Indian Institute of Technology Hyderabad
Kandi, Sangareddy - 502 285, Telangana, India
Phone: 040-23016071:
Website: www.iith.ac.in, Email: office.stores@iith.ac.in>

OPEN TENDER – DOMESTIC

Tender Ref. No: IITH/MAE/NISHANTH/2020/T006 Date: 17/09/2020

Indian Institute of Technology Hyderabad invites online bids (e-tender) in two bids systems, from Indian Owned Companies/Entities in India, their Authorized distributers/Authorized dealer for the following:

Item Description	Estimate Cost of Tender (Rs).	EMD (Rs)
Design, Site Preparation, Supply, Installation, Testing, Commissioning, Operations and Maintenance of Basic Infrastructure for the establishment of a Data Center	-----	Rs.4,00,000/- (Rs.Four lakhs only)

The Tender Document can be downloaded from https://mhrd.euniwizarde.com OR Central Public Procurement (CPP) Portal https://eprocure.gov.in/epublish/app OR Institute website-https://iith.ac.in/tenders

The bid is to be submitted online only through the E-procurement portal of https://mhrd.euniwizarde.com up to the last date and time of submission of tender.

Schedule of Dates

Sr.No	Particulars	Date	Time
1	Date of Online Publication/Download of Tender	17/09/2020	1600 hrs
2	Last Date for Sending Pre-Bid Queries	21/09/2020	1700 hrs
3	Pre-Bid Meeting (Online)	23/09/2020	1700 hrs
4	Last Date for Submission of Bids	12/10/2020	1700 hrs
5	Date of Opening of Technical Bids	13/10/2020	1500 hrs

No manual bids will be accepted. All quotation (both Technical and Financial) should be submitted online through E-procurement portal of **https://mhrd.euniwizarde.com**

Any queries relating to the process of online bid submission or queries relating to e-tender Portal in general may be directed to the Helpdesk Support - Phone No. 011-49606060. Mail id: - helpdeskeuniwizarde@gmail.com

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INSTRUCTIONS FOR ONLINE BID SUBMISSION

The Tender Document can be downloaded from https://mhrd.euniwizarde.com OR Central Public Procurement (CPP) Portal https://eprocure.gov.in/epublish/app OR Institute website- https://iith.ac.in/tenders.

The bidders are required to submit soft copies of their bids electronically on the https://mhrd.euniwizarde.com using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the Portal, prepare their bids in accordance with the requirements and submitting their bids online.

More information useful for submitting online bids may be obtained at: https://mhrd.euniwizarde.com

GUIDELINES FOR REGISTRATION:

1.Bidders are required to enrol on the e-Procurement Portal with clicking on the link "Online Bidder Enrolment " on the e-tender Portal by paying the Registration fee of Rs.2000/- +Applicable GST.

2. As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.

3. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication with the bidders.

4. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Only Class III Certificates with signing + encryption key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.), with their profile. Or bidders can contact help desk for getting the DSC.

5. Only valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.

6. Bidder then logs in to the site through the secured log-in by entering their user ID /password and the password of the DSC / e-Token.

7. The scanned copies of all original documents should be uploaded in pdf format on portal https://mhrd.euniwizarde.com

8. After completion of registration payment, bidders need to send their acknowledgement copy on help desk mail id helpdeskeuniwizarde@gmail.com for activation of their account.

SEARCHING FOR TENDER DOCUMENTS

1. There are various search options built in the e-tender Portal, to facilitate bidders to search active tenders by several parameters.

2. Once the bidders have selected the tenders they are interested in, you can pay the form fee and processing fee (NOT REFUNDABLE) by net-banking / Debit / Credit card then you may download the required documents / tender schedules, Bid documents etc. Once you pay both fee tenders will be moved to the respective 'requested' Tab. This would enable the e- tender Portal to intimate the bidders through e-mail in case there is any corrigendum issued to the tender document.

PREPARATION OF BIDS

1. Bidder should take into account any corrigendum published on the tender document before submitting their bids.

2. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid.

3. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF formats. Bid Original documents may be scanned with 100 dpi with Colour option which helps in reducing size of the scanned document.

4. To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, GST, Annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Documents" available to them to upload such documents.

5. These documents may be directly submitted from the "My Documents" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

SUBMISSION OF BIDS

1. Bidder should log into the website well in advance for the submission of the bid so that it gets uploaded well in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.

2. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document as a token of acceptance of the terms and conditions laid down by IIT Hyderabad.
3. Bidder has to select the payment option as "e-payment" to pay the tender fee / EMD as applicable and enter details of the instrument.

4. In case of Bank Guarantee (BG) bidder should prepare the BG as per the instructions specified in the tender document. The BG in original should be posted/couriered/given in person to the concerned official of IIT Hyd before the Online Opening of Technical Bid. In case of non-receipt of BG in original by the said time, the uploaded bid will be summarily rejected.

5. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BOQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BOQ file, open it and complete the white Colored (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BOQ file is found to be modified by the bidder, the bid will be rejected.

6. The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

7. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.

8. Upon the successful and timely submission of bid click "Complete" (i.e. after Clicking "Submit" in the portal https://mhrd.euniwizarde.com), the portal will give a successful Tender submission acknowledgement & a bid summary will be displayed with the unique id and date & time of submission of the bid with all other relevant details.

9. The tender summary has to be printed and kept as an acknowledgement of the submission of the tender. This acknowledgement may be used as an entry pass for any bid opening meetings.

For any clarification in using https://mhrd.euniwizarde.com

1. Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

2. Any queries relating to the process of online bid submission or queries relating to e-tender Portal in general may be directed to the Helpdesk Support.

Please feel free to contact euniwizard helpdesk (as given below) for any query related to e-tendering - Phone No. 011-49606060. Mail id: - helpdeskeuniwizarde@gmail.com

Section I – Invitation of Bids

1. Introduction

This RFP is being floated to select the most appropriate vendor to build & operate the data center for a period of three years. The model of the proposed Data Center (DC) should be capable of enhancing capacities by incrementally augmenting the infrastructure. The monitoring of the proposed DC is planned through an Integrated Building Management System (IBMS) and therefore, the equipment's to be installed in the proposed Data Centre should be BMS compliant. As a part of this project, IIT HYDERABAD invites on-line bids from eligible bidders for supply, installation, commissioning and operations of Data Centre Solutions, as per the requirements stipulated in this document, at the Locations given below.

1.1 Indian Institute of Technology Hyderabad, Kandi, Sangareddy-502285

2. Contact information

Assistant Registrar (Stores & Purchase)
Indian Institute of Technology Hyderabad
Kandi – 502 285.Telangana, India
Email : ar.purchase@iith.ac.in

Phone: 040-23016071:

3. Availability Of Tender:

The Tender Document can be downloaded from https://mhrd.euniwizarde.com OR Central Public Procurement (CPP) Portal https://eprocure.gov.in/epublish/app OR Institute website-https://iith.ac.in/tenders

4. Envelope 1- Technical Bid: -

The Online Envelope Technical Bid – To contain Three Cover System:

Envelope No. 1.1 of Technical Bid :

a. Covering Letter, as per **Annexure – A.**

b. Authorization letter issued by the competent authority of bidder authorizing the signatory to sign on behalf of the bidder, as per **Annexure – B.**

c. Undertaking to the effect that a Security Deposit of 10% of the order value will be submitted in case IIT HYDERABAD decides to place the Purchase Order.

d. Undertaking to the effect that the bidder is not black-listed or barred from participation in bidding process by any Central/ State Government, Government Department, Government Undertaking, Public Sector Unit (PSU) or autonomous institution, as on date of submission of bids.

e. Tender Acceptance Letter, as per **Annexure – F.**

f. Bid Security/EMD BG Copy – **Annexure G**

g. Document Check List as per **Annexure –H.**

Envelope No. 1.2 of Technical Bid :

a. A copy of Certificate of Incorporation, Partnership Deed / Memorandum and Articles of Association / any other equivalent document showing date and place of incorporation, as applicable.

b. A copy of GST registration certificate.

c. Copies of at least two purchase orders or contracts and successful installation and completion reports in the name of bidder from the end client / end user, during last Five years for Data Centre work, as per para. 3.3 of Section II. Self-declarations will not be entertained.

d. Copy of at least one purchase order for data center facility management / O & M activities completed / ongoing as per eligibility para. No 3.3.2 of Section II.

e. The self-certified copies of audited balance sheets or the certificate/s from a Chartered Accountant for the financial year 2018-2019, 2017-18 and 2016-17 indicating the annual sales turnover.

f. A copy of the commercial bid without prices and copy of commercial terms and conditions (in detail) as included in the commercial bid. IIT HYDERABAD reserves the right to reject the bid in case of any discrepancy observed in the un-priced commercial bid and the actual commercial bid.

g. Manufacturer authorization certificate as per **Annexure-C.**

h. All the necessary documents in support of eligibility criteria stipulated in Section–II, Para-3 (Eligibility Criteria).

Envelope No – 1.3 of Technical Bid

a. The executive summary of the bid submitted.

b. Duly filled Technical Bid (covering the details of solution, detailed bill of material, technical specifications, makes and models of items, diagrams, layouts, all drawings etc.)

c. The details of electrical power consumption, foot-print, ambient temp, temperature range targeted, discrimination curves, short circuit calculations, cable schedule along with voltage drop calculations, battery sizing and back up calculations etc.

d. Details of diesel consumption & water consumption on various loading conditions.

e. Design Basic Report along with annual average Power Usage Effectiveness (PUE) calculations for 25%, 50%, 75% and 100 % of IT load.

f. Design basis and analysis of cooling solution at full and partial load conditions including complete details, assumptions made and the specific references/standards used for the same. Applicable derations while selecting the chiller and bidder to submit software selection of the product considering site ambient conditions.

g. Technical Compliance matrix against all details requested as per Para. 9 of Section IV.

h. The printed catalogue / leaflet/brochures published by the principal manufacturer of the items quoted to be submitted along with the Technical Bid.

i. Legal / statutory permissions required, if any.

Envelope No. - 2 - "Commercial Bid ":

The Commercial Bid complete in all respects as per format given in **Section – V.**

Note:

The bid documents must be properly arranged in sequence.

IIT HYDERABAD reserves the right to reject the bid, if any of the above listed documents are not submitted.

5. On-Line Pre-Bid Meeting – Date/ Time/ Venue:

On-Line pre-bid meeting will be held as given in schedule to sort out/resolve queries raised by the prospective bidders regarding the tender scope, conditions, terms & conditions etc. The prospective bidders requiring any clarification of the bidding document may send their queries in writing through e-mail on the following email ids – ar.stores@iith.ac.in. / ar.purchase@iith.ac.in/office.stores@iith.ac.in giving the reference of the Tender Number in the subject line as per the schedule and IIT Hyd will respond to these queries during the pre-bid meeting.

6. Earnest Money Deposit (EMD)

EMD of Rs.4,00,000.00/-(Rs. Four lakhs only) in the form of Bank guarantee (As per format enclosed as ANNEXURE- 'G') of a scheduled bank in the name of Director, IIT Hyd valid for 180 days from the date of opening of the tender or Online Payment through the e-Procurement portal mapped to IIT Hyd Account.

The BG in original should be posted/couriered/given in person to the concerned official of IIT Hyd before the Online Opening of Technical Bid. In case of non-receipt of BG in original by the said date and time, the uploaded bid will be summarily rejected

The firm registered with NSIC/MSME as manufacturer for supply of the offered product for which the firm is submitting quotation shall only be exempted from submission of EMD. Intended parties must give proof of registration and manufacturer along with their quotation.

Exemption from submission of EMD against valid and relevant NSIC Certification is permitted, however it shall be subject to scrutiny by the IITH and if during scrutiny, it is found that the NSIC Certificate is invalid and/or irrelevant, then that bid is liable to be rejected as "not-accompanying

EMD". Therefore, Bidders claiming exemption from EMD against NSIC certificate, should ensure the same carefully, while submission of their bids.

EMD of the unsuccessful bidders shall be refunded without any interest at the earliest after finalization of the purchase of concerned item.

Note: If in the view of bidder, any exemption / relaxation is applicable to them from any of the eligibility requirements, under any Rules / Guidelines/ Directives of Government of India, bidder may submit their claim for the applicable exemption /relaxation, quoting the valid Rule/Guidelines/ Directives with a copy of such notification. In this case the bidder must submit necessary and sufficient documents along with the technical bid, in support of their claim. The relevant and valid certificates in support of claim of exemption must be submitted along with the Technical Bid.

Bids submitted without EMD will stand rejected. EMD will not be accepted in the form of cash / cheque or any other form other than Bank Guarantee/On-Line Transfer. No interest is payable on EMD.

i) The BIDDER who submits the tender on behalf of their principals should produce documentary evidence in support of their authority to quote or submit Performa invoice of their principals for this tender.

ii) The EMD will be returned to the BIDDERs(s) whose offer is not accepted by IIT Hyd within one month from the date of the placing of the final order(s) on the selected BIDDER(s). In case of the BIDDER(s) whose offer is accepted the EMD will be returned on submission of Bank Guarantee as Security Deposit (SD). However, if the return of EMD is delayed for any reason, no interest / penalty shall be payable to the BIDDERs.

iii) The successful BIDDER, on award of contract / order, must send the contract / order acceptance in writing, within 15 days of award of contract / order failing which the EMD will be forfeited.

iv) The EMD shall be forfeited, in case a successful BIDDER fails to furnish the Security Deposit or backs out from accepting the offer.

v) Bids submitted without EMD/Tender fee will be rejected & no correspondence in this regard shall be entertained.

7. Bid Opening And Evaluation Process:

a. Technical Bids will be opened as per the Date Schedule & Time.
b. Financial Bids/Commercial Bids of the eligible bidders will be opened on a later date. The date and time for opening of Financial Bids /Commercial will be announced later.
c. Bids would be summarily rejected, if tender is submitted other than through online or original EMD is not submitted within stipulated date / time. IIT Hyd shall not be responsible for any postal delay.

8. Technical Committee

(i) On the due date the Technical bids will be opened and referred to a duly constituted technical committee. The committee will go through the technical aspects of the tender and recommend short listed firms. The recommendation of the technical committee is the final and binding on all the parties.

(ii) The technical evaluation will be an assessment of the Technical Bid. IIT Hyd representatives will proceed through a detailed evaluation of the Technical Bids as defined in Chapter IV (Schedule of requirements, specifications and allied technical details), in order to determine whether they are substantially responsive to the requirements set forth in the tender. In order to reach such a determination, IIT Hyd will examine the information supplied by the BIDDERs, and shall evaluate the same as per the specifications mentioned in this tender.

(iii) The technical committee may formulate evaluation criteria in addition to the specifications and requirements indicated in the tender, in the interest of IIT Hyd and these criteria/recommendation will also form as a part of short-listing of the firms.

(iv) The Technical Committee will examine all the Technical aspects of the bids received. Further, the Technical Committee may seek additional information from the existing users at IIT Hyd or from other Institutes and also call for Technical presentations from the BIDDERs if it is required so.

(v) The information received and the bids already submitted together will be examined with reference to the tendered specifications and evaluation is made by the Technical Committee.

(vi) After the technical evaluation is completed and approved, IIT Hyd shall inform to the BIDDERs whose bids have been rejected technically with the reasons for rejection.

(vii) The successful BIDDERs will be informed regarding the date and time of Commercial bid opening.

(viii) In the event of seeking any clarification from various BIDDERs by IIT Hyd , the BIDDERs are required to furnish only technical clarifications that are asked for. No amendment to commercial bid will be entertained at that stage. In case if a BIDDER fails to quote for a particular item it amounts to non-compliance and hence such bid will not be considered for further evaluation. Further during this process if any BIDDER indicates the price during the clarification such bids also will not be considered for further evaluation.

9. Commercial Bid Evaluation:

Based on results of the Technical evaluation IIT Hyd evaluates the Commercial Bid of those Bidders who qualify in the Technical evaluation.

a) IIT Hyd shall be free to correct arithmetical errors on the following basis:

(i) If there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of the Purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the line item total as quoted shall govern and the unit price shall be corrected.

(ii) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(iii) If there is a discrepancy between words & figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (i) and (ii) above.

b) The bids shall be evaluated on the basis of final landing cost as per format given in Price Schedule.

c) The Vague terms like “packing, forwarding, transportation…….. etc. extra” without mentioning the specific amount/percentage of these charges will not be accepted. Such offers shall be treated as incomplete and rejected.

d) After arriving at final pricing of individual offers of all the short listed firms, the lowest firm will be awarded with Contract/Purchase Order.

10. **The Director, IIT Hyd reserves the right to accept the offer in full or in parts or reject summarily or partly**.

(END OF SECTION I)

Section II – Instructions to Bidders (ITB)

1 Locations for the Supply, Installation, Commissioning, Operations, Warranty Services & Post Warranty AMC

The entire data centre solutions as described in Schedule of Requirements must be supplied, installed, commissioned & supported at **Indian Institute of Technology Hyderabad, Kandi, Sangareddy-502285**

2 Order Placements & Payment

The orders will be placed and payments shall be released by IIT HYDERABAD

3 Eligibility Criteria

The bidder must satisfy/comply the eligibility criteria stipulated below.

3.1 The bidder must submit all the documents listed at para 4 Section – I above, along with the technical bid.

3.2 The bidder should be an entity registered in India under appropriate Indian Laws. Certificate for the same need is to be submitted along with the bid.

3.3 The bidder must have successfully executed at their client sites at least 2 number of data centres in India in last five years. Each of the two data centres should be with designed IT load of minimum of 200 KW each. The value of each such order should not be less than Rs. 2 Cr.

3.3.1 At least one Data centre project should be with High Density Solution using In-row/In-rack /RDHX cooling systems with minimum four racks with capacity of 8 Kw (Kilo Watts) per rack along with Fire- fighting and suppression systems, UPS and Battery etc. with high end integration of building management system and all the allied works required for successful installation & completion of the Data Centre. This order should be on the name of bidder issued by the end client.

3.3.2 The bidder should have undertaken/ completed the activities of providing on-site support and facility management / O & M services to at least one data centre. The scope of the activity should cover operation and maintenance of Electrical Systems, Cooling systems (Chillers, PAC/PAHU /In ROW/RDHX etc.) UPS and Battery, IBMS etc.

3.3.3 A summary of the projects implemented covering all the details must be enclosed with the Technical Bid.

3.4 Bidder should have minimum turnover of Rs. 10 Cr. for each of the last three financial years.

3.5 If the bidder is not a principal manufacturer of Data Centre components, the undertaking/s (in original) from the respective principal manufacturers (on the letterhead), as per format given in Annexure – C must be submitted for the components as DG set, UPS and battery, LT panels and associated component, Chiller, PAC/PAHU, RDHX, BMS Software, Pumps ,VFD Drives etc. (in e-packet – 2).

3.6 The principal manufacturers/ original equipment manufacturer (OEM) of Data Centre components viz. UPS, PAC, DG Sets, Adiabatic Dry Cooler should have service centre in the respective state of site location. Documentary evidence for the same to be provided.

Note: If in the view of bidder, any exemption / relaxation is applicable to them from any of the eligibility requirements, under any Rules / process/ Guidelines/ Directives of Government of India, bidder may submit their claim for the applicable exemption /relaxation, quoting the valid Rule/ process/ Guidelines/ Directives. In this case the bidder must submit necessary and sufficient documents along with the technical bid, in support of his claim. The decision about granting the exemption/ relaxation will be taken by the bid evaluation committee which is empowered to grant exemption/relaxation. The relevant and valid certificates in support of claim of exemption must be submitted.

Bidders are required to provide compliance to all the above eligibility criteria in tabular form along with reference to supporting documents.

4 Local Conditions

It will be incumbent upon each bidder to fully acquaint himself with the local conditions and other relevant factors at the proposed Data Centre site which would have any effect on the performance of the contract and / or the cost. The Bidder can /may at his discretion make a site visit to the proposed Data Centre facility to apprise them self and obtain all information that may be necessary for preparing the bid and entering into contract..

Failure to obtain the information necessary for preparing the bid and/or failure to perform activities that may be necessary for the providing services before entering into contract, will in no way relieve the successful bidder from the responsibility of performing any work in accordance with the Tender documents. It will be imperative for each bidder to diligently be informed of all legal conditions and factors which may have any effect on the execution of the

contract as described in the bidding documents. The Institute, shall not entertain any request for clarifications from the bidder regarding such conditions. It is the responsibility of the bidder that such factors have properly been investigated and considered while submitting the bid proposals and that no claim whatsoever including those for financial adjustment to the contract awarded under the bidding documents will be entertained by IIT Hyd and that neither any change in the time schedule of the contract nor any financial adjustments arising thereof shall be permitted on account of failure of the bidder to appraise himself of local laws and site conditions or otherwise.

5 IIT HYDERABAD Right to amend / cancel

5.1 At any time prior to the last date of submission of bids, IIT Hyd reserves the right to modify the bid document by release of Corrigendum, for any reason, whether on its own initiative or in response to the clarification request by a prospective bidder.

5.2 IIT Hyd reserves the right to cancel the entire RFP without assigning any reasons thereof

6 Precautions while preparing the Bids

Bidder should avoid, as far as possible, corrections, overwriting, erasures or postscripts in the bid documents. In case however, any corrections, overwriting, erasures or postscripts have to be made in the bids, they should be supported by dated signatures of the same authorized person signing the bid documents. In case of discrepancies and/ or calculation errors, if any, the lower unit prices and amounts shall only be considered for comparison of bids. Only Single technical solution to be submitted.

7 Earnest Money Deposit (EMD)

7.1 The bidder is required to submit an Earnest Money Deposit (EMD) along with the technical bid. The EMD is required to be in the form of Bank Guarantee, in favor of Director IIT Hyderabad / Or Online Transfer on the Portal, for an amount of Rs.4,00,000/- (Rupees Four lakhs only).

7.2 The bid submitted without EMD (or the valid documents claiming exemption from submission of EMD) shall stand summarily rejected.

7.3 The EMD will be returned to the bidder(s) whose offer is not accepted, within 30 days from the date of opening of commercial bid(s). In case of the bidder(s) whose offer is accepted the EMD will be returned on submission of Security Deposit (Refer Clause 4

of Section III). However, if the return of EMD is delayed for any reason, no interest/ penalty shall be payable to the bidder.

7.4 The successful bidder, on award of contract / order, must send the contract/ order acceptance in writing, within 15 days of award of contract/ order, failing which the EMD will be forfeited and the order will be cancelled.

7.5 Exemption from submission of EMD against valid and relevant NSIC Certification is permitted, however it shall be subject to scrutiny by the IITH and if during scrutiny, it is found that the NSIC Certificate is invalid and/or irrelevant, then that bid is liable to be rejected as "not-accompanying EMD". Therefore, Bidders claiming exemption from EMD against NSIC certificate, should ensure the same carefully, while submission of their bids.

Note: If in the view of bidder, any exemption / relaxation is applicable to them from any of the eligibility requirements, under any Rules / Guidelines/ Directives of Government of India, bidder may submit their claim for the applicable exemption /relaxation, quoting the valid Rule/Guidelines/ Directives with a copy of such notification. In this case the bidder must submit necessary and sufficient documents along with the technical bid, in support of their claim. The relevant and valid certificates in support of claim of exemption must be submitted along with the Technical Bid

7.6 IIT HYDERABAD reserves the right to forfeit the EMD:

7.6.1 If the bidder withdraws the bid during the period of bid validity specified in the tender.

7.6.2 If the successful bidder fails to furnish the acceptance in writing, within 15 days of award of contract/ order.

7.6.3 If the successful bidder, fails to furnish the Security Deposit as stipulated in Clause 4 of Section III.

8 Period of validity of bids

8.1 Bids shall be valid for minimum 120 days from the date of submission. A bid valid for a shorter period shall stand rejected.

8.2 IIT HYDERABAD may ask for the bidder's consent to extend the period of validity. Such request and the response shall be made in writing only. The bidder is free not to accept such request without forfeiting the EMD. A bidder agreeing to the request for extension will not be permitted to modify their bid.

9 Late Bids

IIT HYDERABAD shall not be responsible and liable for the delay in receiving the bid for whatsoever reason. Bidders are advised to submit bids well in advance before the last date and time of submission.

IIT HYDERABAD shall not be responsible and liable for the delay in receiving the bid for whatsoever reason. IIT HYDERABAD will not be responsible for any issues arising/pertaining with E-Procurement Portal (https://mhrd.euniwizarde.com) for non-submission, failure in submission of bids on-line. Bidders are advised to submit e-bids well in advance of the last date and time of submission so the bids. IIT HYDERABAD will not be responsible for failure in submission/upload of bids for non-working of the on line portal at last day/hours of submissions of bids.

10 Evaluation of Bids

10.1 The bids will be evaluated in two steps.

10.2 The bids will be examined based on eligibility criteria stipulated at Para 3 of Section – II to check the eligibility of the bidders. The technical bids of only the eligible bidders will be evaluated based on technical requirements stipulated in the RFP.

10.3 Only the bidders, whose technical bid is found to meet the requirements as specified above will qualify for opening of the commercial bid and will be informed about the date and time of the opening of the commercial bid.

10.4 The decision of the TEC (Technical Evaluation Committee) with respect to complete technical evaluation is final and binding on all the bidders.

10.5 During evaluation of the bids IIT HYDERABAD at its discretion may ask the Bidder for clarification of its Bid. The request for clarification and the response shall be in writing, and no change in the prices is permitted. If required IIT HYDERABAD may invite the Bidders for technical presentation on the solution offered. During the process of evaluation of bids, if any discrepancies are observed in the bid submitted, the bidders may be given an opportunity to clarify on same. If in the view of bidder, any change in quantity, make or model is required or any additional items are required, for clearing the said discrepancy, the bidder has to arrange for said change and/or addition of material without any increase in the prices quoted.

10.6 If the information provided by the bidder is found to be incorrect/misleading at any stage/time during the Tendering Process IIT HYDERABAD reserves the right to reject all such incomplete bids .

11 Comparison of Bids

11.1 Only the technically qualified bids as per RFP shall be considered for opening and evaluation of price bid.

11.2 The total price including the taxes (@rates quoted by the bidder or tariff rates, whichever are less or IIT Hydrabad/ C-DAC reserves the right to consider appropriate taxes for the evaluation purpose) for entire Data Centre Solutions along with the warranty support including operation and maintenance cost for three years shall be considered for computing L1.(Please refer para 1, Section- III).

11.3 The date for opening of price bids will be communicated to bidders over email.

12 Award of Contract

IIT HYDERABAD shall award the contract to the qualified bidder whose technical bid has been accepted and determined as the lowest evaluated price bid as per in para 10 and 11 of Section II.

12.1 However, IIT HYDERABAD reserves the right and has sole discretion to reject the lowest evaluated bid.

12.2 If more than one bidder happens to quote the same lowest price, IIT HYDERABAD reserves the right to place the order with the bidder who has installed a Data Centre with more IT Electrical load at single site. The decision of IIT HYDERABAD hall be final for awarding the contract.

12.3 IIT HYDERABAD shall issue separate purchase/work orders for each of the three sites. The purchase orders may be staggered depending upon the readiness of the respective site/s.

(End of Section - II)

Section III – Special Conditions of Contract

1. Prices

1.1 The prices quoted shall remain firm and no price escalation will be permitted. Bidder must indicate applicable GST separately. The bidder should exercise utmost care to quote the correct percentage of applicable GST on each item. Any revision in statutory tax /duty structure as on date of supply/ invoice, shall be considered, as applicable.

1.2 In case due to any error/ oversight, the GST rate quoted by the bidder is different than the actual GST rate as per the tariff, the bidder will not be permitted to rectify the error/oversight. The orders/ contract will be placed with the GST rate quoted by the bidder or actual tariff rate (as on placement of order), whichever is LOWER. The difference amount payable, if any, between the quoted GST rate and actual tariff rate shall be borne by the bidder.

1.3 Notwithstanding the para 1.1 and 1.2 mentioned above, if the GST is not quoted separately and the bid is silent whether GST is included or excluded in price, for the purpose of evaluation of bids, the prices shall be taken as quoted with GST. In this case, the order will be placed with the quoted price. The GST applicable, if any will be borne by the bidder/contractor

1.4 Bidder must quote in INR only.

1.5 The prices quoted must be inclusive of packing & forwarding, freight, insurance, loading, unloading charges /entry tax/road permit charges and allied charges till destination.

1.6 The prices must be quoted for all the items as per format given in Section – V.

2. Project Timeline

All the items covered in the Schedule of Requirements (Section – IV) must be supplied, installed and commissioned within 3 months (Twelve weeks) from the date of award of Contract / placement of order.

3. Payments

1. 70% amount of the cost of UPS and batteries, LT Panels, Adiabatic Dry Cooler and Pumps, PAC/PAHU, Rack , RDHx DG set will be released on receipt of all these components at site against physical verification and acknowledgement by IIT HYDERABAD and/ or end user with 30 days credit period.

2. 20% amount of the cost of UPS and batteries, DG sets, LT Panels, Chillers and Pumps, PAC/PAHU, Rack, RDHX and 90% cost of the remaining supplied items and 90% charges towards installation and commissioning of the system will be released on successful installation, commissioning of the solution. This portion of payment shall be subject to acceptance and submission of Integrated System Acceptance Test (ISAT) report to C-DAC. In case of delay in integration and commissioning of the DC with HPC system for the reasons attributed to IIT HYDERABAD or end user- beyond 60 days, this portion of payment will be released against submission of bank guarantee of equivalent amount. This Bank Guarantee will be released on successful completion of installation, commissioning and ISAT of the solution.

3. Balance 10% payment will be released on successful installation & commissioning of solution against submission of PBG. The PBG must be submitted within 30 days from the date of successful installation(s) and ISAT.

4. 25% of the yearly amount towards Operation and maintenance will be released at the end of each quarter, against satisfactory performance report as per SLA.

5. The applicable TDS will be deducted.

6. The payments shall be remitted through NEFT/RTGS only.

Note: All the payments are subject to submission of the valid and complete tax invoices. **No Advance Payment will be made.**

4. Security Deposit (SD)

The successful bidder will be required to furnish the Security Deposit in INR equivalent to 10% of the Contract /Order value (excluding taxes) within 15 days of award of Contract / receipt of Order(s). The Security Deposit should be submitted in the form of Demand Draft drawn in favor of IIT HYDERABAD payable at Hyderabad or in the form of Bank Guarantee in the name of IIT HYDERABAD. The Bank Guarantee submitted towards Security Deposit should be issued by a

Scheduled Commercial Bank and must be valid for a period of 6 months. The Security Deposit will be returned within 30 days upon completion of installation, commissioning and ISAT, and on submission of Performance Bank Guarantee (PBG).

5. Performance Bank Guarantee (PBG)

The successful bidder will be required to furnish the Performance Guarantee towards the Data Centre Solutions supplied, in the form of a Bank Guarantee in INR equivalent to 10% of the invoice amount for respective site (except for O & M charges and excluding taxes), as per the format attached to this document (Annexure – E). This bank guarantee should be submitted along with the invoice after successful installation and commissioning of the Data Centre solution. Separate Bank Guarantee of appropriate amount should be submitted for respective site. The Bank Guarantee should be from a Scheduled Commercial bank and shall remain valid for the period of 38 months from the date of installation and ISAT. The PBG must be negotiable at a branch of issuing bank in Hyderabad.

6. Completeness Responsibility

The bidders may please note that this is a contract on 'Turn-key' basis. Notwithstanding the scope of work, engineering, supply and services stated in bid document, any equipment or material, engineering or technical services which are not specifically mentioned under the scope of supply of the bidder and which are not expressly excluded there from but which – in view of the bidder - are necessary for the required performance of the datacenter solution in accordance with the RFP specifications are treated to be included in the bid and has to be implicitly performed by bidder. In no case, the bidder will be permitted to increase the prices quoted.

7. Warranty

The Supplier warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract. The supplier further warrants that all Goods supplied under this contract shall have no defect arising from design, materials or workmanship (except when the design and/or material is required by the Purchaser's specifications) or from any act or omission of the supplier. The warranty should be comprehensive on site, repair/replacement basis free of cost.

Bidder has to enter into agreement/MoU with IIT Hyderabad and C-DAC Pune on award of contract which shall be in-line with this RFP document.

All the equipment and components supplied must have three years onsite comprehensive warranty from date of successful installation, commissioning and signing of ISAT.

IIT HYDERABAD reserves the right to invoke the Performance Bank Guarantee submitted by bidder, in case of the following:

7.1 The system fails to achieve the performance as stipulated in this document or

7.2 The bidder fails to provide the warranty and other services in scheduled time frame, as stipulated in this document or

7.3 The bidder delays to provide the warranty services as stipulated in this document or

7.4 SLA and managed service scope as per Annexure - I.

8. Post warranty AMC

The bidder should quote for post warranty AMC services towards the integrated datacenter solution/sub-systems supplied and installed at various locations in India. The AMC charges should be for 4th year and 5th year from the date of successful installation and ISAT of datacenter solution at respective locations. The AMC charges per year should be quoted as per price format given in Section VI of this document and must not be more than 10% of the cost of the items supplied.

The post warranty AMC charges will not be considered for arriving at the total prices quoted by the bidder and also not for determining the lowest quoted (L1) bidder.

The post AMC charges will be binding on the bidder. C-DAC/ Host institution reserves the right to enter or not into the AMC after the end of warranty period

9. Penalties

IIT HYDERABAD reserves the right to levy penalties for each site, as given below.

Sr. No	Parameters	Penalty
A	Penalty for Delayed Deliveries and installation	0.5% of order value per week for delay in installation and commissioning beyond schedule. If the delay is more than 10 weeks, IIT HYDERABAD reserves the right to cancel the Contract/ Order. In case of in ordinate delay on the part of bidder in completing the work and cancellation of Purchase order, IIT HYDERABAD will arrange to complete unfinished work through suitable contactor and expenses incurred by IIT HYDERABAD in doing of such work shall be recovered from the bidder. Any delay because of CDAC/Host Institute, conditions arising out of Force Majeure will not be considered while calculating the delay period for penalties.. i.e total 7% of maximum penalty shall be levied against Delayed Deliveries and installation
B	Penalty if uptime of Data Centre measured on quarterly basis is (as per calendar year	Penalty for downtime shall be levied as given below in B.1, B.2, B.3 which will be over and above the penalty mention above in para A .
1	Less than 98.5% but more than 97.5% in a quarter	Penalty @0.2% of the order value per quarter.
2	Less than 97.5%	Penalty @1% of the order value per quarter.
3	Less than 95%	IIT HYDERABAD reserves the right to terminate the contract and invoke the performance bank guarantee.
	Capping	The maximum penalty as stipulated in Para A and B above put together will be capped to 10% of the order value ..

The detailed mechanism / method for arriving at the measurable parameters mentioned in table above is covered in the Service Level Agreement (SLA) as per Annexure – I, to be signed before award of contract/ release of Order.

10. Force Majeure

IIT HYDERABAD may consider relaxing the penalty and delivery requirements, as specified in this document, if and to the extent that, the delay in performance or other failure to perform its obligations under the contract is the result of an Force Majeure. Force Majeure is defined as an event of effect that cannot reasonably be anticipated such as acts of God (like earthquakes, floods, storms etc.), acts of states / state agencies, the direct and indirect consequences of wars (declared or undeclared), hostilities, national emergencies, civil commotion and strikes at successful Bidder's premises or any other act beyond control of the bidder.

11. Arbitration

In case any dispute arises between the IIT HYDERABAD and successful bidder with respect to this RFP, including its interpretation, implementation or alleged material breach of any of its provisions both the Parties hereto shall endeavor to settle such dispute amicably. If the Parties fail to bring about an amicable settlement within a period of 30 (thirty) days, dispute shall be referred to the sole arbitrator mutually appointed by both parties. If the sole arbitrator is not appointed mutually by both the parties then the District Court Hyderabad shall have exclusive jurisdiction for appointment of sole arbitrator through court. Arbitration proceedings shall be conducted in accordance with the provisions of the Arbitration and Conciliation Act, 1996 and Rules made there under, or any legislative amendment or modification made thereto. The venue of the arbitration shall be Hyderabad . The award given by the arbitrator shall be final and binding on the Parties. The language of arbitration shall be English. The common cost of the arbitration proceedings shall initially be borne equally by the Parties and finally by the Party against whom the award is passed. Any other costs or expenses incurred by a Party in relation to the arbitration proceedings shall ultimately be borne by the Party as the arbitrator may decide. Courts in Hydrabad only shall have the exclusive jurisdiction to try, entertain and decide the matters which are not covered under the Arbitration and conciliation Act.

12. Risk and Ownership

All risks, responsibilities and liabilities in respect of goods delivered at site shall remain with selected bidder till they are successfully installed and commissioned at site and taken over by end users. Part deliveries shall not be treated as deliveries. Only full deliveries of all items ordered

will be considered as delivery. The ownership of the items delivered at site, shall be of IIT HYDERABAD on successful installation of items.

13. Indemnity

The successful bidder shall indemnify, protect and save IIT HYDERABAD from/against all claims, losses, costs, damages, expenses, action suits and other proceeding,

resulting from/arising out of:

1. Infringement of any law pertaining to intellectual property, patent, trademarks, copyrights etc. by the bidder or
2. Such other statutory infringements in respect of all the equipment's supplied by successful bidder, or
3. Caused due to any act/omission/performance/under or non or part performance/failure of the bidder.

14. Assignment

Selected bidder/ Party shall not assign, delegate or otherwise deal with any of its rights or obligation to other parties under this Contract, without prior approval of C-DAC and IIT HYDERABAD .

15. Severability

If any provision of this Contract is determined to be invalid or unenforceable, it will be deemed to be modified to the minimum extent necessary to be valid and enforceable. If it cannot be so modified, it will be deleted and the deletion will not affect the validity or enforceability of any other provision.

16. Termination

Validity of purchase order/rate contract will remain till fulfillment of all obligations (including but not limited to providing comprehensive warranty/support till completion of three years from acceptance of the entire integrated solution as a whole) by the successful bidder.

In case of the delays in providing the stipulated services, and /or defect/delay/under or non-performance pertaining to the services / products supplied by the bidder, IIT HYDERABAD will give written notice to the bidder directing to set the things right within 30 days of notice. If

bidder fails to comply with the requirements, IIT HYDERABAD shall have the right to terminate the contract and / or cancel the order/s. The successful bidder agrees and accepts that he shall be liable to pay damages claimed by C-DAC, in the event of termination of contract / cancellation of order, as detailed in this RFP. The successful bidder may terminate the contract by at least 30 days' written notice, only in the event of non-payment of undisputed invoices for 90 days from the due date. Except this situation, the successful bidder shall have no right of termination.

"IIT Hyderabad will release the due amount payable to successful bidder towards the material and / or services provided till the date of termination, those are accepted by IIT Hyderabad end user. However, the amount towards penalty, if any will be deducted from the payable amounts. "

IIT HYDERABAD reserves the right to terminate the contract / cancel order with or without cause/ reason, by giving 90 days' notice to the successful bidder.

17. Limitation of Liability

The liability of the Bidder / Contractor arising out of breach of any terms/conditions of the tender / contract/work order and addendums/amendments thereto, misconduct, wilful default will be limited to the total contract value. However, liability of the bidder in case of death/injury/damage caused to the personnel/property due to/arising out of/incidental to any act/omission/default/deficiency of bidder/contractor will be at actuals. In no event shall either Party, its officers, directors, or employees be liable for any form of incidental, consequential, indirect, special or punitive damages of any kind"

18. Disclaimer

The purpose of this RFP is to provide the bidder(s) with information to assist the formulation of their proposals. This RFP does not claim to contain all the information each bidder may require. Each bidder should conduct his own investigations and analysis and should check the accuracy, reliability and completeness of the information in this RFP and where necessary obtain independent advice. IIT HYDERABAD makes no representation or warranty and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of this RFP.

19. Jurisdiction

The disputes, legal matters, court matters, if any shall be subject to Hyderabad jurisdiction only.

20. Corrupt or Fraudulent Practices

a. It is expected that the bidders who wish to bid for this project have highest standards of ethics.

b. IIT HYDERABAD will reject bid if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices while competing for this contract.

c. IIT HYDERABAD may declare a vendor ineligible, either indefinitely or for a stated duration, to be awarded a contract if it at any time determines that the vendor has engaged in corrupt and fraudulent practices during the award / execution of contract.

21. Interpretation of the clauses in the Tender Document / Contract Document

In case of any ambiguity/ dispute in the interpretation of any of the clauses in this Tender Document, the interpretation of the clauses by Director, IIT HYDERABAD shall be final and binding on all parties.

(End of Section- III)

Section IV – Schedule of Requirement
Schedule of Requirement

This Section covers the general and technical requirements of Data Centres and deliverables/ responsibilities of the successful bidder.

The bidder must submit the detailed technical compliance matrix towards the schedule of requirements as given below in tabular format.

1. Data Centers on Turn-key Basis

The Data Centres are required to be built on 'Turn-key' basis. The successful bidder should build the entire data centre infrastructure which includes civil works, interiors, environmental controls like humidity, temperature etc., security (including access/ monitoring equipment), electrical systems, power systems, power supply, Adiabatic dry coolers UPS, D.G Sets etc. as specified. The responsibility towards required material/items/equipment's, work, man power etc. rests with the successful bidder. The overall requirements and available information/ data/documents are included in this Section. The bidders are advised to go through same and visit the sites before working out the details in this perspective and submit the solution document complete in all respects.

2. General Requirements:

The general requirements applicable to the data centres are given below. Other than these requirements, depending on the site conditions, the bidder may propose appropriate changes in other requirements. However, the responsibility towards successful installation and commissioning and smooth running of data centres rests with bidder only.

2.1 The solution shall comprise of supply, installation, testing, commissioning training and handing over of all materials, equipment, hardware, software, appliances and necessary labor to commission said system complete with all the required components strictly as per the latest IS, IEC, IEEE, ASHRAE, NBC etc. codes.

2.2 Also, the scope includes the supply, installation & commissioning of any material or equipment including civil works that are not specifically mentioned in the specifications and design details but are required for successful commissioning of the project.

2.3 The vendor shall provide detailed design, documentation, make, and model, efficiency including user, system and operation manuals along with the necessary diagrams, design drawings and details bifurcation of Bill of Quantity (BOQ) along with details description. Design drawing should include but not limited to Single Line Diagram, Discrimination curves, Lighting drawing, P & ID (Process and Instrumentation Diagram), HVAC schematic, design basis report, equipment sizing and selection along product selection calculations etc. with clear sectional drawings for server as well as utility room, interior, raised flooring, false ceiling, complete BMS system required for data centre etc.

2.4 The vendor shall take the necessary clearance / approval of the drawings, design, quality of material, make and model of the quoted material etc. prior to the execution of the project

2.5 The vendor shall be responsible for performing verification tests to ensure all proposed software and hardware are functioning as per design.

2.6 The vendor shall be responsible for providing acceptance checklists for the project.

2.7 The Data Centre should be complete in all respects.

2.8 To assess the efficiency of the data centres the power usage effectiveness (PUE) will be computed as

PUE =
((Data centre cooling power at the Dry Cooler Panel input + Total IT power measured at Out Put of UPS)
(Total IT power measured at Out Put of UPS))

2.9 Normal available Water for chiller and construction power required during installation and commissioning is in the scope of IIT Hyderabad. . IITH will not provide Treated / any special water for execution of the project. IITH shall not provide any accommodation for the contractor and his staff including labour.

2.10 The scope of installation, configuration, integration and commissioning shall mean to install and configure all components and subsystems integrating the Building Management System with the required components, integrating the entire facility and make the system operational as per scope of work

2.11 The acceptance test shall cover the following scope:

2.11.1 Factory Test Reports

Bidder shall provide factory test report for all products after testing each parameter of products as per their standard test procedure.

- Electrical panels

- UPS
- PAC
- Busbar trunking
- PDU with Isolation Transformer
- Adiabatic Dry Cooler

2.11.2 User Acceptance Testing (UAT)

The UAT shall cover entire scope of work under data center build after successful testing by the Bidder including load tests using rack-based heat loads of specified rating.

3 Design of Data Centre

The proposed designs and indicative drawings enclosed in the RFP document are for reference and for the purpose of bidding. The vendor so finalized would be required to make the necessary shop drawings within the layouts so as to arrive at a final scheme in line with the requirements and in accordance with the requirements of Indian standards, IEC, ISO and Green IT certifications. However no change whatsoever in the price schedules would be allowed after the award of the work and the price shall remain firm throughout the project and the entire works are to be executed within the quoted price schedules.

The shop drawings during execution should include the following, but is not limited to,

a) Floor plan with design layout and detailed drawings

b) Layout of raised floor and false ceiling layout

c) Electrical diagrams (including UPS, SLD, Lighting, Earthing, Equipment Layout, Power Distribution etc.)

d) HVAC system layout and Dry coolers with adiabatic (P & ID, Piping layout, Equipment Layout, Schematic etc.)

e) Fire detection plan/ layout

f) Access Control Plan

g) Surveillance camera placement plan

h) Environment monitoring system placement plan

4. Design Inputs

Tables given below are the details of exact load parameters. These values are given to the bidders to come out with appropriate configuration and sizing. The major sub systems of the DC infrastructure are:

a) UPS and associated battery bank

b) Dry Cooler with Adiabatic mode along with Piping, Pumps Electrical Panel etc.

c) Raised Flooring and False Ceiling

d) PAC units and related work

e) I-BMS System

The specifications and requirement of the entire solution is stipulated in the RFP with respect to the design and solution, certain indicative inputs like layout, SLD etc. are provided. Bidder may follow the indicative inputs provided in this RFP or come out with innovative design which is optimal and cost effective without violating any of the specifications given.

4.1 The envisaged IT load for data centre: 160 KW max.

Sr. No	Description	Power in Kw/Rack	Qty
1	Server Rack	45	3
2	Storage Rack	10	1
3	Network Rack	10	1
Note :- Sever Rack Will be Cooled by Direct Liquid Contact Technology by Adiabatic Dry Cooler and Storage and Network rack by Room Cooling PAC			

5 Requirements towards Civil/Interior work

5.1 Civil architecture and preparation of data center: Interiors of the data centre (including, civil works, raised floor, false ceiling, fire rated paint, fire rated partition etc.)

5.2 Raised flooring and false ceiling: Suitable raised false flooring and false ceiling (Metal Grid- Armstrong or equivalent) as per prevailing standards should be provided as per site requirements. METAL GRID CEILING should be drop ceiling and shall be provided with Armstrong Lay or Equivalent in (Hot dipped galvanized steel) metal ceiling system 600 x 600 x 5 mm with

standard 2.5 mm dia (16% open space) and fleece with NRC of 70 & CAC 36 to be laid on grid system. The modular ceiling sheets with necessary fittings should be done up aesthetically to integrate with the lighting. Panels shall be made from steel. The bottom of the panel shall be embossed in hemispherical shape to give strength and flexural rigidity. The top sheet shall be plain and resistant welded at various points. The top and bottom sheet have been degreased and phosphate to form a single composite unit. The entire Access floor system shall be made from high density Calcium sulphate / cementinous board and provide Class O and Class 1 Fire Ratings tested as per CIRC 91/61 or BS 476 Part 6 & 7 fire resistance up to 60 min as per NFPA. System should have antistatic property and air leakage resistance. The system shall be able to withstand a minimum UDL of 2500 kg. Per sqmt. and a point load of minimum 1000 kg. The pedestal shall withstand Axial Load of minimum 2200 kg

5.3 Panel should meet the below requirements:

a. The panel shall be coated with epoxy coating on the exposed surface. Have an infill of light weight cementitious material. Insulated against heat and noise transfer. Panels shall be finished with High Performance Anti-Static Laminate. The bottom of the panel shall be of 0.05 mm Aluminum foil to create a fire and humidity barrier and this should provide floor's electrical continuity. Panels will remain flat through and stable unaffected by humidity or fluctuation in temperature throughout its normal working life. The Panels will be UL listed/ FM/DM approved. Panels will provide for impact resistance top surfaces minimal deflection, corrosion resistance properties and shall not be combustible or aid surface spread of flame. Panels will be insulated against heat and noise transfer. Panels will be 600 x 600mm x 30 mm height fully interchangeable with each other within the range of a specified layout. Panels shall rest on the grid formed by the stringers which are bolted on to the pedestals. Panels shall be finished with anti-static 0.9 mm Laminate and 0.45 mm thick plastic edge material that is self-extinguishing and will be PVC free

5.4 Pedestal installed to support the panel will be suitable to achieve a finished floor height of 600mm. Pedestal design will confirm speedy assembly and removal for relocation and maintenance. Pedestal base to be permanently secured to position on the sub-floor. Pedestal assembly will provide for easy adjustment of leveling and accurately align panels to ensure lateral restrain. Pedestals will support an axial load of minimum 1500 Kgs, without permanent deflection and an ultimate load of 3000 Kgs. Pedestal head will be designed to avoid any rattle or squeaks.

Pedestal Assembly The structure is made entirely of galvanized steel consisting of hexagonal shaped, 89 mm diameter, 1.5 mm thick base plate, with 6 shaped stiffening ribs with niches that improve adhesion and with 5 holes mechanical fastening to the ground. The assembly will provide a range of height adjustment up to 25mm, with the help of check nuts.

5.5 Understructure system consists of stringers of size 525 x 30x 25 x 0.8 mm thick to form a grid of 600 x 600mm. These stringers are locked into the pedestal head and run both ways. The US system will provide adequate solid, rigid and quiet support for access floor panels. The US system will provide a minimum clear, uninterrupted height of 600 mm between the bottom of the floor and bottom of the access floor for electrical conducting and wiring The stringer shall be hot dipped galvanized steel cold roll construction specially designed to stabilize lateral stability and to support the panels on all sides for alignment. The channels shall have counter sunk holes at both ends to accommodate bolting of the same to the pedestal head assembly. Earthing point connections are to be part of standard design. Stringer system is composed of a special frame, made of pressed galvanized steel plate and with a section 25mm wide, 30 mm high and 0.8 mm thick. The longitudinal ribs and flaps in the lower part should be designed to increase flexion resistance. The grid formed by the pedestal and stringer assembly will receive the floor panel.

5.6 Quoted rate shall include providing 2 nos. 2-point panel remover, lead, lift, steps for 600mm raised floor etc.

5.7 Fire Rated Steel Door- Two hours fire rated double skin steel door constructed from 1.25mm thick galvanized steel sheet formed to provide a 46mm thick fully flush door shell with lock seam joints at stile edges and the internal construction of the door should be specially designed Honey Comb structure with reinforcements at top, bottom and stile surround. The door frames and door shutters should be primed with Zinc-Phosphate Staving Primer and finished with Polyurethane Aliphatic grade or epoxy paint as per approved manufacturer specifications. This Door is required to be with Panic bar. The Fire Doors are to be fully insulated and shall be tested as per IS: 3809-1979, ISO: 834-1975, IS: 3614 (PART-II)- 1992 and BS 476 (PART- 20 & 22)- 1987 under live fire conditions from Central Building Research Institute (CBRI), Roorkee, National Test House, Kolkata for Stability, Integrity and Insulation for 2 Hrs. The wired glass is to comply with both BS 476: PART 22 and BS 6206 relating to fire resistant and impact performance.

5.8 Fire rated Partition/ Walls: Partition walls within the data centres should have 2-hour fire rated. Suitable smoke seals should be used with double leaf doors. UPS and battery to be isolated by fire rated partition. Fire line boards should conform to IS:2095 – 1996-Part-I.

5.9 Opening for the Cables or other utility services which are coming inside the building needs to be sealed by Fire resistance board system, water soluble fire retardant solutions, fire expanding foam etc. having minimum of 2 hours' fire rating when tested in accordance with BS 476 part 20 and UL 1479 for horizontal and vertical openings in RCC slabs, Beams, walls, Brick masonry or Gypsum partitions for passing service shafts. The service lines could be of various types like electrical cables, cable trays or metal pipes etc. The foam shall have Acoustic property as per DIN 4109 and Smoke and Air Seal. The Foam should have the feature of Re penetrability for future maintenance or repair activities. Fire soluble cable coating Should be suitable for

protecting against spread of flame on timber panels and tested as per IEC 332 part 3 standard for reduced spread of flame & tested as per FM Class 3971. It should have no derating effect on cables, free from fiber, asbestos, odorless and solvent free, flexible when dry after application.

5.10 Room Signage and fire evacuation map. Providing & fixing Aluminium Modular Signage using Aluminium Alloy 6063 extrusion with Anodising (The thickness of the anodization is typically 30 microns. The integrity of the anodize coating is tested to meet the international specifications ISO 2143-1981.) With lifetime Warranty in normal working condition.

5.11 Civil foundation work for Dry Cooler, Pumps, water storage tanks, chemical dosing plant etc. if required. These equipment's will get installed at terrace floor not on the slab.Bidder need to consider Tie bracing of existing column by MS structure ,sothat entire weight will be transferred to column footing. Necessary calculations and structural stability needs to be certified by certifying agency /structural consultant.

5.12 INSULATION ON ROOF AND FLOOR SLAB: Supply and installation of external thermal insulation class-"O"closed cell elastomeric nitrile rubber insulation with adhesives recommended as per the approved shop drawings/ specifications. Minimum 13 mm thick for floor and ceiling insulation is required.

5.13 FIRE RATED GALSS PARTITIONS: FIRE RATED GLASS PARTITION:12mm tk,Providing and fixing 120 minutes fire rated and partially insulated (W>120 minutes) fully glazed non-load bearing fixed partition system. The glass should be Saint-Gobain or equivalent Contra flam Lite => 14 mm clear 120 min rated (E 120) and partially insulated (W> 120 minutes).

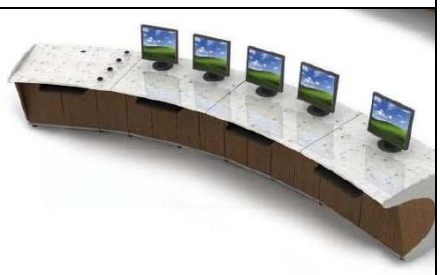
5.14 PAINTING& POP: WALL PUNNING: All wall to be punnied using gypplaster of India Gypsum / equivalent make for an average thickness of 15-20mm made of universal plaster . The punning shall be finished uniform and wave free on both sides.The cost to include providing grooves at junctions wherever required as per the instructions. Price shall be inclusive of any chipping & re plastering if required. (Columns included). To prepare & finish the wall with fire rating paint of approved quality & shade by sand papering the surface, applying one coat of primer, prepare the surface with two coats of full putty, sand papering again, repeating a coat of primer, applying one coat of paint, touching up with putty & applying two final roller coats of fire rated paint, to internal wall/roof slab /partition masonry concrete surfaces incl. preparing the surface by cleaning scrapping, smooth filling crevices, scaffolding etc. (columns in data center included)

5.15 HOUSE KEEPING: The vendor is responsible for keeping the site clean and deep cleaning by removing all the debris etc. everyday, using adequate covering/tarpuline sheets etc to cover the any areas required (client property etc.). All cleaning equipments like heavy duty vaccum cleaners etc to be according to the approval.

5.16 Steel structure needs to be consider for the platform of the equipment's as ODU unit, PAC, supporting hangers Panels etc. Also MS frame to be considered for piping installation for outside part of building.

Bidder to refer the layout drawing for calculating the quantity for raised floor and false ceiling.

5.17 Supply of Modular Furniture: These specifications broadly define the requirement for Modular and Technical Furniture and Workstations. NOC room would require technical furniture and workstations.

S. No	NOC ROOM TECHNICAL TABLES	Reference Image(s)
N 1	Providing & Fixing NOC ROOM Technical Desks as below: Overview, Structure & Equipment Mounting. (as per finally approved sample by Consultant) of following specifications: Structure made of heavy duty Extruded Aluminum Extrusions of min 1.2mm. The Extrusion shall be duly powder Coated with 40-60 micron over all surface. All Sheet metal parts must be finished with powder coating with average application of 60-80 micron over all surfaces. Minimum thickness of CRCA Sheet is not less than 1 mm Monitor arms shall be used to fix the monitor on the top of the desk. The Desk shall have / ensure sufficient knee space (Min 400mm) and foot space (min 600mm). The Desk can be accessed from front and back on extruded aluminium Profile and cladding of laminate. The Desk shall have provision to house computer equipment's, Power distribution unit. The CPU will be mounted on slide Out CPU Tray for ease of maintenance. The Structure should be rigid enough. The Structure should allow easy assemble of Hinged Shutters , Base Plate , Monitor arms in extremely rigid manner The Material of Working Surface should be 25mm Thick MDF Board with Laminate Finish , PVC Edge Bending will be provided on all side of Table Top. Work Surface & Edging of the Desk The Cabinet Front & Back Shutter should be 18mm thick MDF Board with Laminate Finish , PVC Edge Bending will be provided on all side of Shutter's. Monitor Arms shall guarantee	

	optimum viewing distance. All ergonomic aspects shall be taken in to account. It shall be capable for mounting all type of LCD/LED/TFT display with dimensions between 17" to 24" using suitable adaptor/additional base plate for complying VESA standards 75 X 75 , 100 X 100mm. As Approved by the Consultant	
N-2	Providing & Fixing NOC ROOM Executive Desks as below: Manufacturing, providing and placing in position machine made factory assembled Cabin Furniture of dimension MAIN TABLE - 1800MM W X 800 MM D X 74 0 MM H . (as per finally approved sample by Consultant) of following specifications: Worktop: Worktop Made of 25mm thick E-1 grade particle board finished with 2 mm ABS edge banding. E1 grade laminate with zero urea formaldehyde emissions (<or= 8mg/100 g oven dry board-perforated method) for better in-house air quality. This should comply with (EN 120- 1992). The exposed edge of worktop shall be secured with 1.2mm-1.5mm thick PVC edge banding tape of approved color. The height of Worktop shall be 740-760 mm from ground level. The particle board should be E-1 Grade with pvc edge banding. Understructure: MS understructure with 38mm x 38mm C type square Tapered leg, well supported with beams under table top. Completely concealed MS wire management and trays. Angle - 98 degree, Powder coating - 80-90 Microns, made up of Thk -2mm metal. Wire management: Completely concealed wire management with vertical wire uptake from floor via middle leg having removable cover one side and wire separator for data and wire separation, segregates to horizontal cable tray below flipper. Modesty: 16mm thick pre-laminated modesty panel with pvc edge banding & fixed through MS bracket L type bracket. Product should be BIFMA gold rated SCS global certified for inhouse air quality and with 10 years warranty. The storages should be made out of particle board of 25mm thick top and doors, sides and shelves should be made out of 16-19mm thick particle board in approved finished. E-1 grade particle board finished with 2mm ABS edge banding. E1 grade laminate with zero urea formaldehyde emissions	

	(<or= 8mg/100 g oven dry board-perforated method) for better in-house air quality. This should comply with (EN 120- 1992). The exposed edge of worktop shall be secured with 1.2mm-1.5mm thick PVC edge banding tape of approved colour. Storages should be fitted with soft closing hardware and antishock hinges. Product should be BIFMA gold rated SCS global certified for inhouse air quality and with 10 years warranty.	

Providing, making & fixing an enclosure for gas cylinder of Shutters and Partitions along with wooden support and 18 mm thick MDF board along with 1.5 mm approved laminate color outside and 2 coat of enamel paint inside the shutter. The rate inclusive of handle, lock, loaded hinges, tower bolt and necessary hardware, etc. complete with French polish.

6. Requirements towards Electrical Work

6.1 IT UPS output panel should be with isolation transformer (K4 or K13 rating).

6.2 For IT load, UPS should be of N +1 configuration. Battery back up to be provided for 10 minutes. Provide and commission UPS along with batteries for IT and NON IT load. 415 V,3 phase 4 wire plus ground without internal isolation transformer. Design of UPS should be Insulated-gate bipolar transistor (IGBT) rectifier and 3/ 4 level 4 quadrant IGBT inverter with double conversion and capable of operating in ECO mode as per Class-1 classification of IEC 62040-3. Each UPS should have phase sequence correction kit without switching in battery mode as a default feature. Steady state voltage regulations will be within 1% of nominal output voltage, Linear load harmonics distortion should be less than 3% and non-liner load harmonics distortion should be less than 5%. UPS should be capable of 100% unbalanced load. Efficiency of UPS should not be less than 94% at full load condition in double conversion mode. Noise generated by UPS under normal steady state condition should not be more than 85 DB as per ISO 7779. UPS should be able to test in self-loading mode without any external dummy load. UPS should be ROHS complied product. Cable termination will be from front only. No back or side access is required. All serviceable components to be from front. UPS display should show the battery monitoring, UPS mode, Alarm (Audio and visible), Events etc. The UPS communication capability should be able to integrate into any industry standard Building Management System (BMS). Adequate protections for UPS for rectifier, bypass, battery, battery against overload, short circuit, battery over charging, battery over discharging, transients, surges (as per IEEE 587) etc. needs to be considered as per IEC 62040-1. A Battery system shall be furnished for the UPS with sufficient backup capacity to maintain UPS output at the specified load for a duration of minimum 10 minutes. The type

of battery shall be Sealed Maintenance-free (SMF) type. Each UPS should have separate battery bank. Battery protection shall be provided by thermal-magnetic molded-case circuit breakers in each battery rack.

6.3 Supply, installation and commissioning of Diesel Generator Set with acoustics enclosure and the other necessary systems include power cum synchronization panel if required, exhaust system, earthing system, battery and battery charger along with Civil foundations for successful erection, completion & operations of the Data centre. DG sets should be of prime rating and should be capable of operating continuously on an unbalanced system within limit described in section 6 of IEC 60034.1. Genset should be with Auto start, synchronization, auto stop controller. DG set should be with Auto Mains Failure (AMF) panel. Synchronization is to be with Auto as well as manual wherever required. DG set should be load dependent start and stop arrangement. Height of the exhaust stack has to be as per Central Pollution Control Board (CPCB) norms. Genset should be supplied with day tank for 6 to 7 hours of fuel storage. Fuel tank capacity will be as per Petroleum and Explosives Safety Organization (PESO) fuel storage guideline. Alternator insulation should be of Class H and temperature raise limit to Class H. Entire Genset to be provided with necessary engine protection system, alternator protection system and reverse active protection system etc. Selection of LT switchgear will be as per IEC 60947 and Genset will be as per ISO 8528 part1 to 10. Alternator should be with Resistance Temperature Detectors (RTD) and Bearing temperature detector (BTD). Electrical performance of the alternator will be as per IS 4722. DG system should come automatically ON LINE in less than 40 sec. First fill of oil and Diesel is part of scope of the bidder.Location of DG set is within 25 meters from Data Center

6.4 AC wiring circuit: Main circuit Point wiring should be surface or concealed conduit system. Conduit wiring shall be as per IS-732. Conduits and conduit accessories shall be galvanized and shall conform to IS-2667, 1988. Conduit ends shall be free from sharp edges or burrs. The ends of all conduits shall be reamed and neatly bushed with Bakelite bushings. In order to minimize condensation or sweating inside the conduit system, all outlets shall be properly drained and ventilated in such manner so as to prevent entry of insects. Conduit pipes shall be fixed by 22 gauge ribbed G.I. saddles on 25 x 3 mm G.I. (Galvanized Iron) saddle bars in an approved manner at intervals of not more than 50 cms. Saddle shall be fixed on either side of couplers, bends or similar fittings, at a distance of 30 mm from the centre of such fittings.

6.5 Lighting fixtures: -Lighting wiring between JB(Junction Box) and lighting fixtures shall be done by PVC insulated 3-core (phase neutral and earth) unarmored cable. All joints of conductors in Switch boards / JB's / Fittings shall be made only by means of approved Mechanical connectors (nylon / PVC connectors). Bare or twist joints are not permitted anywhere in the wiring system. Fixtures shall be firmly supported from the structures, support clamps etc. They may be bolted or welded to the steel work or metal inserts. In case of concrete structures, where metal inserts are not available, fixtures will be fixed to or supported from concrete surfaces with the help of anchor fastener, in such cases special care shall be taken to see that anchoring is firm. All LED fixtures shall be with high power factor, low harmonic (THD< 10%) (THD= Total Harmonics Distortion) and minimum 100 lumens/watt.

6.6 Earthing and Earthing Pits: All Electrical Equipment must be efficiently double earthed in accordance with the requirement of IS-3043/IEEE 80 and relevant regulations of Electrical. The earth pits shall be as per IS with proper arrangement for testing. Maintenance free earth pits to be used. All Earthing conductors shall be hot dip galvanized / electrolytic grade base copper conductor. The main earthing rings shall be done as per practice laid in Indian Standard. All electrical equipment shall be connected to the earth bus at two points except the lighting fittings and junction boxes. All hardware for bolted joints shall be galvanized and the size of the bolt shall not be more than quarter of the size of earth conductor. Tinned copper lugs shall be provided where round earthing conductors are used. The 415V neutral shall be solidly earthed by means of two separate and distinct connections to earth. The earth pits shall be interconnected between themselves and the main earthing grid to form an earthing ring. All joints in the main earthing conductors shall be welded. Terminal joints on the equipment shall be bolted. Removable test links shall be provided near the earth pits to facilitate testing of earth pits. Where the earthing terminal diameter provided on equipment is larger than quarter of the size of the earth conductor, connection shall be made using a wider flag welded to the conductor. The equipment to be earthed shall be connected to a common earth grid of power system. The number of earth pits will depend upon soil resistivity and the voltage of the system. The earth pit together with the electrode shall be constructed as per IS-3043-1987. The minimum distance between two earth pits shall not be less than twice the length of the electrode. The potential difference between neutral and earth should be less than 1 V. A bolted assembly link shall be provided in the connection between earth electrode and the main earth conductor.

6.7 LT Panels (Low Tension/voltage Panels): Design, Supply, installation, testing and commissioning of all LT panels. Panels will be as per IEC 61439. Panels feeders should have rated capacity of Load manager with RS 485 communication port. This should compactable for BMS system to calculate the PUE and to know the energy consumption. Bidder to submit License certificate of LT panels as per IEC 61439. Selection of switchgear should be as per IEC 60947 and bidder to submit the Discrimination chart for all the feeders. All the panels should be with Transient Voltage Surge Suppressor (TVSS) having Response time <0.5ns,Let-through Voltage 600V-800V. Auto transfer switch should be as per UL 1008 and NFPA 110 – Emergency and Standby Power. Minimum 30% spare feeders in each panel to be considered.

6.8 Cable Tray - All cable Trays shall be perforated type for indoor applications & above 300mm ladder type trays shall be used for outdoor purpose.The Trays shall be pre-fabricated hot-dipped galvanised. The Trays shall have suitable provision for clamping at an interval of 500 mm.The Earthing Strip for the earthing ring shall be run along the side of the Tray.The connection between individual equipment to the ring shall be by bracing or with lugs.Supports to the cable trays to be considered. The bending of trays shall be smooth and the curvature sufficient for each bending of cables in it. Pre-fabricated accessories such as Tees, bends, risers, couplers, reducers, etc. shall be used at all junction & branches. Cutting & welding of trays at site is not permissible. Similarly, the trays shall not be welded on the supports but bolted only. Stainless steal (SS) cable to be considered above each row of the Rack if required Cable tray Grid above the rack to be provided

7 Requirements towards Heating, ventilation, and air conditioning (HVAC) work

7.1 Supply and implement Adiabatic Dry Cooler system along with piping, valves, controlling mechanism, sensors, Electrical Control Panel, expansion tank etc. Supply water temperature to be maintained as 33 Deg C and maximum delta T will be 16 Deg. Bidder to work out the flow rate as per temperature requirement and cooling requirement .

7.1.1 The finned coil heat exchangers shall consist of copper phosphorus deoxidised (Cu-DHP) tubes, having copper content 99.9%, made to EN 12735 parts 1 & 2, ASTM B280/b68/b743 specifications. Aluminium fins shall be with advanced rippled-corrugated fin design to create a state of continuous turbulence, with full drawn collars to maintain fin spacing and provide a continuous surface cover over the entire tube. The tubes shall be mechanically expanded into the fin collars to provide a continuous primary to secondary compression bond over the entire finned length for maximum heat transfer rates. Headers shall be made of copper tubes having steel-flanged connections as standard. The adiabatic cooling system shall consist of controls, Spray pump, adiabatic cooling pads, SS basin, touch screen, electrical interface, VFD pumps, VFD fans. The controls shall cause the adiabatic water distribution system to operate when the ambient outdoor dry-bulb temperature does not provide sufficient cooling to maintain the

desired leaving water temperature. The air movement package shall combine premium aerodynamic and acoustic performance to offer compact fan and motor as an integrated product. Increased energy savings shall be achieved by using EC (electronically commutated) motors with permanent-magnet rotors. The fans selected shall be labelled as 'soft commutation'. This must involve a combination of commutation strategy and motor design. It should result in low-noise operation, without structure-borne noise. The noise level shall be limited to 75 dBA at a distance of 1.8 m. With the fans selected, there must be no motor noise variation across the entire speed range. When demand for cooling is low, very low operating speeds must be selected; resulting to extremely reduced absorbed power. Fan shall be Axial type aero foil design with Direct Drive. Fan motors should be TEFC with degree of protection IP – 54. Fan motors to be VFD Driven. The Adiabatic dry cooler shall have a control system that senses the outdoor ambient dry and the leaving water temperature; selects between dry and adiabatic cooling and varies the speed of the fans to meet the heat rejection needs of the system. The cooling pad section on each air-inlet side shall serve as an adiabatic saturator to cool the incoming air. It shall consist of specially integrated cellulose paper sheets with flute angles that have been bonded together. The impregnation procedure shall also ensure a strong self-supporting product, with high absorbance, protected against decomposition and rotting. An inlet-air edge coating shall be provided to prevent the pad surface from extreme environment such as dirt, sand storm, and risk of bacterial and algae growth. The water flow through the pads shall be initially regulated by a special metering device, which throttles the correct flow rate.The unit shall have a water tray to collect the not-evaporated water and to allow a recirculation of it by means onboard pumps. The unit shall be equipped with two copper tubes that spray water at a low pressure (2 to 3 bar) over the adiabatic pads to keep them wet. A water distributor shall be placed above wet pads to provide a homogeneous distribution of the water on all the pads length. Two fixed speed pumps shall be onboard the unit and they shall be used to recirculate the water from the water tray to the distribution pipes over the adiabatic pads. An ultrasonic sensor shall be placed on the water tray to monitor the water level. Once the water level is above a certain threshold, the unit shall turn on the pumps to recirculate the water. If the water level continues to increase, the sensor will force the unit controller to empty the tray in case of an obstruction. When the water level is below the default value, the unit shall turn off the pumps to avoid excessive pump wear. These units shall be featured by large air-side coils made of aluminum fins and copper tubes mechanically expanded, to obtain optimum metallic contact for maximum exchange efficiency between water and external air.

Capacity of the adiabatic closed circuit cooling tower shall be computed from the measurements of water flow, incoming/outgoing water temperatures and ambient dry bulb temperature and mean coincidental wet bulb temperature using accurately calibrated

mercury-in-glass thermometers. Computed ratings shall conform to the specified capacities and quoted ratings.

7.1.2 Logic of operation of Adiabatic Dry Cooler will be as- The dedicated temperature sensor will sense the ambient air temperature continuously. As long as the ambient temperature is less than or equal to the "set point temperature", the control system will facilitate the unit to run in "dry mode". Only at times (if any) the ambient temperature increases beyond the "set point" temperature, the control system enables the unit to transition to "wet mode" operation. During "wet mode", the spray water system will be instigated to facilitate pre-cooling of the incoming hot ambient air before entering the heat exchanger coil section. In addition, the control system must also be able to optimize the fan power consumption continuously depending on the ambient temperature and heat load variations. Make provision on HMI to change set points as required. The process water side RTD (PT100) with temperature output signal will have to be fitted at the main water outlet header of the Adiabatic cooler. This temperature sensor will sense the outlet water temperature and accordingly give a signal to your VFD to increase / reduce the speed of fans. At the set temperature the fans will be running at full speed and as soon as it drops then the fan speed will be reduced resulting in saving of power

7.1.3 Water Piping and accessories: Water pipe should be heavy duty Mild steel (MS) (Black steel) with all necessary fittings like bends, elbows, tees, flanges, reducers, vibration isolators, hanger, supports, PUF Gatti and fitting like flanges, bellows, union, etc. MS 'C' class chilled water piping, cut to required length and installed with welded joints (USE RECTIFIER), including all necessary fittings such as elbows, tees etc. The above piping shall be provided with thermal insulation of 'O class' Nitrile insulation with protective coating on water piping with min 26G of Aluminium cladding. Minimum Insulation thickness of 25mm for pipe having diameter 0-80 mm. All pipe joints shall be welded or provided with necessary fittings. Pipe flanges shall conform to IS:1536 whereas the threads shall conform to IS:554. All piping shall be tested to hydrostatic test pressure of at least 1 ½ times the maximum operating pressure but not less than 7 Kg/Sqm for a period of not less than 24 hours. All leaks and defects in joints and piping during the test shall be rectified and got approved. No pipe shall be welded with water inside the pipes. Piping repaired subsequent to the above pressure shall be retested in the same manner. Systems may be tested in sections and such sections shall be capped securely. Entire system shall then be retested. Noiseless circulation of water in the circuit should be achieved. If improper circulation due to air lock is found, same needs to be rectified. After completion of the installation, the pipe lines are to be flushed thoroughly to blow out the entire dirt and muck. Commissioning strainers shall be used before all equipment's. The system then shall be balanced to deliver the water quantities. Direction of flow shall be marked on pipelines in bold markings.

7.1.4 PRESSURE GUAGES & THERMOMETERS

Bourdon type pressure gauges with aluminium casing with a minimum 100 mm dial and appropriate range complete with needle valves shall be provided at the inlet and outlets of heat exchangers, and pump sets. Thermometers shall be of dial type mounted on a board with separable copper well. The case shall be of cast aluminium, weather & water proof type. Thermo well shall be provided at the inlet and outlet of all heat exchangers.

7.1.5 Differential Pressure Transmitters: Differential pressure transmitters shall be field mounted and shall transmit an isolated 4-20mA DC signal indicative of process variable to the pump logic controller via standard three wire 24 DC system with Emission/Immunity confirming to EN61000-6-2/3. Unit shall have stainless steel wetted parts with two 7/16" process connections. It shall be protected against radio frequency interference and shall have water tight, IP 55 electrical enclosure. Sensor should be capable of withstanding a burst pressure of 25 bar. Accuracy shall be within 2.5% BFSL (Best Fit Straight Line).

7.1.6 Supply, installation, testing & commissioning of Horizontal Centrifugal Pumps of Mono block type. The total head capacity curve shall preferably be continuously rising towards the shut off. In case of unstable (drooping) characteristic the duty point shall be well away from the unstable region. The shut off head shall be at least 110% of the total head. Pumps shall run smooth without undue noise and vibration. The noise level shall be limited to 75 dBA at a distance of 1.8 M. Vibration shall limited to class II C of BS 4675 Part –I. Pumps of a particular category shall be identical and shall be suitable for parallel operation with equal load division. Components of identical pumps shall be interchangeable. Pump should include TEFC three phase motor (EFF-1), Class F insulation & IP 55 protection of suitable rating. The motor shall be compatible with VFD drive. Flexible bellows at pump inlet and pump outlet as per suction and delivery sizes to be considered. Body of the pump should be Cast Iron (IS 210 FG260), Impeller -Bronze (IS 318 Grade LTB2), Shaft: SS 410, Shaft Sleeve: SS 410 etc. It is very important that contractor shall submit actual pump head calculation based on site installation conditions taking into account pressure drop in installed (to be installed) chillers, piping and fitting. This actual pump head calculation shall be submitted for approval before ordering equipment and motor. Required pump motor capacity will be provided based on actual head calculation without any extra cost

7.1.7 Variable Frequency Drive(VFD): The variable frequency drive(s) shall be pulse width modulation (PWM) type, microprocessor controlled design. VFD, including all factory-installed options, is tested to conform to UL standard 508. VFD shall also meet UL and be CE marked and built to ISO 9001:2000 standards. VFD shall comply EMC directives as per IEC 61800-3:2004, category C1 with 50-meter motor cable (for power less than or equal to 90 Kw) & category C2 with 50 meter motor cable (for power more than 90 Kw). VFD shall be housed

in enclosures for indoor applications. Wall mounted/VFDs with plastic enclosures shall not be acceptable. For outdoor applications, VFDs shall be housed in IP 54 enclosure. VFD shall employ an advanced sine wave approximation and voltage vector control to allow operation at rated motor shaft output speed with no deration. This voltage vector control shall minimize harmonics to the motor to increase motor efficiency and life. Power factor shall be near unity regardless of speed or load. VFD shall have balanced DC link chokes to minimize power line harmonics. VFDs without a DC link choke shall provide a 3% impedance line reactor. VFD shall be compatible for ModBUS/any open standard protocol. VFD shall be capable of displaying the following data in plain English Frequency, Voltage,Current,Kw per hour consumption, Running hours, Run mode (remote/local),Active power,RPM etc.

7.1.8 Minimum I/O Summery for Adiabatic Dry Cooler will be as below

Inputs	**Description**
I0.0	FAN 1 RUN feedback
	FAN 1 fault feedback
	FAN 1 VFD selected
	FAN 2 RUN feedback
	FAN 2 fault feedback
	FAN 2 VFD selected
	3 RUN feedback
	3 fault feedback
	FAN 3 VFD selected
	pump 1 RUN feedback
	pump 1 fault feedback
	pump 2 RUN feedback
	pump 2 fault feedback
	Spray pump RUN feedback
	spray pump fault feedback
	Make up pump RUN feedback
	make up pump fault feedback
	make up line LS1 low level
	spray pump pressure switch
	FAN 2 SPEED FEEDBACK
	FAN 3 SPEED FEEDBACK
	FLOW TRANSMITTER OUTLET
	PRESSURE TRANSMITTER INLET
	PRESSURE TRANSMITTER OUTLET
	RTD 1 UNIT OUTLET
	RTD 2 ADIABATIC PAD

	RTD 3 PROCESS INLET
Outputs	
O0.0	FAN 2 start / stop command
O0.1	FAN 3 start / stop command
	closed loop pump 1 start / stop command
	closed loop pump 2 start / stop command
	spray pump start / stop command
	make up pump start/stop command
	Hooter
	FAN 1 TRIP
	FAN 2 TRIP
	FAN 3 TRIP
	Alarm signal to DCS
	LS1 to DCS

7.2 Computer room Precision air System (PAC): Supply, installation, testing and commissioning of self-contained direct expansion type Precision air conditioning units suitable for operation on R410a refrigerant & should have advanced microprocessor and electronically communicated. Modular construction Precision air conditioning unit suitable for operation on R-410a refrigerant with bottom discharge arrangement consisting of inlet filter, blow through direct drive Electronically communicated Motors and Backward curved Plug fans, fan motor assembly to deliver desired air quantity, Scroll Compressor, Direct Expansion Cooling Coil, Heater banks to maintain humidity inside the space, condensate drain pan of stainless steel construction, Microprocessor panel, programmable control complete with LCD display. The unit shall be suitable for operation on 415 V, 50 Hz, AC supply. For Basis of Design Bidder to consider site ambient data along with following parameters.

7.2.1 Room conditions to be maintained : 22DegC +/- 2 Deg & 50% RH

7.2.2 Machine configuration : Bottom discharge

7.2.3 Actual Capacity : As provided

7.2.4 Flow Direction : Bottom discharge

7.2.5 Machine Capacity control : Return Air

7.2.6	Compressor type	: Scroll Compressor
7.2.7	Evaporator Fan	: Backward curve blades with Electronically commutated (EC) motor
7.2.8	Humidification & De-humidification	: In built feature of humidification & dehumidification as per enclosed specification
7.2.9	Filters	: Filter to be provided on the Package unit, having 95% efficiency down to 5 Microns
7.2.10	Outdoor unit &	: 1per dedicated circuit, with copper tubes aluminium fins with fan speed controller & anti-corrosive coating.

7.2.11 Unit Base & Casing- Base panel shall be constructed out of sandwich panels of galvanized steel and painted with epoxy powder coated (Double skinned Construction on all 4sides). All four side panels shall be double skinned sandwiched panels. The panels shall be insulated on the inside with minimum 32 Kg/ cum glass wool, for fire insulation class A0. Unit shall be complete with space for refrigeration equipment, fans, cooling coils, liquid receiver and multistage strip heaters and modulating Humidifiers. Unit shall be provided with welded tubular steel floor stand with adjustable legs and requisite vibration isolation pads.

7.2.12 Fan-The units should be equipped with direct driven backward curved EC radial fans with electronically commutated brushless motors; the technology employed by these motors allows straightforward control of fan speed by means of the electronic controller in order to obtain adjustment of air flow rate and static pressure to ensure correct distribution of the treated air. The motor's high efficiency should make for less energy absorption, especially at partial loads and during starting (lowering of peak current), which means a reduction in power consumption of approximately 30% compared to AC motor. The motor shall have minimum IP54 Protection.

7.2.13 Filters The filter chamber shall be an integral part of the system and withdraw able from the front of the unit. Filtration shall be provided by deep V form G4 performance dry disposable media to AS1324.

7.2.14 Evaporator Coil Precision packaged unit shall comprise of cooling coil of copper tubes expanded into aluminium fins with corrugated profile and hydrophilic treatment. Face and

surface areas shall be such as to assure rated capacity and the air velocity across the coil and Filter shall not exceed 2.5 m/s. The cooling coil shall be minimum of 3/4 rows deep and the fin spacing shall not exceed 1.8 mm. Coil selection to be suitable for SHF > 0.95 and provided with hydrophilic coating to minimize / eliminate water carry over into the airflow stream. Drain pan shall be made of stainless steel.

7.2.15 Compressor Systems-Scroll Compressor The compressor shall be of the high efficiency scroll design operating with R410A refrigerant and 415V/3~/50 Hz supply. The compressors should be “scroll type” operating with R410A and power supply of 400-460V/3ph/50-60Hz. The compressors are provided with integrated thermal overload protection and acoustic hood. The compressor motor control driver is provided with integral electronic protection against over temperature, over current, over or under-voltage with absence of one or more phases. Compressors, the humidifier shall be isolated from the air flow in the version with downward flow machines. The compressor shall be charged with mineral oil and designed for operation on environment friendly refrigerantR410a.The machine should be inbuilt with the liquid receiver & pressure relief valve for better performance of the machine.

7.2.16 Refrigeration Circuit- The refrigeration system shall be of the Single/ Multiple circuit direct expansion type and incorporate hermetic scroll compressors, complete with crankcase heaters.

7.2.17 The refrigerant circuit comprises:

7.2.17.1 Liquid receiver inbuilt in the indoor unit

7.2.17.2 Electronically- controlled expansion valve (EEV)

7.2.17.3 Solenoid valve for shutting off the refrigerant liquid

7.2.17.4 Refrigerant liquid flow indicator

7.2.17.5 Solid cartridge freon filter

7.2.17.6 Safety valve

7.2.17.7 High pressure safety pressure switch with manual reset

7.2.17.8 Low pressure switch with automatic reset

7.2.17.9 Shut-off valves for external connections (versions with remote condenser)

7.2.17.10 Copper refrigerant pipes with anti-condensation insulation on the suction line

7.2.17.11 Pipe taps on suction and delivery side and charging valve on liquid side.

7.2.17.12 Each Compressor to have its own independent Evaporator and Condenser.

7.2.18 Expansion device: Electronic Expansion Valve (EEV) The unit should have Electronic Expansion Valve and should be capable of responding the the varying load conditions of the variable capacity compressor. It should be able to provide following advantages:

7.2.18.1 Fast, high precision adjustment of refrigerant flow;

7.2.18.2 Fast arrival of the unit at steady-state conditions;

7.2.18.3 Superheating value remains constant in variable thermal load conditions;

7.2.18.4 Efficient operating conditions of the compressor, especially in the presence of low room temperatures;

7.2.18.5 Wide working range with consequent extension of the unit's operating limits. These properties result in enhanced performance of the unit and make it possible to obtain very significant energy savings.

7.2.19 Air Cooled Condenser-Condenser shall be air-cooled type, suitable for outdoor installation and shall be suitable for operating at high ambient of 45 deg C db and at low ambient of upto 0 deg C db temperatures. Condenser shall be in copper tube & aluminum fins construction. Condenser coil shall be of maximum 4 rows deep and the fin spacing shall not exceed 2mm. The condenser fan/s shall be of axial type with max 1000 RPM variable voltage electric motor complete with IP-54 protection. Motor shall be speed controlled to ensure a stable operation for varying ambient; by a factory fitted direct acting head pressure activated stepless variable speed drive. The condenser shall be complete with provisions for refrigerant piping connections, shut off valves and any other standard accessories necessary with the equipment supplied. Each Circuit to have its independent set of condenser coil and Fans is separate casing. The condenser should be equipped with fan speed controller for the speed variation based on the condensing temperature & the speed variation should be steeples. Location of condenser unit will be at third floor terrace and Data Center location will be at first floor, Bidder to calculate the length of piping.

7.2.20 Electric heaters-Each packaged unit shall be provided with multi stage heating elements constructed from a non- oxidable material. Electric heaters shall be of the low temperature totally enclosed strip type fitted with radiation fins and suitable for operating at black heat. If overheating occurs, a safety thermostat should cuts off the voltage supply to the heaters and triggers an alarm.

7.2.21 Humidifier-Boiling water in a polypropylene steam generator shall provide humidification. The humidifier shall be capable of providing continuous auto modulation in steam generation from 30-100% as per the steam requirement per hour. The humidifier shall be fully serviceable with replaceable electrodes. Waste water shall be flushed from the humidifier by initiation of water supply valve via U-trap. The microprocessor should be able to display the current drawn and actual steam output in the microprocessor.

7.2.22 De-Humidification-De-humidification cycle shall operate by reducing the speed of EC fan to reduce ADP of coil. Hence, by reduction of fan speed there shall be additional power saving.

7.2.23 Water Sensor: The system shall be provided with relevant water detection kit which shall have sensors with wire of minimum 1.5mtrs and each of the sensor must be capable to detect individually any water below the false floor near the unit, the sensor must be connected to the unit microprocessor thus enabling the controller to give an alarm incase of wet floor.

7.2.24 Microprocessor Control System-A microprocessor shall continuously monitor operation of each Server room air-conditioning unit continuously digitally display room temperature and room relative humidity, alarm on system malfunction and simultaneously display problem. When more than one malfunction occurs, flash fault in sequence with room temperature, remember alarm even when malfunction cleared, and continue to flash fault until reset. Microprocessor to control the following functions:

7.2.24.1 Ambient temperature

7.2.24.2 Humidity (HH versions)

7.2.24.3 Speed of the delivery fans

7.2.24.4 Speed of the condensation fans

7.2.24.5 Timing of compressors with automatic rotation

7.2.24.6 Alarm signal on two levels

7.2.24.7 Controlled automatic reset of high and low pressure alarms

7.2.24.8 The machine should be programmable to set the rotation time between the working & standby units as per client requirement.

7.2.25 Malfunctions: Power Loss, Loss of Airflow, High Room Temperature, Low Room Temperature, High Humidity, Low Humidity, Supply Fan Overload, and Water Under Floor / Fire alarm. The standby unit should immediately come in action in the event of any alarm/failure of the working unit without waiting for the temperature to increase to the high temperature limit thereby controlling the temperature of the data Centre. The unit should also be capable of starting the standby unit incase the temperature is not able to achieve with the working units. Automatic lead unit sequencing to extend equipment life and automatic rotation of standby unit should be part of the microprocessor itself. Microprocessor must be suitable to control multiple units if required with hard wiring which can be done at a later date. The machine should have inbuilt feature of timely rotation of 8hours between working & standby machines. In case of power failure, the precision packaged unit shall start automatically without any body's intervention. Controllers shall be Microprocessor based with capability to generate alarm and networking of all units to rotate (working + standby) units, equalized run time capability (for 2 or 3 units), programmable timer, with display of all parameters.

7.3 Gate and globe valves: Gate and globe valves up to 50 mm size shall be gun metal construction. Valves above 50 mm diameter shall have cast iron body and bronze/gun metal spindle valve seat. The valves shall have non rising spindle.

7.4 Butterfly valves: The butterfly valve shall be supplied along with flow control lever. The valves shall be compact in size and shall conform to BS 5155, MSS SP 67 and API 609. The valves shall be light in weight and easy to install. The body shall of close grain cast iron conforming to IS:210 and the seating shall be of Resilient black, Nitrile rubber / EPDM moulded on to the body. The disk shall be of SG iron nylon coated, whereas the shaft shall be of stainless steel A ISI 431 treated permanently for lubrication. The shaft seals shall be of Nitrile 'O' rings and rubber seals. Valves shall be suitable for a working pressure of 16.5 KSC. Care should be taken during installation to see that the disk is not damaged during installation due to the flanges being incorrectly spaced. Provide gear operated valves for sizes having 300 mm and above. For smaller sizes such as 40 mm and below diaphragm type valves are acceptable. The butterfly valve shall be supplied along with flow control lever.

7.5 Ball valves: Ball Valves shall have body of carbon steel. The ball and the shaft shall be of stainless steel. The seat shall be of PTFE. The valve shall be complete with socket weld ends.

7.6 Check Valves: Check valves for smaller sizes shall be of swing type of gun metal construction. Lift type check valves shall be used for horizontal lines. Wafer type plate check valves shall be used for bigger sizes. The check valves shall be suitable for 10.5 KSC test pressure

7.7 Auto Balancing Valve: Balancing valve shall be installed in branch pipe. These valves shall be factory calibrated. Each valve shall limit flow rates within ±5% accuracy, regardless of system

pressure fluctuations. Sufficient number of flanges and unions shall be provided as required to facilities maintenance work once the piping is installed. Piping shall be properly supported on or suspended from stands, clamps, roller hangers, etc. as required. The contractor shall adequately design all brackets, saddles, clamps and hangers and shall be responsible for their structural integrity. Each support shall be isolated from the support by means of anti-vibration springs or durable liner of neoprene rubber. Pipe supports shall be of steel and shall be painted with rust preventive paint and finish coated with synthetic enamel paint of approved colour. Only factory made supports with Galvanized fully threaded rods with bands are acceptable. The chilled water pipes shall be isolated from the bands by a rubber sheet.

7.8 Expansion Tank: Closed Expansion Tank with Expansion Vessel and pressurizing Pumps with 1 Working + 1 Standby. Expansion tank to be of MS with Armaflex / K- Flex Insulation minimum 32 mm thick & minimum 26 Gage Aluminum Cladding with diamond finish with related piping, isolating valves, safety valves, drains, overflow. Tank Shall have Anticorrosive Coating.

7.9 STRAINERS -Strainers shall be preferably of approved 'Y' type or pot type as specified in the tender schedule with GI or fabricated steel bodies. Strainers up to 50 mm shall be of gun metal type. Strainers shall have a removable bronze screen with 3 mm perforations and permanent magnet. Strainers shall be provided with flanges. They shall be designed so as to enable blowing out accumulated dirt and facilitate removal and replacement of all screen without disconnection from the main pipe. Strainers shall be provided with isolating valves so that they may be cleaned without draining the entire system.

7.10 Chemical dosing plant suitable for the requirement for flushing and treating the water. This should include make up water storage tank, first charge of Dosing chemicals for the commissioning of the system, chemicals for the operation. Treated water tank should be of adequate capacity. Entire system should include interconnecting piping, accessories, float and valves complete in all respect.

7.11 Server Rack 42U having dimensions of 800 X 1200 mm. The Rack unit supported by Plinth/ Casters/ Leveller should support a static load not less than 1,000 kg, total installed equipment weight. Sound-proof blanking plates should be placed in empty 25% blank plates to be provided. Rack should conform to DIN 41494 Standard, all enclosure components i.e. frame and door should be bonded together and to rack ground point. Rack is powder coated with Nano ceramic pre-treatment process using a zirconium coat. The Powder coating process is ROHS compliant. Powder coating thickness shall be 80 to 100 microns. The bidder is required to do the NSM Branding on the front door and side panel of racks as per the specification. **Bidder to consider supply and installation of two racks as per above specifications and also consider branding for another 3 RACK's . i.e The Banding needs to be considered for total 5 Racks. .**

8 Requirements towards IBMS work

8.1 Supply and implement physical security (access controls including biometric), Motion sensors etc.

The basic function of access door control is as below.

a. Access control system (ACS) is to be deployed to allow entry for the authorized personnel only and restrict unauthorized people from entering nominated areas of premises. Access privileges to be configured as per the access data stored in Access Door Controllers (ADC). These privileges define the right of access card holder to enter the predefined area upon presenting the card at readers.

b. It shall support distributed architecture with central monitoring and control. If communication to the central control fails, the ACS shall continue providing access based on the predefined security configuration. Until communication is restored, all event logs and alarms shall be stored locally for minimum six months (based on ADC capacity). These events shall be sent to the central control when the communication is regained.

c. It shall have multiple supervised inputs. The dynamic status of each input shall be continuously monitored and each change should be reported immediately.

d. It shall provide programmable inputs, i.e. the ability to apply a variety of conditions to the way in which these inputs are monitored. These conditions shall be expressed in definite terms. It shall be able to produce and communicate various types of outputs (Audible sirens, relay switching etc.) based on the above definition. These outputs shall be standard in terms and shall be interfaced as inputs to other Building Management System. ACS communications should support RS232/ RS485/ TCP/IP. All data over the network between the ADC and the Server end shall be encrypted. All ACS software/firmware upgrades shall be downloadable through the network to the ADC.

8.2 Supply and implement environmental Controls (Air conditioners, humidity controls, fire detection and suppression, control panel, etc.)

a. Humidity Sensor: The humidity sensor shall be in an independent housing or be combined with the room /duct type temperature sensor in the common housing as per application requirement. The sensor should be electronic type with capacitive sensing element. Relative Humidity (RH) sensors shall be of standard 0-10 VDC or 4-20 mA type, well protected against solid and liquid contaminants with a permeable coating. Range of 0-100% RH. Accuracy: +/- 3%Operating temperature range of 0 to 50 °C. Stainless steel sheath construction complete with integral shroud to enable specified operation in air streams of up to 10 m/sec. Maintenance of Sensor to be by a simple field method such as solvent or mild detergent solution washing, to

remove anticipated airborne contaminants. Maximum sensor non-linearity of ±3% RH with defined curve.

b. Water Flow Meters: It shall be axial turbine style flow meters which translate liquid motion into electronic output signals proportional to the flow sensed. Flow sensing turbine rotors shall be non-metallic and not impaired by magnetic drag. Flow meters shall be 'insertion' type complete with 'hot-tap' isolation valves to enable sensor removal without water supply system shutdown. Accuracy shall be + 2% of actual reading from 0.4 to 20 feet per second flow velocities.

8.3 BMS System: - Architecture of BMS system shall be of:

Management Level (BMS Servers/Software)

Control Level (DDC Controllers)

Field Level (Field Sensors)

Each level of the system which is modular in structure shall operate independently of the next level up. BMS should have capability to show real time PUE, trends and record historical data of PUE.BMS should generate event notifications over emails, data for events based on which uptime and downtime will be calculated.

There should be real-time reporting of

- Component wise and aggregate power consumption
- Temperature and relative humidity in the data centre.
- Temperature and pressure sensors etc.
- Instantaneous PUE, hourly PUE, daily PUE, monthly PUE and annual PUE.
- Alarm indicators for component failures.

There should be real-time monitoring and logging of all parameters of the data centre as per ASHRAE/TGG 2009 Real time energy consumption measurements in data centres guidelines (best practical). There should be facilities for periodic reports (including uptime reports) of all aspects of the data centre.All the required hardware and software eco-system which store at least two months of historical data (High end PC, 32" LCD HD Monitor, Key Board, Mouse etc.) has to be supplied by the bidder.

8.4 Supply and Implement fire alarm system –

When a fire alarm condition is detected and reported by one of the system indicating the affected devices, the following functions shall immediately occur:

- The System Alarm LED to be flashed.
- A local piezo electric signal in the control panel shall sound.
- LCD display shall indicate all information associated with the fire alarm condition, including the type of alarm point and its location within the protected premises.
- System output programs assigned via control-by-event interlock programming to be activated by the particular point in alarm should be executed, and the associated system outputs (notification appliances and/or relays) to be activated.
- The audio portion of the system should sound the proper audio signal (consisting of tone, voice, or tone and voice) to the appropriate zones.
- File alarm sensor position and logs should be visual in BMS software

The publications listed below are part of this specification.

National Fire Protection Association (NFPA) - USA:

No. 70	National Electric Code (NEC)
No. 72-1996	National Fire Alarm Code
No. 90A	Air Conditioning Systems
No. 92A	Smoke Control Systems
No. 92B	Smoke Management Systems in Malls, Atria, Large Areas
No. 101	Life Safety Code

8.5 Supply and Implement Video Surveillance systems:

The Digital Video Management System (DVMS) shall be designed and developed to the following standards: ISO 9001 (2000), ISO/IEC 15504 Level 3 or higher

The Digital Video Management System shall include Data storage of 4 months and any other required software, hardware etc. CCTV should cover all internal area in the server room, UPS, Panel room, entrance of server room and utility area (Dry Cooler Area- Terrace floor).

8.6 Supply and implement Very Early Smoke detection system (VESDA):

Provide an air sampling smoke detection system (Very Early Smoke Detection Apparatus) for each server area. Provide a Laser Focus air sampling smoke detection system for areas as per site condition including but not limited to utility area, server area etc. in accordance with manufacturer's recommendations.

The air sampling smoke detection system shall consist of highly sensitive smoke detectors with aspirating fans, air sampling pipe network, filters, networked controllers and a high-level interface to the building Fire Alarm System, as required.

The air sampling detectors shall provide a nominal obscuration level range from .0015 to 6% /ft., adjustable through the system operator control interface.

8.7 Supply and implement Rodent Repellent System:

The objective is to protect the entire premises viz. server area, utility area etc., all the voids against rodents. The purpose is to keep the rodents away from the floor by generating very variable high frequency sound waves which are not audible to human ear but irritate rodents. The objective is to protect all the cables below floor, above ceiling & room void from damage caused by rodents. The system proposed is to protect all the equipment's, areas with relevant type of high frequency sound producing device called satellites or transducers. Once powered up these transducers produce very high frequency variable sound waves continuously which irritate the rodents and are forced to evacuate the place. The devices can be tested periodically by means of a test switch provided on Main console.

8.8 Supply and implementing Water Leak Detection system:

It should include electronic alarm modules, water sensing cable, graphic display map, and auxiliary equipment. The system has to be capable of automatically detecting the presence of water at any point across the length of sensing cable. The system should alarm and locate the point of liquid contact on the digital display.

8.9 Supply and implementing NOVEC 1230:

Supply, install, test and commission NOVEC 1230 (Fluro Ketone FK-5-1-12) based fire suppression system. The fire suppression system shall include and not be limited to gas release control panel, CCOE approved seamless cylinders, discharge valve (with solenoid or pneumatic actuator) as the case may be, discharge pipe, check valve and all other accessories required to make a complete operation system meeting applicable requirements of NFPA 2011 standards and installed in compliance with all applicable requirements of the local codes and standards

9. Technical Compliance Matrix:

Sr.No.	Description with all specifications as per RFP	Qty. If Any	Compliance Y/N	Remarks/Deviations If any
1				
2				
n				

10. Indicative Design Schematic -

The target average quarterly PUE for the data centre should be 1.2 or lower. PUE will be measured during ISAT.

Minimum rating of components at site ambient conditions (considering deration factors, taking in to account utilization of 90% under peak load for Adiabatic Dry Cooler, UPS) along with rating is as shown in below table.

Sr.No.	Name of Components	Rating for each unit	Qty.	Redundancy
1	Adiabatic Dry Cooler system along with Pump, Tank, Piping ,Control Panel, VFD,PID controller, Instrumentation as per P & ID etc.	200 KW	1	
2	UPS-IT Load	120 KVA	3	2 +1
3	UPS-Non IT Load	20 KVA	2	1+1
4	PAC –Server Room	15T (Duel Compressor)	2	1 +1
5	PAC –UPS Room	8 T	2	1 +1
6	Split AC- Battery Room	2T	2	1 +1
7	DG set	400 KVA	1	NO

Maximum Space available at site

Sr.No.	Description	Length (meters)	Width (meters)	Indoor /OutDoor
1	Terrace Area for Dry Cooler and ODU Unit	6	6	Outdoor

2	UPS Battery and LT Panel Room	6	7	Indoor
3	Server Area	6.5	11.4	Indoor

Below is the list of minimum components/systems (BOQ) bidder should consider in the offering.

Sr.No.	Description
1	**Civil**
1.1	Supply, Installation, Testing and Commissioning of Raised Flooring System (In Server Room, UPS Room, Battery Room) as per specification give in this document. Bidder to refer the layout for calculating the quantity
1.2	Supply, Installation, Testing and Commissioning of False ceiling System (In Server Room, UPS Room, Battery Room) as per specification give in this document. Bidder to refer the layout for calculating the quantity
1.3	Supply, Installation, Testing and Commissioning of fire rated walls as shown in the layout drawings . FULL HEIGHT FIRE RATED PARTITION WALL:132 MM THK FIRE RATED PARTITIONS -Providing and fixing minimum 132MM thick FIRE RATED gypsum board partitions with 2 Nos. x 15mm thick fire line board on both sides of 72mm GI floor channel and 70mm Square MS Pipe stud as per specifications, including cost of chasing for electrical conduits,. This Item includes all tools, tackles, material, labour, fixture adhesives sealants etc for the compelte work. Fireline boards should conform to IS:2095 – 1996-Part-I.
1.4	Supply, Installation, Testing and Commissioning of fire rated partition to close the Glass window openings .
1.5	Supply, Installation, Testing and Commissioning of fire rated Doors with panic bars.
1.6	Supply, Installation, Testing and Commissioning of fire rated expandable foam , water soluble cable coating etc.
1.7	Any other missing civil components that's includes but not limited to opening , cut out and re closure, steal structure for Equipment's foundations and base frame, WALL PUNNING: All wall to be punnied using gypplaster of India Gypsum / equivalent make for an average thickness of 15-20mm made of universal plaster . The punning shall be finished uniform and wave free on both sides. Price shall be inclusive of any chipping & replastering if required. (columns included)
1.8	Painting as per Data Center Standards in Server Room, Battery Room, UPS room. FIRE RATED PAINT: To prepare & finish the wall with 2hrs fire rated paint of approved quality & shade by sand papering the surface, applying one coat of primer, prepare the surface with two coats of full putty, sand papering again, repeating a coat of primer, applying one coat of paint, touching up with putty & applying two final roller coats of fire rated paint, to internal wall/roof slab /partition masonry concrete surfaces incl. preparing the

	surface by cleaning scrapping, smooth filling crevices, scaffolding etc. (columns in data center included)(Internal Walls to have fire rated paint on both sides and external (outer) walls to have fire rated paint on one side and plastic emulsion paint on the other .
1.9	Supply , Installation, Testing and Commissioning of INSULATION ON ROOF AND FLOOR SLAB, external thermal insulation class-"O" closed cell elastomeric nitrile rubber - 13 mm thick for floor and ceiling insulation.
2.0	Supply and Installation of Room Signage and fire evacuation map. Providing & fixing Aluminium Modular Signage using Aluminium Alloy 6063 extrusion with anodizing (The thickness of the anodization is typically, 30 microns. The integrity of the anodize coating is tested to meet the international specifications ISO 2143-1981.) With lifetime Warranty in normal working condition.(Size: 18" x 6")
2.1	Supply and Installation RAMP: Ramp of adequate length,600 MM height -constructed with MS framework with ms sheet cladding on top of sufficient gauge. MS sheet to be clad with 19mm ply on top , finished with laminta and provided with appropriate grips.
2.2	Opening for the Cables or other utility services which are coming inside the building needs to be sealed by Fire resistance board system, water soluble fire retardant solutions, fire expanding foam etc. having minimum of 2 hours fire rating when tested in accordance with BS 476 part 20 and UL 1479 for horizontal and vertical openings in RCC slabs, Beams, walls, Brick masonry or Gypsum partitions for passing service shafts. The service lines could be of various types like electrical cables, cable trays or metal pipes etc. The foam shall have Acoustic property as per DIN 4109 and Smoke and Air Seal. The Foam should have the feature of Re penetrability for future maintenance or repair activities. Fire soluble cable coating should be suitable for protecting against spread of flame on timber panels and tested as per IEC 332 part 3 standard for reduced spread of flame & tested as per FM Class 3971. It should have no de-rating effect on cables, free from fiber, asbestos, odorless and solvent free, flexible when dry after application.
2.3	Furniture as per above specifications
2	**Electrical System**
2.1	Supply , Installation, Testing and Commissioning of DC LT panel, ATS Panels, PDU panels, lighting DBs, Raw Power DBs, VFD Panels, Adiabatic Dry Cooler Panel Isolator Panel with enclosure etc.
2.2	Supply, Installation, Testing and Commissioning of 3 X 120 KVA UPS along with DC and AC Cabling and individual battery bank for back up time of 10 minutes. The type of battery shall be Sealed Maintenance-free (SMF) type. Each UPS should have separate battery bank. Battery protection shall be provided by thermal-magnetic molded-case circuit breakers in each battery rack Bidder to refer SLD and Layout Drawing for length and quantity calculations.

2.3	Supply, Installation, Testing and Commissioning of 2 X 20 KVA UPS along with DC and AC Cabling and individual battery bank for back up time of 10 minutes. The type of battery shall be Sealed Maintenance-free (SMF) type. Each UPS should have separate battery bank. Battery protection shall be provided by thermal-magnetic molded-case circuit breakers in each battery rack Bidder to refer SLD and Layout Drawing for length and quantity calculations.
2.4	Copper cables between batteries, copper cables between UPS & batteries, DC ACB/MCCB Box with indoor enclosure, each battery string shall have individual battery breaker, all breakers are housed in common enclosure with individual incomer busbar & common O/G busbar
2.5	Supply, Installation, Testing and Commissioning of internal illumination system
2.6	Supply, Installation, Testing and Commissioning cables and End terminations.
2.7	Supply, Installation, Testing and Commissioning of perforated type Cable Trays along with Cover and supporting hangers as per Standard Engineering Practices.
2.8	Supply, Installation, Testing and Commissioning EARTH ELECTRODES AND EARTH STRIPS
2.9	Supply , Installation of First Aid Box, Shock treatment Chart, Emergency Fire evacuation Map, Shock Treatment Chart, Rubber Mat etc.
3.0	Supply, Installation, Testing and Commissioning of Rack PDUs , 2 nos. each in Service Rack and Storage Rack of 32 Amps 3 Phase with 20 nos. C 13 and 6 nos. of C19 sockets per PDU.
3.1	Supply , Installation, Testing and Commissioning of 1 X 400 KVA DG set along with Auto Mains failure Panel . Location of DG set is within 25 meters from Data Center. Bidder needs to consider electrical isolation inside the canopy and appropriate length of cable.
3	**HVAC System**
3.1	Supply, Installation, Testing and Commissioning of complete Adiabatic Dry Cooler System as per P & ID and Specifications including VFD –Pumps, Piping, Valves, Instrumentations, Electrical Panel, PLC, Fans with VFD etc. Location will be at terrace floor bidder to calculate the length .
3.2	Supply, Installation, Testing and Commissioning of 2 X 15 T PAC system along with ODU unit and associated piping and as per specifications given. Location will be at terrace floor bidder to calculate the length .
3.3	Supply, Installation, Testing and Commissioning of 2 X 8 T PAC system along with ODU unit and associated piping and as per specifications given. Location will be at terrace floor bidder to calculate the length .
3.4	Supply, Installation, Testing and Commissioning of 2 nos of 42 U rack as per specification provided.
	IBMS
4	**IBMS –** Integrated building management system should cover but not limited to, NOVEC Gas base fire suppression system, Fire alarm, Access control, Water leak Detector, Rodent Repellent, CCTV, VESDA System etc., various types of sensors etc., software, communication protocol, field Devices along with Direct digital control (DDC) , etc.

4.1	Supply, Installation, Testing and Commissioning of Intelligent Addressable Fire Alarm System (FM Approved/ UL Listed) which includes Intelligent Addressable Fire Alarm Panel, FM approved Analogue Addressable Heat Type Smoke Detector, Analogue Addressable Multi Criteria Type Smoke Detector with Inbuit Isolator Base, Addressable Manual Call Point, Sounder (85 Db), Response Indicator (For False Floor Areas), Addressable Control module for activating sounder , NOVEC Activatio. , Access Control De-Activaion , Cooling Unit, Short Circuit Isolator Module, Addressable Monitor Modules, 2 core x 1.5 sq.mm twisted pair shielded multi strand Armored FRLS cable etc.
4.2	Supply, Installation, Testing and Commissioning of Access control system which includes software, card and biometric reader, electromagnetic lock, exit push button , FRLS Cables etc.
4.3	Supply, Installation, Testing and Commissioning of CCTV system along with indoor, outdoor camera, Network Video Recorder for 16 Channel with is a full-featured high-performance H.265 NVR Equipped with a 2U 64-CH 8 Bay Rackmount network appliance and H.264 ,Video codec, Multiple Fisheye Dewarp Support, Multiple Video Search Modes, hard-drive bay design provides for a storage capacity of up to 24TBs,Support HDMI, Display Port, VGA and DVI Simultaneous Output, Graphics Decoder, USB support ,Audio Jack, Network interface-10/100/1000Mbps Ethernet (RJ-45) x2,Protocols IPv4,TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, SMTP, FTP, DHCP, NTP, DNS, DDNS, IP Filter, Redundant PowerPC, LVD, FCC, VCCI, C-Tick. NVR Should store Data for 4 Months. Vendors to give their Calculation. software, client work station Processor - Intel Core i-7 OS - Genuine Windows 10 Professional RAM - 4 GB DDR2 SDRAM Memory - 500 GB HDD Graphic Card - 1GB NVIDIA Quadro 600 Graphics capability: VGA, with at least 32k colors Network: 100/1000 Mb Ethernet network card. 21-inch LED monitor (make Samsung , LG, DELL, HP)
4.4	Supply, Installation, Testing and Commissioning of VESDA system with aspiration detectors, nozzles, capillary tubes etc.
4.5	Supply, Installation, Testing and Commissioning of Rodendent Repellant System
4.6	Supply, Installation, Testing and Commissioning of Water Leak System
4.7	Supply, Installation, Testing and Commissioning of BMS System which includes Main Building Automation Graphic Software, BMS Machine, DDC Controllers with necessary Panels and internal wiring for Data center Parameters and Electrical Parameters, Field Sensors, Third Party Integrations as PAC , Load Manager etc,
4.8	Supply, Installation, Testing and Commissioning Fire Suppression System (Novec 1230 Based - For Server Room, Electrical Room and Battery Room) this should include Cylinder and valve assembly with solenoid actuator and Accessories, NOVEC Gas, manifold, valves, piping's, Nozzles, Abort switch, manual release switch etc. Bidders to submit the Gas concentration considered .

11. Applicable Standards but Not Limited to

Installation and materials shall also confirm to latest amendments of

a. Indian Electricity Rules
b. Indian Factories Act
c. National Electric Code
d. Petroleum rules
e. Quality and Safety Standards

Sr. No.	Code Number	Description
1	IS 2309	Protection of buildings and allied structures against lightning.
2	IS 3043 /IEEE 80	Code of practice for earthing.
3	IS 5216	Safety procedure and practices in Electrical work.
4	IS 3106	Code of practice for selection, installation and maintenance of fuses (Voltage not
5	IS 1646	Code of practice for fire safety of buildings (general) Electrical installation.
6	IS 9921	Alternating Current Dis connectors above 1000 V.
7	IS 8623	Factory built assemblies of switchgear, and control gear for voltages up to and 660 V
8	IS 2147	Degree of protection provided by enclosure for low voltage switchgear and control
9	IS 2551	Danger notice plates.
10	IS 1248	Electrical indicating instruments.
11	IS 722	AC Electric meters.
12	IS 2705	Current Transformers.
13	IS 3156	Voltage transformers.

14	IS 8828	Miniature air break circuit breakers for AC circuits.
15	IS 10118	Installation and maintenance of switchgear.
16	IS 398 /IEC 1089-1991	ACSR conductors
17	IS 7098	Cross linked polyethylene insulated PVC sheathed cables up to 33 KV
18	IS 12943	Brass glands for PVC cables
19	IEC 99-4	Gapless Surge Arrestors
20	IS-900	Code of practice for Installation and Maintenance of Induction Motors
21	IS-1255 -1983	Codes of practice for Installation and Maintenance of Power Cables up to and including 33 KV Rating.
22	IS-732 1989	Code of practice for Electrical Wiring Installation. (System Voltage not exceeding660 Volt).
23	IS-1913	General and Safety Requirements for Luminaries.
24	IS-1646	Code of Practice for Fire Safety of Building (General) Electrical Installation.
25	IS-2713	Specification for Tubular Poles for Overhead Power lines.
26	IS-6792	Method for determination of Electric Strength of Insulating Oils.
27	IS-2667	Specification for Fittings for Rigid Steel Conduits for Electrical Wiring.
28	IS 3615	Glossary of terms used in Refrigeration and Air-conditioning.
29	IS 325	Three phase induction motor.
30	IS 1239	Mild steel tubes, tubular and other wrought steel fittings.
31	IS 639	Steel pipe flanges.
32	IS 277	Galvanized sheet steel.

33	IS 737	Wrought aluminium and aluminium alloy sheet and strip for general engineering purpose
34	IS 655	Metal air ducts.
35	IS 732	Code of practice for electrical wiring and fittings for buildings.
36	IS 900	Code of practice for installation and maintenance of induction motors.
37	IS 1248	Direct acting electrical indicating instruments.
38	IS 6392	Steel pipe flanges.
39	IS 1367	Technical supply conditions for threaded steel fasteners.
40	IS 3588	Axial flow fans electric.
41	IS 4894	Centrifugal fan.
42	IS 2074	Ready mixed paint.
43	IS 2208	HRC cartridge fuse links up to 650 V.
44	IS 1554	PVC insulated (heavy duty) electrical cables for working voltages up to and including 1100 V.
45	IS 659	Air-conditioning safety code.
46	IS 616	Mechanical refrigeration safety code.
47	IS: 1554 -	PVC insulated (heavy duty) electric (Part I) Cables - Part I for working voltages up to and including 1100V.
48	IS: 1753 -	Aluminium conductors for insulated cables.
49	IS: 3961 -	Recommended current ratings for (Part II) cables: Part-II PVC insulated and PVC sheathed heavy-duty cables.
50	IS: 3975 -	Mild steel wires, formed wires and tapes for armouring of cables
51	IS: 5831 -	PVC insulation and sheath of electrical cables.
52	IEEE 519:1992	Harmonics
53	IS 277	Galvanised Steel Sheet (Plain and corrugated).

54	IS 655	Metal Air Ducts.
55	IS 737	Wrought Aluminium and Aluminium Alloy sheet and strip for general engineering purposes.
56	UL 181	Factory – Made Air ducts and connectors.
57	UL 555	Fire Dampers.
58	ASHRAE 70	Method of testing for rating the performance of Air Outlets and inlets.
59	BS 649	Diesel Engines for general purpose.
60	BS 2613	Rotating Electrical Machinery.
61	IS 4722	Electrical performance of rotating electrical machinery.
62	IS 4728	Terminal markings for rotating electrical machines.
63	IS 4729	Measurement of vibrations of rotating electrical machines.
64	IEC60034	Rotating Electrical Machines
65	IEC60034.1	Rotating Electrical Machines Part1: Rating and Performance
66	IEC60947	Low Voltage Switchgear and Control Gear
67	ISO 8528 Part 1 to 10:	Reciprocating Internal Combustion engine Driven Alternating current Generating Sets
68	IS-375	Marking and arrangement for switchgear bus bars, main connection and auxiliary wiring.
69	IS-722 Part – I	AC Electricity Meters
70		Part - I General requirements and tests
71	IS-1248	Direct acting indicating analogue electrical measuring instruments and their accessories.
72	IS-1822	AC Motor starters, of voltage not exceeding 1000 volts.
73	IS-2147	Degrees of protection provided by enclosures for low voltage switchgear and control gear.

74	IS-2208	HRC cartridge fuse links for voltage above 650V.
75	IS-2419	Dimensions for panel mounting indicating and recording electrical instruments.
76	IS-2516	Circuit Breakers - Requirements and Test voltages not exceeding 1000V AC or 1200V DC.
77	IS-2607	Air break isolators for voltages not exceeding 1000 volts.
78	IS-2959	Contactors for voltages not exceeding 1000V AC or 1200V DC
79	IS-3072	Code of practice for installation and maintenance of switchgear.
80	IS-3106	Code of practice for selection, installation, maintenance of fuses (voltage not exceeding 650V).
81	IS-3156, Part - I	Voltage Transformer - General Requirements.
82	Part – II	Voltage Transformer - Measuring Voltage Transformers.
83	Part – III	Voltage Transformer - Protective Voltage Transformers.
84	IS-3231	Electrical Relays for Power System Protection.
85	IS-3914	Code of practice for selection of AC Induction Motor Starters (Voltage not exceeding 1000V)
86	IS-4047	Heavy-duty air-break switches and composite units of air-break switches and fuses for voltages not exceeding 1000 Volts.
87	IS-4064	Air break switches, air break disconnections, air break switch disconnections and fuse combination units for voltages not exceeding 1000V AC or 1200V DC.
88	Part – I	Part I - General Requirements.
89	IS-4146	Application guide for Voltage Transformers.
90	IS-4201	Application guide for Current Transformers.
91	IS-4237	General Requirements for Switchgear and Control Gear for Voltages not exceeding 1000V AC or 1200V DC.

92	IS-4483	Preferred panel cut-out dimensions for electrical relays - flush mounting IDMTL relays.
93	IS-4794, Part- I	Push Button Switches - General Requirement and Tests.
94	IS-5082	Wrought aluminum & aluminum alloy bars, rode, tubes and sections for electrical purposes.
95	IS-5987	Code of practice for selection of switches (Voltage not exceeding 1000V).
96	IS-6236	Direct recording electrical measuring instruments.
97	IS-6875	Control switches (switching devices for control and auxiliary circuits including contactor relays) for voltages up to and including 1000V AC and 1200V DC.
98	IS-8623	Factory built assemblies of switchgear and control gear for voltages up to and including 1000V AC and 1200V DC.
99	IEC 62040-3	(International Electro technical Commission) – Uninterruptible power systems (UPS) – Part 3: Method of specifying the performance and test requirements.
100	IEEE 587 (ANSI C62.41)	Category A & B (International Electrical and Electronics Engineers) – Recommended practices on surge voltages in low voltage power circuits.

Bidder is required to submit compliance sheet in the tabular format for the selected products against above applicable code provision.

12. Recommended Makes:

List of Recommended Makes / Models of the major components/ equipments is given in Annexure – D. Bidders should use the makes and models having successful deployments in Data Centre applications in India.

13 DC Acceptance Criteria:

Based on demonstration of following technical parameters, the DC implemented solution will be accepted.

13.1 PUE as per RFP

13.2 Neutral to Earthing Voltage as per RFP

13.3 As build Drawing

13.4 Safety during Project Execution

13.5 Submission of Warranty Certificate from manufacturer of DG set, Adiabatic Dry Cooler , UPS , Battery , Pumps etc. as per RFP

13.6 Effective GUI in BMS screen, Effective implementation and utilization of BMS system.

13.7 Data Center aesthetics and interiors

(END OF SECTION IV)

Section V – Price Schedule

Summary Format- Supply , Installation , Testing and Commissioning along with Loading , Unloading, Transport, Transit Insurance etc.

Sr. No.	Particulars	Quantity	Quoted Price Rs.	GST Rs.	Total Price Rs.
	Bidders to calculate the quantity as per Drawing Layout, SLD,P & ID and Site visit				
1	Civil and allied works including Furniture				
2	UPS ,Batteries and associated items				
3	DG set with AMF panel and associated items				
4	LV Electrical Components				
5	Cooling sub systems				
6	IBMS				
7	Server Rack -42 U WXD (800X1200) along with PDU ,cable manager and 20% of blanking plates				
8	Any other item, material required to complete the solution				
9	Labour Charges, charges towards installation and commissioning pertaining to items 1 to 8 above				
10	Extended Warranty-For Year-3				
11	Operation and Maintenance –Year-1				
12	Operation and Maintenance –Year-2				
13	Operation and Maintenance –Year-3				
	Sub - Total Rs.				
	Grand Total Rs.				

Optional Items (These items will not be considered for computing L1)

Sr. No.	Particulars	Quantity	Quoted Price Rs.	GST Rs.	Total Price Rs.
1	Comprehensive Annual Maintenance Contract - Year-4				
2	Comprehensive Annual Maintenance Contract - Year-5				
3	Operation and Maintenance –Year-4				
4	Operation and Maintenance –Year-5				

Detailed Commercial Bid is to be submitted in below format.

Sr.No.	Description of Item and Specification	HSN code/SAC code	Unit Price Rs.	Qty. in Units	GST %	Total Price Rs.
1						

Signature of Supplier Stamp

(Authorized Signatory)

Notes:

- **Prices for individual line items of the BoQ should be mandatorily submitted.** IIT HYDERABAD reserves the right to reject the bid in case **bidder fails to quote all the required items.**
- The prices quoted should include the charges towards testing of equipments, installations from local electricity board, PWD, electrical/ civil engineering authority, pollution control board - as applicable. The official charges required for the required testing, certification, NOC etc. are to be paid by the bidder. The certifications, NOC etc. shall be in the name of host institution.
- The invoice can be raised in compliance with GST requirements.

Annexure A –

Covering Letter
(On Company Letter Head)

Date:

To:

Director

Indian Institute of Technology Hyderabad, Kandi, Sangareddy-502285

Subject: Submission of the Technical bid for Supply of Data Centre Solutions

Dear Sir,

We, the undersigned, offer to supply Data Centre Solutions and allied services to IIT HYDERABAD in response to your RFP No _____ dated _____. We are hereby submitting our proposal for same, which includes this Technical bid and the Financial Bid on https://mhrd.euniwizarde.com

We hereby declare that all the information and statements made in this Technical bid are true and we accept that any misinterpretation contained in it, may lead to our disqualification.

We undertake, if our proposal is accepted, to initiate the Implementation activities towards supply of material and services, as stipulated in the referred RFP.

We agree to abide by all the terms and conditions of the RFP document, including corrigenda. We would hold the terms of our bid valid for 120 days as stipulated in the RFP document.

We understand you are not bound to accept any Proposal you receive.

The undersigned is authorized to sign this bid document. The authority letter to this effect is enclosed.

Yours sincerely,

Authorized Signatory:
Name and Title of Signatory:
e-mail:
Mobile No:

Annexure B

Authority Letter
(On Company Letter Head)

Date:

To:

Director
Indian Institute of Technology Hyderabad, Kandi, Sangareddy-502285

Subject: Authority Letter

Reference: RFP document no. _____

Dear Sir,

We, M/s _____ (Name of the bidder) having registered office at _____ (address of the bidder) herewith submit our bid against the said RFP document.

Mr./Ms. _____ (Name and designation of the signatory), whose signature is appended below, is authorized to sign and submit the bid documents on our behalf against said RFP

Specimen Signature:

The undersigned is authorised to issue such authorisation on behalf of us.

For M/s _____ (Name of the bidder)

Signature and company seal

Name

Designation

Email

Mobile No.

Annexure C

Undertaking by Principal Manufacturer

(To be submitted on Letterhead)

Date:

The Director
Indian Institute of Technology Hyderabad, Kandi, Sangareddy-502285

Subject: **Undertaking by Principal Manufacturer against tender no. _____ for Supply, Installation & Commissioning of Data Centre Solutions.**

Dear Sir,

We, M/s _____ (Name of the manufacturer) having registered office at _____ (address of the manufacturer) by virtue of being manufacturer for _____ (Name of the product/s), hereby authorise M/s _____ (Name of the bidder) having their office at _____ (Address of bidder) to submit quote, supply, install and provide after sales support for our range of products quoted by them to meet the above mentioned tender requirements.

M/s _____ (Name of the manufacturer) within the scope of requirement as per the tender mentioned above undertake to provide technical & other support towards fulfilling the requirements of installation, commissioning, acceptance criteria and product warranty services of the Data Centre Solutions to be supplied and installed at site(s) by our authorised representative M/s (Name of bidder) against said tender.

The undersigned is authorised to issue such authorisation on behalf of M/s _____ (Name of the manufacturer).

For M/s _____ (Name of the manufacturer)

Signature & company seal

Name

Designation

Email

Mobile No.

Annexure D

List of Recommended Makes

Sr No	Description List of Makes -Electrical	Recommended Makes
1	UPS System	Schneider/Vertiv/Eaton/Numeric /TMEIC/Delta/Socomec/ABB/Fuji/
2	DG Engine	Caterpiller / Cummins /KIRLOSKAR / Greaves
3	Alternator	KIRLOSKAR / STAMFORD /Leroy Somer
4	LT CABLES	RPG /KEI /FINOLEX/POLYCAB/Ravin/Lapp
5	SMF Batteries for UPS	Rocket / Amar Raja / HBL /Quanta/Exide
6	Multifunction Meter (Digital Type)/Load Manager	Schneider/Socomec/Secure Meter/HPL/Siemens/L&T
7	MS/GI CONDUITS	BEC/BHARAT/AKG/UNIVERCELL
8	PVC CONDUITS	AVON PLAST//Precision/Dimond
9	MODULAR SWITCH SOCKET WITH SWITCH BOXES	ANCHOR/Legrand/Schneider
10	BRASS DOUBLE COPRESSION GLANDS	DOWELLS/COMMET/Siemens/Phoenix
11	MCCB/MCB/ACB	Schneider/L&T/ABB/Siemens/Eaton
12	FSU WITH HRC FUSE	L&T/SIEMENS/ Schneider /Eaton
13	ELCB/MCB	Siemens/ Schneider / Legrand/Eaton
14	MCB DBS	Siemens/Schneider/Legrand/L&T /Eaton
15	METAL CLAD SOCKET OUTLETS	Legrand/SALZER/HAVELLS/L&T HAGER
16	CABLE TRAYS	PROFAB//OVI ENGINEERS/Aslesha/Indiana/Legrand
17	LUMINAIRIES	PHILLIPS/WIPRO/BAJAJ/HAVELLS/Syska
18	Power Distribution Unit (PDU panel for supplying power to IT rack)	Datson/Schneider/Socomec/Eaton/Vertiv /Legrand /

19	PROTECTIVE RELAYS	Siemens/ABB/L&T/Schneider/Eaton
20	CAPACITORS	L&T/EPCOS/MEHAR/Shream
21	CT's	VOLTAMP/AE/KAPPA
22	LIGHTNING PROTECTION SYSTEMS	ERICO/INDELEC/NIMBUS
23	SURGE PROTECTION DEVICES	Schneider/Siemens/Legrand
24	Auto Transfer Switch (ATS)	Siemens/Socomec/Schneider (ASCO)
25	TVSS	Vertiv (Emerson)/ APC –Schneider /Eaton
26	LT Switchboards	License of IEC 61439 Panel Builder
27	Power Distribution Unit (PDU-Inside the Rack)	Emerson/APC-Schneider -/Raritan/Eaton/WQ/enlogic
Sr. No.	**Details of Material- Civil and Interior**	
1	Cement	ACC, L&T, Ambuja
2	WALL PUTTY	GOLDSIZE PUTTY BY SHALIMAR PAINTS LTD., J K WALL PUTTY, Birla White
3	STRUCTURAL STEEL	TISCO, SAIL, RINL, JINDAL, ESSAR, Tata Steel
4	ANCHOR FASTNER	HILTI, FISHER
5	ALUMINIUM SECTIONS	INDAL, HINDALCO, JINDAL,
6	DISTEMPER & PAINTS	ICI-Dulux, ASIAN PAINTS, BERGER PAINTS, NEROLAC, British Paint
7	LAMINATES	MERINO, GREEN PLY, CENTURY, ANCHOR,FORMICA, DECOLAM, NEWMIKA, NATIONAL, GREENLAM, SPECTRUM
8	GYPSUM BOARD and Fire Rated partition	INDIA GYPSUM, LAFARGE BORAL, RAMCO LTD
9	ALUMINIUMIUM COMPOSITE PANEL	ALUCOBOND, ALUCOPA, ALOMAX, Euro Bond, ALSTRONG, ALTOBOND, ALUDECOR,
10	GLASS	SAINT GOBAIN, Schott, Pilkington
11	FALSE CEILING	INDIA GYPSUM, ARMSTRONG,AMF

12	Raised/False Flooring	Unitile/Uniflair/ USG/Access Floor Systems
13	Fire Door	Shakti Mat, Radiant, ProMat, Godrej,
14	Insulation	Armaflex/K-FLex
15	Fire Sealants	3M,Hilti,Fischer
Sr. No.	**System / Description-IBMS**	
A	**Intelligent Fire detection System**	
1	Analogue Addressable Fire detection Panel	Tyco (Simplex), Honeywell (Notifier), Siemens (Desigo), Schneider
2	Analogue Addressable Thermal /smoke Detector	Tyco (Simplex), Honeywell (Notifier), Siemens (Fire Finder Series), Schneider
3	Analogue Addressable Manual Call Point	Tyco (Simplex), Honeywell (Notifier),Siemens (Fire Finder Series), Schneider
4	Analogue Addressable Abort cum Gas Release Station	Tyco (Simplex), Honeywell (Notifier), Siemens (Fire Finder Series), Schneider
5	Analogue Addressable Control / Relay / Isolator Modules	Tyco (Simplex), Honeywell (Notifier), Siemens (Fire Finder Series), Schneider
6	Building Management Interface	Tyco (Simplex), Honeywell (Notifier),Siemens (Desigo), Schneider
7	Fire Extingusher's	Cease Fire / Minimax
8	Aspiration Smoke Detection System	Xtralis, ICAN, Tyco,Siemens
9	Response Indicators	Daksh, Polixel, Agni
10	Gas Release Modules	Tyco (Simplex), Honeywell (Notifier), Siemens (Fire Finder Series), Ravel.
11	Fire Detection Cables	Polycab, Excel, LAPP kabel
B	**IP CCTV Surveillance System**	
1	IP Dome Cameras with Varifocal lense	BOSCH, Honeywell, ,Samsung
2	IP BOX Camera	BOSCH, Honeywell, Samsung

3	IP PTZ Camera	BOSCH, Honeywell, Samsung
4	Video Management, Recording Software	Pelco, BOSCH, Axis, Indigo Vision, Polixel, Milestone,
5	32" Monitors	Samsung, LG, Sony
6	Network Switch	Comnet, RuggedCom, Moxa,Bosch,Hikvision
7	CAT 6 Cable	AMP, Molex, ,Schneider,Finolex, Legrand , D-Link
8	OFC Cables	Finolex, Sterlite, HFCL
9	Power Cables	Polycab, Excel, LAPP kabel
10	MS Conduit	BEC, AKG, Dimond
11	PVC Conduits	BEC, AKG, Precision
12	Storage Device	DELL, HP, IBM
13	Servers / Workstation	DELL, HP, IBM
14	NVR System	Honeywell, Samsung, Johnson(Tyco),Pelco,Bosch
C	**Access Control System**	
1	Intelligent Access Controller	Siemens, Honeywell, Daccess,Smart-I
2	Time and Access Management Software	Nexwatch, Software House, Siemens, Honeywell, Daccess
3	Biometric Readers	Nexwatch, HID, DDS, Siemens, Honeywell, Daccess
4	Cards	Siemens, Honeywell, Daccess
5	Proximity Readers	Nexwatch, DDS, HID, Siemens, Honeywell, Daccess
6	Electromagnetic Locks	Dafikas,BELL, Trimec, Insyn
7	Network Switch	Comnet, RuggedCom, Moxa
8	Emergency Glass Break Station	KAC
9	CAT 6 Cable	AMP, Molex, Schneider
10	OFC Cables	Finolex, Sterlite, HFCL
11	Servers / Workstation	DELL, HP, IBM
12	Racks (42 U IT and BMS)	President, APC, Valrack, Vertiv(Emerson),Rittal,WQ

D	**UL Listed Novec 1230 Clean Agent Fire Suppression System**	
1	UL Listed & PESO Approved Seamless Cylinders	Ansul, UTC, Siemens, Tyco,Criptzo
2	Novec 1230	Ansul, UTC, Siemens, Tyco
3	Nozzles	Ansul, UTC, Siemens
4	Electronic/ Pneumatic Acutators	Ansul, UTC, Siemens
5	Discharge Valves	Ansul, UTC, Siemens
6	M.S Seamless Pipes	Jindal, Tata
7	Discharge Hose	Ansul, UTC, Siemens
8	Manifold Check Valve	Ansul, UTC, Siemens
9	Warning Sign Boards	Ansul, UTC, Siemens
10	Manual Abort & Release Station.	Daksh, Agni
E	**Building Management System**	
1	Main Control System/DDC Controllers	Azbil (Yamatake), ALC, Sauter, Honeywell, Schneider, Siemens, Athenta , Neutron
2	Temperature, Air humidity Sensors (Duct, Room)	Azbil (Yamatake), ALC, Sauter
3	Building Management Software	Honeywell, Siemens, Schneider ,Athenta , Neutron ,JCI
4	Differential pressure switch Air flow / Water Flow switch/water Level switch	Azbil (Yamatake), ALC, Sauter, Honeywell
5	Water Flow meter	Invensys/Kele/ Honeywell/ Sontay/Forbes Marshal
6	Water Pressure Transmetter/ Level Transmitter	Invensys/Kele/ Honeywell/ Sontay/Forbes/Marshal
7	Motorized Butterfly valves/ actuators	Rapid Cool/Audco/ Johnson/Siemens/Belimo

8	Current/Voltage/Power Factor/FrequencyKWH Transducers with digital display/Electronic Meter	Situ Electro Instuments Pvt.Ltd./ Secure metres Ltd./ Enercon/L&T
9	Printer	HP/Epson
10	Switching Relays	PLA/OMRON
11	Flame proof level switch	Veksler/Minilec
12	Electromagnetic Lock	Trimec/Dafickas
13	Current Relays	Sitn/Minilec/Sentry
14	Electric Actuators for 2-way ON/OFF valves	Danfoss/ Emtrack/ Johnson/ Honeywell/ Siemens/ Trane/ Cyclon Controls.
15	Transducer	GFR-Germany, SETO
16	CAT 6 Cable	AMP, Molex,Schneider
17	OFC Cables	Finolex, Sterlite, HFCL
18	Servers / Workstation	DELL, HP, IBM
F	**Water Leak Detection System**	
1	Sensing Cables	Tracetek, Liebert, Sontay
2	WLDS Controller	Tracetek, Liebert, Sontay
3	Jumper Cables	Tracetek, Liebert, Sontay
G	**Rodent System**	-
1	Controller	MASER (Torrant Range), C Systems, Verma Craft
2	Sattelites	MASER (Torrant Range), C Systems, Verma Craft
3	GUI Software	MASER (Torrant Range), C Systems, Verma Craft
	Mechanical Components	
1	**High Side Equipment**	
1.1	Adiabatic Dry Cooler	Thermax| Paharpur | Gem| Baltimore
1.2	Variable Speed Pumping system with Pump sets	ITT - Bell & Gossett |Grundfos | Armstrong

2	**Air Handling Units**	
2.1	PAC	Schneider | Blue Box| Emerson | Rittal| Climaventa / Rittal
2.2	CPAHU	Emerson | Schneider|BlueBox |Rittal| Climaventa / Rittal
2.3	Fan section-Blower	Kruger| Flaktwood |Nutech|TCF Nadi|
2.4	Variable frequency drives	Vacon |Danfoss |ABB/Eaton
2.5	Pan type Humidifier	Emerald| Rapid cool |KEPL
2.6	VAV Boxes	Caryaire-Titus| Trane| Johnson Control | Belimo
3	**Centrifugal Blower**	Kruger | Greenheck | Systemair | Flaktwoods |Comefri (Italy) | TCF-Nadi |
4	Smoke Exhaust (Fire Rated Axial and centrifugal fans)	Green Heck (Germany)| Woods | Witt & Sohn| Kruger |France-Air (France)|Howden |
5	Air Washers	Roots Air Systems| Ambassador|Humidin
6	Fan Coil Units	Sinko |Media|Carrier| Zeco | Caryaire| Voltas
7	Inline Fan(Circular/Rectangular)	Kruger)| Systemair |Nutech
8	**Electrical Equipment's**	
8.1	FRLS PVC insulated stranded copper conductor wires	Finolex|Lapp Kabel|Skyline|L&T|National |Echo | Havells|
8.2	Terminal blocks & cage clamps	Elmexx|Phoenix|Wago
9	**Star Delta starter**	L&T|ABB|Siemens| Schneider/Eaton
9.1	Soft starters/VFD Drives	ABB|Schneider|L&T/Siemens/Eaton
9.2	Single phase preventor	L&T|Minilec|Syntron |Beluk
9.3	Control/Potential Transformer	Gillbert & Maxwell|Precise|AE
9.4	Electric Motors	Siemens|Crompton| ABB |Bharat Bijlee|Alstom

10	**Ducting & Grilles**	
10.1	Factory fabricated Ducts	Technofabriduct|Alpha Duct|Rolastar
10.2	Grilles/Diffusers/Louvres	Dynacraft|Ravistar|Caryaire|Air Product|Cosmos
10.3	Motorized Fire Damper/Fire Damper	Caryaire|Betec CAD |TROX |Ravistar
10.4	Dampers	Caryaire|Betec CAD |Ravi Star | Dynacraft| Air Product|Cosmos
10.5	G.I. Sheets	Jindal/Nippon/TATA Steel
10.6	Self-adhesive gaskets	Prima Seal /Air Flow
10.7	Stick Pins	Prima Seal/Air flow
11	**Pipes**	
11.1	G.I.	Jindal (Hissar)|TATA|GST
11.2	M.S. upto 300 mm	Jindal (Hissar)| TATA|GST
11.3	M.S. Above 300 mm	Maharashtra Seamless| TATA|GST
12	**Valves**	
12.1	Butterfly Valves	Audco|Advance |C&R|Oventrop|TA Hydronics|Flowcon
12.1	Valve	Audco|Advance |Leader
12.2	Non Return Valve	Audco|Advance|C&R|Cim
12.3	Balancing Valves	Advance|Oventrop|Flowcon|T&A Hydronics|Honeywell|Danfoss
12.4	Ball ,Gate,Globe Valve	Audco | Emerald | Oventrop | Rapidcool |Cim|Zoloto
12.5	Ball Valves with Y Strainer	Rapidcool |Cim|Zoloto
13	**Accessories**	
13.1	Pressure Gauges	H.Guru|Fiebig|WAREE
13.2	Thermometers	Emerald| Fiebig|WAREE
13.3	Flow Switch	Anergy|Honeywell|Siemens|Johnson|Schneider
13.4	Motorized butterfly valve	Siemens|Danfoss|Schneider |Advance|Audco

13.5	Dash Fastners	Hilti|Fischer
13.6	Vibration Isolators (Bellow Type)	Resistoflex |Cori| Easyflex
13.7	Spring Mounts	Emerald| Resistoflex
13.8	Rubber Groumat/ Clamps/ Hangers	Emerald/ Resistoflex/ Kanwal
14	**Air Filters**	
14.1	Filters	Airtech|Purolator|Puromatic|Thermodyne |Spectrum|Dynafilters
15	**Insulation**	
15.1	Glass Wool	Owens Corning |U.P. Twiga|Kimmco
15.2	Mineral Wool	Lloyd Insulation
15.3	Closed Cell Elastomeric Insulation	Armaflex|Aeroflex|Vidoflex|Kflex
15.4	Aluminium Tape	Johnson|Birla 3M
15.5	Aluminium Sheets	TATA|Nippon|Hindalco|Indalco
15.6	Dynamic Balancing Valve	TA Hydronics | Danfoss |Oventrop| Flowcon

Annexure E

Performance Bank Guarantee format

To,

IIT HYDERABAD

BANK GUARANTEE NO:

DATE:

Dear Sir(S)

This has reference to the Purchase Order No. _____ Dated _____ been placed by IIT HYDERABAD on M/s_____ (Name & Address of vendor) for supply, installation, commissioning warranty of _____ (description of items) at Host Institution site.

The conditions of this order provide that the vendor shall,

1. Arrange to deliver the items listed in the said order to the consignee, as per details given in said order, and
2. Arrange to install and commission the items listed in said order at client's site, to the entire satisfaction of IIT HYDERABAD and
3. Arrange for the comprehensive warranty service support towards the items specified in purchase order.

M/s (Name of Vendor) has accepted the said purchase order with the terms and conditions stipulated therein and have agreed to issue the performance bank guarantee on their part, towards promises and assurance of their contractual obligations vide the Supply Order No. _____ M/s. _____ (name of vendor) holds an account with us and has approached us and at their request and in consideration of the promises, we hereby furnish such guarantees as mentioned hereinafter.

IIT HYDERABAD shall be at liberty without reference to the Bank and without affecting the full liability of the Bank hereunder to take any other undertaking of security in respect of the suppliers obligations and / or liabilities under or in connection with the said contract or to vary the terms vis-a – vis the supplier or the said contract or to grant time and or indulgence to the supplier or to reduce or to increase or otherwise vary the prices or the total contract value or to forebear from enforcement of all or any of the obligations of the supplier under the said contract and/or the remedies of IIT HYDERABAD under any security (ies) now, or hereafter held by IIT HYDERABAD and no such dealing(s) with the supplier or

release or forbearance whatsoever shall have the effect of releasing the bank from its full liability of IIT HYDERABAD here under or of prejudicing right of IIT HYDERABAD against the bank.

This undertaking guarantee shall be a continuing undertaking guarantee and shall remain valid and irrevocable for all claims of IIT HYDERABAD and liabilities of the supplier arising up to and until _____ (date)

This undertaking guarantee shall be in addition to any other undertaking or guarantee or security whatsoever the that _____may now or at any time have in relation to its claims or the supplier's obligations/liabilities under and / or in connection with the said contract and IIT HYDERABAD shall have the full authority to take recourse to or enforce this undertaking guarantee in preference to the other undertaking or security (ies) at its sole discretion and no failure on the part of IIT HYDERABAD in enforcing or requiring enforcement of any other undertaking or security shall have the effect of releasing the bank from its full liability hereunder.

We _____ (Name of Bank) hereby agree and irrevocably undertake and promise that if in your (IIT Hyderabad) opinion any default is made by M/s _____ (Name of Vendor) in performing any of the terms and /or conditions of the agreement or if in your opinion they commit any breach of the contract or there is any demand by you against M/s _____ (Name of Vendor), then on notice to us by you, we shall on demand and without demur and without reference to M/s _____ (Name of Vendor), pay you, in any manner in which you may direct, the amount of Rs. _____/- (Rupees _____ Only) or such portion thereof as may be demanded by you not exceeding the said sum and as you may from time to time require. Our liability to pay is not dependent or conditional on your proceeding against M/s _____ (Name of Vendor) and we shall be liable & obligated to pay the aforesaid amount as and when demanded by you merely on an intimation being given by you and even before any legal proceedings, if any, are taken against M/s _____ (Name of Vendor)

The Bank hereby waives all rights at any time inconsistent with the terms of this undertaking guarantee and the obligations of the bank in terms hereof shall not be anywise affected or suspended by reason of any dispute or disputes having been raised by the supplier (whether or not pending before any arbitrator, Tribunal or Court) or any denial of liability by the supplier or any order or any order or communication whatsoever by the supplier stopping or preventing or purporting to stop or prevent payment by the Bank to IIT HYDERABAD hereunder.

The amount stated in any notice of demand addressed by IIT Hyd to the Bank as claimed by IIT Hyd from the supplier or as suffered or incurred by IIT Hyd on the account of any losses or damages or costs, charges and/or expenses shall as between the Bank and IIT Hyd be conclusive of the amount so claimed or liable to be paid to IIT Hyd or suffered or incurred by IIT Hyderabad, as the case may be and payable by the Bank to IIT Hyd in terms hereof.

You (IIT Hyderabad) shall full liberty without reference to us and without affecting this guarantee, postpone for any time or from time to time the exercise of any of the powers and rights conferred on you under the contact with the said M/s _____ (Name of Vendor) and to enforce or to forbear

from endorsing any power or rights or by reason of time being given to the said M/s _____ (name of Vendor) which under law relating to the sureties would but for the provisions have the effect of releasing us.

You will have full liberty without reference to us and without affecting this guarantee, postpone for any time or from time to time the exercise of any of the powers and rights conferred on you under the contract with the said M/s _____ (Name of Vendor) and to enforce or to forbear from endorsing any power or rights or by reason of time being given to the said M/s _____ (Name of Vendor) which under law relating to the sureties would but for the provisions have the effect of releasing us.

Your right to recover the said sum of Rs. _____/- (Rupees _____ only) from us in manner aforesaid will not be affected/ or suspended by reason of the fact that any dispute or disputes have been raised the said M/s _____ (Name of Vendor) and/ or that any dispute or disputes are pending before any officer, tribunal or court or Arbitrator.

The guarantee herein contained shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the said M/s _____ (Name of Vendor) but shall in all respects and for all purposes be binding and operative until payment of all dues to IIT HYDERABAD in respect of such liability or liabilities.

Our liability under this guarantee is restricted to Rs._____/- (Rupees _____Only). Our guarantee shall remain in force until unless a suit action to enforce a claim under guarantee is filed against us within one month from the date of expiry of guarantee, all your rights under the said guarantee shall be forfeited and we shall be relieved and discharged from all liabilities there under.

We have power to issue this guarantee in your favour under Memorandum and Articles of Association of our Bank and the undersigned has full power to do under the power of Attorney dated.

Notwithstanding anything contained herein:

A. Our liability under this guarantee shall not exceed Rs_____ (in words)

B. This bank guarantee shall be valid up to (38 months from date of installation) & unless a suit for action to enforce a claim under guarantee is filed against us within one month from the date of expiry of guarantee, all your rights under the said guarantee shall be forfeited and we shall be relieved and discharged from all liabilities there after i.e. after one month from the date of expiry of this Bank guarantee

C. We are liable to pay the guaranteed amount or any parts thereof under this bank guarantee only and only if you serve upon us a written claim or demand or before _____

D. The Bank guarantee will expire on _____

Granted by the Bank

Yours faithfully,

For (Name of Bank)

SEAL OF THE BANK
Authorised Signatory

SEAL OF THE BANK
Authorised Signatory

Annexure – F

Tender Acceptance Letter

(To be submitted on Company Letter Head).

Date:

To:

IIT HYDERABAD

Subject: Tender Acceptance Letter

Reference: RFP document no. _____

Dear Sir,

1. I / We have downloaded / obtained the tender document(s) for the above mentioned `Tender/Work' from the web site(s) namely: _____; as per your NIT / advertisement, given in the above-mentioned website(s).
2. I / We hereby certify that I / We have read the entire terms and conditions of the tender documents from Page No_____ to _____ (including all documents like annexure(s), schedules(s), etc.), which form part of the contract agreement and I / We shall abide hereby by the terms / conditions/ clauses contained therein.
3. The corrigendum(s) issued from time to time by your department / organization too has also been taken into consideration, while submitting this acceptance letter.
4. I / We hereby unconditionally accept the tender conditions of above mentioned tender document(S) / corrigendum(s) in its totality / entirety.
5. I / We do hereby declare that our Firm has not been blacklisted / debarred by any Govt. Department/Public sector undertaking.
6. I / We certify that all information furnished by the our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/ organization shall without giving any notice or reason therefore or summarily reject the bid or terminate the contract, without prejudice to any other rights or remedy including the forfeiture of the fully said earnest money deposit absolutely.

Yours Faithfully,

Authorized Signatory.

(Signature of the Bidder, with Official Seal)

Email id for correspondence.

Annexure – G

Bid Security Form

Whereas …… …… . . . (Hereinafter called "the tenderer") has submitted their offer dated …….. .for the supply of …… (Hereinafter called "the tender") against the purchaser's tender enquiry No. _____

KNOW ALL MEN by these presents that WE …… . . .. (Name of bank) of …… …… (Name of country), having our registered office at …… . . . . . (Address of bank) (Hereinafter called the "Bank"), are bound unto … …… …… … (Name of purchaser) (Hereinafter called "the purchaser") in the sum of …….. …….. .. for which payment will and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this ……. day of…….. 20…….

THE CONDITIONS of THESE OBLIGATIONS are:

If the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.

1. If the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.
2. If the tenderer having been notified of the acceptance of his tender by the Purchaser during the period of its validity.
3. If the tenderer fails to furnish the Performance Security for the due Performance of the contract.
4. Fails or refuses to accept/execute the contract..

WE undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchase will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

The guarantee shall remain in force up to and including forty five (45) days after the period of the bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

Signature of the authorized officer of the Bank)

Name and Designation of the Officer

Seal, Name & Address of the Bank and address of the branch

Annexure –H:

Documents Check –List

Sr. No.	Documents to be Submitted	Submitted (Yes / No)
	Technical Bid Envelope No. – 1.1	
1	Covering Letter as per Annexure - A.	
2	Authority Letter as per Annexure – B	
3	Bank Guarantee towards EMD as per Annexure G	
4	Undertaking to the effect that a Security Deposit of 10% of the order value will be submitted	
5	Undertaking to the effect that the bidder is not black-listed or barred from participation in bidding process	
6	Tender Acceptance Letter as per Annexure – F.	
7	Document Check List as per Annexure –H.	
	Technical Bid Envelope No. – 1.2	
8	Certificate of Incorporation, Partnership Deed / Memorandum and Articles of Association / any other equivalent document showing date and place of incorporation.	
9	GST registration certificate.	
10	Three purchase orders or contracts and successful installation and completion reports.	
11	One purchase order for data center facility management / O & M activities completed / ongoing.	
12	The self-certified copies of audited balance sheets or the certificate/s from a Chartered Accountant.	
13	A copy of the commercial bid without prices and copy of commercial terms and conditions (in detail) as included in the commercial bid.	
14	Manufacturer authorization certificate as per Annexure-C.	

15	All the necessary documents in support of eligibility criteria stipulated in Section–II, Para-3.	
	Technical Bid Envelope No. – 1.3	
16	The executive summary of the bid submitted.	
17	Duly filled Technical Bid.	
18	The details of electrical power consumption, foot-print, ambient temp, temperature range targeted, discrimination curves, short circuit calculations, cable schedule along with voltage drop calculations, battery sizing and back up calculations etc.	
19	Details of diesel consumption & water consumption on various loading conditions.	
20	Design Basic Report along with annual average Power Usage Effectiveness (PUE) calculations for 25%, 50%, 75% and 100 % of IT load.	
21	Design basis and analysis of cooling solution at full and partial load conditions including complete details, assumptions made and the specific references/standards used for the same. Applicable derations while selecting the chiller and bidder to submit software selection of the product considering site ambient conditions.	
22	Technical Compliance matrix against all details as per Para. 9 of Section IV.	
23	The printed catalogue / leaflet/brochures published by the principal manufacturer of the items quoted to be submitted along with the Technical Bid.	
24	Legal / statutory permissions required, if any.	
	Commercial Bid Envelope No. –2	
25	Price Bid as per format given in Section – V	

Annexure I

Service Level Agreement (SLA)

The successful bidder will be required to sign a SLA, at the time of issuing the works order for supply, installation and commissioning of Data Centres. The basic service requirements /conditions that would be covered in the SLA are as given below.

1. Scope of Work for Operation and Maintenance

Scope of this SLA covers the satisfactory Operations of DC, Maintenance, warranty and support, as stipulated in the Tender, Works Order, for a period of three years from the date of successful installation and commissioning of the Data Centre.

2. Definitions

"**Uptime**" shall mean the time period for which the specified services / components with specified technical and service standards are available to the state and user departments. Uptime, in percentage, of any component (Non-IT) can be calculated as:

Uptime = {1- [(Downtime) / (Total Time – Scheduled Maintenance Time)]} * 100

"**Downtime**" shall mean the time period for which the specified services / components with specified technical and service standards are not available to the state and user departments and excludes the scheduled outages planned in advance, the link failures and reasons beyond Vendor Control.

"**Incident**" refers to any event / abnormalities in the functioning of the Data Centre Equipment / specified services that may lead to disruption in normal operations of the Data Centre services.

"**Resolution Time**" shall mean the time taken (after the incident has been reported at the helpdesk), in resolving (diagnosing, troubleshooting and fixing)

The following shall be the responsibilities of the successful bidder.

3. Uptime Requirements:

The bidder shall ensure the uptime requirements for various systems, equipments, components as per details given in the following Table.

Sr No	List of Utilities	Criticality	Redundancy	Uptime	Resolution time
1	HVAC and Cooling (Including PAC/PAHU, Chillers, Chiller Pumps,	High	N+1	98.5%	6-8 hours for minor complaints and 24-48 hours for major complaints.

	Primary/secondary Pumping etc.)				
2	UPS	High	N+1	98.5%	6-8 hours for minor complaints and 24-48 hours for major complaints.
3	Electrical Infrastructure	High	N+1	98.5%	6-8 hours for minor complaints and 24-48 hours for major complaints.
4	DG Sets	High		98.5%	6-8 hours for minor complaints and 24-48 hours for major complaints.
5	Fire detection and alarm systems, VESDA system, Fire suppression system,	High			Within 24 Hours
6	BMS and real-time measurements, CCTV system, Rodent control, Water leak detection system, Access control system	Medium			Within 48 Hours

4. Reporting Methodology

Understand & analyzing the products covered in the Supply, installation and commissioning scope and performance on periodic basis.

Submission of daily, weekly and monthly service performance reports in the agreed format specified as per the requirement of the infrastructure facilities.

Measurement and Monitoring with recording of readings and checking parameters of different facility equipment's.

Analyzing the readings and escalating suitably for abnormalities observed, if any. Supervise installation and maintenance work, whenever new equipment or systems are to be / being installed.

Adequate stock of onsite and offsite spare parts and spare component must be maintained by the successful bidder.

Successful bidder to ensure the commitment towards uptime requirement of the DC.

To provide this service it is important for the M/S …… selected bidder to have back to back arrangement with the OEMs. The selected bidder would be required to provide a copy of the service level agreement signed with the respective OEMs.

Component that is reported to be down on a given date should be either fully repaired within the stipulated time frame. If breakdown is major, bidder to arrange for standby component/equipment on temporary basis (of equivalent configuration) within the time frame. In case the selected bidder fails to meet the above standards of maintenance, there will be a penalty as per clause 9 of section III.

5. DAILY CHECKS:

Access Control System:

- 24x 7 checking of Access System for alert and alarms.
- Monitoring of Status.
- Abnormality of System / errors
- Access Card Activity
- Report of Access to Data Center
- Report of Forceful Access (Invalid Access)
- Generation of Logs / reports and submission to Host Institute for review and necessary action.
- Testing & checking of all Doors, Magnetic locks and Sensors.

CCTV:

- Daily Checking of DVR System & Cameras
- Suspicious Action Report
- Abnormality of System
- Generation of Logs / reports and submission to Host Institute for review and necessary action/s Maintenance of reports

Fire Alarm System, Novec 1230 Gas, VESDA, Water Leak Detection (WLD), Rodent Repelled:

- Daily Checking of FAS Panel
- Immediate Action to Alarm Generated
- Monitoring of MCP

- Generation of Logs / reports and submission to Client for review and necessary action/s Maintenance of reports, Report Generation through IBMS.

Precision AC, Chiller, PAHU and Comfort AC:

- Monitoring of PAC's Temperature and Humidity every half an hour physically.
- Monitoring of Alarms & Immediate Action to it Comparison of Software readings with Actual Reading.

6. Fire Drill Test

Maintenance Activities will be carried for the System/Devices in Coordination with Host Institute Engineer & Technician

7. Daily Reports

1. Hourly basis monitoring of UPS & PAC & concern System
2. Reports of Energy meter reading of all meters.
3. Readings of main LT panel.
4. Fuel in DG fuel tank.
5. Immediate response to electrical complaints by any Working staff.
6. Following of effective power consumption chart provided by Customer.
7. Maintaining Critical Electrical parts.
8. Generation of Logs / reports and submission to Host Institute for review and necessary action's Maintenance of reports

8. Weekly Reports

1. All Electrical Systems Health Check Report
2. Vendor call tracking until closure
3. UPS & DG: On load Report.
4. Fire Alarm System: Reports of False Alarm.
5. Access System: Data Backup.
6. CCTV: Backup of DVR Status.
7. WLD: Test of Water Leak Detection Sensor Cable.

8. All System Health Report.
9. PAC, Chiller and comfort AC

9. Monthly Reports

1. Follow up of schedule regarding preventive maintenance.
2. Presentation of consumption of meter units by Pie diagram.
3. Vendor Performance Reports.
4. Report of pending calls/problems.
5. MIS Report Presentation for Each Month

10. Call Logging Process with OEM/Vendors

The onsite team will get alerts on any issue in the data center. The onsite team will identify the area of problem and define problem severity into minor or major call. Call severity will be decided on basis of unit under suspect and impact on functions inside data center like - electrical power in DB, racks, cooling efficiency. Based upon this on site team will either manage to close the problem in case of minor alerts/alarms or In case of major alarms the team will raise an alarm over phone and email to OEM/Vendor with information to C-DAC /Host Institute designated team and O&M in-charge. O&M team will follow the Escalation matrix. The site team / OEM will identify problem area and will work towards resolution of problem.

11. Scheduled Maintenance

Bidder to submit the scheduled maintenance time along with frequency for the components.

12. Bidder has to submit and present the detailed plan of execution for Operation and maintenance activities including manpower deployment along with qualification details of manpower deployed at site.

(END OF DOCUMENT)