engineer, for approval, an updated Program at intervals no longer than the period stated in the Contract Data. If the Contractor does not submit an updated Program within this period, the Employer may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted.

27.4 The Architect's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Architect again at any time. A revised Program is to show the effect of Variations and Compensation Events.

28. Extension of the Intended Completion Date

28.1 The Employer / Architect shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work and which would cause the Contractor to incur additional cost.

29 The Employer / Architect shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Employer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

30 Delays Ordered by Institute Athorities

30.1 The Employer may instruct the Contractor to delay the start or progress of any activity within the Works.

31. Management Meetings

31.1 Either the Employer / Architect or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

31.2 The Employer / Architect shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken is to be decided by the Employer either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

32. Early Warning

32.1 The Contractor is to warn the Employer / Architect at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price or delay the execution of works. The Employer /Architect may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate is to be provided by the Contractor as soon as reasonably possible.

32.2 The Contractor shall cooperate with the Employer / Architect in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Engineer.

D. Quality Control

33. Identifying Defects

33.1 The Architect/Employer shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Architect may instruct the Contractor to search for a Defect and to uncover and test any work that the Architect considers may have a Defect.

33.2 The contractor shall permit the Employer‘s Technical auditor to check the contractor‘s work and notify the Employer/ Architect and Contractor of any defects that are found. Such a check shall not affect the Contractor‘s or the Architect‘s responsibility as defined in the Contract Agreement.

34. Tests

34.1 The testing of materials shall be carried out by approved laboratories at Contractor's cost and the results will be binding. The test results in original will be sent to the Employer by the laboratory and a copy of the same sent to the Contractor
- If the Architect instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples.

34.3 All construction material is required to be tested according to the frequency and record to be maintained by the contractor

35. Correction of Defects

35.1 The Employer/ Architect shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

35.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified in the Employer/ Architect‘s notice.

36. Uncorrected Defects

36.1 If the Contractor has not corrected a Defect within the time specified in the

Engineer‘s notice, the Engineer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

Note: Where in certain cases, the technical specifications provide for acceptance of works within specified tolerance limits at reduced rates Architect will certify payments to Contractor accordingly.

E. Cost Control

37. Bill of Quantities

37.1 The Bill of Quantities shall contain items for the construction, installation, testing, and commissioning work to be done by the contractor.

37.2 The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.

38. Changes in the Quantities

38.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 10 percent, Architect shall give proper justification to get approval of institute authorities

38.2 If requested by the Architect / Employer, the Contractor shall provide the Architect / Employer with a detailed cost breakdown of any rate in the Bill of Quantities.

39. Variations

39.1 All Variations shall be included in updated Programs produced by the Contractor.

40. Payments for Variations

40.1 The Contractor shall provide the Architect / Employer with a quotation (with breakdown of unit rates) for carrying out the Variation when requested to do so by the Architect / Employer. The Architect shall assess the quotation, which shall be given within seven days of the request or within any longer period stated by the Employer and before the Variation is ordered.

40.2 If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Architect / Employer, the quantity of work above the limit stated in Sub Clause 38.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in form of new rates for the relevant items of work.

40.3 If the Contractor's quotation is unreasonable (or if the contractor fails to provide the Architect /Emploeyr with a quotation within a reasonable time specified by the Architect in accordance with Clause 40.1), the Employer may order the Variation

and make a change to the Contract Price which shall be based on Architect's own forecast of the effects of the Variation on the Contractor's costs.

40.4 If the Architect / Employer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and will be decided on mutually agreed rates.

40.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.

41. Cash flow forecasts

41.1 When the Program is updated, the contractor is to provide the Architect / Employer with an updated cash flow forecast.

42. Payment Certificates

42.1 The detailed measurements will be taken for all the works executed by the authorized representatives of the architect and recorded in the measurement books and acceptance for these measurements will be obtained from the contractor. Due check measurement of these measurements will be done as per the procedure in practice.

42.2 Contract bills will be prepared by the contractors engineers at frequent intervals and submitted to the Employer for making payment.

42.3 The value of work executed shall be determined by the Architect after due check measurement of the quantities claimed as executed by the contractor.

42.4 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed..

42.5. The value of work executed shall include the valuation of Variations and Compensation Events as specified in clause 44.

42.6 The Architect/Employer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

43. Payments

43.1 Payments shall be adjusted for deductions for advance payments, retention, other recoveries in terms of the contract and taxes, at source, as applicable under the law.

43.2 The contractor shall submit his running bills not less than 20 lakhs towards completed work.5% amount will be retain from each running bill, retention amount will be released after defect liability period after certified the work by the PMC, Architect and Institute authorities.

43.3 Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

44. Compensation Events

44.1 The following are Compensation Events unless they are caused by the Contractor:
(a) The Employer does not give access to a part of the Site by the Site Possession Date stated in the Contract Data.
(b) The Architect / Employer orders a delay or does not issue drawings, specifications or instructions required for execution of works on time.
(c) The effect on the Contractor of any of the Employer‘s Risks.
(d) The Architect / Employer unreasonably delays issuing a Certificate of Completion.

44.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date is extended. The Architect / Engineer shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

44.3 As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it is to be assessed by the Architect / Employer and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Architect / Employer shall adjust the Contract Price based on Architect‘s own forecast. The Engineer will assume that the Contractor will react competently and promptly to the event.

44.4 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor not having given early warning or not having cooperated with the Engineer.

45. Tax

45.1 The rates quoted by the Contractor shall be deemed to be inclusive of all taxes and duties that the Contractor will have to pay for the performance of this Contract.

46. Currencies

46.1 All payments shall be made in Indian Rupees.

47. Price Adjustment

47.1 To the extent that full compensation for any rise or fall in costs to the contractor is not covered by the provisions of this or other clauses in the contract, the unit rates and prices included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs.

48. Retention

48.1 5% of value of total work done which will be released after defect liability period of twelve month from the date of handover of site with clearance of institute.

49. Time is the essence of the work. All the works shall have to be completed within the stipulate time from the date of LOI (Appendix-A).If the work is not

completed within the aforesaid period the contractor shall pay the owners liquidated damages of 1.0% of the balance work value per week subject to a maximum of 10% of value of work order in case of delays beyond the accepted completion period for reasons solely attributed to him.

50.

50.1 The Performance Security shall be provided to the Employer not later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the Employer, and denominated in Indian Rupees. The Performance Security shall be valid until the date 7 days from the date of expiry of Defects Liability Period and the additional security for unbalanced bids shall be valid until the date 7 days from the date of issue of the certificate of completion.

51. Works during Night

If it is essential to execute the work during night hours prior approval of the Employer has to be obtained.

52. Cost of Repairs

52.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

F. Finishing the Contract

53. Completion

53.1 The Contractor shall request the Architect /Employer to issue a Certificate of Completion of the Works and the Employer / Architect will do so upon deciding that the Work is completed.

54. Taking Over

54.1 The Employer shall take over the Site and the Works within seven days of the Architect issuing a certificate of Completion.

55. Final Account

55.1 The final bill will be settled after Testing and commissioning of all the items of work contemplated in the agreement to the satisfaction of the engineer and taking over of the building by the Architect/Employer.

56. Operating and Maintenance Manuals

56.1 If —as built‖ Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract Data.

56.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the Contract Data, or they do not receive the Architect's approval, the Architect shall withhold the amount stated in the Contract Data from payments due to the Contractor.

57. Termination

57.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

57.2 Fundamental breaches of Contract include, but shall not be limited to the following:
(a) the Contractor stops work for 14 days when no stoppage of work is shown on the current program and the stoppage has not been authorized by the Architect;
(b) the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
(c) the Architect/Employer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Architect/Employer;
(d) the Contractor has delayed the completion of works by the number of days for which the maximum amount of liquidated damages can be paid as defined in the Contract data; and
(e) if the Contractor, in the judgment of the employer has engaged in fraud and corruption, as defined in GCC Clause 63, in competing for or in executing the Contract.

57.3 When either party to the Contract gives notice of a breach of contract to the Architect for a cause other than those listed under Sub Clause 59.2 above, the Architect shall decide whether the breach is fundamental or not.

57.4 Notwithstanding the above, the Employer may terminate the Contract for Convenience & in the public interest.

57.5 If the Contract is terminated the Contractor shall stop work immediately, make the Site safe and secure and leave the Site as soon as reasonably possible.

58. Payment upon Termination

58.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Architect/Employer shall issue a certificate for the value of the work done less advance payments received up to the date of the issue of the certificate, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract Data. Additional Liquidated Damages shall not apply . If the total amount due to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.

58.2 If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Architect shall issue a

certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract and less taxes due to be deducted at source as per applicable law.

59. Property

59.1 All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Employer, if the Contract is terminated because of a Contractor‘s default.

60. Release from Performance

60.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made.

61. Fraud and Corruption

61.1 The Employer requires the Contractors and suppliers observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy, the Employer:
(a) defines, for the purposes of this provision, the terms set forth below as follows:
(i) —corrupt practice‖ means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;
(ii) —fraudulent practice‖ means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;
(iii) —collusive practice‖ means a scheme or arrangement between two or more Bidders, with employer designed to establish bid prices at artificial, non competitive levels; and
(iv) —coercive practice‖ means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract;
(b) will cancel the contract if it determines at any time that representatives of the contractors engaged in corrupt, fraudulent, collusive or coercive practices during the procurement or the execution of that contract, without the taken timely and appropriate action satisfactory to the satisfaction of the Employer to remedy the situation;
(d) will sanction a firm or individual, including declaring them ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time they have, directly or through an agent, engaged, in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, contract; and
(e) will have the right to require that Contractors to permit the Employer to inspect their accounts and records and other documents relating to the bid

submission and contract performance and to have them audited by auditors appointed by the Employer.

G. Special Conditions of Contract

1. LABOUR :

The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.
The Contractor shall, if required by the Architect/Employer, deliver to the Architect/Employer a return in detail, in such form and at such intervals as the Architect/Employer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such other information as the Architect/Employer may require.

2. COMPLIANCE WITH LABOUR REGULATIONS :

During continuance of the contract, the Contractor and his sub contractors shall abide
at all times by all existing labour enactments and rules made there under, regulations,
notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to construction industry are given below. The

Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the Architect/Employer shall have the right to deduct any money due to the Contractor including his amount of performance security. The Architect/Employer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

SALIENT FEATURES OF SOME MAJOR LABOUR LAWS APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTION WORK

(The law as current on the date of bid opening will apply)

a) Workmen Compensation Act 1923: The Act provides for compensation in case of injury by accident arising out of and during the course of employment.

b) Payment of Gratuity Act 1972: Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years service or more or on death the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.

c) Employees P.F. and Miscellaneous Provision Act 1952 *(since amended)*: The Act Provides for monthly contributions by the employer plus workers @ 10% or 8.33%. The benefits payable under the Act are :
(i) Pension or family pension on retirement or death, as the case may be.
(ii) Deposit linked insurance on the death in harness of the worker.
(iii) payment of P.F. accumulation on retirement/death etc.

d) Maternity Benefit Act 1951: The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

e) Contract Labour (Regulation & Abolition) Act 1970: The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The Principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ 20 or more contract labour.

f) Minimum Wages Act 1948: The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, Runways are scheduled employments.

g) Payment of Wages Act 1936: It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the

workers.

h) Equal Remuneration Act 1979: The Act provides for payment of equal wages for work of equal nature to Male and Female workers and for not making discrimination against Female employees in the matters of transfers, training and promotions etc.

i) Payment of Bonus Act 1965: The Act is applicable to all establishments employing 20 or more employees. The Act provides for payments of annual bonus subject to a minimum of 8.33% of wages and maximum of 20% of wages to employees drawing Rs.3500/-per month or less. The bonus to be paid to employees getting Rs.2500/- per month or above upto Rs.3500/- per month shall be worked out by taking wages as Rs.2500/-per month only. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 forthe purpose of applicability of this Act.

j) Industrial Disputes Act 1947: The Act lays down the machinery and procedure for resolution of Industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

k) Industrial Employment (Standing Orders) Act 1946: It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get the same certified by the designated Authority.

l) Trade Unions Act 1926: The Act lays down the procedure for registration of trade unions of workmen and employers. The Trade Unions registered under the Act have been given certain immunities from interior and criminal liabilities.

m) Child Labour (Prohibition & Regulation) Act 1986: The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of Child Labour is prohibited in Building and Construction Industry.

n) Inter-State Migrant workmen‘s (Regulation of Employment & Conditions of Service) Act 1979: The Act is applicable to an establishment which employs 5 or more interstate migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home up to the establishment and back, etc.

o) The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996: All the establishments who carry on any building or other construction work and employs 10 or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety measures at the Building or construction work and other welfare measures, such as Canteens, First-Aid facilities, Ambulance, Housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a

registration certificate from the Registering Officer appointed by the Government.

p) Factories Act 1948: The Act lays down the procedure for approval at plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power engaged in manufacturing process.

(iv) ARBITRATION (GCC Clause 25.3)

If the decision of the Adjudicator as described in clause 25 is not acceptable , then the disputes can be referred to the Arbitrator.
The procedure for arbitration will be as follows :

25.3 (a) In case of Dispute or difference arising between the Employer and a domestic contractor relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996. The arbitral tribunal shall consist of 3 arbitrators one each to be appointed by the Employer and the Contractor. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties and shall act as Presiding arbitrator. In case of failure of the two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the * Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Dispute Resolution (India).

(b) If one of the parties fails to appoint its arbitrator in pursuance of sub-clause (a) above within 30 days after receipt of the notice of the appointment of its arbitrator by the other party, then the * Indian Council of Arbitration/President of the Institution of Engineers (India) shall appoint the arbitrator. A certified copy of the order of the *Indian Council of Arbitration /President of the Institution of Engineers (India), making such an appointment shall be furnished to each of the parties.

(c) Arbitration proceedings shall be held at **Pune,** India, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English.

(d) The decision of the majority of arbitrators shall be final and binding upon both parties. The cost and expenses of Arbitration proceedings will be paid as determined by the arbitral tribunal. However, the expenses incurred by each party in connection with the preparation, presentation, etc. of its proceedings as also the fees and expenses paid to the arbitrator appointed by such party or on its behalf shall be borne by each party itself.

- Performance under the contract shall continue during the arbitration proceedings and payments due to the contractor by the owners shall not be withheld, unless they are the subject matter of the arbitration proceedings.

4. PROTECTION OF ENVIRONMENT:

Add the following as GCC Clause 16.2:

The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

During continuance of the contract, the contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

Salient features of some of the major laws that are applicable are given below :
The Water (Prevention and Control of Pollution) Act, 1974, This provides for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water. 'Pollution' means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms.

The Air (Prevention and Control of Pollution) Act, 1981, This provides for prevention, control and abatement of air pollution. 'Air Pollution' means the presence in the atmosphere of any 'air pollutant', which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The Environment (Protection) Act, 1986, This provides for the protection and improvement of environment and for matters connected therewith, and the prevention of hazards to human beings, other living creatures, plants and property. 'Environment' includes water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property.

The Public Liability Insurance Act, 1991, This provides for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substances and for matters connected herewith or incidental thereto. Hazardous substance means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act 1986, and exceeding such quantity as may be specified by notification by the Central Government.

6) Supply of materials:

a) The successful Bidder should make his own arrangement to obtain / import all materials required for the work.

b) The Work shall be carried out using high quality materials and products from good source and reputed manufacturer respectively. The tenderer / contractor shall furnish the details of sources and manufacturers of materials and products, which they intend to use in the Work if their tender is acceptable.

c) Quality assurance should be strictly adhered to. All materials are subject to inspection and approval of the Employer/Architect before use in the Work. All Work carried out and materials supplied shall conform to relevant latest Indian Standard Specification.

d) The Contractor shall furnish the Employer for approval adequate samples of all materials to be used in Work and to permit tests and examinations thereof. All materials used in the Work shall be strictly as per approved samples and approved make.

e) All mock ups / finishes / quality shall be approved by Employer/Architect.

f) All materials which are rejected shall be forthwith removed from the site.

7) Water & Power:

- The rate quoted by the Contractor shall include expenditure for providing all the water required for the Interior construction work as well as that of Direct Sub Contractors and the Contractor shall make his own arrangements for the supply of good quality water, including obtaining Municipal connection for his labour as well as for construction purpose, and all charges for water shall be borne by him. If Municipal water is not available and should it become necessary for the Contractor to bring acceptable quality water from outside by tankers, the Employer shall not be liable to pay any charges in connection therewith including charges for periodic testing of the water of such sources for its suitability before use on works.

- The rate quoted in the tender shall also include electric consumption charges for power required for the Interior construction work as well as that of Sub-Contractor and the Contractor shall have to make his own arrangements to obtain power connections and maintain at his own expense an efficient service of electric light and power and shall pay for the electricity consumed. . The Employer, as well as the Architect, shall give all possible assistance to the Contractor to obtain the requisite permission from the various Authorities, but the responsibility for obtaining the same shall be that of the Contractor. Any shortfall in quantum of electric power from local electric company‘s supply shall be made up by necessary captive generators at site which the Contractor shall install at site. All charges connected with installing, running and maintaining of the generators, including all statutory approvals shall be borne by the Contractor.

- The Contractor shall also be responsible to supply water and electricity to all other agencies directly engaged by him such as Direct Sub-contractors etc. free and without levying any charge.

- If no such facility is available at the site of work and if available and found inadequate, it shall be the responsibility of the Contractor to make his own arrangement for obtaining water and power at his cost. The Contractor‘s responsibility also cover supply of adequate quantity of water and power for testing and commissioning of all his Direct sub-Contractors‘ works..

e) All Municipal service charges or fees, for drainage and water connection for construction purposes shall be borne by the Contractor and if any, payable for permanent connections shall be initially paid by the Contractor and the Employer will reimburse the amount on production of official receipts.

f) Electric supply connection deposits, improvement or development charges for the permanent supply will be paid by the Employer to the Electric supply authority. It is the responsibility of the Contractor to apply in time and follow up with respective authorities to obtain all permanent service connections.

10) RECORD DRAWINGS

The Interior Contractor shall make accurate records of those parts of the Works which will become hidden by further progress, as may be directed by the Architect. Such records shall be checked and verified by the Architect while the work is open for inspection. Records shall be entered by the Interior Contractor on prints of drawings which will be made available to him for this purpose, amplified by him with supplementary dimensioned sketches and handed to the Architect as soon as practicable. All costs and expenses in connection therewith shall be borne by the Contractor.

11) Permission from Statutory Body :

Permission required to be obtained from local Government and connected bodies for establishing the site office and executing the work shall be Bidder‘s responsibility.

12) Insurance:

The Contractor shall be responsible for any injury to persons, animals or things and for all structural damage to property which may arise from the operation or neglect of himself and or any nominated Direct Sub-Contractors, or Direct Sub-Contractors / Contractor's Employees and or third party whether such injury or damage arising from carelessness, accident or any other cause whatsoever, in any way connected with the execution of work.

The cover taken by the Contractor towards Third Party Liability shall be for a value of Rs. 5 Lakhs (Rupees Five Lakhs only) for a single event and there shall be no upper limit on the number of such events. The Bidders are expected to include all the charges towards taking all insurance cover, charges towards premia etc., in the quoted rates and no extras / claims shall be entertained on account of the Bidders‘ failure to comply with this requirement.

The Contractor shall take required insurance cover with an approved insurance company and deposit the policy with the Owner well before commencement of work

13) Joint Inspection

Employer‘s / Architect representatives‘ shall conduct a joint inspection with the Contractors‘ authorised representative at every stage of the work, immediately upon

completion of such stage of works. The purpose of the joint inspection is to observe and record any deviations from the specified tolerances / levels, plumb or any quality defects or any such issues which require immediate attention / action from the Interior Contractor to make good or rectify such defects or observations jointly recorded. Such joint inspections can be held at any time as deemed fit and shall be binding on the Contractor to act upon and implement without any extra cost the directions arising out of such joint inspections. Failure / delay in holding such joint inspections shall not absolve the Interior Contractor from his responsibilities to rectify any defects which may be subsequently noticed at any time after the respective stages of work.

14) Photographs and Video Cassettes:

The Contractor shall take photos and video from the locations approved by the / Architect to show the progress of work at weekly intervals throughout the construction period and furnish photographs and video cassettes of required duration duly indicating therein the specified number of negative / prints affixed in albums. Each photograph shall be marked with the description of the photograph and location from which it was taken.

The ownership and copy right of all photographs and negatives shall be vested in the Employer and are not to be used without his permission under any circumstances. Negatives and prints shall be handed over to the Architect monthly.

15) Fire Protection during Construction

Provide and keep in working order adequate fire fighting equipment for emergency use.

16) Schedule Of Quantities and Technical Specifications

In case of conflict between item description in —Bill of Quantities‖ and —Technical specifications‖ the following priority shall govern:
Bill of Quantities & Preamble
Technical Specifications
IS Code
Equivalent BS Codes
Other codes

17) DOCUMENTATION :

The contractor shall submit the All guarantee certificates and documents applicable to any item before submission of Final Bill :

a)As – built drawings (05 sets of hard copy and soft copy in the form of CD) for all buildings and structures.

b) Guarantee for Anti-termite treatment work
Any other Material and work inspection reports called for by Employer /Architects as found necessary.

Additional Special Conditions

1 CONTRACTOR to provide supervisor for each work group / area.

2 All Employees of the CONTRACTOR shall wear badge showing name, profession, date of training, work order no., work description, valid from _____ to _____ , name of the Contractor, name of supervisor.

3 Welding transformer, if any brought to the site, shall have a valid test certificate

4 CONTRACTOR should provide detailed plan of material handling during time of contract. Material - manual handling shall conform to State Regulations.

5 Pre-commissioning test report shall be provided for all electrical systems. Including cables, wire, motors, transformers, voltage stabilizers.

6 All rotating and moving parts with a nip must be guarded, such that even a little finger cannot come in contact with any moving part.

7 Section 32 of the Factory Act regarding ladders, platforms/stairs and scaffolding to be followed strictly. (For e.g. Ladders should have uniform step height of not over 300mm.All fixed ladders to have railings at a height of 910-1050mm. Ladders over 3m height to be roped.)

8 All portable ladders shall be of aluminum with rubber shoes and flat treads as per IS3696 part 2 (1991) except where these could come in contact with live electrical. In such situations, only carbon fiber or insulated ladders to be used. Wooden and Bamboo ladders are not to be used. Portable ladders to be stored in a place where it is easily accessible.

9 All platforms, walkways to have toe-boards of 100 to 150mm and hand rails at a height of 910mm to 1150mm. A spring return bar gate to be provided at every access to the ladder.

10 All scaffolds to be of metallic construction and conform to IS2750-1964. Safe access by means of stairway to be provided if the height is more than 4m. Working platform with handrails at a height of 910mm to 1150mm and toe boards of 100-150mm to be provided.

11 Methods statement to be produced for all high risk activities (including risk assessment of critical activities). Approximate PPE usage for all critical activities to be compiled with.

12 Lifting gears, tools and tackles and equipment like cranes shall conform to requirements of section 28 and 29 of the Factory Act.

13 Noise level at 1 Mtr. distance from the equipment should not exceed the level indicated elsewhere in the specification.

Any further clarification on Environment, Health and Safety guidelines can be sought from unit, Environment Health and Safety Manager and Employer's guidelines on EHS.

Signature of Tenderer

With Date and Seal

.

CONTRACT DATA

Contract Data

Items marked "N/A" do not apply in this Contract.

The following documents are also part of the Contract:	Clause Reference
· The Schedule of Operating and Maintenance Manuals	[58]
· The Schedule of Sub Contractors	[7]
· The Schedule of Key Personnel	[9]
· The Methodology and Program of Construction & Environmental Management Plan	[27]
· The Schedule of Key and Critical equipment to be deployed on the work as per agreed program of construction	[27]
· Site Investigation reports	[14]

The Employer is

Name: The Director,
Indian Institute of Tropical Meteorology (1.1)

Address: Dr. Homi Bhabha Road, NCL post, Pashan ,Pune.

Name of authorized Representative: **Mr. Anupam Saxena,Civil Engineer**, Indian Institute of

Tropical Meteorology.

The Architect is (1.1)

Name: **Virender Sharma & Associates**

Address: A-3/ 205A, Janakpuri, New Delhi – 110058.

Name of Authorized Representative: **Mr. Virender Sharma**

The Adjudicator appointed jointly by the Employer and Contractor is:
Name (1.1)
Address :

The name and identification number of the Contract is
The Works consist of- Proposed construction of Laboratory building and Guest House for Indian Institute of Tropical Meteorology. At Rajinder Nagar New Delhi The work consists of civil Work and structural work , addition and alteration work for Delhi Branch Office.

The Start Date shall be the date of receipt of L.O.I. (1.1)

The Intended Completion period for the work is 45 days from the receipt date of L.O.I. [17, 28]

The following documents also form part of the Contract: [2.3]

1. **Agreement**
2. **Letter of Acceptance, notice to proceed with the works**

(1) Contractor's Bid
(2) Contract Data
(3) Conditions of Contract including Special Conditions of Contract .
(4) Specifications
(5) Drawings
(6) Bill of Quantities

The Contractor shall submit a revised Program including Environmental Management Plan for the Works (in such form and detail as the engineer shall reasonably prescribe) within _15_ days of delivery of the Letter of Acceptance. [27]

The Site Possession Dates shall be: 7 days from signing of agreement [21]

The Site is located at Indian Institute of Tropical Meteorology, Rajinder Nagar, New Delhi.

The Defects Liability Period is 365 days from the date of certification of completion of works. (where sectional completion certificate is issued this will apply from those dates for those sections). [35]
.
The period between Program updates shall be _15_ days. [27]

The language of the Contract documents is English [3]

The law which applies to the Contract is the laws of Union of India [3]

The currency of the Contract is Indian Rupees. [46]

Fees and types of reimbursable expenses to be paid to the Adjudicator [25]
Rs. 2000/- per day plus conveyance of Rs. 250/- per day.
Appointing Authority for the Adjudicator :- THE DIRECTOR
Indian Institute of Tropical Meteorology
Dr. Homi Bhabha Road, NCL post, Pashan
,Pune.

The proportion of payments retained (retention money) shall be 5 % from each bill subject to a maximum of 5% of final contract price
The liquidity damages.-clause 49

The amounts of the advance payment are: [51]

Nature of Advance	Amount (Rs.)	Conditions to be fulfilled
1. Mobilization advance for Plant advance. Machinery and Equipment	No Mobilization	
2. Secured advance for non- perishable materials brought to site	No secured advance.	

The Securities shall be for the following minimum amounts equivalent as a percentage of the Contract Price: [52]

Performance Security for 5 per cent of contract price [*in terms of ITB Clause 27.5*].

The standard form of Performance Security acceptable to the Employer shall be an unconditional Bank Guarantee of the type as presented in Section 8 of the Bidding Documents.

The date by which operating and maintenance manuals are required is within 14 days of issue of certificate of completion of whole or section of the work, as the case may be. [58]

The date by which —as-built‖ drawings (in scale …) in 2 sets are required is within 14 days of issue of certificate of completion of whole or section of the work, as the case may be. [58]

The amount to be withheld for failing to supply —as built‖ drawings and/or operating and maintenance manuals [58]

The following events shall also be fundamental breach of contract: [59.2]

The Contractor has contravened Sub-clause 7 of GCC read with SCC and Clause 9.0 of GCC

The contractor does not adhere to the agreed construction program and agreed environmental management plan (Clause 27 of GCC) and also fails to take satisfactory remedial action as per agreements reached in the management meetings (Clause 31) for a period of 60 days.

3 The contractor fails to carry out of the instructions of Engineer Within a reasonable time determined by the Engineer in accordance with GCC Clause 16.1 and 23.1.

The percentage to apply to the value of the work not completed representing the Employer's additional cost for completing the Works shall be 20%. [60]

FORMS OF SECURITIES

Forms of Securities

Acceptable forms of securities are annexed. Bidders should not complete the Performance and Advance Payment Security forms at this time. Only the successful Bidder will be required to provide Performance and Advance Payment Securities in accordance with one of the forms, or in a similar form acceptable to the Employer.

Annex A: Bid Security (Bank Guarantee)

Annex B: Performance Bank Guarantee

Annex C: Performance Bank Guarantee for Unbalanced Items

Annexure A

BID SECURITY (BANK GUARANTEE)

WHEREAS, _____ *[name of Bidder]* (hereinafter called "the Bidder") has submitted his Bid dated _____ *[date]* for the Construction of Laboratory Building and Guest House At Indian Institute of Tropical Meteorology, Rajinder Nagar, New Delhi.(hereinafter called "the Bid").

KNOW ALL PEOPLE by these presents that We _____ *[name of bank* having our registered office at _____ (hereinafter called "the Bank") are bound unto The Director Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, NCL post, Pashan ,Pune, India.* (hereinafter called "the Employer") in the sum of _____[1] for which payment well and truly to be made to the said Employer the Bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this _____ day of _____ 2010____.

THE CONDITIONS of this obligation are:

(1) If after Bid opening the Bidder withdraws his bid during the period of Bid validity specified in the Form of Bid;

or

(2) If the Bidder having been notified of the acceptance of his bid by the Employer during the period of Bid validity:

(a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or

(b) fails or refuses to furnish the Performance Security, in accordance with the Instruction to Bidders; or

(c) does not accept the correction of the Bid Price pursuant to Clause 27 of Instruction to Bidders;

we undertake to pay to the Employer up to the above amount upon receipt of his first written

demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the three conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date _____[2] days after the deadline for submission of Bids as such deadline is stated in the Instructions to

Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date.

DATE _____ SIGNATURE OF THE BANK _____

WITNESS _____ SEAL _____

[signature, name, and address]

1 The Bidder should insert the amount of the guarantee in words and figures denominated in Indian Rupees. This figure should be the same as shown in Clause 16.1 of the Instructions
to Bidders.245 days after the end of the validity period of the Bid.

Annexure B

PERFORMANCE BANK GUARANTEE

To:

The Director Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, NCL post, Pashan ,Pune, India.

WHEREAS _____ *[name and address of Contractor]*
(hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. _____ dated _____ to execute Construction of Laboratory Building and Guest House At Indian Institute of Tropical Meteorology, Rajinder Nagar, New Delhi.

(hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of _____ *[amount of guarantee]*[1]_____ *[in words]*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ *[amount of guarantee]*[1] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents

which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until …… (i.e.) 28 days from the date of expiry of the Defects Liability Period.
Signature and seal of the guarantor _____
Name of Bank _____
Address _____
Date _____
_____

- An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract and denominated in Indian Rupees.

Annexure C

PERFORMANCE BANK GUARANTEE (for unbalanced items)

To:

THE DIRECTOR, Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, NCL

post, Pashan ,Pune, India.

WHEREAS _____ *[name and address of Contractor]* (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. _____ dated _____ to execute Construction of Laboratory Building and Guest House At Indian Institute of Tropical Meteorology, Rajinder Nagar, New Delhi.

(hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of _____ *[amount of guarantee]* [1]_____ *[in words]*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ *[amount of guarantee]*[1] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents

which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until …….. (i.e.) 28 days from the date of issue of the certificate of completion of works.

Signature and seal of the guarantor _____
Name of Bank _____
Address _____
Date _____
_____

1 An amount shall be inserted by the Guarantor, representing additional security for unbalanced Bids, if any and denominated in Indian Rupees.

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

1- GENERAL

1.1 (A) – Work

All works shall be carried out with due diligence and specification laid hereunder. In case any item not covered by this specification, either C.P.W.D. or any other specification as directed by the Engineer in charge shall be followed. As and where necessary this specification shall be supplemented by C.P.W.D. specification.

1.1 (B) – Material specification

1.2

All material shall conform to the latest edition of the Indian standard specification with all amendments issued thereof. For material not covered By Indian standard specification, C.P.W.D. specification shall followed. For such material covered by neither of the two any other specifications as directed by the engineer in charge, and after obtaining his written approval shall be followed.

1.2 Sampling and testing

All material used in the works shall be subjected to inspection and test. Samples of all material proposed to be used in the works shall be submitted to the Engineer in charge for approval, before they are bought to the site. These samples shall be submitted 15 days in advance than required for works. After the sample is approved, the material shall be arranged and bought to site within a fortnight. Sample submitted to the Engineer in charge or his representative for their retention is to be kept in labeled box and suitably stored.

1.3 Storage of material

All material to be used in the works shall be stored on racks, supports, in bins, under cover etc., as required to prevent deterioration or damage from any cause whatsoever to the entire satisfaction of the Engineer in charge.

Cement shall be stored in such quantities as can be consumed within a short time after receipt from the manufacturers. It shall be stored in such a manner to permit easy access for proper inspection and in a suitable weatherproof store to protect it from dampness and to minimize deterioration. Use of cement shall be on principle of first come, first used.

2. ***MATERIALS***

2.1 **Water**

Clean fresh water only shall be used for mixing all concrete, grout and mortar. This shall be free from any deleterious matter in solution or in suspension and be obtained from an approved source. Generally portable water is found to be suitable for the above work.

2.2 ***Lime***

Lime shall be stone lime and conform to the specification Building Limes-IS: 712 (latest edition). Lime putty may be prepared from hydrated lime or quick lime. Hydrated lime shall be mixed with water to form putty for preparation of lime cement and sand mortar, lime, cement and sand in specified proportions shall be mixed further. Minimum quantity of water shall be added to achieve working consistency.

Surplus mortar droppings from masonry if received on surface free from dirt may be mixed with fresh mortar if permitted by the Engineer- in charge of site who may direct additions of additional cement without any extra payment.

2.6 ***Grading of Aggregate***

Coarse aggregate shall be as per IS: 383 (latest edition) consisting of hard, strong and durable pieces of crushed stone and shall be free from organic or clay coating and other impurities like disintegrated stone, soft flaky particles etc.

Aggregates other than confirming to the provision of specifications may be used if permitted by Engineer-in-charge.

Washing of aggregates by approved means shall be carried out, if directed by the Engineer-in-charge. Grading of coarse aggregates shall confirm to IS:383 (latest edition) and shall be such as to produce dense concrete of the specified proportions and strength and of consistency that will work readily into position without segregation.

(a) Grading of Coarse Aggregate shall be as under :

I.S. Series	Percentage passing By weight for nominal size of			
Mm	40 mm	20 mm	16 mm	12.5 mm
75	100	-	-	-
37.5	95-100	100	-	-
19	30-70	95-100	100	100
16	-	-		-
11.2	-	-	-	90-100
9.5	10-35	25-35	30-70	40-85
4.75	0-5	0-10	0-10	0-10
2.36	-	-	-	-

(b) Fine aggregate : On the basis of particle size fine aggregate is graded into four zone which is shown below :

IS Sieve	Percentage passing for grading			
MM	Zone-1	Zone-2	Zone-3	Zone-4
9.50	100	100	100	100
4.75	90-100	90-100	95-100	95-100
2.36	60-95	75-100	85-100	95-100
1.18	30-70	55-90	75-100	90-10
600 micron	15-34	35-59	60-79	80-100
300 micron	5-20	8-30	12-40	15-50
150 micron	0-10	0-10	0-10	0-15

Fine aggregate shall be coarse sand, fine sand stone dust or marble dust fly ash and surkhi and shushkhi Use of sand shall not be allowed unless otherwise specified.

(a) Grading of coarse sand shall fall within the limit of grading

zone1, 2, 3, 4, of table above.

(b) Grading of fine sand shall fall within the limit of grading zone 4
Of table above.

(c) Grading of stone dust shall fall within the limit of grading zone1,2,3, of table above.

(d) Grading of marble dust shall fall within the limit of grading zone
4 of table above.

2.7 *Bricks*

Bricks for masonry work shall be well burnt, of uniform size, shape and color, free from cracks, flaws or nodules of free lime and should give ringing sound when struck with each other. Fractured surface shall show uniform texture free from grit, lumps, holes etc. Compressive strength, shall not be less than 75kg/cm^2. Water absorption after 24 hours immersion shall not exceed 15% by weight for common bricks and 12% for face bricks. Dimension tolerance shall have rectangular faces sharp, straight edges. Maximum permissible chip page for bricks shall be 6 mm at the edge and 10 mm for corner bricks shall and show no efflorescence after soaking in water and drying.

Each brick shall have the manufacturer's identification mark clearly marked on the frog. Representative sample shall be submitted and approved sample shall be retained by the Engineer in charge for future comparison and reference. The color and texture of brick shall be limited to the range of sample submitted. Any brick not found up to the satisfaction shall be removed immediately from site at the Contractor's own cost. Brick tiles shall conform to the same specification as brick but thickness shall be 5 cm (2") nominal.

2.8 *Ashes (Cinder)*

These shall be obtained from furnaces of stream boilers using coal fuel only. It shall pass through IS sieve designation 3.35 mm with at least 50% of it passing through IS sieve 1.7 MM. Cinder obtained from brick kilns shall not be used. At site of work, the cinder shall be protected from dirt or any harmful material getting mixed.

Cinder required to be used for external work such as plastering and in foundation concrete where it is likely to be affected by dampness, shall not contain more than 0.5% of acid soluble sulfates. For cinders required to be used in internal work such as mortar for walls and base concrete for floors, the allowable percentage for unburnt carbon shall be up to 20% and that for acid sulfates as 1%.

2.11 *Scaffolding*

Scaffolding shall consist of ballies necessary battens and planks of approved quality. All the scaffolding members before erection shall be checked for their strength and fitness. It shall be tied up properly and rigidly. Steel scaffolding, if available, may be used. Where scaffolding is necessary it shall be erected on double supports. Holes shall not be made in walls for supports. Planks shall be fixed and tied together in case of finishing works such as plastering, painting and distempering no part of the scaffolding shall touch the structure. Where ladders are used, gunny bags shall be tied up at the end to protect any damage to work by sliding etc.

2.12 *Timber*

Timber shall be of type as stated in schedule and the best kind available. Perfectly dry, well seasoned free from sapwood. And shall be straight free from knots, cracks, roots and other defects.

2.13 *Wrought iron work*

All wrought iron work shall be of best kind and of the size and shape specified. The ironwork shall be free from burning blisters and cracks and shall be coated with shop coat of anticorrosive paint. No ironwork of inferior workmanship or quality shall be allowed to be used.

2.14 *TOR Steel*

Steel shall comply with the Indian Standards Specifications IS:226 latest editions for construction work. The surface shall be free from rust. All steel shall be TATA's or other Indian manufacturer. Untested steel shall not be used unless otherwise specified.

A Cement

One of the type of cement given below as specified shall be used Portland cement latest edition 53 grade conforming to is 12269 latest editions. Rapid hardening Portland cement conforming to IS 8041 (latest edition) any other brand of specified shall conform to relevant Indian Standard specification (ISS).

2.15 ***Glass***

Sheet or plates of glass shall be of approved Indian make (Pllington or equivalent) of thickness as stated in the schedule of quantities and visually clear when viewed from any direction. It should be free from bubbles, waves and all other defects.

2.16 ***Steel Frames***

Steel frames shall be manufactured out of steel conforming to the relevant standard specifications and shall have oxidized fittings. The size & section shall be as specified or shown on the drawings. They shall have all necessary accessories such as eyes, lugs and hinges etc. as per drawings and Engineer In charge's instructions. The welding of joints shall be full size and grinned neat.

2.17 ***Oil Paint and primers***

These shall be ready mixed Jonson & Nicholson, Shalimar Goodlac, Nerolac ,I.C.I or other approved brand and in sealed tins and shall be of the quality approved by the Engineer in charge & shall conform to the relevant I.S.S. (latest edition)

2.18 ***Distempers and primers***

These shall be either water bound or oil bond as specified in the schedule of quantities. These shall be in powder form of Jenson and Nicholson, Shalimar or other approved brand in sealed drums and package as directed by Engineer In charge. These shall be of approved brand such

as Snowcem/Apex Exterior Paint or equivalent as directed by the Engineer in charge.

Specifications for Works

2.0 EARTHWORK IN EXCAVATION:

2.1.0 The excavation shall be done strictly according to the dimensions shown in the plans or as directed. If Contractors excavates beyond what is stipulated in the drawings or as directed at site, the additional quantity of earth work shall not be taken into account for payment. In case, the Contractor excavates trenches and foundations width less than minimum specified, actual measurement of excavated trench will be taken for payment. The excavation will be carried out in all sorts of soils up to a depth as shown in the drawings and will be disposed- off as directed by Engineer-in-Charge within the lead of 1000 Meters.

2.2.0 Rates shall be inclusive of refilling the trench, foundation etc., with excavated earth with in the lead of 1000 meters.

2.3.0 Payment shall be made on cubic meter basis of the permissible excavation done.

3.0 CENTERING SHUTTERING FOR R.C.C. WORKS:

3.1.0 Form-work shall be strong enough to withstand dead and live load and forces caused by ramming / vibration of concrete and other incidental loads, likely to be imposed upon it during and after casting of concrete. Shuttering shall either be of wooden plank 30 mm minimum thickness or steel plate with stiffened edges. The shuttering shall be supported at bottoms by props of vertical sal ballies properly cross braced together so as to make the form work rigid. The shuttering shall have a smooth and even surface and joints shall not permit leakage of cement grout. The timber planks shall be accurately sawn and planed on one side. The surface of shuttering that would come in contact with concrete shall be covered with a thin sheet of polythene paper rolls, after removing all rubbish such as chippings, shavings, saw dust etc. from the shuttering.

Alternatively application of raw linseed oil or soap solution to the surface of the shuttering may be allowed at the discretion of the Engineer-in-Charge / Site Engineer. Sufficient camber shall be provided to the shuttering so as to offset subsequent deflection after pouring of concrete on it.

3.2.0 A minimum camber of 4 mm per meter length of beam and $1/50^{th}$ of length of cantilever / projected member shall be provided as directed by the Engineer-in-Charge / Site Engineer. Minimum period that shall elapse after

the concrete is laid, before removal of centering and shuttering shall be as per provisions of IS: 456. The completed form work shall be inspected and approved by the Engineer-in-Charge / Site Engineer before reinforcement bars are placed in position.

3.3.0 Payment shall be made for form work, centering shuttering etc. on Sqm basis. The length and breadth shall be measured in cms correct to two places of decimal and area shall be worked out in Sqm. No deductions from the shuttering due to openings / obstructions shall be made, if the area of such openings / obstructions does not exceed 0.10 Sqm. Nothing extra shall be paid for forming such openings. Rates quoted shall be inclusive of cost of form works, centering shuttering, labor, materials and removal of form work etc. complete as described above.

4.0 BRICK WORK:

4.1.0 Brick work will be with bricks of class specified in schedule of rates, laid in cement mortar of designed proportion as specified in item or drawings. Bricks shall be soaked in water thoroughly at the site of work for at least 6 hours before use. When the bricks are soaked they shall be removed from the tank sufficiently early so that at the time of laying they are skin dry. The bricks shall be placed in the tanks by hand, one by one, and not by throwing. The mortar shall be used before it shows any signs of setting or stiffening.

4.2.0 Unless otherwise specified, brick work shall be done in English bond with the frog upwards. No broken brick shall be used except at closures. Brick work shall conform to IS-2212. The courses shall be truly horizontal and the work strictly in plumb. The mortar joints should not exceed 10 mm in thickness except where extra thickness is required for the purpose of bringing the brick work to the required height or level or for making both faces even. The brick work shall not be raised by more than 14 single courses per day.

4.3.0 Masonry shall be kept constantly moist while under construction and for a

period of at least 10 days after completion. Watering shall be continued twice a day for at least one month after completion.

4.4.0 Construction of walls shall, as far as possible, be carried out in regular and level course throughout their entire length and no portion of work shall be 0.90 meter lower than the other. All cross walls, buttresses, counterforts, steps etc. shall be built up, course by course, with the main walls carefully embedded into them. Where such bonding is not possible in the course of the work for any reason, necessary grooves or toothing shall be left in the brick work for subsequent bonding. No extra payment will be made for this.

4.5.0 Brick work in foundation and plinth shall be the portion of brick work between foundation level and plinth level. Provision of relevant clausesof Special Conditions of Contract shall be applicable for distinguishing work infoundation from that of superstructure.

4.6.0 Brick work in superstructure will mean all brick works above plinth level. Parapet shall be considered as part of the wall. In exposed brick work, specially selected brick shall be used for facing, ensuring that irregular and wrinkled bricks or bricks which have irregular edges and corners are not used. The surface shall be rubbed down with brushes if necessary and thoroughly washed. The joints in faces which are to be plastered or pointed should be raked out to a depth of 15 mm while the mortar is still green. The raked joints shall be brushed and well wetted, and shall be later refilled with mortar to give ruled finish.

4.7.0 The rate for brick work shall include supplying, erecting and dismantling the necessary scaffolding. Scaffolding shall be strong and stiff. Holes left in the brick work to take the put logs shall be properly bricked up before plastering or pointing is done. Put log holes shall not under any circumstances be allowed in pillars.

4.8.0 <u>MEASUREMENT:</u>

4.8.1 Payment will be made on cubic meter basis on the volume of work done calculated on actual measurement of length, height and thickness. Any extra work over the specified dimensions shall be ignored. No extra payment will be made for cutting bricks, if required, either for openings or for rounding or for insertion at the time of construction of small fixtures in wall such as angles, joists, distribution boards, small size pipes, etc. No deduction will made for volumes occupied by such fixtures. No deduction shall be made for openings up to 0.1 square meter, cement concrete blocks for holdfasts/ holding down bolts. In calculating area of opening, any separate lintel or sills shall be included with the size of opening but end portions of lintel shall be excluded.

4.9.0 RATE:

4.9.1 The contractor's rate shall include cost of all material supply, fixing and removal of scaffoldings, curing etc. and shall apply to all brick work in steps, string course, blocking course, brick work curved in plan and parapet over roof etc.

5.0 HALF-BRICK MASONRY:

5.1.0 Half - brick wall (115 mm) laid in stretcher bond including reinforced will be measured in square meter for payment. In reinforced wall, 2 no. of 6 mm dia M.S. bars shall be provided at every fourth course. Proper laps & end embedments (of not less than 200 mm) shall be provided. They shall be securely anchored at their end where the partitions end.

5.2.0 **MEASUREMENTS:** Thickness of walls in excess of thickness computed on the basis of nominal brick sizes, if any shall be ignored while measuring. No separate payment shall be made for steel reinforcement used in the brick masonry. Deduction for openings shall be as per IS: 1200. The area shall be calculated in square meters.

5.3.0 **RATE:** The rate includes the cost of all materials and labor involved in all the operations described including cost of reinforcement.

6.0 DAMP PROOF COURSE:

6.1.0 Proportions

One part of Portland cement, 2 parts of coarse sand, 4 parts graded stone 20mm down size mixed with water proofing compound CICO or approved water proofing compound @ 1 kg/bag of cement shall be used. The compound shall be mixed with the cement in the proportion specified by the manufacturer or as directed by the Engineer-in-charge.

6.2.0 Mixing

As per specification for cement concrete, compound will be first mixed dry with cement.

6.3.0 Laying

D.P.C. shall consist of 40mm thick or as specified cement concrete. The edges shall be finished smooth. Plank shuttering for edges must be used. The top surface shall be double checkered and cured by pounding for seven days. The item shall include formwork, finishing, leveling etc. all complete.

7.0CEMENT CONCRETE (PLAIN & REINFORCED)

7.1.0 Mixing

All proportions shall be by volume or by weight as directed by Engineer-in-charge. Mixing shall be done in mechanical mixer. The cement and aggregate shall be thoroughly mixed together and the required quantity of the water shall be added to mixer only when all the cement and aggregate constituting one batch are in the drum. The concrete shall be mixed till the mixture is of uniform color. Mixing in a drum shall be continued for at least 2 minute after adding water. When in special cases hand mixing is allowed by the Engineer-in-charge. Measured quantity of coarse sand shall be spread evenly on a pucca watertight platform. Required quantity of cement shall be dumped on the sand and distributed evenly and mixed intimately with spade till mixing is of even color throughout. Measured quantity of

coarse aggregate shall be spread on top of cement and sand mixture and mixing done by shoveling and turning till the coarse aggregate gets evenly distributed in the cement sand mixture. ¾ quantity of water required should be added in a hollow made in the middle of the pile with spade. The whole mixture is turn over again and again and remaining quantity of water added gradually. Mixing shall be continued till the mixture is of uniform color and consistency. Only such quantity of concrete shall be mixed which can be consumed in half an hour. In case of hand mixing 10% extra cement shall be added. No extra payment for cement thus added shall be made to the contractor.

7.2.0 **Placing of Concrete**

Concrete shall be conveyed and placed in final position in such a manner as to prevent segregation and loss of any of the ingredients. The maximum height of drop and the method of placing concrete shall be approved by the Engineer-in-charge. The interval between adding water to dry ingredients and completion of placing of concrete shall not exceed 30 minutes and the concrete shall not be distributed once the setting of cement has commenced. The rate of placement of concrete shall be such that no cold joint is formed and fresh concrete is placed always against green concrete which is still plastic and workable.

7.3.0 **Protection**

Newly placed concrete shall be protected by approved means from frost, sun, dust, storms, rains and hot spells etc. Concrete placed below the ground shall be protected from falling earth. Ground having deleterious salts shall be kept free from contact with concrete at least for three days or otherwise directed thereafter.

Approved measure shall also be taken to protect immature concrete from damage by debris, excessive loading, vibration, abrasion, floating due to sub soil water and other influences that may impair the strength and durability of the concrete. This shall apply to all item of cement concrete such as

foundations, sub grade, flooring, damp proofing and all other R.C.C. and P.C.C. items.

7.4.0 Following tests shall be done on concrete in field or lab,as the case may be.

a) Slump Test (Field Test)

The consistency of the mix shall be controlled by 'slump test' of the wet mix as per IS specification. The test shall be carried out at least twice aday, once at start of concreting and the other near the end of concreting. Quantity of water to be used for such mix shall be such that the concrete is of adequate workability for the placing condition of the concrete and can properly be compacted with the means specified. Generally quantity of water to be used for each mix of 50 kg cement shall not be more than 34 liters for 1:3:6 mix, 30 liters for 1:2:4 mix, 30 liters for 1:1/2:3 mix and 25 liters for 1:1:2 mix. In case of vibrated concrete the quantity of water may be reached to avoid segregation. The quantity of water shall be regulated by carrying out regular stump test at intervals as mentioned above. The slump and workability for different kinds of work shall be as under:

Slump and workability for different kinds of works

	Placing Conditions	Degree of Workability	Value of Workability
1.	Concreting of shallow sections with vibration	Very low	0.75 to 0.80 compaction of factor
2.	Concreting of lightly reinforced section with vibration	Low	Slump up to 22mm 10.5 seconds vee bee time or 0.80 to 0.85 compacting factor
3.	Concreting of lightly reinforced section without vibration or heavily reinforced section with vibration	Medium	25-75 mm slump for 20mm aggregate.
4.	Concrete of heavily reinforced section without vibration	High	75-125 mm slump for 20mm aggregate

b) Test of material and (lab test)

Upon the signing of the contract, the contractor shall provide and deliver to the engineer-in-charge, at his own expense samples of the sand and coarse aggregate he proposes to use. Such samples shall be in sufficient quantity to enable tests to be carried out on the individual materials and for the making and testing of concrete cubes if required by the engineer-in-charge. All expenses of testing shall be borne by the contractor.
Six preliminary test cubes 150 x 150 x 150 mm shall be made in the laboratory for prescribed mix three for testing at seven days and three at twenty eight days. The mean strength of set of three cubes shall not be less than the following:

Strength requirement of cement concrete (IS 456)

Grade of concrete	Compressive strength	
	After 7 Days	After 28 days
M (10) 1:3:6	07 N/mm^2	10 N/mm^2
M (15) 1:2:4	10 N/mm^2	15 N/mm^2
M (20) 1:1.5:3	13.5 N/mm^2	20 N/mm^2
M (25) 1:1:2	17 N/mm^2	25 N/mm^2

During the course of the work, test cubes shall be made from time to time as directed by the Engineer-in-charge from freshly mixed concrete taken from a batch prepared in the normal way for actual use in the works. The cubes shall be in sets of six numbers and tested in accordance with IS: 1999 (latest edition) and IS: 516 (latest edition).

Three cubes shall be tested at seven days and three at twenty-eight days. Test strength of each specimen should not vary +/- 15% of the average. The concrete shall be deemed to comply with the strength requirements if the above test results meet the 'Acceptance Criteria' as per IS: 456 (latest edition).

In the event of a set of cubes failing to meet these strengths the engineer-in-charge may direct that any concrete represented by the cube be subjected to in-situ tests at the cost of the contractor. Depending on the result of such tests the Engineer may direct that the concrete be demolished and reconstructed at the expense of the contractor.

Workability testing shall be carried out in accordance with IS: 1199-1959. The results shall lie within the range upon which the accepted mix design is based.

Testing shall be carried out at such frequency so that required workability ic constantly achieved.

Prior to the commencement of concreting, the contractor shall submit for approval of the engineer-in-charge details of his proposed arrangements for carrying out tests. The results of all tests shall be communicated to the engineer-in-charge as soon as possible. If the engineer so desires he may require that his representatives shall be present at any test.

Contractor shall maintain records in a register issued by engineer-in-charge duly certifying the number of pages in the register of all test results of cubes of concrete indicating location where the quantity of concrete to which the cube is related has been used. In case of test result of core, location from where core has been cut with the result shall be mentioned. An extract of such entries in the register shall be submitted to the engineer-in-charge.

In addition, a cement consumption & reinforcement steel record shall be maintained in the prescribed form in a register issued by the engineer-in-charge, certifying number of pages in the register by him.

c)*Tensile strength of concrete (Lab. Test)*

I. Flexural tests of beams (usually third point loading) for values of modulus of rupture.
II. Diametrical splitting of cylinder for tensile splitting strength.
III. Direct tensile tests using special shaped specimens or special gripping devices for direct tensile strength.

d) *Durability*

Concreting is to be done with care with low water/cement ratio, good compaction, careful curing, dry and graded aggregates, specified cement content so that concrete is almost impermeable and can resist weathering, chemical attack and abrasion.

7.5.0 ***Repairing and finishing of concrete***

All concrete surfaces either cast-in-situ or precast shall have even, clean finish, free from honeycombs, air bubbles, fins or blemishes. The joint marks due to form work in concrete work exposed to view shall be rubbed out with carborundum stone and defects patched up with a paste of 1 part and 1 part cement and cured. The finishing shall be done to the satisfaction of the engineer-in-charge. Concrete surfaces to be subsequently plastered or

where brick work is to be done it shall be raked as soon as the form is stripped off so that proper bond can develop.

7.6.0 ***Curing and protection of concrete***

All fresh concrete shall be covered with a layer of hessian or similar absorbent material and kept constantly wet for a period of seven days or more from the date of placing of concrete as per directions of the engineer-in-charge. Curing may also be done by pounding. Steps shall be taken to protect immature concrete from damage by debris, excessive loading, vibration, abrasion, deleterious ground water, mixing with earth or foreign materials, floating etc. that may impair the strength durability of the concrete.

7.7.0 ***Reinforcement***

All bars TMTtor steel shall be cold bent by machines or by approved means. Bends, hooks and shapes shall confirm strictly to the dimension shown on drawings and unless otherwise mentioned, the bending dimensions shall confirm to IS: 2502. All binding shall be done by 16/18 gauge annealed soft iron wire. To ensure adequate cover steel bars shall be kept on small concrete cube or any suitable material as directed by engineer-in-charge. Sufficient number of chairs and hangers shall be used to keep the enforcement in position. Placing of reinforcement shall be completed well in advance of concreting. Before concreting, the reinforcement shall be inspected and approved for accuracy of placing, binding and cleanliness, by the engineer-in-charge. No placing of concrete shall be done before approval of reinforcement. Before reinforcement is covered contractor shall ensure that it is measured, checked by the component authority & properly recorded.

8.0VITRIFIED/ANTI-SKID CERAMIC GLAZED FLOOR TILES:

8.1.0 **MATERIALS:-**

8.1.1 Providing & fixing of colored 10mm thick vitrified floor tiles / 6mm thick Anti-skid ceramic glazed floor tiles of reputed make and manufacturer i. e. Somany, Kajaria, Johnson (thickness specified by the manufacturer may also be taken in to consideration). The tiles shall be flat, true to shape and free from blisters crazing, chips, welts, crawling or other imperfections detracting from their appearance.

8.1.2 Deviation in length of tiles (+/-) 0.1%

8.1.3 Deviation in thickness of tiles (+/-) 3%

8.1.4 Water absorption by tiles should not be more than 3% of its weights.

8.1.5 The Resistance of tiles should be strain proof.

8.1.6 Flexural strength of tiles should not be less than 39 N/mm^2.

8.2.0 **BASE PREPARATION**

8.2.1 Tacking on existing floor, riser, dadoes on / surface shall be done for proper bonding between tiles and floor with cement mortar of specified grade / adhesive solution.

8.2.2 Tacking scrap to be collected & disposed off outside station premises within a lead of 1 Km.

8.2.3 After tacking & dry-cleaning, proper washing of existing floor/surface to be done by neat water.

8.2.4 After washing proper cleaning of existing floor, riser, dedoson / surface shall be done by soft brush and all dust particles or any loose materials to be cleaned by wet cloth.

8.3.0 **LAYING / FIXING OF TILES**

8.3.1 After the base is cured and dried, 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) for vitrified / anti-skid ceramic glazed floor tiles and / adhesive solution (As per recommendation of manufacturers) shall be laid on the surface and spread evenly with a trowel. Neat cement slurry of honey like consistency over cement mortar shall be spread over. The back of the tile previously cleaned and soaked in water shall be placed over the mortar and brought to proper level by striking gently with a wooden mallet.

8.3.2 The tiles shall be laid in the manner as specified above in required pattern with as thin a joint as possible. The joints shall be thoroughly cleaned and

pointed with white cement slurry admixed with pigment of matching color as the tiles. The pointing can alternatively be carried out with an approved non-shrink grout of matching color as recommended by the manufacturer.

8.3.3 Since these are specially pre-sized tiles, and they have very low moisture absorption and thermal expansion, they can be laid free of joints, and it is not necessary to leave gaps between two tiles. For large areas, an expansion gap of 2-4 mm may be provided after every six meter of laying.

8.3.4 Cutting of tiles shall be done by cutting machine, as per requirement / size of floor. Fixing of tiles on skirting, door's Jam, corners etc shall be done according to site condition/requirement for which no extra cost shall be involved.

8.3.5 Joints between existing skirting & tiles shall be filled up with white cement. Edge of existing floor/ surface & top of the tiles at door portion shall also be filled up by same material maintaining angle of 45^0 or less so as to form a fillet.

8.3.6 Fifteen minutes after fixing the tiles, wipe with a damp sponge and clean / polish the tiles with a soft dry cloth.

8.3.7 The tiles should be Scrub and Scratch free and finally cleaning of the tiles shall be done by water or dilute soap solution followed by water / moist cloth or sponge.

8.4.0 **PRECAUTIONS**

8.4.1 Do not use neat cement while fixing / laying tiles. Only manufacturer's supplied adhesive (Mortar) to be used.

8.4.2 Wooden mallet / hammer to be used to keep the tiles in position and to remove air pocket between tiles & adhesive.

8.4.3 Minimum 95% of tiles shall be free from visible defects.

9.0Granite/Marble/Kota stone Flooring

9.1.0 The slabs of Granite/marble. Kota stone as specified in the item. they shall be made of selected quality, hard, sound and dense, color, shape, homogeneous in texture, free from cracks, decay, weathering and fault, Granite should be of Bangalore good quality polished 18 mm thickness otherwise specified. Before starting the work, contractor shall get the sample of slabs approved; the color pigment should be used to match the shade of the marble/granite/Kota.

9.2.0 **Dressing**

Every stone shall be cut by hand/machine to the required size and shape and chisel dressed on all side /or cut by machine all the angles and edges of the slab shall be true, square and free from chipping and the surface shall be leveled smooth, the thickness of the slab shall be described in the item of work description.

9.3.0 **Laying**

9.3.1 The sub grade concrete or the R.C.C.slab on which the stone slabs are to be laid shall be cleaned wetted and mopped. The bedding for the slab shall be with cement mortar 53 grades of specified quality and ratio.

9.3.2 The average thickness og the bedding mortar under the slab shall be 18 mm or specified and the thickness at any place under the slab shall not be less than 12mm.when the mortar has hardened cement slurry of paste like consistency be spread at the rate of 4.4 kg of cement per square meter. The edges of the slab already paved shall be buttered with cement and admixture of pigment mating the shade of stone slab. The slab shall then place in position so as to get a matching joint and required level.

9.4.0 **Curing**

The flooring shall be cured for a minimum period of seven days.

9.5.0 **Grinding and Polishing.**

After the laid marble/kota flooring are cured and have dried, these shall be polished. Grinding should be done by granite finish polishing and grinding machine, the first grinding shall be done with granite grinding blocks six batti should be used to finish grinding in a smooth manner, before the final granite finish block shall be used after that buffing block batti shall be used to give a smooth granite polish finish.

9.6.0 **Measurements**

Measurement shall be done in square meters of the flooring/slab counters/stair steps, length and breadth shall be measured between the finished faces of skirting door or wall plaster, the skirting shall be measured

in square meters , as the case may be, correct to the centimeter and area calculated up to two place of decimal.

10.0 CERAMIC GLAZED TILES IN WALLS / SKIRTING / DADOS:

10.1.0 **MATERIALS:-**

10.1.1 Minimum 5mm thick Ceramic glazed tiles of approved color, brand and manufacturer i.e. Somani / Kajaria / Johnson or equivalent approved make shall be used with following details:

i) Deviation in length of tiles ± 0.6%

ii) Deviation in thickness of tiles ± 5%

iii) Water absorption by tiles should not be more than 0.5% of its weights.

iv) The abrasion resistance of tiles should not be less than 204 mm^2.

v) Flexural strength of tiles should not be less than 27N/mm^2.

10.2.0 **BASE PREPARATION:-**

10.2.1 Tacking on existing surfaces of floors, skirting, risers, dados shall be done for proper bonding between tiles and the surface with cement mortar of specified grade / adhesive solution.

10.2.2 Tacking scrap to be collected & disposed off outside station premises within a lead of 1 Km.

10.2.3 After tacking & dry-cleaning, proper washing of existing floor/surface to be done by neat water.

10.2.4 After washing proper cleaning of existing floor, riser, dados the surface shall be done by soft brush or cotton cloth and all dust particles or any loose materials to be cleaned by wet cloth.

10.3.0 **LAYING / FIXING OF TILES**

10.3.1 After preparation of the base, the tiles shall be fixed over a base of 12 mm thick cement mortar 1:3 (1 cement: 3 coarse sand). The back of the tiles previously cleaned and soaked in water shall be fixed over the mortar and brought to proper level by striking gently with a wooden mallet.

10.3.2 The tiles shall be laid in the manner as specified above in required pattern with as thin a joint as possible. The joints shall be thoroughly cleaned and pointed with white cement slurry mixed with pigment of matching color as of the tiles. The pointing can alternatively be carried out with an approved non-shrink grout of matching color as recommended by the manufacturer.

10.3.3 Since these are specially pre-sized tiles, and they have very low moisture, absorption and thermal expansion, they can be laid free of joints, and it is not necessary to leave gaps between two tiles. For large areas, an expansion gap of 2-4 mm may be provided after every six meter of lying.

10.3.4 Cutting of tiles shall be done by cutting machine, as per requirement / size of floor. Fixing of tiles on skirting, door's Jam, corners etc. shall be done according to site conditions / requirement for which no extra cost shall be involved.

10.3.5 Joints between existing skirting & tiles shall be filled up with white cement mixed with pigment to match the shade of the tiles. Edges of existing floor / surface & top of the tiles at door portion shall also be filled up by same material maintaining angle of 45^0 or less so as to form a fillet.

10.3.6 Fifteen minutes after fixing the tiles, wiping with a damp sponge and cleaning / polishing the tiles with a soft dry cloth will be done.

10.3.7 The tiles should be Scrub and Scratch free and finally cleaning of the tiles shall be done by water or dilute soap solution followed by water / moist cloth or sponge.

PRECAUTIONS

10.4.1 Use of cement mortar / adhesive for fixing / laying tiles shall be done only as per manufacturer's recommendations and as per the direction of EIC / Site Engineer. Nothing extra shall be paid to the contractor on this account.

10.4.2 Wooden mallet / hammer to be used to keep the tiles in position and to remove air pocket between tile & adhesive.

10.4.3 Minimum 95% of tiles shall be free from visible defects.

10.5.0 Measurements: The length and breadth of the tiles fixed shall be measured in cm correct to two places of decimals and area shall be calculated in Sq.m. The rate shall be inclusive of cost of all the operations described above.

11.0 M.S Steel Railing

Steel shall comply with the Indian Standards Specifications IS: 226 (latest edition) for construction work. The surface shall be free from rust. All steel shall be TATA's or other Indian manufacturer. Untested steel shall not be used unless otherwise specified.

12.0 Stainless steel Railing

Providing and fixing staircase railing 90cm high from nosing of steps , made of following specifications:

a) 50mm dia. SS pipe handrail.
b) Providing and fixing in position SS railing at staircase made out of-304 grade 16 SWGSS handrail -50mm dia. With Stainless Steel end cap and fixed into wall at end. Mid rail -12mm dia. X 3 rows 1st balustrade 75mm x 2 Nos. and other Balustrades75mm x 2 Nos. and other balustrade- 38mm Dia. x 5 steps per side with base plate of 5mm with Stainless Steel base cover and complete with all fittings as per design and diagram.

13.0 ANODISED ALUMINIUM DOORS / WINDOWS / VENTILATORS / PARTITIONS AND CARPENTRY WORK:

13.1.0. **General:**

13.1.1 Aluminum Doors / Windows / Ventilators / Partitions shall be fabricated (by mitering) with box type frame sections & of size as mentioned in the relevant item of schedule of rates or as shown in the drawing & shall be conforming to IS: 1948-1961. All sections shall be fabricated from extruded sections as manufactured by reputed concerns & as approved by Engineer-in-charge. The weight & thickness of walls of sections shall be as specified in relevant item of schedule of rate. Robust construction shall be achieved by interlocking & screwing outer frame corners.

13.1.2 **Finish:**

Aluminum doors will be anodized. & will be powder coated. The average thickness of anodized coating shall not be less than 15 microns as per IS-1868 and average thickness of powder coating shall not be less than 50 microns. A thick layer of clear transparent lacquer based on mathacrylates or cellulose butyrate shall be applied on aluminum door to protect the surface from waste cement during installation. Before handing over the building the lacquer coating shall be removed as directed by Engineer-in-charge.

13.1.3 **Hinges:**

Hinges shall be projecting type, made of Aluminum alloy conforming to relevant Indian Standards and welded to frames). Minimum two hinges shall be provided for each shutter, however, door shutter shall be provided with one additional hinge at the centre. The pins for hinge shall also be of aluminum alloy conforming to HR 30 of Indian Standard. Pins for hinges shall have an anodizing coating of 25 micron thickness and powder coating of 50 microns thickness.

13.1.4 **Fixing of panels/doors/windows/ ventilators:**

Fixing of frames with walls /other members shall be done in any of the following three manners;

Using 30 mm x no. 10 galvanized screws in case the frame is to be fitted to a wooden member.

ii) With slotted galvanized steel lugs fitted to the frame with galvanized nuts and screws embedded in cement concrete block (1:2:4) in case, the frame is to be fitted on a brick / stone masonry wall.

iii) With plug and galvanized screws (45 mm x 10 nos.). Position and number of fixing lugs and screws shall be as per IS: 1948: 1961 as far as practicable, Complete with all accessories including cleaning the Aluminum sections free from lacquer.

13.2.0 **ALUMINIUM FULLY GLAZED DOORS:**

13.2.1 Aluminum doors shall be manufactured from standard aluminum alloy extrudes sections and shall be all as per drawings. The aluminum alloy shall be as per IS-733, HE-O-WP. Hollow aluminum alloy sections shall conform to IS designation HV-O-WP of IS 1285. Aluminum doors will be made of 5.5 mm thick plate glass fitted and fixed with box 101.6 x 44.45 x 3.18 mm aluminum frame with snap beadings and glazing clips as per standard practice and exhibit drawings. Aluminum beading of approved size and make, gasket and felt will be used for holding the glass in position. One floor spring 12"x8" as per IS 7197 shall be provided with each panel at bottom unless otherwise specified and one pivot at top of each panel shall be provided. Proper locking arrangement as per drawings and direction of Engineer-in-Charge shall be provided.

13.2.2 **Fittings & Fixtures:**

All doors shall be provided with double action floor spring, suitable locking arrangement (open able either from outside or inside), bolting devices and handles. In case of double leaf shutters doors, the first closing shutter shall have a concealed aluminum bolt at top. All fixtures shall conform to relevant I.S. codes.

13.2.3 **Rate:**

Rate shall include cost of all materials and labor required for fixing the door excluding the cost of floor springs (which shall be paid separately) etc. complete with all accessories including cleaning the aluminum section free from lacquer.

13.3.0 **ALUMINIUM PARTLY GLAZED PARTITIONS:**

13.3.1 Aluminum sections, finish, glazing, workmanship etc. shall, in general, conform to the specifications covered under clause 16.1.0 and its sub-clauses except that floor-springs and locking arrangements which will not be required in case of glazed panels. These panels shall have to be fixed in wall openings (with provision for opening as per drawings, specifications and instructions of the Site Engineer / Engineer-in-charge.

13.3.2 **Rate:**

Rates shall include all materials and labor required for providing and fixing he panel in position complete.

13.4.0 **ALUMINIUM GLAZED WINDOW/ VENTILATORS (FEXED/ OPENABLE / TOP HUNG VENTILATORS):**

13.4.1 Frames for windows/ventilators shall be fabricated from anodized aluminum alloy section HE9-WP confirming IS : 733 and HE9-WP conforming to IS-1285 true to dimensions as shown in construction drawings after making clearance for proper fittings in the wall opening as per IS:1948.

13.4.2 **Glazing:**

Glazing panels of not less than 4 mm thickness or as specified shall be used. Sizes of glass panels shall conform to table I of IS:1948, wherever practicable. Specifications and fixing glazing shall confirm to those of steel door, windows and ventilators.

13.4.3 **Fittings & Fixtures:**

All windows shall be provided with cast aluminum handles and peg stays conforming to A-5-M of IS: 617 with anodized finish of 15 micron thickness and powder coating of minimum 50 microns thickness. Ventilators shall be top hung and provided with peg stays. It (peg) shall be 300 mm long complete with peg & locking bracket. The locking bracket shall either fitted to the frame or to the ventilator.

13.4.4**Rate:**

Rate quoted for glazed windows and ventilators shall be inclusive of glazing works and shall be as per relevant item given in the schedule of rates.

13.4.5 **Payment:**

Payment shall be made on square meter basis of the actual area of the frame fixed.

13.5.0 **CARPENTRY & JOINERY**

13.5.1 **Carpentry work:**

The timber to be used shall be well seasoned free from knots and other defects. All joints shall be true and tightly fitted to each other and of the type as specified for the particular work. The embedded portion of the timber shall be painted with two coats of hot bitumen. The surface of wood work to be painted shall be cleaned and sand papered so that the surface is quite smooth. Paint shall be applied over a priming coat of specified primer. All joints shall be neat and strong truly accurately fitted and coated with white lead being fitted.

13.5.2 **Flush Doors:**

These shall be of well seasoned soft wood battens of poplar etc with three layers of ply as specified these flush door shutter should be phenol bonded fire proof and water proof in all respect with teak wood lapping on all side, the thickness will be 40 mm as specified. Molded and mortised together in a workman like manner. Each panel of door shall be of such thickness as specified.

The measurement shall be in square meters from outside of frame both ways vertical and horizontal. Wooden molding shall not be paid separately. Measurements shall be measured nearest to one mm and area calculated to three places of decimal in square meter and shall include all fittings as described in the item of work.

13.5.3 **Almirah and boxes below work counters:**

These should be of seasoned board 18mm board of good quality termite proof and water proof of ISI mark Duro or equivalent and lapping on shutter should be of teak wood, with sunmica 1.0 mm thick pressed with fevicol/ or any other specified bonding material on the front surface or good quality veneer should be used as per the specified shade and quality.

Measurement shall be done in square meters.

13.6.0**Rate:**

Rate quoted for glazed doors, almirahs and boxes shall be inclusive of all complete fitting works and shall be as per relevant item given in the schedule of rates.

13.7.0**Payment:**

Payment shall be made on square meter basis of the actual area of the frame fixed.

14.0Aluminum Composite Panel:-

14.1.0Providing & Fixing of **4mm thick PVDF coated** Exterior Grade Aluminum Composite Panel Cladding consist of LDPE core laminated between two sheets of aluminum foils**.50** thickness of a same grade on both sides as per ASTM standard ensuring no Air Entrapment between PE core and Aluminum Coil in desired color as may be approved by the Architects as per Elevation Drawings and Plan Drawings.

14.1.1The basic frame work shall be created by **38mm x 38mmx16 gauge thick** Extruded Aluminum Rectangular Tube in the vertical and horizontal plane of the cladding.

14.1.2The Extruded Aluminum Rectangular Tube shall be provided with 50mm long Aluminum Extruded Angle (Brackets) of 25x25x4 mm thick (Or 38x25x4 mm thick-50x25x4 mm thick or as may be required at site at respective locations) at every 900mm internal on both sides of the Tube, fixed with 3 Nos. of Aluminum Rivets for each angle.

Fixing of the basic framework shall be done by drilling holes by an Electric Drill in the Masonry/Reinforced Cement Concrete, inserting 50mm long Nylon Sleeves of Fischer make and 10x25 or 50 or 75mm long stainless Steel CSK Wooden Screw (2 Nos. per Bracket). Wherever the basic frame work is required to be fixed on to Metal Structural Framework, the same shall be done by drilling holes and fixed with Stainless Steel self taping screws. ACP shall be sealed with

"Non-Staining" Silicon Weather Sealant of **Dow Corning 789 (USA).** TheAluminum Composite Panel Cladding shall be measured on out to out basis and paid for.

14.2.0**Semi Unitized Glazing-**

Providing & fixing of Semi unitized structural glazing in DGU (Double glass unit) as per the Elevation drawing, fabricated out of Heavy Duty Aluminum Extruded profiles. All profiles shall be conforming to Alloy **63400 WP**. Frame made from **131mm x 67mm2.5mm Thick.** hollow extruded structural glazing Vertical section, horizontal section **81mm x 67mm X 2.5 mm** and sub frame section will be of **68mm X 28mm.X1.8mm** thick for glass with natural Anodized/power coating minimum **50 to 60 micron** and glass will be of **6mm toughened reflectasol +12mm air gap+6mm clear toughened glass Make Saint Gobain .** with fixed in grid pattern mechanically joined with cleats and screws, frame fix to the slab /beam with fastener and fixing over it unitized Aluminum glazed panel with spacer tape and structural glazing adhesive and duly fixing the glazed panel to the main frame and sealing joint with silicon sealant make **Dow Corning789** for waterproofing and **995** structural support. All Profile shall be Powder coated to required color .The Semi unitized structural glazing shall be designed for a Wind Pressure as per site condition. The Anchoring/ Bracing of the Semi unitized structural glazing at site with Heavy duty M.S. Brackets of approved design, Pure Polyester Powder Coated to 50 Microns Thickness in approved color M.S. Brackets of approved Design. PVC spacers shall be provided between

the Aluminum Mullion member and Bracket. Aluminum shims of various thicknesses as may be required shall be provided behind the brackets to adjust the beam level variations possible at site, or Extended brackets duly designed shall be provided of required size as per site requirements. FISCHER makes fasteners and 10 x 75 mm. stainless

Steel Bolt (or as may be required as per site condition) shall be used for Anchoring the Brackets to provide a minimum anchoring depth of 40mm in the concrete to withstand the dead load of the Semi unitized structural glazing as stresses due to wind pressure etc.

14.3.0**Technical Specifications:-**

A. Vertical Frame Section	: 131mm X 67mmX2.5mm thick.
B. Horizontal Frame Section	: 81mm X 67mmX2.5mm thick.
C. Glass Panel Section	: 68mm X 28mm.X1.8mm thick.
D. Reflective Glass Reflectasol+ 12mm air gap + 6mm clear . toughened glass.	: 6mm toughened .
E. Powder Coating	: 50/60 microns Color Powder Coating.
F. Tape	: Norton Tape.
G. Bracket	: 6mm thick MS Power Coated bracket.
H. Anchor Fastener	: 12mmX100mm Fastener.

I. Structural Silicon : 995 St Silicon Dow corning.

J. Weather Sealant : 789 Weather Sealant Dow Corning.

15.0 Structural glazing

15.1.0 Design, fabrication and installation of structural glazing system in the form of fixed panels, using specially designed aluminum extruded sections, (weight 6 Kgs./sq. m.) mullions and transoms having 50 micron pure polyester powder coating of approved color and shade and make with mullions fixed on the RCC beams/columns through adequately designed brackets providing and fixing glass as specified including providing masking tape on the profiles for safety against external scratches on site complete with approved silicon sealant EPDM gasket etc. to make the curtain glazing air tight and water tight as per standard and as per architects drawings and specifications. Contractor to furnish shop drawings along with sequence of work and for approval of Architect.

15.2.0 Above items using insulated glass hermetically sealed with 6 mm outer hard coated toughened reflective glass and 5 mm clear float glass inside with 12 mm dry air cavity between two glass panes separated by a hollow aluminum spacer bar with twin lines of micro holes as approved filled with molecular desiccant of approved make sealant of approved make all complete.

16.0 ARMSTRONG CEILING SYSTEM

16.1.0 **Lay In Metal– Standard Perforated without fleece (BP4266M6A1WH)**

Providing & Fixing of Armstrong Lay In Standard Perforated without fleece (BP4266M6A1WH) metal ceiling System consisting of 600x600x0.50mm Lay in tiles with micro look edge. Tile should have 2.50mm dia. holes with 16% open area. Material of pre coated hot dipped galvanized steel with surface

finish of baked polyester paint in 0.50 mm thickness in white color with RH 100 performance to inhibit panel sag. Formulated to withstand conditions with temperature up to 49 degree Celsius. Having CAC of 36 and fire resistance of Class A and Air quality ISO 3 (3). And having inherent Anti Microbial. Light reflectance 77% and scrub able soil resistant durability. To be laid on Armstrong make Superfine 15 mm steel angle systems with 15mm wide T - section flanges color white having rotary stitching on the Main Runner (BP754033), 1200mm (BP753032) & 600mm (BP752032) Cross Tees and Angle Molding (BPT1945HI). Luminaries should be independently hung from the Soffit. Web height of steel angle should be 38mm with load bearing capacity of 15.20 Kg/ SQM. Length of Main Runner should be 3600mm.

The Tile & Grid system used together should carry a 15 year warrantee. The T Sections have a Galvanizing of 120 grams per M2 & passed through 500 hrs of Salt test.

16.2.0**INSTALLATION:** To comprise main runner spaced at 1200mm centers securely fixed to thestructural socket by approved hanger at 1200mm maximum centre. The last hanger at the endof each main runner should not be greater than 450mm from the adjacent wall.Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm centreto form 1200 x 600 mm module. Cut cross tees longer than 600mm require independentsupport. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross teescentrally between the 1200 mm cross tees.Perimeter trim to be Armstrong wall angles or channel, secured to walls at 450 mm maximumcenters.

16.3.0**ARMSTRONG SUSPENSION SYSTEM** accessories manufactured and supplied by Armstrong World Industries consisting of M6 Anchor Fasteners

(BPGM6065) with Vertical Hangers (BPGM2626) made of Galvanized steel of size 26 x 26 x 25 x 1.2mm with a Galvanized Thickness of 80gsm, A pre Straightened Hanger wire (BP78916BD10) of dia – 2.68 mm of 1.83 m length., thickness of 80gsm and a tensile strength of 344-413 MPa, along with Adjustable hook clips (BPGM2010) of 0.8mm thick, galvanized spring steel for 2.68 mm with a minimum pull strength of 110 kg. The adjustable clip also consists of a 3.5 mm aquiline wire to be used with the main runner.

17.0.0 <u>APP WATER PROOFING:</u>

17.1.0 Water Proof treatment on roof shall be as specified in Schedule o f Rates and shall be carried out as per CPWD specifications 2009 volume-II Clause no. 25.13 and as per manufacturer's recommendations.

17.1.1The surface to be treated shall have a minimum slope of 1 in 120 or as directed by the Site Engineer. Grading shall be carried out with PCC 1:2:4 with 10 mm down aggregate to 40 mm average thickness and finished smooth. Such grading shall be included in the item and nothing extra shall be paid on this account.

17.1.2 Junction between the roof and vertical face of parapet wall etc. shall be caused by running galta / triangular fillets 75x75 mm size in PCC 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size). At the drain mouths the fillets shall be suitably cut back and rounded off for easy application of water proofing treatment and easy flow of water. The provision of fillets shall not be included in the item of water proofing and shall be measured and paid for separately under the relevant item of schedule of rates.

17.1.3 For carrying over and tucking in the water proofing felts into parapet wall etc. a horizontal groove 65 mm deep and 75 mm wide section with its lower edge not less than 150 mm above the graded roof surface shall be left on the inner face of the same during construction, if possible. When such groove has not been left, the same shall be cut out neatly. The base and rear of the groove shall be finished smooth with cement mortar 1:4 (1cement: 4coarse sand). Such cutting of groove and its finishing smooth shall be deemed to be part of the water proofing item and shall not be measured or paid separately. No deduction shall be made either, for making the groove when the later has already been left in masonry.

17.1.4 Tucking in of the water proofing felt will be required where parapet wall exceed 45 cm in height from graded surface. Where the height is 45 cm or less, no groove will be required as the water proofing treatment will be carried over the top of the parapet wall to its full thickness. Such treatment shall not be measured or paid for separately.

17.1.5 The graded surface of the roof and concrete fillets and face of walls etc. shall be thoroughly cleaned with wire brushes & all loose scale etc. removed. The cracked surface shall be cut to `V' Section, cleaned and filled up flush with cement mortar slurry 1:4 (1 cement : 4 coarse sand). Such cleaning of the surface or treating the crack shall not be paid for separately.

17.1.6 After grouting the crack, if any, with Cement grout, the same shall be cured for a minimum period of seven days. The roof surface will be made dry and thoroughly cleaned with wire brushes & all loose scale etc. removed. The APP (Atactic Polypropylene Polymer) modified prefabricated five layer 3mm

thick water proofing membrane, black finished reinforced with non-woven polyester matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40liter / Sqm by the same membrane manufactured of density at 25degree Celsius , 0.87 - 0.89 kg / liters and viscosity 70 - 160 cps. Over the primer coat, the layer of membrane shall be laid using butane torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under : Joint strength in longitudinal and transverse direction at 23degree Celsius as 350/300 N/5cm. Tear strength in longitudinal and transverse direction as 60/80N. Softening point of membrane not less than 150°C. Cold flexibility shall be up to -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorized applicator of the manufacturer of membrane.

17.1.7 Payment will be made on square meter basis of the area of roof surface covered by the APP water proofing treatment. No extra measurement shall be made for laps, joints, anchoring in grooves, carrying over parapet etc.The rate will be inclusive of all the operations described above.

18.0.0**G.I. PIPES & FITTINGS:**

18.1.0 All G.I. Pipes and fittings shall conform to IS: 1239 and shall be of medium grade (Class - B) for water supply services. All screwed tubes and sockets shall have pipe thread in accordance with the requirement specified in IS: 554.

18.2.0 All fittings shall be of malleable galvanized iron approved by the Engineer-in-Charge. Fittings in G.I. line shall include all couplings, elbows, tees, bends, union, nipples, reducers, rubber insertion etc. No extra payment shall be made for these fittings. Payment shall be made on running meter

basis. All pipes shall be painted with two coats of anti corrosive bitumenestic paint with an under coat of red oxide primer.

18.3.0 After laying and jointing, the pipes and fittings shall be inspected under working conditions of pressure and flow. Any joint found leaking shall be redone and all leaking pipes shall be replaced at no extra cost. The pipes and fittings after laying shall be tested under a gradually applied test hydraulic pressure of 6 kg/sq.cm. The pipe and joints shall be capable of maintaining the above pressure for at least half an hour without any indication of fall of pressure. All expenses in carrying out the test shall be borne by the Contractor.

18.4.0 Measurement shall be made in running meter of the finished job as described above. Rate shall include the cost of materials and labor involved in all the operations describe above.

19.0.0 EUROPEAN TYPE WATER CLOSET :

19.1.0 Water closet of Hindustan ware /Perry ware or any other equivalent approved make, color , of vitreous china clay conforming to IS: 2556 ,Part VIII and as described in the Schedule of Rates. The closet shall be of one, piece construction and have integral flushing rim of suitable type. Each water closet shall have four holes with its pedestal for fixing to the floor. The water closet shall have an integral S or P trap outlet with at least 50 mm water-seal. The closet shall be provided with 10 liters low level PVC flushing cistern with all fittings, CP Brass Angle valve with CP Brass connection pipe, M.S. or C.I. brackets and 40 mm dia flush bend pipe. The closet shall be provided with approved color plastic seat and lid.

19.2.0 The water closet shall be fixed to the floor by means of 75 mm long 6.5 mm diameter counter sunk bolts and nuts embedded in the floor concrete. The cisterns shall be fixed on C.I. cantilever brackets which shall be firmly embedded in the wall in cement mortar 1:4 (1 cement: 4 fine sand). The cistern shall be connected to the closet by means of 40 mm diameter white porcelain enameled flush bend with rubber inlet connection.

19.3.0 Rate shall include cost of all materials, labor involved in all the operations specified above including fixing, cutting of wall and floor and making good the same.

20.0.0 <u>WASH BASINS</u> :

20.1.0 Wash basins of Hindustan ware /Perry ware or any other equivalent approved make and size specified in the relevant item of schedule of rates shall be provided and fixed with single 15 mm CP brass pillar tap with CI/MS brackets of approved brand i.e Kingston / Gem/ Techno/ Parko. Wash basin shall be of one piece construction including a combined over flow. This shall be fitted on C.I. or M.S. brackets (conforming to IS:775). The wall side shall be fixed well flushed with the plaster of wall and the joint, if any, shall be properly finished with mortar and painted white. The basin shall be provided with C.P. brass waste trap, C. P. brass chain, rubber stopper, CP brass bottle trap, CP brass angle valve, CP brass connection pipe and 32 mm dia. C.P. brass waste pipe. The basin shall be fixed at 800 mm above finished floor level or as directed by the Site Engineer.

20.2.0 Rate shall include cost of all materials and labor involved in all the operations mentioned above.

21.0.0 <u>C.P. BRASS BIB COCKS/ STOCK COCKS/ OTHER CP FITTINGS</u>

21.1.0 All the C.P. Brass bib cocks, concealed stock cocks, bottle traps and all other CP fittings shall be of Kingston / Gem/ Techno/ Parko or equivalent approved make.

22.0.0 URINALS:

22.1.0 Providing and fixing colored vitreous china flat back or wall corner type lipped type front Urinals basin of size 430 x 260 x 350 mm with automatic PVC flushing cistern of 5 ltr. Capacity of approved make i.e. Parryware / Hindware / Seabird / Orient with standard flush pipe and CP brass spreaders shall be conforming to IS:2556 Part-VI. Urinal basin shall be of one piece construction with integral flushing rim. These shall be mounted on walls.

The flushing inlet pipe connection piece shall be of CP brass 15 mm dia. with brass union and CP brass stop cock/Angle valve for cistern, 25 mm dia CP. distribution pipe and waste pipe shall be 750 mm long 32 mm dia. G.I. pipe with necessary brass union and CP. brass screws shall be used for fixing the urinals. Fixing shall ensure that no liquid is left over in the pan after flushing. Urinals shall be connected to automatic flushing cistern either individually or in groups. For a set of three urinals one automatic flushing cistern of 5 liter capacity shall be provided or as per specified in Schedule of Rates.

22.2.0 Rate shall include cost of all material and labor involved in all the operations mentioned above.

23.0.0 BEVELLED EDGE MIRROR:

23.1.0 The beveled edge mirrors shall be of best quality of `Hindustan Pilkington' or equivalent make approved by Engineer-in-Charge. The size of the mirrors shall be 600 x 450 mm and of thickness 6 mm. Mirrors shall be provided with a backing of asbestos sheet of 6 mm thickness and fixed to wooden cleat with 4 C.P. brass screws.

23.2.0 Payment shall be made on number of mirrors fixed.

24.0.0 <u>TOILET PAPER HOLDER</u>:

24.1.0 The toilet paper holder shall be of C.P. Brass of size 150 mm x 150 mm fixed with C.P. brass, screws over the wooden cleat. Chromium plating shall be of Grade B type conforming to IS: 1068 (latest edition). The payment shall be made on per number basis. The rate is inclusive of providing and fixing of toilet paper holder with screws, and making good the wall complete with all labor and material.

25.0.0 <u>TOWEL RAIL</u>:

25.1.0 The towel rail shall be of chromium plated and shall be of 20 mm dia. and up to 600 mm length. Aluminum brackets shall be fixed on both the sides. The rod shall be fixed with screws and wooden batten on the walls as directed. The mode of measurement shall be on number basis.

26.0.0 <u>C.I. RAIN WATER PIPES AND FITTINGS :</u>

26.1.0 Pipes and fittings shall be of approved manufacture. Pipe shall be

true to shape, have smooth and cylindrical inner and outer surfaces and be as nearly as practicable, concentric. These shall be of sound and uniform casting, free from laps, pin holes or other imperfections and shall be neatly finished and carefully fitted with both inside and outside. The pipes shall be factory painted with a coat of tar both inside and outside (applicable for CI pipes).

26.1.1 Pipes shall be secured to wall at all joints with MS holder bats and clamps. The clamps shall be made from 1.6 mm thick MS flat 30 mm width, bent to the required shape so as to fit tight on the socket of the pipe. The clamps shall be fixed to the wall by clamping/embedding their hooks in steelworks/cement. Concrete blocks 10 x 10 x 10 cm of mix 1:2:4 (1 cement: 2 coarse sand: 4 stone aggregate 10 mm nominal size) for which the necessary holes shall be made in proper places. The annular space between spigot and socket of the pipe shall be filled with five turns of spun yarn soaked in cement slurry and then filled with cement mortar 1:2 (1 cement : 2 fine sand and finished flush).

26.1.2 A M.S. grating of size 150mm X 150mm X 8mm thick weighing minimum 100grams shall be provided and fixed at the inlet mouth of the rain water pipes.

26.1.3 Payment will be made on running meter basis inclusive of all material, jointing, fitting and fixing in position, including bends, shoes. M.S. grating, MS holder bat clamps and other specials etc. complete for all the operations described above.

27.0.0 OIL BOUND DISTEMPER:

27.1.0 Materials:

Oil bound washable distemper of approved shade, brand and manufacture shall be used. The primer shall be of the same manufacture as oil bound distemper. The distemper and primer shall be procured by the contractor in sealed tin in sufficient quantities at a time to suffice for a fortnight's work and the same shall be kept in the joint custody of the contractor and the Site Engineer. The empty tins shall not be removed from the site of work, till this item of work has been completed and passed by the Site Engineer.

27.2.0 Preparation of Surface:

The surface shall be thoroughly cleaned of dust, old white or color wash if any by washing and scrubbing and then be allowed to dry for at least 48 hours. It shall then be sand-prepared to remove any unevenness. Depressions if any, shall be made up with plaster of Paris putty.

27.3.0 Application:

The primer coat shall be applied first horizontally and then vertically immediately afterwards. The surface shall be finished as uniformly as possible leaving no brush marks. It shall be allowed to dry for at least 48 hours before oil bound distemper is applied. The surface thus prepared shall be lightly sand papered to make it smooth for receiving distemper,

taking care not to rub out the primer coat. One coat of distemper properly diluted with thinner (as stipulated by manufacturer) shall be applied with brush in horizontal strokes followed immediately by vertical ones, which together constitute one coat. The subsequent coat shall be applied in the same way, so as to obtain an even shade. A time interval of at least 24 hours shall be allowed between consecutive coats to permit proper drying of the preceding coat.

27.4.0 Mode of measurements and payments shall be on the Sq.M. basis. Deductions of opening shall be done in accordance to IS 1200.

28.0.0<u>SYNTHETIC ENAMEL PAINT:</u>

28.1.0 Ready mixed paints of approved brand and manufacture as received from the manufacturers without any mixture shall be used as per the manufacturer's instructions. If for any reason thinning is necessary, the brand of thinner recommended by Site Engineer shall be used. Primer shall be applied uniformly over the all surfaces.

28.2.0 Paints of approved brand and manufacturers as approved by Site Engineer shall be used. Paints manufactured by M/S. Johnson & Nicholson, Asian Paints, Berger Paints, Nerolac and Shalimar shall only be used.

28.3.0 The brushing operations are to be adjusted to the spreading capacity advised by the manufacturers of particular paint. All unevenness shall be rubbed down to smoothness with sand paper and the surface shall be well dusted. The doors in wood shall be filled up with filler made of a paste of

whiting in, if required otherwise the French polish will get absorbed and good gloss will be difficult to obtain.

29.0.0 PLASTIC EMULSION PAINT

29.1.0 Preparation of Surface:

The surface shall be thoroughly cleaned of dust, old white or color wash if any by washing and scrubbing and then be allowed to dry for at least 48 hours. It shall then be sand-prepared to remove any unevenness. The surface before application of paint shall be flattened well to get the proper flat velvety finish after painting. Any depression / dents / holes shall be filled with thin acrylic wall putty/ cement putty and allowed to dry for 4 to 6 hours.

29.2.0 **Application:**

Plastic emulsion paints of Asian/Burger/Nerolac or other equivalent approved shade, brand & manufacture shall be used. The primer coat shall be applied first horizontally and then vertically immediately afterwards over the above prepared surface. The primer used shall be of the same make as the plastic emulsion paint. The surface shall be finished as uniformly as possible leaving no brush marks. It shall be allowed to dry for at least 6 to 8 hours. Again the surface shall be smoothened with emery paper and wipe cleaned followed by application of another coat of primer. This will again be allowed to dry for 6 to 8 hrs. The surface thus prepared shall be lightly sand papered to make it smooth for receiving 2 coats of premium emulsion paint, taking care not to rub out the primer coat. One coat of plastic emulsion paint properly diluted with water (as stipulated by

manufacturer) shall be applied with brush in horizontal strokes followed immediately by vertical ones, which together constitute one coat. The subsequent coat shall be applied in the same way, so as to obtain an even shade. A time interval of at least 3 to 4 hours shall be allowed between consecutive coats to permit proper drying of the preceding coat.

29.3.0 Mode of measurements and payments shall be on the Sq. M. basis. Destructions of opening shall be done in accordance to IS 1200.

30.0.0 SPECIFCATIONS FOR BUILDING ELECTRIFICATION

30.1.0 GENERAL

a) This specification defines the minimum requirements of supplies, installation & testing of internal electrification system of various buildings at stations.

b) The works under this specification include supply of all the materials as per ISS or equivalent international standards, which shall be duly approved by Owner. Contractor should indicate in the offer conforming codes/ standards and makes of various materials to be supplied and installed.

c) Number of various fittings/ fixtures is to be marked out which are indicated in the bid. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions, sizes, etc. and assume responsibility for the proper fitting of the materials and equipments in the buildings/structures.

d) The contractor shall employ supervisory and skilled personnel who are well conversant with the nature and standard of work required in electrification of buildings.

e) In all matters relating to the installation of electrical equipments, the Contractor shall be responsible for the quality and correctness of workmanship and for the quality and suitability of materials of his supply.

f) Inspection and acceptance of complete installation will be based upon compliance of the above regulations and requirements.

g) Contractor shall use modern methods and practices to secure a result that will present a high quality of workmanship and a neat and 'finished' appearance.

h) Temporary arrangement of power supply shall be done by the contractor without any additional cost, if main power supply is not arranged/available.

30.2.0**STANDARDS**

The work shall be carried out in the best workmanship manner in conformity with this specification and with the relevant specifications/ codes of practice of Indian Standard and International standards and shall also conform to the requirements of following:

i) Indian Electricity Acts and Rules with latest amendments.

ii) Tariff Advisory Committee; a statutory body under Insurance Act.

iii) Regulations laid down by the Electrical Inspectorate of respective states.

iv) Any other regulations laid down by the statutory authorities.

v) Requirement of OISD regulations.

30.3.0INSTALLATION OF MAIN & SUB DISTRIBUTION BOARDS:

Main and sub distribution boards shall be suitably mounted recessed on the wall OR erected on the foundations as per instructions of site engineer / EIC at locations indicated in the drawings. Distribution boards shall be earthed at two points to ensure perfect earthling. 40 x 5 mm G.I. strip shall be

employed to earth main distribution boards and 8 SWG G.I wire for earthling sub distribution boards.

30.4.0 SYSTEM OF WIRING:

All the wiring shall be of concealed type using conduits. Power wiring shall be kept separate and distinct from light & fan wiring. Separate wiring to be done for each light and power point as shown in the relevant drawing. Crossing of wiring must be avoided. The wiring must be done in such a way they are easily accessible for inspection and maintenance and Junction boxes should be provided at suitable intervals. Jointing of wiring wherever necessary, should be done by porcelain / epoxy resin connectors by providing additional junction boxes.

30.4.1 Point Wiring

All the Point wiring for 05 Ampere Switch & Socket shall include circuit wiring with 2.5 sqmm stranded PVC insulated copper wire of approved make from Distribution board to Switch board and from one Switchboard to other on the same circuit. The Point wiring for 15 Ampere Switch & Socket shall be circuit wiring with 04 sqmm stranded PVC insulated copper wire of approved make from Distribution board. For Point Wiring of an Air conditioner/Motor duty point; circuit wiring shall be done with 04 sqmm stranded PVC insulated Copper Wire of approved make including earthling the third pin with 2.5 sqmm Copper earthling wire including 20-Ampere Motor duty MCB, 3 pin 32 Amp. Metal Clad Plug & Socket. Stranded PVC insulated Copper Wire of 2.5 sqmm shall be used for wring from Switch board to Light fittings/Ceiling Fan/Exhaust Fan etc. for both phase & neutral

All wiring shall be concealed in 25 mm nominal dia. PVC conduit recessed on Wall/Ceiling/False Ceiling including supply of M.S. Switch boxes, Junction Boxes, Pull boxes, Bushes, Screws, Check nuts, Bends and all other accessories required to complete the job successfully.

16 S.W.G. G.I wire shall run all along inside the conduit to facilitate pulling of copper wires. Contractor may take GI wire of higher diameter/gauge depending upon his requirement for smooth pulling of wires in concealed conduits.

All the controlling switches shall be on the live side of the line.

30.5.0 LAYING OF CONDUITS:

30.5.1 Making of Chase:

The chase shall be provided in the wall & ceiling at the time of building construction and shall be filled up neatly after fixing of conduits in cement mortar 1:3 (1 cement : 3 coarse sand).

30.5.2 **Fixing of Conduit in chase**:

The conduit pipes shall be fixed by means of staples or saddles not more than 60 m apart. In order to minimize condensation on swelling inside the conduit, all the outlets of conduits shall be adequately drained and ventilated, but in such a manner as to prevent the entry of insects etc.

30.5.3 Bends in conduits:

Use of standard bends shall be avoided as far as practicable and all curves maintained by bending the conduit pipe itself with a long radius, which will permit easy drawing of conductors.

30.5.4 **Bunching of cables in conduits:**

The number of insulated cables that may be drawn through a conduit shall be in accordance with IS: 732-1963.

30.5.5 **Conduit Joints**:

Conduits shall be joined by threaded joints where there are long runs of straight conduit, inspection boxes shall be provided at suitable intervals. For conduits fittings & accessories reference may be made to IS: 2667-1964 & IS: 3837-1966.

30.5.6 Inspection Boxes:

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

30.5.7 **Earthling of conduits:**

Earthling of entire conduit shall be done by using 1 Sq.mm PVC insulated copper cable wires, which shall run all its length, outside the conduits. Conduits, in which cables have been installed, shall be effectively bonded and earthed. Cable arm ours shall be earthed at both ends.

The earthling of all equipment shall be carried out in accordance with the IS;3043-1966 (with latest amendments)

All the Nuts, Bolts & Washers to be used for termination in earthling system are to be of Brass.

Joints and tapping in the main earth loop shall be made in such a way that reliable and good electrical connections are permanently ensured. All joints on earthling strip shall be welded and suitably protected by giving two coats of bitumen and covering with insulation tape. The joints shall be lapped first with the overlapping length not less than width of the GI strip and it shall be welded all round the periphery of LAP joint. Tee connectors shall be used for tapping, earthling leads from the main earth loop wherever required.

31.0.0LIGHTING FITTINGS:

Each lighting fitting shall be controlled by a switch and all the accessories required to complete the fitting shall be supplied & erected as per manufacturer's recommendation. Necessary Control gears, support structures, clamps, copper ballast, capacitor, lamp holders, lamps, starters, connector blocks, drop pipes, ceiling roses, hooks, nuts & bolts, fasteners,

should be provided wherever required. The Flame proof light fitting shall confirm to IS 2148 & IS 2206 (latest edition)

31.0.0 EXHAUST FANS:

For fixing of an exhaust fan a circular hole shall be provided in the wall to suite the size of the frame, which shall be fixed by means of rag-bolts embedded in the wall. The hole shall be neatly plastered with cement and brought to the original finish of the wall. The exhaust fan shall be fed from the switchboard provided near the location of the fan. The location of exhaust fans shall be as indicated in the drawing. Louver shutters on outside wall for preventing entry of birds shall be provided. Wiring for Exhaust Fan is inclusive of providing 5 Ampere socket point near the exhaust fan and a 5-Ampere Switch under the exhaust fan at a height of 1.2 Meter from finished floor level. The work shall also include supply of accessories such as three pin Plug, three core flexible wire up to Exhaust Fan, termination etc.

32.0.0SWITCH BOARDS/ OUTLETS:

The switch regulator box shall be made of metal on all side except on the front. In case of cast boxes, wall thickness shall be at least 3 mm and in case of welded M.S Sheet boxes the wall thickness shall not be less than 18 gauge for boxes up to a size of 20 cm x 30 cm and above this size 16 gauge M.S Boxes shall be used. A 3 mm thick phenolic laminated or Bakelite sheet or modular switches panel shall be fixed on the front with brass screws. Clear depth of boxes shall not be less than 60 mm and this shall be increased suitably to accommodate mounting of fan regulators in flush

pattern. All switches, receptacles, fan regulators etc. on the switchboard shall be mounted in flush pattern.

33.0.0 SOCKET OUTLETS AND PLUGS:

Every socket outlet shall be controlled, by a switch which shall be located immediately adjacent thereto or combined therewith. The switches controlling the socket outlet shall be on the live side of the line. Socket outlet shall be fixed 23 cm above from the floor level or as directed by Engineer-In-Charge at locations shown in the drawing. Socket outlet with plug shall be of three pin type with the third terminal connected to the earth.

34.0.0CEILING FANS, REGULATORS AND CLAMPS:

34.1.0 Ceiling fans including their suspension shall conform to IS: 3740 (1960)(revised 1966). All ceiling fans shall be wired to ceiling roses or to special connector boxes to which fan rod wires shall be connected and suspended from hooks or shackles with insulator between hook and suspension rod. Fan clamps shall be of suitable design according to the nature of construction of ceiling on which these clamps are to be fitted. In all cases all clamps shall be fabricated from tested new metal of suitable sizes. Fan clamps for reinforced concrete roof shall be buried with the casting and due care shall be taken that they shall serve the purpose.

34.2.0Canopies on top and bottom of suspension rod shall effectively hide suspension and connections to fan motors respectively.

34.3.0 Unless otherwise specified all ceiling fans shall be hung not less than 2.75 m above the floor.

34.4.0 Electronic regulator of approved make is to be used for controlling the speed of the ceiling fan.

System Wiring:

35.0.0 Following tests shall be complied with in accordance with IS: 732-1963, clause 9.1

a) Insulation resistance test.

b) Earth continuity test.

c) Polarity test of switches.

36.0.0 Supply and Installation of Safety Equipments

36.1.0 The Contractor shall supply and install the following safety equipment. The equipments offered shall be of very good quality conforming to IS:2551-1963.

a) Vitreous Enamel caution boards for 440 Volts

b) Shock Treatment chart in a very neat frame with glass. The description on the chart shall be in English, Hindi and regional language.

APPENDIX-1

LIST OF APPROVED ELECTRICAL EQUIPMETS/ FITTINGS & FIXTURES

SL.N.	NAME OF FITTINGS/ FIXTURES/ EQUIPMENTS	MANUFACTURER'S NAME/BRAND AS REQUIRED
1.	650 V grade PVC insulated PVC sheathed Cu wires (for internal wiring)	Finolex.Kalinga/Havells/Bonton
2.	Indoor and Outdoor light fittings	Philips
3.	Tube-light fittings	Philips
4.	5A, 3 pin socket and modular switch	Anchor viola/Roma/Havells./
5.	15A, 3 pin socket and modular switch	-do-
6.		Modular
7.	M.C.B	Havells/standard copp.

27.0.0**OTHER MATERIALS:**

27.1.0 All other materials not fully specified herein and which may be used in the works shall be of best quality approved by the Engineer-in-Charge and he shall have the right to determine whether all or any of the materials offered or delivered for use in the works are suitable for the intended purpose. Contractor shall produce the sample of materials to the Engineer-in-Charge and shall get it approved before procurement and execution of work.

WORKMANSHIP
&
QUALITY STANDARDS

LIST OF I.S. CODE FOR THE REFERENCE

Materials used shall confirm to appropriate standards specified by the Indian standards institution/Bureau of Indian standards and unless other wise specified, these standards will form a part of these specifications in particular.

AEPPL herein clarifies that the IS codes mentioned in the technical specifications & in the list given below are for reference only.

The following or latest standards should be referred to-

AGGREGATES

IS : 383-1970 Coarse and find aggregate from natural sources for concrete
IS : 515-1959 natural and manufactured aggregates for use in mass concrete
IS ; 1607-1960 Sand for plaster
IS : 2386 Methods of test for aggregate for concrete.
Part-I-1963 Particle size and shape.
Part-II-1963 Estimation of deleterious materials and organic impurities.
Part-III-1963 Specific gravity, density, voids, absorption and bulking.
Part-IV-1963 Mechanical properties.
Part-V-1963 Soundness.
Part-VI-1963 Measuring mortar making properties of fine aggregates.
Part-VII-1963 Alkali aggregate reactivity.
Part-VIII-1963 Pétrographiqueexaminateur.

CEMENT :

IS : 8112-1976 High strength ordinary Portland cement.

CONCRETE :

IS : 516-1959 Methods of tests for strength of concrete.
IS : 1199-1959 Methods of sampling and analysis of concrete.

REINFORCEMENT CONCRETE :

IS : 456-1978 Code of practice for plain and reinforcement concrete for general building Construction.
IS : 432 Mild steel and medium tensile steel bars and
IS : 1786-1985 High strength Deformed steel bars and wires for concrete reinforcement.

BRICK MASONRY

IS : 1077-1076 Common burnt clay building bricks.
IS : 2212-1962 Code for practice of brick work.

DOORS & WINDOWS

IS : 1003 Timber panelled and glazed shutters.
Part-I-1977 Doors shutters.
Part-II-1966 Windows and ventilators and shut.

IS: 1948-1961 Aluminium doors, windows and ventilators.
IS: 2191 Wooden flush door shutters (Cellular and hollow core type).
Part-I-1973 Plywood face panels.
IS: 2202 Part-I-1991 Wooden flush door BWP type (solid core).

FLOOR AND FLOOR FINISHING

IS : 777-1970 Glazed Earthenware tiles.
IS : 1443-1972 Code of practice for laying and finishing of cement concrete (Flooring tiles)
IS : 3365-1956 Floor polishing machines.

WATER SUPPLY PIPES AND DRAINAGE

IS : 651-1971 Specification for salt glazed stoneware pipes and fittings.
IS : 778-1971 Gunmetal gate, globe and check valves for general purpose.
IS : 780-1969 Sluice valves for water work purpose.
IS : 781-1977 Cast copper alloy screw-down bib taps and stop valves for water service
IS : 172-1971 Code of basic requirements for water supply, drainage and sanitation.
IS : 1726- Cast iron manhole covers and frames.
Part-I-1974 General requirements.
Part-IV-1974 Specific requirements for MD circular type.
Part-V-1974 Specific requirements for MD rectangular type
Part-VI-1974 Specific requirements for LD rectangular type
Sec 1 : Single seal
Sec 2 : Double seal
Part-VII-1974 Specific requirements for LD square type
Sec 1 : Single seal
Sec 2 : Double seal
IS : 1742-1972 Code of practice for doubling drainage.
IS : 2065-1972 Code of practice for water supply in buildings.
IS : 2556- Vitreous sanitary appliances (Vitreous Chin)
Part-I-1974 General requirements.
Part-II-1973 Specific requirements of wash down water closets.
Part-III-1972 Specific requirements of squatting pans.
Part-IV-1974 Specific requirements of wash basins.
Part-VIII-XV Wash down water-closets, bibes foot rests, shower-rose, foot traps for squatting pans, integrated squatting pans. Universal water closets.
IS : 2963-1964 Non-ferrous waste fittings for wash basins and sinks.
IS : 311-1965 Waste plug and its accessories for sinks and wash basins.
IS : 4127-1967 Code of practice for laying of glazed stoneware pipes.
IS : 5531 Specification of cast iron special for asbestos cement for water, gas and Sewage

STRUCTURAL STEEL:

IS: 2062-1992 Steel for general structural purpose.

MISCELLANEOUS :

IS : 1020-1963 Conversion tables for ordinary use.

APPROVED MAKES

LIST OF APPROVED MAKES/SUPPLIERS

S. No.	MATERIALS	APPROVED MANUFACTURER/SUPPLIER
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1 Fire retardant paint/primer Firetard industrial grade of Noble/Viper/Approved equivalent
2 Marine Ply wood Anchor-72/Multiply/Century Greenply / Uniply
3 Laminate Formica / Decolam/ Greenlam / Uro
4 Veneer Jacsons /Anchor/Durian/Century/Decowood/Uro
5 Wood Preservative STP Pentaphene pale /P C I/Wood guard / Termisil
6 Gypsum Board Gypsum India/Approved equivalent

7 Tempered/Toughened Glass Insotherm/Sejal Glass/Gurian Glass/Goldplus/Glaverbal/approved equivalent
8 Float Glass Modigaurd/Saint Goban/Emirates / Hindustan Pilkington
9 Adhesive Fevicol, Araldite, PidiliteFevimate (TL)
10 Door Closer Dorma /approved equivalent
11 Floor Spring Dorma/approved equivalent
12 Cup board Locks Godrej /CIEF/Vijayan/Efficient Gadget
13 Cylindrical Lock Europa, Godrej, Acme/Neki
14 Door Handles Dorma/D-Line/approved equivalent -
15 Screws GKW Nettlefold/Janatha/App. Equivalent
16 Glass/Mirrors Modigaurd,Saintgoban/Thaiwan/Float glass India
17 Ceramic Tiles Nitco / Kajaria/ MCL/Johnson & Johnson
18 Hinges Dorma/App. Equivalent(Heavy Duty)
19 Telescopic sliding drawer channels Efficient Gadget, Earl Bihari ,Jyoti,Shalimar/Hettich
20 Carpet Transasia/Shalimar/Jupitar/Milliken / 110
Interface / Shaw
21 Vertical Blinds Hounterdouglas or app. equivalent
22 Sun Control Film Garware, Birla 3M
23 Polishes ICI, Asian, GoodlasNerolac/berger
24 False Ceiling
25 G.I Powder coated false ceiling Hunter Douglas or Approved equivalent
26 Gypsum Board Gypsum India or Approved equivalent
27 Cement L&T, Ambuja,ACC
28 White cement Birla,JK
29 Vitrified Porcelain tiles MCL,Johnson,Nitco or approved equivalent
30 Water Proofing Compound MC Bavucom, Roffe Chemicals, Pidilite
31 G.I. Pipe TATA /Zenith or App Equivalent
32 SS sink Nirali or App Equivalent
33 Soft Board Jolly Board or App Equivalent
34 Paints ICI/Asian/GoodlacNerolac/Jenson & Nicolson
35 Fabric Soft board Seasons/Jagdeesh fabric/Classic Fabric or App Equivalent
36 Curtains Raymonds / Sham-Ahuja / Eden
37 Panic Device Dorma / Ingersoll -Rand
38 Fabric protection coating for upholstery
Scotchgard of Birla 3 M Ltd
Foams in Chairs / Sofas MM Foam / Foam products/ Latex
39 Rolling Shutter Indo Germa / Dyna
40 White board White mark/Altop/Alko-sign.
41 Texture paint Orient, Sterling
42 Adhesive for Tiles Roff, PAL, Pidilite,BAL
43 Multipurpose lock Efficient Gadgets, Jyoti, Godrej
44 Storage Locks/Handles/Hinges etc Efficient gadjet/Argent/Jyothi/CIEF

BLANK BOQ: ONLY FOR REFERENCE

Note:

(1) Bidders shall comply the BOQ and signed & stamped on each page. This will be part of technical bid.

(2) Bidders shall submit all tender drawings duly signed and stamped along with Technical Bid.

Item No.	Description	Qty	Unit	Rate	Amount
1	**Dismantling**				
1.1	Demolishing brick work of existing structure manually / by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 meters lead as per direction of Engineer-in-Charge :	92.5	Cum		
1.2	Demolishing cement concrete coping, cement concrete or cement concrete blocks manually/ by mechanical means including disposal of material within 50 meters lead as per direction of Engineer-in-Charge :	18.4	Cum		
1.3	Demolishing stone rubble masonry or brick work in foundation manually / by mechanically means including stacking of serviceable material and disposal of unserviceable material within 50 meters lead as per direction of Engineer-in-charge;	38.3	Cum		
1.4	Demolishing R.C.C. work manually / by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 meters lead as per direction of Engineer-in-charge	13.9	Cum		
1.5	Extra for cutting reinforcement bars manually / by mechanical means in R.C.C work (payment shall be made on the cross sectional area of R.C.C work) as per direction of Engineer-in -charge	QRO	Sqm		
1.6	Extra for scraping , cleaning and straitening reinforcement from R.C.C.	QRO	Kg		
1.7	Demolishing brick tile covering in terracing including stacking of serviceable material and disposal of unserviceable material within 50 meters lead.	86.0	Sqm		
1.8	Demolishing mud phuska in terracing and disposal of material within 50 meters lead.	9.0	Cum		
1.9	15.8 removing mortar from bricks and cleaning bricks including stacking within a lead of 50 m (stacked of cleaned bricks shall be measured)	QRO	1000 Nos		
1.10	Dismantling doors, windows and clerestory windows(steel or wood)shutters including chowkhats, architrave, holdfasts etc. complete and stacking within 50 meters lead	9.00	Nos		
1.11	Taking out doors, windows and clerestory window shutters (steel or wood) including stacking with in 50 meters lead:	9.00	Nos		
1.12	Dismantling tile work in floors and roofs laid in cement mortar including stacking material within 50 meters lead	62.79	Sqm		
1.13	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground with in 50 meters lead	10.00	Sqm		
1.14	Dismantling of flushing cistern of all types(C.I / PVC / Vitious China) including stacking of useful materials near the site and disposal of unserviceable materials within 50 meters lead	2.00	Nos		

1.15	15.44 Dismantling G.I pipes (external work) including excavation and refilling trenches after taking out the pipes,manully by mechanical means including stacking of pipes with in 50 meters lead as per direction of Engineering - in - charge :				
1.15.1	up to 40 mm nominal bore	16.00	Rmt		
1.15.2	Above 40 mm nominal bore	18.00	Rmt		
1.16	15.45 Dismantling C.I pipes including excavation and refilling trenches after taking out the pipes, manually / by mechanical means breaking lead caulked joints, melting of lead and making into blocks including stacking of pipes and lead at site within 50 meter lead as per direction of Engineer-in-charge: Up to 150 mm diameter	12.00	Rmt		
1.17	Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means , including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer -in - charge, beyond 50 m initial lead, for all leads including all lifts involved.	85.00	Cum		
	Total				
2	**Earth Work**				
2.1	Earthwork in rough excavation, banking excavated earth in layers not exceeding 20 cm in depth, breaking clods,watering,rolling each layer with 1/2 tone roller or wooden or steel rammers, and rolling every 3rd and top-most layer with power roller of minimum 8 tonnes and dressing up in embankments of roads ,flood banks, marginal banks and guide banks or filling up ground depressions, lead up to 50 m and lift up to 1.5 m :	28.40	Cum		
2.2	Excavation work by mechanical means (hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soils as directed , within a lead of 50 m.	98.05	Cum		
2.3	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to to 50 m and lift uypto 1.5 m.	80.05	Cum		
2.4	Supplying and filling in plinth with jamuna sand under floors, including watering, ramming, consolidating and dressing complete.	12.28	Cum		
2.5	Supplying chemical emulsion in sealed containers including delivery as specified.chloropyriphos/ lindane emulsifiable concentrate of 20 %	10.00	liter		
2.6	Diluting and injecting chemical emulsion for POST_CONSTRUCTIONAL anti termite treatment (excluding the cost of chemical emulsion) : With Chloropyriphos/ lindane E.C 20 % with 1%	105.50	meter		

	concentration				
2.7	Earth filling free from roots grass, rubbish and lumps and clouds exceeding 80mm in any direction for filling up under floors complete item, got from outside with all the leads and lifts as per direction of Engineer-in-Charge, complete	20.14	Cum		
	Total				
3	**Concrete Work**				
3.1	Centering and shuttering including shuttering, propping etc. and removal of form for : foundations, footings, Suspended floors, roofs, landing, balconies, access platform, lintels, beams, cantilevers', columns, pillars, stairs, piers, struts etc	1021.36	Sqm		
3.2	Providing and laying in position cement concrete of 1:4:8 (1cement : 4coarse sand : 8 graded stone aggregate 40 mm nominal size) excluding the cost of centering and shuttering - All work up to plinth level	18.02	Cum		
3.3	Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using fly ash and cement content as per approved design mix, and manufactured in fully automatic batching plant and transported to site of work in transit mixer for all lead, having continuous agitated mixer, manufactured as per design of specified grade for reinforced cement concrete work, including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering, finishing and reinforcement, including cost of admixtures in recommended proportions as per IS : 9103 to accelerate / retard setting of concrete, improve workability without impairing strength and durability as per direction of engineer - in - charge (cement content considered in this item is @ 330 Kg / Cum, excess / less cement used as per design mix is payable / recoverable separately, Fly ash conforming to grade 1 of IS 3812 (Part - 1) only be used as part replacement of OPC as per IS : 456, uniform blending with cement to be ensured in accordance with clauses 5.2 and 5.2.1 of IS : 456 - 2000 in term of BMC and RMC)				
3.3.1	All works up to plinth level	24.74	Cum		
3.3.2	All works above plinth level	101.39	Cum		
3.4	Reinforced cement concrete work in beams , suspended floors, roofs having slope up to 15 degree landings,**balconies**,shelves,chajjas**,lintels**,bands,plain **window sills**,**staircsaes** and spiral stair cases up to floor five level, excluding the cost of centering,shuttering,finishing and reinforcement, with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size.	12.25	Cum		

3.5	Reinforced cement concrete work in vertical and horizontal fins individually or forming box louvers, facias up to five floor level excluding the cost of centering and shuyyering, finishing and reinforcement, with 1: 1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size	9.75	Cum		
3.6	Steel reinforcement for R.C.C work including straightening,cutting,lbending,placing in position and binding all complete at all levels level. thermo - mechanically treated bars	18290.00	Kg		
3.7	Providing and laying damp proof coarse 50 mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand ; 4 graded stone aggregate 20 mm nominal size).	14.69	Sqm		
3.8	Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification,	1400.00	per bag (50 Kg ceme nt)		
3.9	smooth finishing of the exposed surface of R.C.C. work with 6mm thick cement plaster 1:3 (1 Cement : 3 fine sand)	445.00	Sqm		
3.10	Extra for rendering smooth the top of landing and staircase (tread and risers) with cement mortar 1:2 (1 cement : 2 coarse sand) including brick laid in mud mortar , including subsequent removal and cleaning of the same.	12.73	Sqm		
3.11	Providing and laying cement concrete in kerbs,steps and the like at or near ground level excluding the cost of centering,shuttering and finishing.				
3.11.1	1:2:4 (1 cement : 2coarse sand : 4graded stone aggregate 20 mm nominal size)	4.80	cum		
3.12	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75 mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including finishing the top smooth.	16.50	sqm		
	Total				
4	**Brick work**				
4.1	Brickwork with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in : cement mortar 1:6 (1cement :6 coarse sand)	14.51	Cum		
4.2	Brickwork with common burnt clay F.P.S (non-modular) bricks of class designation 7.5 in super structure above plinth level up to floor V level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	164.01	Cum		
4.3	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure in cement mortar 1:4 (1 cement : 4	53.18	Sqm		

	coarse sand)				
4.4	Extra for providing and placing in position 2 Nos 6mm dia M.S. bars at every third course of half brick masonry.	53.178	Sqm		
	Total				
5	**Roofing**				
5.1	Painting top of roofs with bitumen of approved quality @ 17kg per 10 Sqm impregnated with a coat of coarse sand at 60 cudm per 10 Sqm, including cleaning the slab surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil complete with residual type petroleum bitumen of grade VG-10.	135.25	Sqm		
5.2	10 cm thick mud phaska of damped brick earth on roofs laid to slope consolidated and plastered with 25 mm thick mud mortar with bhusa @ 35 kg per cum of earth and gobri leaping with mix 1:1 (1 clay : 1 cowdung) and covered with flat tile bricks, grouted with cement mortar 1:3 (cement : 3 fine sand) mixed with 2 % of integral water proofing compound by weight of cement and finished neat. With common burnt clay F.P.S. (non-modular) brick tiles of class designation 10	135.25	Sqm		
5.3	Extra for every additional 1 cm thickness of mud phaska.	135.25	sqm		
5.3	Providing gola 75 x 75 mm in cement concrete 1:2:4: (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge), including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design, in 75 x 75 mm deep chase	49.50	Rmt		
5.4	Making khurras 45 x 45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement :4 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1 m x 1 m x 400 micron , finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement ,rounding the edges and finishing the outlet complete.	5.00	each		
	Total				
6	**Finishing**				
6.1	12 mm cement plaster of 1: 4 (1 cement : 4 coarse sand)	1291.00	Sqm		
6.2	12 mm cement plaster finished with a floating coat of neat cement of mix 1 : 4 (1 cement : 4 fine sand)	43.28	Sqm		
6.3	Providing and fixing chicken mesh 150mm wide at each junction of RCC and masonry embedded in plaster of specified thickness and mix to prevent the opening of junction including cutting, placing and finishing etc (Complete item)	245.00	Rmt		

6.4	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1 : 5 (1 cement : 5 coarse sand) finished with a top layer 6 mm thick cement plaster 1 : 6 (1 cement : 6 fine sand) up to a height of 10 m.	275.00	Sqm		
6.5	Extra for providing and mixing water proofing material in cement plaster work in proportion recommended by the manufactures.	35.00	per bag (50 Kg ceme nt)		
6.6	18 mm thick moulded cement mortar band in two coats under layer 12 mm thick with cement mortar 1:5 (1 cement : 5 coarse sand) top layer 6 mm thick cement mortar 1 : 4 (1 cement : 4 fine sand)	412.00	per mtr		
6.7	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3m or part thereof	463.96	Sqm		
6.8	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 coarse stone aggregate) finished with a floating coat of neat cement, including cement slurry, but excluding the cost of nosing of steps etc. complete 40 mm thick with 20 mm nominal size stone aggragate	272.00	sqm		
6.9	Providing and laying 75mm thick compacted bed of dry brick aggregate of 40mm thick or less nominal size including spreading, well ramming, consolidated and grouting with jamuna sand, including finishing smooth etc. complete as per direction of engineer - in - charge.	135.22	Sqm		
6.10	Stone work (20 mm thick Polished granite banglore-Exposed face machine cut and table rubbed with rough backing) for wall lining etc. (Veneer work) up to 10 meter height, backing filled with a grout of average 12 mm thick cement mortar 1:3 (1 cement: 3 course sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : (to be secured to the backing and the sides by means of cramps and pins which shall be paid separately)	310.00	Sqm		
6.11	Providing and fixing stainless steel cramps of required size and shape for anchoring stone wall lining to the backing of securing adjacent stones in stone wall lining in cement mortar 1:2 (1 cement : 2 coarse sand), including making the necessary chases in stone and holes in wall wherever required.	175.00	Kg		
6.12	Stone work (machine cut edges) for wall lining etc. (veneer work) upto 10 metre height,backing filled with a grout of average 12 mm thick cement mortar 1:3 (1cement :3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : (to be secured to the backing and the side by means of cramps and pins which shall be paid for seperately) :				
6.12.1	40 mm thick	310.00	sqm		
6.13	Stone work (machine cut edges veneer work) for wall lining upto 10 m height,backing filled with a grout of 12 mm thick cement mortar 1:3 (1cement :3 coarse sand) and jointed with Cement mortar 1:2 (1 cement :2 stone				

	dust), including rubbing and polishing complete.				
6.13.1	kota stone slabs exposed face dressed and rubbed.				
6.13.1.1	25 mm thick	310.00	sqm		
6.14	Stone tile work for wall lining upto 10 m height with special adhesive over 12 mm thick bed of cement mortar 1:3 (1 cement :3 coarse sand), including pointing in white cement with an admixture of pigment to match the stone shade.				
6.14.1	8 mm thick(mirror polished and machine cut edges)				
6.14.1.1	Granite stone of any colour and shade	310.00	sqm		
	Total				
7.0	**Miscellaneous Work**				
7.1	Fencing with angle iron post placed at required distance embedded in cement concrete blocks, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with horizontal lines and two diagonals' interwoven with horizontal wires, of barbed wire weighing 9.36 Kg per 100 m (minimum), between the two posts fitted and fixed with G.I. staples, turn buckles etc. complete. (Cost of Post, earth work and concrete work to be paid for separately). Payments to be made per meter cost of total length of barbed wire used. with G.I. barbed wire	3630.00	Rmt		
7.2	Supplying at site Angle iron post & strut of required size including bottom to be split and bent at right angle in position direction for 10 cm length and drilling holes up to 10 mm dia etc. complete.	620.00	Kg		
7.3	Stone work (40 mm thick Polished granite banglore-Exposed face machine cut and table rubbed with rough backing) for wall lining etc. (Veneer work) up to 10 meter height, backing filled with a grout of average 12 mm thick cement mortar 1:3 (1 cement: 3 course sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : (to be secured to the backing and the sides by means of cramps and pins which shall be paid separately)	65.71	sqm		
7.4	Cement concrete 1:2:4 (1cement :2 coarse sand : 4 graded stone aggregate 40 mm nominal size) in pavements,laid to required slope and camber in panels as required including consolidation finishing and tamping complete.	120.46	sqm		
	Total				

9	**Water Supply & Drainage**				
A	**Water supply**				
1	Providing and fixing Polyethylene - Aluminum - Polyethylene (PE-AL-PE) composite Pressure Pipes conforming to IS - 15450, U.V. stabilized with carbon black having thermal stability for hot and cold water supply, capable to withstand temperature up to 80 degree C, including all special fittings of composite material (engineering plastic blend and brass inserts wherever required) e.g. elbows, tees, reducers, couplers and connectors etc., with clamps at 1.0 meter spacing. This includes tedting of joints complete as per direction of the Engineer in charge. including cutting chases and making good the wall etc.				
1.1	1216 (16 mm OD) pipe	80.00	Rmt		
1.2	1620 (20 mm OD) pipe	70.00	Rmt		
1.3	2025 (25 mm OD) pipe	10.00	Rmt		
1.4	2532 (32 mm OD) pipe	5.00	Rmt		
1.5	3240 (40mm OD) pipe	10.00	Rmt		
2	Providing and fixing ball valve (brass) of approved quality, high or low pressure, with plastic floats complete.				
2.1	20 mm nominal bore	4.00	Nos		
2.2	25 mm nominal bore	2.00	Nos		
2.3	32 mm nominal bore	4.00	Nos		
2.4	40 mm nominal bore	4.00	Nos		
3	Making connection from existing water supply pipe line including necessary excavation & making good the same including cutting and taping the existing line by providing and installing ferrule/Tee connections with necessary fittings and making good the same complete as required	1.00	Job		
B	**INTERNAL DRAINAGE :**				
1	Providing, Fixing, Jointing with solvent cement, testing and commissioning of unplasticised rigid uPVC (Class-III) pipes conforming to IS: 4985 including all fittings such as bends, clamps, cowls, cleanout plug, supports etc., cost of cutting holes in walls and floors and making good the same and complete as required. (Nothing extra to be paid on account of fittings). Working pressure = 6 kg./Sq.cm				
1.1	110 OD	60	RM		
1.2	75 OD	10	RM		
2.0	Providing and fixing rain water 'Khurras' of 300 x 300 mm with puddle flange fixed in R.C.C. slab. Including rain water outlet fitting with aluminum ring and C.I grating and dome / flat fitting fixed with S.S. Screws on top of puddle flange pipe at roof level complete in all respect. **(CI Grating only)**				

2.1	Roof drain type for 110 OD pipe.	5	Nos.		
3	Providing, fixing, testing and commissioning uPVC pipe SWR Pipe for **internal soil and waste drainage system** conforming to IS:13592 Type 'B' for soil waste, vent and rain water drainage pipe including injection moulded fittings e.g. tees, bends, clamps, Y junctions, reduces couplings, adapters, door bend and terminal cowl etc. jointing with rubber ring/ solvent cement including cuttings the walls and floor as required and making good the walls and floors as required at site.				
3.1	100 OD	40	RM		
4	Providing and fixing injection moulded SWR 'P' or 'S' floor trap of self cleansing design with deep seal of 50 mm including cost of cutting and making good walls and floors. The jointing of pipes to the floor trap is to be completed with solvent cement wherever required complete in all respect.				
4.1	100 mm x 100 mm	20	Nos.		
5	Providing fixing and wrapping fibere glass of 25 mm thick on PVC floor trap faced with Aluminum for tide on "Floor Trap" of PVC only by mean of 12 mm wide PVC band not less 4 band per trap for reducing noise from the upper floor drain complete in all respect.				
5.1	100 x 100 mm	6	Nos.		
6	Providing fixing and wrapping fibber glass of 25 mm thick on PVC floor drain faced with Aluminum for tide on "Floor Trap" of PVC only by mean of 12 mm wide PVC band not less 4 band per trap for reducing noise from the upper floor drain complete in all respect.				
6.1	100 mm inlet & 100 mm outlet	6	Nos.		
7	Providing and fixing G.I. Pipe ISI marked brand conforming to IS:1239 ("B" Class) for waste pipes, from wash basin, urinals, kitchen sink and equipments waste connections complete with G.I. Fittings such as tees, crosses, plugs, elbows, reducers, clamps etc. including cutting, chase and holes and making good the walls and floors with necessary supports as directed by the Project Manager.				
7.1	32 mm nominal bore	30	RM		
7.2	40 mm nominal bore	25	RM		
B	**EXTERNAL SEWERAGE DRAINAGE:**				
1	Excavation of earth for pipe trench including dressing of sides, ramming of bottoms including shoring, dewatering, disposal of the excavated material, refilling the soil in layers not exceeding 20 cm in depth with consolidating deposited layer by ramming, watering and disposing of surplus soil as required.				
1.1	Soft/Hard Soil depth up to 1.5m	30	RM		

2	Providing and fixing square mouth S.W. Gully trap grade "A" complete with C.I. Grating brick masonry chamber with bricks of class designation 75 in cement mortar 1:5 (1 cement : 5 coarse sand) inside plaster above trap 12mm thick cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement outside plaster 12mm thick in cement mortar 1:3 (1 cement : 3 coarse sand) 10 cm thick foundation concrete 1:4:8 mix (1cement : 4 coarse sand :8 graded stone aggregate 40 mm nominal size) space between chamber, and trap filled with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) and water tight C.I. cover with frame complete as per drawing & specification.				
2.1	450 mm x 450 mm gully trap with 180 x150 mm size 'P' trap with water tight C.I cover with frame of 450 x 450 mm size (inside) the weight of cover and frame to be not less than 10 kg as per standard design.	4	Set		
3	Providing, Laying, Testing & Jointing of Stone Ware pipes grade `A' with stiff mixture of cement mortar in the proportion of 1:1 (1 cement :1 fine sand) including testing of joints etc complete in all respect.				
3.1	150 mm dia	80	RM		
4	Providing and Laying of cement concrete bed of 1:5:10 (1 cement :5 coarse cement :10 graded stone aggregate 40 mm nominal size) of average 75 mm thickness all - around SW pipes including bed concrete as per standard design including centering & shuttering etc. complete.				
4.1	Providing and Laying of cement concrete bed of 1:5:10 (1 cement :5 coarse cement :10 graded stone aggregate 40 mm nominal size) of average 75 mm thickness all - around SW pipes including bed concrete as per standard design including centering & shuttering etc. complete.	80	RM		
5	Constructing water tight brick masonry catch basin type manhole with bricks of 75 class designation in cement mortar 1:5 (1 cement :5 coarse sand), RCC top slab with 1:2:4 mix (1 cement : 2 coarse sand :4 graded stone aggregate 20 mm nominal size) including the cost of providing & fixing the re-inforcement steel bars. Foundation concrete 150 mm thick 1:4:8 (1 cement :4 coarse sand :8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement outside plastering of 12mm thick with cement mortar 1:3 (1 cement :3 coarse sand) complete as per drawing & specifications.				
5.1	600 x 600 x 750 deep mm dia	7	Nos		
6	Providing and fixing cast iron manhole cover with frame including fixing in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering and shuttering all complete.				
6.1	750 x 750 mm dia	5	Nos		

6.2	600 x 600 mm dia	7	Nos		
7	Making connection of Sewer water line including necessary excavation and breaking the wall of municipal manhole and making good the same with cement mortar 1:3 finished with a floating coat of neat cement and making drains etc complete. Removing the excavated surplus material.	1	Set		
C	**EXTERNAL STORM WATER DRAINAGE:**				
1	Excavation of earth for pipe trench including dressing of sides, ramming of bottoms, including shoring, dewatering, disposal of the excavated material, refilling the soil in layers not exceeding 20 cm in depth with consolidating deposited layer by ramming, watering and disposing of surplus soil as required.				
1.1	Soft/Hard Soil depth up to 1.5m	70	RM		
2	Providing, Laying and Jointing of Non-Pressure NP2 class (light duty) RCC pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc.				
2.1	150 mm dia	70	RM		
3	Providing and laying cement concrete 1:5:10 (1 cement :5 coarse cement :10 graded stone aggregate 40mm nominal size) up to haunches RCC pipes including bed concrete as per standard design as given in drawings.				
3.1	150 mm dia	70	RM		
4	Constructing water tight brick masonry manhole with bricks of 75 class designation in cement mortar 1:5 (1 cement :5 coarse sand), R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand :4 graded stone aggregate 20 mm nominal size) including cost of providing & fixing reinforcement steel bars. Foundation concrete 150 mm thick 1:4:8 (1 cement :4 coarse sand :8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement and making channel in cement concrete 1:2:4 mix, (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with floating coat of neat cement, outside plaster of 12mm with cement mortar 1:3 (1 cement :3 coarse sand) complete as per standard drawings & specifications.				
4.1	750 x 750 x 900 deep mm dia	5	Nos		
5	Making connection of Storm water line including necessary excavation and breaking the wall of municipal manhole and making good the same with cement mortar 1:3 finished with a floating coat of neat cement and making drains etc complete. Removing the excavated surplus material.	1	Set		
	Total				

10	**Electrical Work**				
A	**Point Wiring**				
1	Wiring for **Normal Light Points** with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires with 2 x 1.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) point wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows & sockets including providing and fixing of modular type 6A switch and switch cover plate and base plate along with 16 SWG MS zinc crome passivated box & 2 x 2.5 + 1 x 1.5 sq. mm circuit wire including connection and termination of wires complete in all respect as per site condition. (Switch controlled)				
i	Normal Light points. (Primary)	70	Nos		
ii	Normal Light points. (Secondary)	86	Nos		
2	Wiring for **Twin Control Light Points** in staircase with PVC insulated multi - strand 1.1 KV Grade FRLS copper conductor wires with 2 x 1.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) point wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets including providing and fixing of modular type 2 Nos.2 way 6A switch and switch cover plate and base plate along with 16 SWG MS zinc crome passivated box& 2 x 2.5 + 1 x 1.5 sq. mm circuit wire, connection and termination of wires complete in all respect.				
i	Twin Light points with 2 Nos. 2 Way switch.	4	Nos		
3	Wiring for **Exhaust Fan** points with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires with 2 x 2.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) point wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows, sockets including providing and fixing of modular type 6A switch and switch cover plate and base plate along with 16 SWG MS zinc crome passivated box with connection of wires complete in all respect.				
i	Exhaust Fan Points.	9	Nos		

4	Wiring for **Ceiling Fan Points** with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires with 2 x 2.5 sq mm (Phase & Neutral) and 1 x 1.5 sq mm (Earth) point wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows, sockets including providing and fixing of modular type electronic hum free fan regulator with 6A switch & switch cover plate and base plate along with 16 SWG MS zinc crome passivated box, connection of wires complete in all respect as per site condition.				
i	Ceiling fan point	12			
5	Wiring for **Call Bell / Buzzer Points** with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires with 2 x 1.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) point wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets including providing & fixing of modular type 6A bell push switch and switch cover and base plate with 16 SWG MS zinc crome passivated box & 2 x 2.5 + 1 x 1.5 sq. mm circuit wire, connection of wires in all respect.				
i	Call bell Points.	1	Nos.		
6	Wiring for **3/5 Pin, 6A, Raw Power Plug** Outlets with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires of 2 x 2.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets including providing and fixing of modular type 1 No 10A switch and 2 Nos. 6A socket outlet along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection and termination of wires as required in all respect.				
i	Primary Normal Supply Socket Outlets.	16	Nos.		
ii	Secondary Normal Supply Socket Outlets.	16	Nos.		
7	Wiring for **Light Plug 3/5 Pin, 6A** Socket Outlets with PVC insulated multi-strand FRLS copper conductor wires of 2 x 2.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets including providing and fixing of modular type 1 No 15A switch and 3 Nos. 6A socket outlet along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection and termination of wires as required in all respect.				
i	Primary Normal Supply Socket Outlets.	8	Nos.		

8	Wiring for **UPS Plug 3/5 Pin, 6A** Socket Outlets with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires of 2 x 2.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets including providing and fixing of modular type 1 No 10A switch and 2 Nos. 6A socket outlet along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection and termination of wires as required in all respect.				
i	Primary UPS Supply Socket Outlets.	16	Nos.		
ii	Secondary UPS Supply Socket Outlets.	16	Nos.		
9	Wiring for 3/5 Pin, 6A socket outlets **away from switch board** with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires of 2 x 2.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets including providing and fixing of modular type 1 No 6A switch and 1 No. 6A socket outlet along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection of wires as required in all respect.				
i	Primary Socket Outlets.	10	Nos.		
10	Providing and Fixing of Hexagonal Fan Hook Box in R.C.C. slab before casting of 16 gauge with MS hook of 12 mm rod welded to box of approximately 150 mm dia and covering with suitable size of phenolic laminated sheet cover with brass screws as required.	12	Nos.		
11	Providing, Fixing and Wiring for 3/5 Pin, 6A socket outlet on **Switch Board** of modular type 1 No 6A switch and 1 No. 6A socket along with the cover plate and base plate in 16 SWG MS zinc crome passivated box with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires of 2 x 2.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) including connection and termination of wires as required complete in all respect.	20	Nos.		
12	Wiring for 6 Pin 16A **Power Socket Outlets** with PVC insulated multi - strand 1.1 KV Grade FRLS copper conductor wires 2 x 4.0 sq mm (Phase and Neutral) and 1 x 2.5 sq mm (Earth) power wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets ncluding supply and fixing of modular type 1 No. 6/16A Switch and 1 No. Socket along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection and termination of wires complete in all respect.				

i	Primary Power Socket Outlets.	20	Nos.		
ii	Secondary Power Socket Outlets.	13	Nos.		
13	Wiring for 6 Pin 16A **Geyser Power Socket Outlets** with PVC insulated multi - strand FRLS copper conductor wires 2 x 4.0 sq mm (Phase and Neutral) and 1 x 2.5 sq mm (Earth) power wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets ncluding supply and fixing of modular type 1 No. 6/16A Switch and Socket each along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection of wires complete in all respect.	9	Nos.		
14	Wiring for 6 Pin 25A **AC Power Socket Outlets** with PVC insulated multi - strand 1.1 KV Grade FRLS copper conductor wires 2 x 4.0 sq mm (Phase and Neutral) and 1 x 2.5 sq mm (Earth) in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets ncluding supply and fixing of modular type 1 No. 25A motor starter and 25A socket each along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection of wires complete in all respect.				
i	Primary AC Socket Outlets.	17	Nos.		
15	Providing and Fixing of modular type 25A master switches each along with the cover & base plate in 16 SWG MS zinc crome passivated M S box including connection and termination of wires complete in all respect.	2	Nos.		
16	Providing and Fixing of modular type blanking plate on the cover plate and base plate including screws in all respect.	25	Nos.		
17	Providing and Fixing of modular type 60 W, 240 V AC Buzzer, 1 module on the cover plate and base plate including connection of wires in all respect.	6	Nos.		
B	**DISTRIBUTION BOARDS AND PANELS:**				
1.0	Supply, Fixing, testing & commissioning of following way surface or recessed mounted pre-wired Tripple Pole & Neutral MCB distribution board of double door type design made out of 18 gauge MS sheet steel, 415 V, 50 Hz, IP - 43 complete with loose wire box, terminal blocks, tinned copper bus-bars, earth bars, neutral links, detachable gland plate, owder painted with supplying and fixing of following accessories including interconnection between incomer and outgoings and labeling etc as required.				
1.1	**8 WAY TPN MCB DB (Light - Power DB)**				
	The Lighting DB shall have following accessories:				

	INCOMING				
a)	63A TPN MCB (10 kA) - 01 No.				
b)	63A DP ELCB (100 mA) - 03 Nos.				
	BUSBARS				
	1 set of 100 Amps, 15 KA, TPN Copper Wires Bus Bars of suitable length and shall be colour coded duly crimped with copper lugs and thimbles.				
	OUTGOING				
	25A SP MCB (10 kA) - 13 Nos.				
	10A SP MCB (10 kA) - 07 Nos.				
	Neutral links and Earth Links - 05 Nos.	2	Set		
1.2	**8 WAY TPN MCB DB (Power Socket DB)**				
	The Power DB shall have following accessories:				
	INCOMING				
a)	63A TPN MCB (10 kA) - 01 No.				
b)	63A DP ELCB (100 mA) - 03 Nos.				
	BUSBARS				
	1 set of 100 Amps, 15 KA, TPN Copper Wires Bus Bars of suitable length and shall be colour coded duly crimped with copper lugs and thimbles.				
	OUTGOING				
	25A SP MCB (10 kA) - 07 Nos.				
	20A SP MCB (10 kA) - 13 Nos.				
	Neutral links and Earth Links - 05 Nos.	2	Set		
1.3	**8 WAY TPN MCB DB (Lighting DB)**				
	The Power DB shall have following accessories:				
	INCOMING				
a)	63A TPN MCB (10 kA) - 01 No.				
b)	63A DP ELCB (100 mA) - 03 Nos.				
	BUSBARS				
	1 set of 100 Amps, 15 KA, TPN Copper Wires Bus Bars of suitable length and shall be colour coded duly crimped with copper lugs and thimbles.				
	OUTGOING				
	10A SP MCB (10 kA) - 20 Nos.				
	Neutral links and Earth Links - 05 Nos.	2	Set		
1.5	**MAIN LT PANEL.**				

	Design, fabrication, loading, unloading at site, installation, testing and commissioning of LT Panels fabricated out of 2mm thick for structural members and 1.6mm thick for door and covers CRCA sheet in cubicle compartmentalize free standing floor mounted, dust and vermin proof with reinforcement of suitable size angle iron, channel 'T' irons and / or flats wherever necessary, 16 gauge CRCA sheet steel shall be used for final distribution panels. Cable gland plates shall be provided on top as well as at the bottom of the panels. Panels shall be treated with all anticorrosive process before painting as per specifications with 2 coats of zinc chromate primer and final approved shade of enameled paint. 2 Nos. earthling terminals shall be provided for all distribution panels. Panels shall be suitable for 415V, 3-phase, 4-wire, 50Hz supply system and with 15% spare space, lifting hooks shall also be provided.				
	Incoming (1 No.) :				
	320 Amp TP+N MCCB, 35 KA.				
	Metering & indiacation:				
	(0-500V) digital voltmeter with inbuilt selector switch protected by 2A control MCB.				
	(0-320A) Digital ammeter with inbuilt Selector Switch and suitable ratio, 630/5A CL-1, 10VA CT's				
	Set of Phase indicating lamps with control MCB.				
	Bus Bar:				
	1 set of 400 Amps, 35 KA, TPN Aluminium Strip Bus Bars of suitable length and shall be colour coded duly crimped with copper lugs and thimbles.				
	Outgoing:				
	Seven (07) Nos. 63A TPN MCCB (25kA)	1	set		
B)	**LIGHTING FIXTURES & FANS:**				
	Supply, Installation, testing & commissioning of following type of light fixtures and fans including fixing of lamps / bulbs, down rod or chain, hanger, with all fixing hardware & accessories as required.				
1.1	2 x 36 W recessed mounted compact fluorescent lamp light fixtures PL-L with reflector, electronic chock and tube etc.	28	Nos.		
	(Cat No. FBS 300 /236 P5 HF - Philips Make or approved equivalent Crompton, Havells etc.)				
1.2	2 x 18 W recessed mounted compact fluorescent lamp light fixtures PL-C with reflector, electronic chock and tube etc.	85	Nos.		
	(Cat No. FBH 150 /218 - Philips Make or approved equivalent Crompton, Havells etc.)				

1.3	1 x 36 W Wall mounted Patti type fluorescent tube light fixtures with electronic chock, tube light etc.	25	Nos.		
	(Cat No. TMC 55/136 HF - Philips Make or approved equivalent Crompton, Havells etc.)				
1.4	1 x 36 W Wall mounted Bonsai Luminaires with compact fluorescent lamp with electronic chock, tube light etc.	20	Nos.		
	(Cat No. FMS 600 / 36 - Philips Make or approved equivalent Crompton, Havells etc.)				
1.5	1 x 18 W CFL Bulkhead Light fixture with lamp (parapet wall, Service shaft, ramp etc.)	16	Nos.		
1.4	4 x 50 W recessed mount Scrable downlighters Luminaires with halogen lamp with electronic chock, tube light etc.	1	Nos.		
	(Cat No. QBX500 4X50 WH - Philips Make or approved equivalent Crompton, Havells etc.)				
C	**LT CABLES & SUB MAINS:**				
1.1	Supply & Laying of XLPE insulated PVC sheathed copper/ aluminium conductor armoured power cable of 1.1 KV grade (conforming to latest IS amended upto date) on cable tray with cable tags, tie etc. Cost of cable tray not to be included in item, that will be paid separately under separate head.				
i)	3.5 Core x 95 Sq.mm Aluminium Cable	30	RM		
2.0	**Cable termination :**				
	Supplying of all materials and making terminations of 1.1 KV grade aluminium multicore cables of the following sizes. The work includes cable glanding using **brass plated single compression glands**, sizing the core leads, removing insulation, fixing suitable crimping type copper lugs/thimbles by using hydraulic crimping tools with correct size of the dies, shaping the leads and neatly connecting the same to the equipment terminals.				
i)	3.5 Core x 95 Sq.mm Aluminium Cable	2	Set		
3.0	**Sub-Main Wires in Conduit.**				
	Supply, Laying, Testing, Rectify & Commissioning of wiring with all the required material for following sub-mains with PVC insulated copper conductor 1100 volts grade of suitable size wires (FRLS) in concealed/surface mounted 32/40 mm dia medium duty PVC Conduit either in slabs, partitions or overhead trusses terminating the wires in respective panels, DBs, switch boxes with suitable size earth wires & associated hardwares etc are as follows :				
a)	4 x 10 + 2 x 6 Sq.mm PVC insulated copper wires in 32 mm dia existing medium duty PVC conduit.	80	RM		

3.0	**PVC Conduit (Medium Duty).**				
	Supplying and laying of following sizes of medium duty PVC Conduit 1.6 / 2.0 mm thick concealed / surface including cutting and filling chases along with conduit accessories like tees, solid, inspection bends, elbows, sockets etc complete as required.				
a)	32 mm dia	80	RM		
E)	**TELEPHONE/TV/DATA SYSTEM**				
1.0	Supply, Installation, testing & commissioning of telephone socket outlet (RJ-11) in G.I. box and cover plate complete as required.	32	Nos.		
2.0	Supply and installation of wall/recessed mounting KRONE connector type telephone tag block of following sizes in sheet metal enclosure of suitable dimensions fabricated out of 16 SWG sheet steel with castle key lock, hinged gasketed type cover including connection of cables, painting of box etc, complete as required.				
a)	50 Pair	4	Nos.		
3.0	Supplying & drawing the following sizes of anealed tinned electrolytic copper conductor PVC insulated unshielded twisted telephone wires in existing conduit and making connection on both the ends.				
a)	4 Pair	200	RM		
4.0	Supplying, laying, testing and commissioning of following size anealed tinned copper conductor PVC insulated and sheathed armoured copper telephone cables with suitable clamps, saddles and including making terminal double compression joints complete as required.				
d)	50 Pair	50	RM		
5.0	Supply and fixing of co-axial cable (RG-11) from Splitter box to main Tag Block, including saddles, clamps etc. complete as required. (Cable shall be 2 layer shielded).	50	RM		
6.0	Supply & laying of RG-6 cable from Splitter box to points inside the Rooms in existing conduits/on surface with all fixing hardware etc. as required.	50	RM		
7.0	Supply and fixing of modular type TV Socket co-axial along with switch plate and box along with required chasing and all others accessories complete as required.	10	Nos.		
8.0	Supplying and drawing the following sizes of CAT-6 DATA Cable anealed tinned electrolytic copper conductor PVC insulated unshielded twisted in existing conduit, making connection on both ends.				
a)	CAT-6	200	RM		

9.0	Supply and fixing of modular type RJ-45 DATA Socket Outlet category 6 - 2 module along with switch plate and box along with required chasing and all others accessories complete as required.	32	Nos.		
10.0	Supply & Fixing of following with MS box of suitable size:				
a)	2 Way Splitter	2	Nos.		
b)	4 Way Splitter	2	Nos.		
c)	6 Way Splitter	2	Nos.		
5.0	Supplying and laying of following sizes of medium duty PVC Conduit 1.6 / 2.0 mm thick concealed / surface including cutting and filling chases along with conduit accessories like tees, solid, inspection bends, elbows, sockets etc complete as required.				
a)	25 mm dia	500	RM		
	EARTHING STATION:				
10.1	Supply, installation, testing and commissioning of G.I. Plate earthing stations including making earth pits, providing 600 mm x 600 mm x 6 mm thick G.I earth plate, C.I. funnel with wire mesh, charcoal /coke, salt, all earth work, masonry enclosure with C.I. frame & cover plate with locking arrangement and 20 mm dia GI watering pipe, disconnecting /testing links etc. complete as per IS -3043-1987 and as required. (For Main LT Panel, DB & UPS Panels Body Earthing).	2	Nos.		
11.1	**G.I. Earthing Wire:**				
	Supply, installation, testing and commissioning of following sizes of G.I. wire and other fixing hardware material etc. complete as required for proper installation.				
a)	8 SWG GI Wire	200	RM		
	TOTAL				
	Grand Total				

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE

Volume 2

(COMMERCIAL BID)

INDIAN INSTITUTE OF TROPICAL METEOROLOGY,

DR.HOMI BHABA ROAD, PASHAN, PUNE-411008

BOQ FOR PRICE BID

Item No.	Description	Qty	Unit	Rate	Amount
1	**Dismantling**				
1.1	Demolishing brick work of existing structure manually / by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 meters lead as per direction of Engineer-in-Charge :	92.5	Cum		
1.2	Demolishing cement concrete coping, cement concrete or cement concrete blocks manually/ by mechanical means including disposal of material within 50 meters lead as per direction of Engineer-in-Charge :	18.4	Cum		
1.3	Demolishing stone rubble masonry or brick work in foundation manually / by mechanically means including stacking of serviceable material and disposal of unserviceable material within 50 meters lead as per direction of Engineer-in-charge;	38.3	Cum		
1.4	Demolishing R.C.C. work manually / by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 meters lead as per direction of Engineer-in-charge	13.9	Cum		
1.5	Extra for cutting reinforcement bars manually / by mechanical means in R.C.C work (payment shall be made on the cross sectional area of R.C.C work) as per direction of Engineer-in -charge	QRO	Sqm		
1.6	Extra for scraping , cleaning and straitening reinforcement from R.C.C.	QRO	Kg		
1.7	Demolishing brick tile covering in terracing including stacking of serviceable material and disposal of unserviceable material within 50 meters lead.	86.0	Sqm		
1.8	Demolishing mud phuska in terracing and disposal of material within 50 meters lead.	9.0	Cum		
1.9	15.8 removing mortar from bricks and cleaning bricks including stacking within a lead of 50 m (stacked of cleaned bricks shall be measured)	QRO	1000 Nos		
1.10	Dismantling doors, windows and clerestory windows(steel or wood)shutters including chowkhats, architrave, holdfasts etc. complete and stacking within 50 meters lead	9.00	Nos		
1.11	Taking out doors, windows and clerestory window shutters (steel or wood) including stacking with in 50 meters lead:	9.00	Nos		
1.12	Dismantling tile work in floors and roofs laid in cement mortar including stacking material within 50 meters lead	62.79	Sqm		
1.13	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground with in 50 meters lead	10.00	Sqm		
1.14	Dismantling of flushing cistern of all types(C.I./PVC / Vitious China) including stacking of useful materials near the site and disposal of unserviceable materials	2.00	Nos		

	within 50 meters lead				
1.15	15.44 Dismantling G.I pipes (external work) including excavation and refilling trenches after taking out the pipes,manully by mechanical means including stacking of pipes with in 50 meters lead as per direction of Engineering - in - charge :				
1.15.1	up to 40 mm nominal bore	16.00	Rmt		
1.15.2	Above 40 mm nominal bore	18.00	Rmt		
1.16	15.45 Dismantling C.I pipes including excavation and refilling trenches after taking out the pipes, manually / by mechanical means breaking lead caulked joints, melting of lead and making into blocks including stacking of pipes and lead at site within 50 meter lead as per direction of Engineer-in-charge: Up to 150 mm diameter	12.00	Rmt		
1.17	Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means , including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer -in - charge, beyond 50 m initial lead, for all leads including all lifts involved.	85.00	Cum		
	Total				
2	**Earth Work**				
2.1	Earthwork in rough excavation, banking excavated earth in layers not exceeding 20 cm in depth, breaking clods,watering,rolling each layer with 1/2 tone roller or wooden or steel rammers, and rolling every 3rd and top-most layer with power roller of minimum 8 tonnes and dressing up in embankments of roads ,flood banks, marginal banks and guide banks or filling up ground depressions, lead up to 50 m and lift up to 1.5 m :	28.40	Cum		
2.2	Excavation work by mechanical means (hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soils as directed , within a lead of 50 m.	98.05	Cum		
2.3	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to to 50 m and lift uypto 1.5 m.	80.05	Cum		
2.4	Supplying and filling in plinth with jamuna sand under floors, including watering, ramming, consolidating and dressing complete.	12.28	Cum		
2.5	Supplying chemical emulsion in sealed containers including delivery as specified.chloropyriphos/ lindane emulsifiable concentrate of 20 %	10.00	liter		

2.6	Diluting and injecting chemical emulsion for POST_CONSTRUCTIONAL anti termite treatment (excluding the cost of chemical emulsion) : With Chloropyriphos/ lindane E.C 20 % with 1% concentration	105.50	meter		
2.7	Earth filling free from roots grass, rubbish and lumps and clouds exceeding 80mm in any direction for filling up under floors complete item, got from outside with all the leads and lifts as per direction of Engineer-in-Charge, complete	20.14	Cum		
	Total				
3	**Concrete Work**				
3.1	Centering and shuttering including shuttering, propping etc. and removal of form for : foundations, footings, Suspended floors, roofs, landing, balconies, access platform, lintels, beams, cantilevers', columns, pillars, stairs, piers, struts etc	1021.36	Sqm		
3.2	Providing and laying in position cement concrete of 1:4:8 (1cement : 4coarse sand : 8 graded stone aggregate 40 mm nominal size) excluding the cost of centering and shuttering - All work up to plinth level	18.02	Cum		
3.3	Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using fly ash and cement content as per approved design mix, and manufactured in fully automatic batching plant and transported to site of work in transit mixer for all lead, having continuous agitated mixer, manufactured as per design of specified grade for reinforced cement concrete work, including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering, finishing and reinforcement, including cost of admixtures in recommended proportions as per IS : 9103 to accelerate / retard setting of concrete, improve workability without impairing strength and durability as per direction of engineer - in - charge (cement content considered in this item is @ 330 Kg / Cum, excess / less cement used as per design mix is payable / recoverable separately, Fly ash conforming to grade 1 of IS 3812 (Part - 1) only be used as part replacement of OPC as per IS : 456, uniform blending with cement to be ensured in accordance with clauses 5.2 and 5.2.1 of IS : 456 - 2000 in term of BMC and RMC)				
3.3.1	All works up to plinth level	24.74	Cum		
3.3.2	All works above plinth level	101.39	Cum		
3.4	Reinforced cement concrete work in beams , suspended floors, roofs having slope up to 15 degree landings,**balconies**,shelves,chajjas**,lintels**,bands,plain **window sills**,**staircsaes** and spiral stair cases up to floor five level, excluding the cost of centering,shuttering,finishing and reinforcement, with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone	12.25	Cum		

	aggregate 20 mm nominal size.				
3.5	Reinforced cement concrete work in vertical and horizontal fins individually or forming box louvers, facias up to five floor level excluding the cost of centering and shuyyering, finishing and reinforcement, with 1: 1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size	9.75	Cum		
3.6	Steel reinforcement for R.C.C work including straightening,cutting,lbending,placing in position and binding all complete at all levels level. thermo - mechanically treated bars	18290.00	Kg		
3.7	Providing and laying damp proof coarse 50 mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand ; 4 graded stone aggregate 20 mm nominal size).	14.69	Sqm		
3.8	Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification,	1400.00	per bag (50 Kg ceme nt)		
3.9	smooth finishing of the exposed surface of R.C.C. work with 6mm thick cement plaster 1:3 (1 Cement : 3 fine sand)	445.00	Sqm		
3.10	Extra for rendering smooth the top of landing and staircase (tread and risers) with cement mortar 1:2 (1 cement : 2 coarse sand) including brick laid in mud mortar , including subsequent removal and cleaning of the same.	12.73	Sqm		
3.11	Providing and laying cement concrete in kerbs,steps and the like at or near ground level excluding the cost of centering,shuttering and finishing.				
3.11.1	1:2:4 (1 cement : 2coarse sand : 4graded stone aggregate 20 mm nominal size)	4.80	cum		
3.12	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75 mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including finishing the top smooth.	16.50	sqm		
	Total				
4	**Brick work**				
4.1	Brickwork with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in : cement mortar 1:6 (1cement :6 coarse sand)	14.51	Cum		

4.2	Brickwork with common burnt clay F.P.S (non-modular) bricks of class designation 7.5 in super structure above plinth level up to floor V level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	164.01	Cum		
4.3	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure in cement mortar 1:4 (1 cement : 4 coarse sand)	53.18	Sqm		
4.4	Extra for providing and placing in position 2 Nos 6mm dia M.S. bars at every third course of half brick masonry.	53.178	Sqm		
	Total				
5	**Roofing**				
5.1	Painting top of roofs with bitumen of approved quality @ 17kg per 10 Sqm impregnated with a coat of coarse sand at 60 cudm per 10 Sqm, including cleaning the slab surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil complete with residual type petroleum bitumen of grade VG-10.	135.25	Sqm		
5.2	10 cm thick mud phaska of damped brick earth on roofs laid to slope consolidated and plastered with 25 mm thick mud mortar with bhusa @ 35 kg per cum of earth and gobri leaping with mix 1:1 (1 clay : 1 cowdung) and covered with flat tile bricks, grouted with cement mortar 1:3 (cement : 3 fine sand) mixed with 2 % of integral water proofing compound by weight of cement and finished neat. With common burnt clay F.P.S. (non-modular) brick tiles of class designation 10	135.25	Sqm		
5.3	Extra for every additional 1 cm thickness of mud phaska.	135.25	sqm		
5.3	Providing gola 75 x 75 mm in cement concrete 1:2:4: (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge), including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design, in 75 x 75 mm deep chase	49.50	Rmt		
5.4	Making khurras 45 x 45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement :4 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1 m x 1 m x 400 micron , finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement ,rounding the edges and finishing the outlet complete.	5.00	each		
	Total				
6	**Finishing**				
6.1	12 mm cement plaster of 1: 4 (1 cement : 4 coarse sand)	1291.00	Sqm		
6.2	12 mm cement plaster finished with a floating coat of neat cement of mix 1 : 4 (1 cement : 4 fine sand)	43.28	Sqm		

6.3	Providing and fixing chicken mesh 150mm wide at each junction of RCC and masonry embedded in plaster of specified thickness and mix to prevent the opening of junction including cutting, placing and finishing etc (Complete item)	245.00	Rmt		
6.4	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1 : 5 (1 cement : 5 coarse sand) finished with a top layer 6 mm thick cement plaster 1 : 6 (1 cement : 6 fine sand) up to a height of 10 m.	275.00	Sqm		
6.5	Extra for providing and mixing water proofing material in cement plaster work in proportion recommended by the manufactures.	35.00	per bag (50 Kg ceme nt)		
6.6	18 mm thick moulded cement mortar band in two coats under layer 12 mm thick with cement mortar 1:5 (1 cement : 5 coarse sand) top layer 6 mm thick cement mortar 1 : 4 (1 cement : 4 fine sand)	412.00	per mtr		
6.7	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3m or part thereof	463.96	Sqm		
6.8	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 coarse stone aggregate) finished with a floating coat of neat cement, including cement slurry, but excluding the cost of nosing of steps etc. complete 40 mm thick with 20 mm nominal size stone aggragate	272.00	sqm		
6.9	Providing and laying 75mm thick compacted bed of dry brick aggregate of 40mm thick or less nominal size including spreading, well ramming, consolidated and grouting with jamuna sand, including finishing smooth etc. complete as per direction of engineer - in - charge.	135.22	Sqm		
6.10	Stone work (20 mm thick Polished granite banglore-Exposed face machine cut and table rubbed with rough backing) for wall lining etc. (Veneer work) up to 10 meter height, backing filled with a grout of average 12 mm thick cement mortar 1:3 (1 cement: 3 course sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : (to be secured to the backing and the sides by means of cramps and pins which shall be paid separately)	310.00	Sqm		
6.11	Providing and fixing stainless steel cramps of required size and shape for anchoring stone wall lining to the backing of securing adjacent stones in stone wall lining in cement mortar 1:2 (1 cement : 2 coarse sand), including making the necessary chases in stone and holes in wall wherever required.	175.00	Kg		
6.12	Stone work (machine cut edges) for wall lining etc. (veneer work) upto 10 metre height,backing filled with a grout of average 12 mm thick cement mortar 1:3 (1cement :3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : (to be secured to the backing and the side by means of cramps and pins which shall be paid for seperately) :				

6.12.1	40 mm thick	310.00	sqm		
6.13	Stone work (machine cut edges veneer work) for wall lining upto 10 m height,backing filled with a grout of 12 mm thick cement mortar 1:3 (1cement :3 coarse sand) and jointed with Cement mortar 1:2 (1 cement :2 stone dust), including rubbing and polishing complete.				
6.13.1	kota stone slabs exposed face dressed and rubbed.				
6.13.1.1	25 mm thick	310.00	sqm		
6.14	Stone tile work for wall lining upto 10 m height with special adhesive over 12 mm thick bed of cement mortar 1:3 (1 cement :3 coarse sand), including pointing in white cement with an admixture of pigment to match the stone shade.				
6.14.1	8 mm thick(mirror polished and machine cut edges)				
6.14.1.1	Granite stone of any colour and shade	310.00	sqm		
	Total				
7.0	**Miscellaneous Work**				
7.1	Fencing with angle iron post placed at required distance embedded in cement concrete blocks, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with horizontal lines and two diagonals' interwoven with horizontal wires, of barbed wire weighing 9.36 Kg per 100 m (minimum), between the two posts fitted and fixed with G.I. staples, turn buckles etc. complete. (Cost of Post, earth work and concrete work to be paid for separately). Payments to be made per meter cost of total length of barbed wire used. with G.I. barbed wire	3630.00	Rmt		
7.2	Supplying at site Angle iron post & strut of required size including bottom to be split and bent at right angle in position direction for 10 cm length and drilling holes up to 10 mm dia etc. complete.	620.00	Kg		
7.3	Stone work (40 mm thick Polished granite banglore-Exposed face machine cut and table rubbed with rough backing) for wall lining etc. (Veneer work) up to 10 meter height, backing filled with a grout of average 12 mm thick cement mortar 1:3 (1 cement: 3 course sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : (to be secured to the backing and the sides by means of cramps and pins which shall be paid separately)	65.71	sqm		
7.4	Cement concrete 1:2:4 (1cement :2 coarse sand : 4 graded stone aggregate 40 mm nominal size) in pavements,laid to required slope and camber in panels as required including consolidation finishing and tamping complete.	120.46	sqm		

	Total				
9	**Water Supply & Drainage**				
A	**Water supply**				
1	Providing and fixing Polyethylene - Aluminum - Polyethylene (PE-AL-PE) composite Pressure Pipes conforming to IS - 15450, U.V. stabilized with carbon black having thermal stability for hot and cold water supply, capable to withstand temperature up to 80 degree C, including all special fittings of composite material (engineering plastic blend and brass inserts wherever required) e.g. elbows, tees, reducers, couplers and connectors etc., with clamps at 1.0 meter spacing. This includes tedting of joints complete as per direction of the Engineer in charge. including cutting chases and making good the wall etc.				
1.1	1216 (16 mm OD) pipe	80.00	Rmt		
1.2	1620 (20 mm OD) pipe	70.00	Rmt		
1.3	2025 (25 mm OD) pipe	10.00	Rmt		
1.4	2532 (32 mm OD) pipe	5.00	Rmt		
1.5	3240 (40mm OD) pipe	10.00	Rmt		
2	Providing and fixing ball valve (brass) of approved quality, high or low pressure, with plastic floats complete.				
2.1	20 mm nominal bore	4.00	Nos		
2.2	25 mm nominal bore	2.00	Nos		
2.3	32 mm nominal bore	4.00	Nos		
2.4	40 mm nominal bore	4.00	Nos		
3	Making connection from existing water supply pipe line including necessary excavation & making good the same including cutting and taping the existing line by providing and installing ferrule/Tee connections with necessary fittings and making good the same complete as required	1.00	Job		
B	**INTERNAL DRAINAGE :**				
1	Providing, Fixing, Jointing with solvent cement, testing and commissioning of unplasticised rigid uPVC (Class-III) pipes conforming to IS: 4985 including all fittings such as bends, clamps, cowls, cleanout plug, supports etc., cost of cutting holes in walls and floors and making good the same and complete as required. (Nothing extra to be paid on account of fittings). Working pressure = 6 kg./Sq.cm				
1.1	110 OD	60	RM		
1.2	75 OD	10	RM		

2.0	Providing and fixing rain water 'Khurras' of 300 x 300 mm with puddle flange fixed in R.C.C. slab. Including rain water outlet fitting with aluminum ring and C.I grating and dome / flat fitting fixed with S.S. Screws on top of puddle flange pipe at roof level complete in all respect. **(CI Grating only)**				
2.1	Roof drain type for 110 OD pipe.	5	Nos.		
3	Providing, fixing, testing and commissioning uPVC pipe SWR Pipe for **internal soil and waste drainage system** conforming to IS:13592 Type 'B' for soil waste, vent and rain water drainage pipe including injection moulded fittings e.g. tees, bends, clamps, Y junctions, reduces couplings, adapters, door bend and terminal cowl etc. jointing with rubber ring/ solvent cement including cuttings the walls and floor as required and making good the walls and floors as required at site.				
3.1	100 OD	40	RM		
4	Providing and fixing injection moulded SWR 'P' or 'S' floor trap of self cleansing design with deep seal of 50 mm including cost of cutting and making good walls and floors. The jointing of pipes to the floor trap is to be completed with solvent cement wherever required complete in all respect.				
4.1	100 mm x 100 mm	20	Nos.		
5	Providing fixing and wrapping fibere glass of 25 mm thick on PVC floor trap faced with Aluminum for tide on "Floor Trap" of PVC only by mean of 12 mm wide PVC band not less 4 band per trap for reducing noise from the upper floor drain complete in all respect.				
5.1	100 x 100 mm	6	Nos.		
6	Providing fixing and wrapping fibber glass of 25 mm thick on PVC floor drain faced with Aluminum for tide on "Floor Trap" of PVC only by mean of 12 mm wide PVC band not less 4 band per trap for reducing noise from the upper floor drain complete in all respect.				
6.1	100 mm inlet & 100 mm outlet	6	Nos.		
7	Providing and fixing G.I. Pipe ISI marked brand conforming to IS:1239 ("B" Class) for waste pipes, from wash basin, urinals, kitchen sink and equipments waste connections complete with G.I. Fittings such as tees, crosses, plugs, elbows, reducers, clamps etc. including cutting, chase and holes and making good the walls and floors with necessary supports as directed by the Project Manager.				
7.1	32 mm nominal bore	30	RM		
7.2	40 mm nominal bore	25	RM		
B	**EXTERNAL SEWERAGE DRAINAGE:**				

1	Excavation of earth for pipe trench including dressing of sides, ramming of bottoms including shoring, dewatering, disposal of the excavated material, refilling the soil in layers not exceeding 20 cm in depth with consolidating deposited layer by ramming, watering and disposing of surplus soil as required.				
1.1	Soft/Hard Soil depth up to 1.5m	30	RM		
2	Providing and fixing square mouth S.W. Gully trap grade "A" complete with C.I. Grating brick masonry chamber with bricks of class designation 75 in cement mortar 1:5 (1 cement : 5 coarse sand) inside plaster above trap 12mm thick cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement outside plaster 12mm thick in cement mortar 1:3 (1 cement : 3 coarse sand) 10 cm thick foundation concrete 1:4:8 mix (1cement : 4 coarse sand :8 graded stone aggregate 40 mm nominal size) space between chamber, and trap filled with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) and water tight C.I. cover with frame complete as per drawing & specification.				
2.1	450 mm x 450 mm gully trap with 180 x150 mm size 'P' trap with water tight C.I cover with frame of 450 x 450 mm size (inside) the weight of cover and frame to be not less than 10 kg as per standard design.	4	Set		
3	Providing, Laying, Testing & Jointing of Stone Ware pipes grade `A' with stiff mixture of cement mortar in the proportion of 1:1 (1 cement :1 fine sand) including testing of joints etc complete in all respect.				
3.1	150 mm dia	80	RM		
4	Providing and Laying of cement concrete bed of 1:5:10 (1 cement :5 coarse cement :10 graded stone aggregate 40 mm nominal size) of average 75 mm thickness all - around SW pipes including bed concrete as per standard design including centering & shuttering etc. complete.				
4.1	Providing and Laying of cement concrete bed of 1:5:10 (1 cement :5 coarse cement :10 graded stone aggregate 40 mm nominal size) of average 75 mm thickness all - around SW pipes including bed concrete as per standard design including centering & shuttering etc. complete.	80	RM		
5	Constructing water tight brick masonry catch basin type manhole with bricks of 75 class designation in cement mortar 1:5 (1 cement :5 coarse sand), RCC top slab with 1:2:4 mix (1 cement : 2 coarse sand :4 graded stone aggregate 20 mm nominal size) including the cost of providing & fixing the re-inforcement steel bars. Foundation concrete 150 mm thick 1:4:8 (1 cement :4 coarse sand :8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement outside plastering of 12mm thick with cement mortar 1:3 (1 cement :3 coarse sand) complete as per drawing & specifications.				

5.1	600 x 600 x 750 deep mm dia	7	Nos		
6	Providing and fixing cast iron manhole cover with frame including fixing in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering and shuttering all complete.				
6.1	750 x 750 mm dia	5	Nos		
6.2	600 x 600 mm dia	7	Nos		
7	Making connection of Sewer water line including necessary excavation and breaking the wall of municipal manhole and making good the same with cement mortar 1:3 finished with a floating coat of neat cement and making drains etc complete. Removing the excavated surplus material.	1	Set		
C	**EXTERNAL STORM WATER DRAINAGE:**				
1	Excavation of earth for pipe trench including dressing of sides, ramming of bottoms, including shoring, dewatering, disposal of the excavated material, refilling the soil in layers not exceeding 20 cm in depth with consolidating deposited layer by ramming, watering and disposing of surplus soil as required.				
1.1	Soft/Hard Soil depth up to 1.5m	70	RM		
2	Providing, Laying and Jointing of Non-Pressure NP2 class (light duty) RCC pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc.				
2.1	150 mm dia	70	RM		
3	Providing and laying cement concrete 1:5:10 (1 cement :5 coarse cement :10 graded stone aggregate 40mm nominal size) up to haunches RCC pipes including bed concrete as per standard design as given in drawings.				
3.1	150 mm dia	70	RM		
4	Constructing water tight brick masonry manhole with bricks of 75 class designation in cement mortar 1:5 (1 cement :5 coarse sand), R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand :4 graded stone aggregate 20 mm nominal size) including cost of providing & fixing reinforcement steel bars. Foundation concrete 150 mm thick 1:4:8 (1 cement :4 coarse sand :8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement and making channel in cement concrete 1:2:4 mix, (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with floating coat of neat cement, outside plaster of 12mm with cement mortar 1:3 (1 cement :3 coarse sand) complete as per standard drawings & specifications.				
4.1	750 x 750 x 900 deep mm dia	5	Nos		

5	Making connection of Storm water line including necessary excavation and breaking the wall of municipal manhole and making good the same with cement mortar 1:3 finished with a floating coat of neat cement and making drains etc complete. Removing the excavated surplus material.	1	Set		
	Total				
10	**Electrical Work**				
A	**Point Wiring**				
1	Wiring for **Normal Light Points** with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires with 2 x 1.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) point wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows & sockets including providing and fixing of modular type 6A switch and switch cover plate and base plate along with 16 SWG MS zinc crome passivated box & 2 x 2.5 + 1 x 1.5 sq. mm circuit wire including connection and termination of wires complete in all respect as per site condition. (Switch controlled)				
i	Normal Light points. (Primary)	70	Nos		
ii	Normal Light points. (Secondary)	86	Nos		
2	Wiring for **Twin Control Light Points** in staircase with PVC insulated multi - strand 1.1 KV Grade FRLS copper conductor wires with 2 x 1.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) point wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets including providing and fixing of modular type 2 Nos.2 way 6A switch and switch cover plate and base plate along with 16 SWG MS zinc crome passivated box& 2 x 2.5 + 1 x 1.5 sq. mm circuit wire, connection and termination of wires complete in all respect.				
i	Twin Light points with 2 Nos. 2 Way switch.	4	Nos		
3	Wiring for **Exhaust Fan** points with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires with 2 x 2.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) point wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows, sockets including providing and fixing of modular type 6A switch and switch cover plate and base plate along with 16 SWG MS zinc crome passivated box with connection of wires complete in all respect.				

i	Exhaust Fan Points.	9	Nos		
4	Wiring for **Ceiling Fan Points** with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires with 2 x 2.5 sq mm (Phase & Neutral) and 1 x 1.5 sq mm (Earth) point wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows, sockets including providing and fixing of modular type electronic hum free fan regulator with 6A switch & switch cover plate and base plate along with 16 SWG MS zinc crome passivated box, connection of wires complete in all respect as per site condition.				
i	Ceiling fan point	12			
5	Wiring for **Call Bell / Buzzer Points** with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires with 2 x 1.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) point wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets including providing & fixing of modular type 6A bell push switch and switch cover and base plate with 16 SWG MS zinc crome passivated box & 2 x 2.5 + 1 x 1.5 sq. mm circuit wire, connection of wires in all respect.				
i	Call bell Points.	1	Nos.		
6	Wiring for **3/5 Pin, 6A, Raw Power Plug** Outlets with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires of 2 x 2.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets including providing and fixing of modular type 1 No 10A switch and 2 Nos. 6A socket outlet along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection and termination of wires as required in all respect.				
i	Primary Normal Supply Socket Outlets.	16	Nos.		
ii	Secondary Normal Supply Socket Outlets.	16	Nos.		
7	Wiring for **Light Plug 3/5 Pin, 6A** Socket Outlets with PVC insulated multi-strand FRLS copper conductor wires of 2 x 2.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets including providing and fixing of modular type 1 No 15A switch and 3 Nos. 6A socket outlet along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection and termination of wires as required in all respect.				

i	Primary Normal Supply Socket Outlets.	8	Nos.		
8	Wiring for **UPS Plug 3/5 Pin, 6A** Socket Outlets with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires of 2 x 2.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets including providing and fixing of modular type 1 No 10A switch and 2 Nos. 6A socket outlet along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection and termination of wires as required in all respect.				
i	Primary UPS Supply Socket Outlets.	16	Nos.		
ii	Secondary UPS Supply Socket Outlets.	16	Nos.		
9	Wiring for 3/5 Pin, 6A socket outlets **away from switch board** with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires of 2 x 2.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets including providing and fixing of modular type 1 No 6A switch and 1 No. 6A socket outlet along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection of wires as required in all respect.				
i	Primary Socket Outlets.	10	Nos.		
10	Providing and Fixing of Hexagonal Fan Hook Box in R.C.C. slab before casting of 16 gauge with MS hook of 12 mm rod welded to box of approximately 150 mm dia and covering with suitable size of phenolic laminated sheet cover with brass screws as required.	12	Nos.		
11	Providing, Fixing and Wiring for 3/5 Pin, 6A socket outlet on **Switch Board** of modular type 1 No 6A switch and 1 No. 6A socket along with the cover plate and base plate in 16 SWG MS zinc crome passivated box with PVC insulated multi-strand 1.1 KV Grade FRLS copper conductor wires of 2 x 2.5 sq mm (Phase and Neutral) and 1 x 1.5 sq mm (Earth) including connection and termination of wires as required complete in all respect.	20	Nos.		
12	Wiring for 6 Pin 16A **Power Socket Outlets** with PVC insulated multi - strand 1.1 KV Grade FRLS copper conductor wires 2 x 4.0 sq mm (Phase and Neutral) and 1 x 2.5 sq mm (Earth) power wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets ncluding supply and fixing of modular type 1 No. 6/16A Switch and 1 No. Socket along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection and termination of				

	wires complete in all respect.				
i	Primary Power Socket Outlets.	20	Nos.		
ii	Secondary Power Socket Outlets.	13	Nos.		
13	Wiring for 6 Pin 16A **Geyser Power Socket Outlets** with PVC insulated multi - strand FRLS copper conductor wires 2 x 4.0 sq mm (Phase and Neutral) and 1 x 2.5 sq mm (Earth) power wiring in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets ncluding supply and fixing of modular type 1 No. 6/16A Switch and Socket each along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection of wires complete in all respect.	9	Nos.		
14	Wiring for 6 Pin 25A **AC Power Socket Outlets** with PVC insulated multi - strand 1.1 KV Grade FRLS copper conductor wires 2 x 4.0 sq mm (Phase and Neutral) and 1 x 2.5 sq mm (Earth) in 25 mm dia Medium Duty PVC Conduit of 1.6 mm thick along with junction boxes, bends, tees, elbows and sockets ncluding supply and fixing of modular type 1 No. 25A motor starter and 25A socket each along with the cover plate and base plate in 16 SWG MS zinc crome passivated box including connection of wires complete in all respect.				
i	Primary AC Socket Outlets.	17	Nos.		
15	Providing and Fixing of modular type 25A master switches each along with the cover & base plate in 16 SWG MS zinc crome passivated M S box including connection and termination of wires complete in all respect.	2	Nos.		
16	Providing and Fixing of modular type blanking plate on the cover plate and base plate including screws in all respect.	25	Nos.		
17	Providing and Fixing of modular type 60 W, 240 V AC Buzzer, 1 module on the cover plate and base plate including connection of wires in all respect.	6	Nos.		
B	**DISTRIBUTION BOARDS AND PANELS:**				

1.0	Supply, Fixing, testing & commissioning of following way surface or recessed mounted pre-wired Tripple Pole & Neutral MCB distribution board of double door type design made out of 18 gauge MS sheet steel, 415 V, 50 Hz, IP - 43 complete with loose wire box, terminal blocks, tinned copper bus-bars, earth bars, neutral links, detachable gland plate, owder painted with supplying and fixing of following accessories including interconnection between incomer and outgoings and labeling etc as required.				
1.1	**8 WAY TPN MCB DB (Light - Power DB)**				
	The Lighting DB shall have following accessories:				
	INCOMING				
a)	63A TPN MCB (10 kA) - 01 No.				
b)	63A DP ELCB (100 mA) - 03 Nos.				
	BUSBARS				
	1 set of 100 Amps, 15 KA, TPN Copper Wires Bus Bars of suitable length and shall be colour coded duly crimped with copper lugs and thimbles.				
	OUTGOING				
	25A SP MCB (10 kA) - 13 Nos.				
	10A SP MCB (10 kA) - 07 Nos.				
	Neutral links and Earth Links - 05 Nos.	2	Set		
1.2	**8 WAY TPN MCB DB (Power Socket DB)**				
	The Power DB shall have following accessories:				
	INCOMING				
a)	63A TPN MCB (10 kA) - 01 No.				
b)	63A DP ELCB (100 mA) - 03 Nos.				
	BUSBARS				
	1 set of 100 Amps, 15 KA, TPN Copper Wires Bus Bars of suitable length and shall be colour coded duly crimped with copper lugs and thimbles.				
	OUTGOING				
	25A SP MCB (10 kA) - 07 Nos.				
	20A SP MCB (10 kA) - 13 Nos.				
	Neutral links and Earth Links - 05 Nos.	2	Set		
1.3	**8 WAY TPN MCB DB (Lighting DB)**				
	The Power DB shall have following accessories:				
	INCOMING				
a)	63A TPN MCB (10 kA) - 01 No.				
b)	63A DP ELCB (100 mA) - 03 Nos.				
	BUSBARS				
	1 set of 100 Amps, 15 KA, TPN Copper Wires Bus Bars of suitable length and shall be colour coded duly crimped with copper lugs and thimbles.				

	OUTGOING				
	10A SP MCB (10 kA) - 20 Nos.				
	Neutral links and Earth Links - 05 Nos.	2	Set		
1.5	**MAIN LT PANEL.**				
	Design, fabrication, loading, unloading at site, installation, testing and commissioning of LT Panels fabricated out of 2mm thick for structural members and 1.6mm thick for door and covers CRCA sheet in cubicle compartmentalize free standing floor mounted, dust and vermin proof with reinforcement of suitable size angle iron, channel 'T' irons and / or flats wherever necessary, 16 gauge CRCA sheet steel shall be used for final distribution panels. Cable gland plates shall be provided on top as well as at the bottom of the panels. Panels shall be treated with all anticorrosive process before painting as per specifications with 2 coats of zinc chromate primer and final approved shade of enameled paint. 2 Nos. earthling terminals shall be provided for all distribution panels. Panels shall be suitable for 415V, 3-phase, 4-wire, 50Hz supply system and with 15% spare space, lifting hooks shall also be provided.				
	Incoming (1 No.) :				
	320 Amp TP+N MCCB, 35 KA.				
	Metering & indiacation:				
	(0-500V) digital voltmeter with inbuilt selector switch protected by 2A control MCB.				
	(0-320A) Digital ammeter with inbuilt Selector Switch and suitable ratio, 630/5A CL-1, 10VA CT's				
	Set of Phase indicating lamps with control MCB.				
	Bus Bar:				
	1 set of 400 Amps, 35 KA, TPN Aluminium Strip Bus Bars of suitable length and shall be colour coded duly crimped with copper lugs and thimbles.				
	Outgoing:				
	Seven (07) Nos. 63A TPN MCCB (25kA)	1	set		
B)	**LIGHTING FIXTURES & FANS:**				
	Supply, Installation, testing & commissioning of following type of light fixtures and fans including fixing of lamps / bulbs, down rod or chain, hanger, with all fixing hardware & accessories as required.				
1.1	2 x 36 W recessed mounted compact fluorescent lamp light fixtures PL-L with reflector, electronic chock and tube etc.	28	Nos.		
	(Cat No. FBS 300 /236 P5 HF - Philips Make or approved equivalent Crompton, Havells etc.)				

1.2	2 x 18 W recessed mounted compact fluorescent lamp light fixtures PL-C with reflector, electronic chock and tube etc.	85	Nos.		
	(Cat No. FBH 150 /218 - Philips Make or approved equivalent Crompton, Havells etc.)				
1.3	1 x 36 W Wall mounted Patti type fluorescent tube light fixtures with electronic chock, tube light etc.	25	Nos.		
	(Cat No. TMC 55/136 HF - Philips Make or approved equivalent Crompton, Havells etc.)				
1.4	1 x 36 W Wall mounted Bonsai Luminaires with compact fluorescent lamp with electronic chock, tube light etc.	20	Nos.		
	(Cat No. FMS 600 / 36 - Philips Make or approved equivalent Crompton, Havells etc.)				
1.5	1 x 18 W CFL Bulkhead Light fixture with lamp (parapet wall, Service shaft, ramp etc.)	16	Nos.		
1.4	4 x 50 W recessed mount Scrable downlighters Luminaires with halogen lamp with electronic chock, tube light etc.	1	Nos.		
	(Cat No. QBX500 4X50 WH - Philips Make or approved equivalent Crompton, Havells etc.)				
C	**LT CABLES & SUB MAINS:**				
1.1	Supply & Laying of XLPE insulated PVC sheathed copper/ aluminium conductor armoured power cable of 1.1 KV grade (conforming to latest IS amended upto date) on cable tray with cable tags, tie etc. Cost of cable tray not to be included in item, that will be paid separately under separate head.				
i)	3.5 Core x 95 Sq.mm Aluminium Cable	30	RM		
2.0	**Cable termination :**				
	Supplying of all materials and making terminations of 1.1 KV grade aluminium multicore cables of the following sizes. The work includes cable glanding using **brass plated single compression glands**, sizing the core leads, removing insulation, fixing suitable crimping type copper lugs/thimbles by using hydraulic crimping tools with correct size of the dies, shaping the leads and neatly connecting the same to the equipment terminals.				
i)	3.5 Core x 95 Sq.mm Aluminium Cable	2	Set		
3.0	**Sub-Main Wires in Conduit.**				

	Supply, Laying, Testing, Rectify & Commissioning of wiring with all the required material for following sub-mains with PVC insulated copper conductor 1100 volts grade of suitable size wires (FRLS) in concealed/surface mounted 32/40 mm dia medium duty PVC Conduit either in slabs, partitions or overhead trusses terminating the wires in respective panels, DBs, switch boxes with suitable size earth wires & associated hardwares etc are as follows :				
a)	4 x 10 + 2 x 6 Sq.mm PVC insulated copper wires in 32 mm dia existing medium duty PVC conduit.	80	RM		
3.0	**PVC Conduit (Medium Duty).**				
	Supplying and laying of following sizes of medium duty PVC Conduit 1.6 / 2.0 mm thick concealed / surface including cutting and filling chases along with conduit accessories like tees, solid, inspection bends, elbows, sockets etc complete as required.				
a)	32 mm dia	80	RM		
E)	**TELEPHONE/TV/DATA SYSTEM**				
1.0	Supply, Installation, testing & commissioning of telephone socket outlet (RJ-11) in G.I. box and cover plate complete as required.	32	Nos.		
2.0	Supply and installation of wall/recessed mounting KRONE connector type telephone tag block of following sizes in sheet metal enclosure of suitable dimensions fabricated out of 16 SWG sheet steel with castle key lock, hinged gasketed type cover including connection of cables, painting of box etc, complete as required.				
a)	50 Pair	4	Nos.		
3.0	Supplying & drawing the following sizes of anealed tinned electrolytic copper conductor PVC insulated unshielded twisted telephone wires in existing conduit and making connection on both the ends.				
a)	4 Pair	200	RM		
4.0	Supplying, laying, testing and commissioning of following size anealed tinned copper conductor PVC insulated and sheathed armoured copper telephone cables with suitable clamps, saddles and including making terminal double compression joints complete as required.				
d)	50 Pair	50	RM		
5.0	Supply and fixing of co-axial cable (RG-11) from Splitter box to main Tag Block, including saddles, clamps etc. complete as required. (Cable shall be 2 layer shielded).	50	RM		
6.0	Supply & laying of RG-6 cable from Splitter box to points inside the Rooms in existing conduits/on surface with all fixing hardware etc. as required.	50	RM		

7.0	Supply and fixing of modular type TV Socket co-axial along with switch plate and box along with required chasing and all others accessories complete as required.	10	Nos.		
8.0	Supplying and drawing the following sizes of CAT-6 DATA Cable anealed tinned electrolytic copper conductor PVC insulated unshielded twisted in existing conduit, making connection on both ends.				
a)	CAT-6	200	RM		
9.0	Supply and fixing of modular type RJ-45 DATA Socket Outlet category 6 - 2 module along with switch plate and box along with required chasing and all others accessories complete as required.	32	Nos.		
10.0	Supply & Fixing of following with MS box of suitable size:				
a)	2 Way Splitter	2	Nos.		
b)	4 Way Splitter	2	Nos.		
c)	6 Way Splitter	2	Nos.		
5.0	Supplying and laying of following sizes of medium duty PVC Conduit 1.6 / 2.0 mm thick concealed / surface including cutting and filling chases along with conduit accessories like tees, solid, inspection bends, elbows, sockets etc complete as required.				
a)	25 mm dia	500	RM		
	EARTHING STATION:				
10.1	Supply, installation, testing and commissioning of G.I. Plate earthing stations including making earth pits, providing 600 mm x 600 mm x 6 mm thick G.I earth plate, C.I. funnel with wire mesh, charcoal /coke, salt, all earth work, masonry enclosure with C.I. frame & cover plate with locking arrangement and 20 mm dia GI watering pipe, disconnecting /testing links etc. complete as per IS -3043-1987 and as required. (For Main LT Panel, DB & UPS Panels Body Earthing).	2	Nos.		
11.1	**G.I. Earthing Wire:**				
	Supply, installation, testing and commissioning of following sizes of G.I. wire and other fixing hardware material etc. complete as required for proper installation.				
a)	8 SWG GI Wire	200	RM		
	TOTAL				
	Grand Total				

Drawings regarding of tender documents can be downloaded from central portal website ; http://eprocure.gov.in/cppp/