

Name of work: Providing EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)



BHARAT SANCHAR NIGAM LIMITED

(A Govt of India Enterprise)
(Electrical Wing)

O/o The Executive Engineer (E)

BSNL Electrical Division-III

No.22, Kellys Road,
Chennai - 600010.

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E-TENDER DOCUMENT

NAME OF WORK: Providing EI & Fans, CCTV, Access control system and AFD system for the Enforcement Directorate at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. .(SW:-SITC of AFD,Access Control & CCTV system)(Recall-2)

NIT No: 13/EEE/ED-III/BSNL/CH/2022-23

This tender document contains **52 (Fifty two)** pages only.

For E Tender Helpdesk Pls Contact: [https:// etenders.gov.in](https://etenders.gov.in).

Ph: 0120-4200462/4001002/4001005/6277787

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**INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR E-TENDERING FORMING PART OF NIT
AND TO BE POSTED ON WEBSITE**

The Executive Engineer (E), BSNL Electrical Division III on behalf of the CMD, BSNL invites online Item rate bids from eligible bidders in Single bid system for the following work:

1	Name of work	Providing EI & Fans, CCTV, Access control system and AFD system for the Enforcement Directorate at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD, Access Control & CCTV system) (Recall-2)
2	Estimated cost put to tender	Rs.17,77,259/- (ex. GST)
3	Earnest Money	Rs.35,545/-
4	Period of completion	Two months or 15Days after completion of Civil work whichever is later
5	Tender Fee(Non-refundable)	Rs. 500/- + 18% GST.
6	Last date & time for online submission of tender	Up to 15:00 Hrs. on 19.09.2022
7	Date and time for opening of tender	15:30 Hrs. on 20.09.2022

ELIGIBILITY CRITERIA

BSNL enlisted contractors in the Electrical category of respective class as per their tendering limits.

(OR)

The contractors satisfying the following condition:

The Contractor enlisted in CPWD, MES and Railways in respective class as per their tendering limits.

(AND)

Average annual turnover during the last 3 years, ending 31st March of the previous financial year, should be at least 30% of the estimated cost.

(AND)

Experience of having successfully completed similar works in Central Government / State Government/ Central Govt autonomous body/Central Govt public sector undertaking during last 7 years ending last day of month previous to the one in which applications NIT applications are invited, should be either of the following :

Three similar successfully completed works costing not less than the amount equal to 40% of the estimated cost

(OR)

Two similar successfully completed works costing not less than the amount equal to 60% of the estimated cost

(OR)

One similar successfully completed work costing not less than the amount equal to 80% of the estimated cost

Note: Similar work means having carried out at least one work each of Automatic fire detection system, CCTV, Access control system or a combination of all three services together. Decision of the tender opening authority/committee is final.

IMPORTANT NOTE:

1. The self-attested copies of the following documents shall be scanned and uploaded to the e-tendering website within the period of tender submission. Online bid documents submitted by intending bidders shall be opened only of those bidders, who have scanned and uploaded the following documents (and whose uploaded documents are found to be in order), otherwise the bid will not be opened and shall lead to disqualification.
 - a. Tender Fee in the prescribed format.
 - b. EMD in the prescribed format.
 - c. Certificate of Financial Turnover from Chartered Accountant.
 - d. Documents fulfilling Eligibility criteria (~~Please note that in case the bidder is authorised by the manufacturer, the original authorisation letter is to be scanned and uploaded~~)
 - e. Enlistment certificate issued by BSNL if applicable
 - f. ~~Electrical license issued by TN Govt. if applicable~~
 - g. GST Registration Number details.
 - h. PAN Card.
 - i. EPF and ESI Registration certificate (if applicable)
 - j. Undertaking to abide by EW-6 and EW-8 (Form 'A')
 - k. Undertaking regarding EPF and ESI provisions (Form 'B')
 - l. Certificate of work experience issued by client department (Form 'C') if applicable
 - m. Undertaking regarding No Near relative working certificate (Form 'D')
 - n. List of make offered by the vendor for various items as per proforma in page no.48 to be downloaded, filled up, scanned & uploaded along with bid document. If the make and model offered by the agency in the data sheet does not match the requirement then the agency shall supply one of the makes indicated in the preferred makes list. Model shall be got approved by the Engineer-in-charge.

Not uploading the above documents, (even if the documents are submitted physically) shall lead to disqualification.

2. . The Physical Tender Fee, EMD, ~~the original authorisation letter by the manufacturer~~ (the scanned copies of which are uploaded) shall be deposited in the tender box available in the office of tender opening authority, by the bidder on or before 15.00 hours of the tender opening date, failing which the tender will not be considered for further processing.

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BSNL EW-6

Bharat Sanchar Nigam Limited
Electrical Wing

Electrical Division: ED III, Chennai

Sub Division: ESD II, Chennai

Item rate tenders on single bid system are invited on behalf of CMD, BSNL for the work ***“Providing EI & Fans, CCTV, Access control system and AFD system for the Enforcement Directorate at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD, Access Control & CCTV system)(Recall-2)”*** from the eligible bidders as per NIT notification. The enlistment of the bidders should be valid on the opening date of tender. In case the date of opening of tender is extended, the enlistment of bidder should be valid on the original date of opening of tender.

1. Intending bidder is eligible to submit the bid provided that he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority as per the eligibility conditions mentioned in the NIT notification page.
2. The work is estimated to cost **Rs.17,77,259/- (Excluding GST)**
3. Agreement shall be drawn with the successful bidder on prescribed form as amended up to the date of opening of tender. Bidder shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
4. The time allowed for carrying out the work will be **Two months or 15 Days after completion of Civil work whichever is later**
5. The site for the work is available / or the site for the works shall be made available in parts. The successful bidder shall execute the work in coordination with other agencies working in the campus.
6. The bid documents consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website <https://etenders.gov.in> at free of cost. The BSNL EW-8 document can be seen from the web site www.chennai.bsnl.co.in at free of cost.
7. After submission of the bid, the bidder can re-submit revised bid any number of times but before last time and date of submission of tender as notified. While submitting the revised bid, bidder can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of tender as notified.
8. The Tender Fee **Rs. 500+18%** GST in the form of Demand Draft issued by the Nationalized / Scheduled bank authorized by the Reserve Bank of India, drawn in favour of **BSNL, Chennai Telephones** payable at **Chennai** shall be scanned & uploaded in the e-tendering website within the period of tender submission. The validity of the tender cost in the form of DD shall be **60 days** from the date of opening.
9. The Earnest money deposit (EMD) for **Rs.35,545/-** in the form of Demand Draft / FDR / BG (BG is only for Air Conditioning, Diesel Engine Alternator, Lifts, and Sub Station works wherever the amount of EMD is more than Rs.20,000)/ CDR of a nationalized / scheduled bank authorized by the Reserve Bank of India, drawn in favour of **BSNL, Chennai Telephones** payable at **Chennai** shall be scanned & uploaded in the e-tendering website within the period of tender submission. The validity of the EMD in the form of DD shall be **60 days** from the date of opening. If the EMD is in the form of CDR/FDR/BG, the validity shall be **180 days** from the date of opening. In case of L1 bidder, the validity of CDR/FDR/BG is to be

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extended up to the observation period as that of the Performance guarantee / Security deposit. Exemption from payment of Tender Fee, Earnest Money and Security Deposit by any other unit/ department shall not hold good for BSNL.

10. All the documents as specified in the tender document shall be scanned and uploaded to the e-Tendering website within the period of bid submission.
11. The last date for online submission of bid is **19.09.2022** up to 3:00 PM and the bid submitted shall be opened on **20.09.2022** at 03:30 PM. If a holiday is declared on the tender opening day, the tender will be opened on the next working day.
12. The tender cost is non-refundable
13. **Performance Guarantee:** The bidder is required to furnish Performance guarantee for an amount equal to 3% of the contract value in the form of bank guarantee/CDR/FDR/DD (of a Nationalized/ Scheduled Bank in a standard format) within two weeks from the date of issue of acceptance letter (**APO- Advance purchase order**). This period can be further extended by the Engineer-in-charge up to a maximum period of two weeks on written request of Bidder. The validity period of the performance security in the form of performance bank guarantee shall be: Three Months from the date of actual completion of work, for AMC works; and One year from the date of actual completion of work for all other works. **The award letter (PO) shall be issued only after receipt of the performance guarantee. In case the bidder fails to deposit the said performance guarantee within the stipulated period, including the extended period if any, BSNL will be at liberty to disqualify the bidder from bidding for any contract with BSNL for a period of one year from the date of disqualification as may be notified by BSNL (without Prejudice to BSNL's rights to claim damages or any other legal recourse).**
14. **Security Deposit:** In addition to Performance guarantee stated above, a sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum is deducted with the sum already deposited as earnest money, will amount to security deposit of 5% of the contract value of the work. **The security deposit shall be released after an observation period as follows: Three Months from the date of actual completion of work, for AMC works; and One year from the date of actual completion of work for all other works.**
15. In case any discrepancy is noticed in the documents as uploaded at the time of submission of the bid online, then the bid submitted shall become invalid and the BSNL shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further, the bidder shall not be allowed to participate in the retendering process of the work.
16. Intending bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders, the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidder shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a

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bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the BSNL and local conditions and other factors having a bearing on the execution of the work.

17. The competent authority on behalf of the CMD does not bind himself to accept the lowest or any other tender and reserves to himself the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidder shall be summarily rejected. The competent authority on behalf of CMD reserves to himself the right of accepting the whole or any part of the tender and the bidder shall be bound to perform the same at the rate quoted.
18. Canvassing whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the bidders who resort to canvassing will be liable to rejection.
19. Agreement shall be drawn with the successful bidder on prescribed form. Bidder shall quote his rates as per various terms and conditions of the said form, which will form part of the agreement.
20. The bidder should give a certificate as per the following that none of his/her relative is employed in BSNL units as per **Form 'D'**. In case of proprietorship firm, certificate will be given by the proprietor and for partnership firm certificate will be given by all the Directors of the company.
 - a. Near relatives of all BSNL employees either directly recruited or on deputation are prohibited from participation in tenders and execution of works in the different units of BSNL. The near relatives for this purpose are defined as:
 - i. Members of a Hindu Undivided family.
 - ii. They are husband and wife.
 - iii. The one is related to the other in the manner as father, mother, son(s) & son's wife(daughter-in-law), Daughter(s) & daughter's husband(son-in-law), brother(s) & brother's wife, sister(s) & sister's husband(brother -in-law).
 - b. The company or firm or any other person is not permitted to tender for works in BSNL unit in which his near relative(s) is(are) posted. The unit is defined as SSA/Circle/Chief Engineer/Chief Archt. /Corporate office for non-executive employees and all SSA in a circle including circle office/Chief Eng./Chief Archt./Corporate office for executive employees (including those called as Gazetted officers at present). The bidder should give a certificate that none of his/her such near relative is working in the units as defined above where he is going to apply for tender/work, for proprietorship, partnership firms and limited company certificate shall be given by the authorized signatory of the firm. Any breach of these conditions by the company or firm or any other person, the tender/work will be cancelled and earnest money/performance guarantee will be forfeited at any stage whenever it is so noticed. BSNL will not pay any damages to the company or firm or the concerned person. The company or firm or the person will also be debarred for further participation in the concerned unit.
 - c. No employee in BSNL/ Govt. of India is allowed to work as a contractor for a period of two years of his retirement from service without the prior permission. The contract is liable to be cancelled if either the bidder or any of his employees is found at any time to be such a person who had not obtained the permission as aforesaid before submission of tender and engagement in the bidders service.

21. The tender for the work shall remain open for acceptance for a period of ninety (90) days from the date of opening of tenders. If any bidder withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the BSNL, then the BSNL shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the tenderer shall not be allowed to participate in the retendering process of the work.
22. The agency has to comply with the provisions of EPF and miscellaneous provisions Act-1952 and employees provident fund scheme-1952 as amended up to date in respect of labours/employees engaged by them for this work. Any consequence arising due to non-complying of provisions as specified above shall be the sole responsibility of the firm only. The agency shall give an undertaking to this effect as per **Form 'B'**.
23. **Extension of Validity of tender:** In case, where the letter of award of work cannot be placed within the validity period of the tender, the BSNL can request the bidder to extend the validity of their respective tenders and the Earnest Money deposit by a reasonable period. In such cases, extension of validity of Earnest Money deposit by 30 days beyond the extended validity date of tender should also be asked for. While BSNL can make the request for extension, the tenderer is free to either extend the validity or refuse the request to extend the validity.
24. Rates quoted by the contractor shall be firm and shall be valid for the currency of contract. **No cost escalation** shall be permitted during the currency of contract.
25. This notice inviting tender shall form a part of the contract document. The successful bidder, on acceptance of his tender by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-
 - a. The Notice Inviting Tender, all the documents including additional conditions, specifications and drawings, if any, forming part of the tender as uploaded at the time of invitation of tender, subsequent amendments issued and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
 - b. Standard BSNL EW-8 form

General Instructions to the Bidders

1. The intending bidder must read the terms and conditions of BSNL-EW 6 carefully. He should only submit his bid, if he considers himself eligible and he is in possession of all the documents required.
2. Information and instructions for bidders posted on website shall form part of bid document.
3. Applicants are advised to keep visiting the above mentioned website from time to time (till the deadline for bid submission) for any updates in respect of the tender documents, if any. Failure to do so shall not absolve the applicant of his liabilities to submit the applications complete in all respect including updates thereof, if any. An incomplete application may be liable for rejection.
4. Those bidders not registered on the website mentioned above, are required to get registered themselves beforehand. The intending bidder must have valid class-III digital signature to submit the bid.
5. Tender Bidding Methodology: - "Single bid System".
6. On opening date, the bidder can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
7. Bidder can upload documents in the form of JPG format or / and PDF format.
8. Bidder must ensure to quote rate of each item. The column meant for quoting rate in figures appears in colour. In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as "0". Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as "0" (ZERO)
9. Even though any bidder may satisfy the above requirements, he would be liable to disqualification if he has:
 - a. Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the eligibility criteria document.
 - b. Record of poor performance such as abandoning work, not properly completing the contract, or financial failures / weaknesses etc.
10. If any information furnished by the bidder is found incorrect at a later stage, he shall be liable to be debarred from tendering/taking up of works in BSNL. The BSNL reserves the right to verify the particulars furnished by the applicant independently.
11. GST and any other tax applicable in respect of this contract shall be borne by the bidder himself. The bidder shall quote his rates considering all such taxes. The TDS as per the Govt. regulations will be recovered from the contractor.
12. **Tender Evaluation :**
 - (a) The evaluation and comparison of responsive bids shall be done on the basis of Total cost on the prices offered inclusive of Taxes, packing, forwarding, freight and insurance charges etc.,. The bid with lowest total cost as elaborated above will be the L1 bidder.
 - (b) Vendors should furnish the correct GST Rate in the price schedule. ~~If the Input Tax Credit is found to be not admissible at any stage subsequently owing to wrong furnishing of GST Rate, then the vendors will be liable to refund such non admissible amount, if already~~

~~paid, along with penalty if charged by the concerned authority.~~

13. However, pursuant to the constitution (Forty-sixth amendment) act, 1982, if any further tax or levy is imposed by statute, after the last date of receipt of tenders, and the contractors there upon necessarily and properly pays such taxes/ levies, the contractor shall be reimbursed the amount so paid, provided such payment, if any, is not in the opinion of Superintending engineer (whose decision shall be final and binding) be attributable to delay in execution of work within the control of contractor.
14. The Contractor shall, within a period of 30 days of imposition of any further tax or levy in pursuant to the constitution of (Forty sixth amendment) act 1982 give a written notice thereof to the Engineer-in-charge that the same is given pursuant to this condition, together with all necessary information relating thereto.
15. **Bye laws Indemnity against liabilities:**
 - a. The bidder shall comply with all bylaws and regulations of the local and statutory authorities having jurisdiction over the works and shall be responsible for payment of all fees and other charges and giving and receiving all necessary notices and keep the Engineer –in-charge informed about the notices issued and received.
 - b. The bidder shall indemnify the department against all claims in respect of patent rights design, trademark or name of other protected rights in respect of any plant, machine, work or materials used for or in connection with the works or temporary works and from and against all claims demands, proceedings, costs, charges and expenses whatsoever in respect of or in relation thereto.
 - c. The bidder shall defend all actions arising from such claims and shall himself pay all royalties, License fees, damages, costs and charges of all and every sort that may be legally incurred in respect hereof shall be borne by the bidder.
 - d. All liabilities / penal recoveries on matters arising out of tax /levies such as incorrect deductions, discrepancies in the filing of returns, revised assessments by the concerned authorities etc., shall be borne by the bidder.
16. **Termination of contract on death of contractor :**

Without prejudice of any of the rights or remedies under this contract, if the contractor dies, the Engineer in charge on behalf of the BSNL shall have the option of terminating the contract without compensation to the contractor.
17. **Indulging of contractor in criminal /antisocial activities and cases under investigation/charge sheeted by CBI or any other government agencies etc. :**

If the CBI/Independent External Monitor (IEM) /Income tax/ Sales Tax /GST/ Central Excise/Custom Departments recommend such a course - Action will be taken as per the directions of CBI or concerned department.
18. As a general notion, the terms and conditions/instructions contained in various pages of this document are addressed assuming the bidder as 'Male'.However, the same shall remain and assumed to be addressed in case of 'Female' bidder also, except for the gender centric words, which shall be 'female' centric at appropriate places.

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FORM 'A'

Undertaking to abide by EW 6 & EW 8

"I..... Son/Daughter of
.....Resident of hereby
give an undertaking that I have read the complete bid document and I am aware of all the
clauses and sub clauses of BSNL EW 6 & 8 forms and I confirm that I will abide by all the terms
and conditions available in BSNL EW 6 & 8 forms.

(Seal of the firm)

(Signature of Bidder)

FORM 'B'

Undertaking regarding EPF provisions

"I..... Son/daughter of
.....Resident of hereby give an undertaking that

* I/We have employed only ----- persons in our establishment and hence the EPF and Miscellaneous provisions Act, 1952 is not applicable to my / our establishment.

* I/ We have registered as per the EPF and Miscellaneous provisions Act, 1952 and our registration no.** is ----- . We undertake to keep it valid during the currency of contract.

In case at any stage, it is found that the information given by me is false / incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me".

* strike out whichever is not applicable

**Attach a self-attested photo copy of the above said EPF registration certificate.

(Seal of the firm)

(Signature of Bidder)

Undertaking regarding ESI provisions

"I..... Son of
.....Resident of hereby give an undertaking that

* I/We have employed only ----- persons in our establishment and hence the ESI and Miscellaneous provisions Act,1948 is not applicable to my / our establishment.

* I/ We have registered as per the ESI and Miscellaneous provisions Act, 1948 and our registration no. ** is ----- . We undertake to keep it valid during the currency of contract.

In case at any stage, it is found that the information given by me is false / incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me".

* strike out whichever is not applicable

**Attach a self-attested photo copy of the above said ESI registration certificate.

(Seal of the firm)

(Signature of Bidder)

FORM 'C'

Performance report of works

1. Name of Agency
2. Name of work
3. Agreement no.
4. Final Value of Work Done
5. Date of start of work
6. Actual date of completion
7. Performance: Satisfactory / Not Satisfactory

Dated:

Executive Engineer or Equivalent

FORM 'D'

No Near relative working certificate

I..... Son /daughter of Shri/ Smt.....Resident of..... hereby certify that none of my relative(s) as defined in the tender document is/are employed in BSNL unit as per details given in tender document. In case at any stage, it is found that the information given by me is false/incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me.

(Seal of the firm)

(Signature of Bidder)

Annexure I

MODEL FORM OF BANK GUARANTEE FOR EMD

(For submitting EMD for Air Conditioning, Diesel Engine Alternator, Lifts, and Sub Station Works wherever the amount of EMD is more than Rs.20,000/-)

Whereas _____ (hereinafter called "the bidder(s)") has submitted its Tender dated _____ for the work _____

_____ KNOW ALL
MEN by these presents that WE _____ OF
_____ having our registered office at _____
(hereinafter called "the Bank") are bound unto _____ (hereinafter called "the BSNL") in the sum of _____ for which payment will and truly to be made of the said BSNL, the Bank binds itself, its successors and assigns by these presents.

THE CONDITIONS of the obligation are:

1. If the Bidder(s) withdraws its Tender during the period of Tender validity specified on the Tender Form: or
2. If the Bidder(s) having been notified of the acceptance of its Tender by the BSNL during the period of Tender validity.
 - (a) Fails or refuses to execute the Contract.
 - (b) Fails or refuses to furnish security Deposit in accordance with the conditions of Tender document.

We undertake to pay to the BSNL up to the above amount upon receipt of its first written demand, without the BSNL having to substantiate its demand, provided that in its demand, the BSNL 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.

This guarantee will remain in force as specified in the Tender Document up to and including Thirty (30) days after the period of the Tender validity and any demand in respect thereof should reach the Bank not later than the specified date/dates.

Signature of the Bank

Signature of the Witness

Name of Witness

Address of Witness:

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ANNEXURE II
PERFORMANCE SECURITY GUARANTEE BOND

In consideration of the CMD, BSNL (hereinafter called 'BSNL') having agreed to exempt _____ (hereinafter called 'the said bidder(s)') from the demand under the terms and conditions of an agreement/Advance Purchase Order No _____ dated _____ made between _____ and _____ for the supply of _____ (hereinafter called "the said agreement "), of security deposit for the due fulfilment by the said bidder (s) of the terms and conditions contained in the said Agreement, on production of the bank guarantee for _____ we, (name of the bank) _____ (hereinafter refer to as "the bank") at the request of _____ (bidder(s)) do hereby undertake to pay to the BSNL an amount not exceeding _____ against any loss or damage caused to or suffered or would be caused to or suffered by BSNL by reason of any breach by the said Bidder(s) of any of the terms or conditions contained in the said Agreement.

2. We (name of the bank) _____ do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the BSNL by reason of breach by the said bidder(s)' of any of the terms or conditions contained in the said Agreement or by reason of the bidders(s)' failure to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee where the decision of BSNL in these counts shall be final and binding on the bank. However, our liability under this guarantee shall be restricted to an amount not exceeding _____.

3. We undertake to pay to the BSNL any money so demanded notwithstanding any dispute or disputes raised by the bidder(s)/supplier(s) in any suit or proceeding pending before any court or tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the bidder(s)/supplier(s) shall have no claim against us for making such payment.

4. We(name of the bank)_____ further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the BSNL under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till _____ (office/BSNL) BSNL certifies that the terms and conditions of the said Agreement have been fully or properly carried out by the said bidder(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the expiry of TWO/TWO AND HALF/THREE YEARS (as specified in P.O) from the date hereof, we shall be discharged from all liabilities under this guarantee thereafter.

5. We (name of the bank)_____ further agree with the BSNL that the BSNL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said bidder(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the BSNL against the said Bidder(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Bidder(s) or for any forbearance, act or omission on the part of the BSNL or any indulgence by the BSNL to the said Bidder(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Bidder(s)/supplier(s).

7. We (name of the bank) _____ lastly undertake not to revoke this guarantee during its currency except with the previous consent of the BSNL in writing.

Dated the _____ day of _____

for _____ (indicate the name of bank)

Name of work: Providing EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)

NAME OF WORK: Providing EI & Fans, CCTV, Access control system and AFD system for the Enforcement Directorate at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)											
Sl. No.	Item Description	Qty	Units	BASIC RATE Rs. P	CGST Rs. P	SGST Rs. P	IGST Rs. P	Rate per unit i/c GST	TOTAL AMOUNT Without Taxes	TOTAL AMOUNT With Taxes	HSN / SAC code
1	2	3	4	5	6	7	8	9 (5+6+7+8)	10 (3x5)	11 (3x9)	12
	SH-I ADDRESSABLE FIRE ALARM SYSTEM										
1	SITC of Analogue Addressable Intelligent 1 loop Fire alarm control panel including loop card, provision to make with a minimum capacity of 125 devices + 125 modules per loop, with battery backup for 48 Hrs during normal operation and 15 minutes alarm operation, with minimum 160 Character LCD display, necessary interface card to connect a repeater panel, shall have provision for additional loops, each loop shall be 80% loaded and all hardware & software as per specification. The panel shall be UL listed.	1	Nos								
2	SITC of multisensory/multicriteria type photo cum thermal detector with base, powder coated back box and other accessories as required and Detectors shall be UL listed, (ABOVE FALSE CEILING & FALSE FLOOR)	2	Nos								
3	SITC of Analogue Addressable Smoke Detector with programmable for timed automatic sensitivity selection with Standard base, powder coated backbox and other accessories as required and Detectors shall be UL Listed. (TRUE CEILING/ABOVE FALSE CEILING)	54	Nos								

UNPRICED SCHEDULE

Name of work: Providing EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)

4	SITC of Analogue Addressable Smoke Detector with programmable for timed automatic sensitivity selection with Standard base and other accessories as required and Detectors shall be UL Listed. (BELOW FALSE CEILING)	48	Nos								
5	SITC of heat detector with base, Junction box and other accessories etc., complete as required. Detectors shall be UL listed.	2	Nos								
6	SITC of double LED Response indicator complete as required	56	Nos								
7	SITC of Analogue Addressable Fault isolator module capable of monitoring shorted loop circuit and automatically restore communications when shorted conditions are corrected(FIM's are used for every 20 detectors/devices)etc., complete as required	5	Nos								
8	SITC of Analogue Addressable Monitor module with backbox operating at 24V DC, 2A, rated at 230V, provided with DPDT contact etc., complete as required	2	Nos								
9	SITC of Analogue Addressable Control module with back box operating at 24V DC, 2A, rated at 230V, provided with DPDT contact with required fixing accessories etc., complete as required	6	Nos								
10	SITC of Analogue Addressable Control relay module with back box operating at 24V DC, 2A, rated at 230V, provided with DPDT contact with required fixing accessories, AC/AHU TRIPPING etc., complete as required	6	Nos								
11	SITC Addressable Electronic Hooter cum Strobe ceiling mounted. The hooters shall be made of ABS plastic, and have a DB level of 65dbA and a multi tone facility. Addressable Control Module shall be fitted in a junction box etc., complete as required	10	Nos								

UNPRICED SCHEDULE

Name of work: Providing EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)

12	SITC of Addressable Manual call point having an integrally mounted addressable module that monitors and reports contact status. (PULL TYPE) with back box along with required fixing accessories etc., complete as required. The device shall have an LED which shall blink in normal state & get steady on activation to monitor the heath status of the device..	6	Nos								
13	S/L of 2 Core, 1.5 sq. mm, copper conductor, FRLS, armoured cable etc as required. (RED Colour)	1350	Mtr								
14	Supply and laying of 1" - 2 mm thick FRLS - PVC Conduits,JB's on surface of wall/columns/ceiling including associated civil works etc., complete as required	750	Mtr								
15	Supply and laying of MS Powder coated Trunking 300 x 50 mm x 1.6mm with cover & fixing supports etc as required (Cable dressing for Fire & PA panel)	12	Mtr	UNPRICED SCHEDULE							
16	Supply and laying of GI enclosed raceway 300 x 50 mm x 1.6mm with cover & fixing supportsetc as required (Cable dressing inside the shaft)	5	Mtr								
17	SITC of PSU for hooters & AHU tripping (inclusive of Battery ckt& battery) etc., as required	2	Set								
SH-II ACCESS CONTROL SYSTEM											
1	Supply, Installation, Testing and Commissioning of 2 reader IP Based controller, power supply unit, TCP IP connectivity with tamper detection provision as per the detailed specification i/c enclosure and power supply unit with battery backup upto 8 hours for controller/EM locks etc., complete as required. Controller Should Support global Antipass back. The access controller should be a UL listed. The access controller is to be integrated with analogue addressable fire alarm system for operation.	3	Nos								

Name of work: Providing EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)

2	Supply, installation, testing & commissioning of proximity card readers with 2.5mm thick SS front plate as per specification suitable for mounting on metal surface/metal frames or wooden frames wall or as required based on site conditions including all accessories etc., complete as required. The reader log data should be transferred to server on real time basis.	6	Nos								
3	Supply, configuring and testing of Proximity Access Cards with Lanyard to hold the cards as per specification etc., complete as required.	150	Nos								
4	Supply, Installation, Testing and Commissioning of Electromagnetic Lock with required mounting brackets for single door suitable for operating with 12/24V DC power supply i/c providing Green/Red LED indication as per the detailed specification complete as required.	3	Nos								
5	Supply, Installation, Testing and Commissioning of surface / flush mounted (as required at site) Magnetic Contact (Door position sensor) for access controlled doors as per the detailed specification complete as required.	3	Nos	UNPRICED SCHEDULE							
6	Supply, Installation, Testing and Commissioning of Security Management Server software and also provide Integrated Access Management 1 Master Software for Access Control & Time & attendance software with alarm monitoring as per the detailed specifications etc., complete as required	1	Nos								
7	Supply, Installation, Testing and Commissioning of security Management Software PC Server Station with minimum Intel i5 2.6 Ghz processor,8 GB RAM, Graphics card with 1GB,500 GB HDD, 24" Colour flat panel LED Monitor,500TVL, 1080P HD Resolution, 100/1000Mbps network card with original Microsoft Windows 10 Operating System or higher, antivirus software for one year,MS office software. These PC (1#) will be loaded with the above (Item-SH-II-6) Security Management Server software Master Software, Access Control & Alarm	1	Nos								

Name of work: Providing EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)

	Monitoring and CCTV Monitoring										
8	Supply, Installation, Testing and Commissioning of Local scare alarm with required wiring between LCA & door contacts (For fire exit doors) i/c door contacts etc., complete as required.	4	Nos								
9	Supply, Installation, Testing and Commissioning of door base panic bar for fire exit doors (Single leaf) as per Specification etc., complete as required (For fire exit doors, panic BAR shall be RED in colour).	4	Nos								
10	Supply and laying of 4 core 1.0 Sq mm Un Armoured Shielded, Multistranded Copper Conductor, PVC sheathed Cable with accessories for connecting controller to Lock & door position sensors, Buzzer, Pushbutton as per the tender specifications	150	Mtr								
11	Supply and laying of 8 core x 1.0 Sq mm Un Armoured Shielded, Multistranded Copper Conductor, PVC sheathed Cable with accessories for connecting controller to readers etc., complete as required.	100	Mtr	UNPRICED SCHEDULE							
12	Supply, Installation, Testing and Commissioning of Buzzer for access controlled doors etc., complete as required.	3	Nos								
13	Supply installation, testing, commissioning of EDR (EMERGENCY BREAK GLASS) etc., complete as required.	3	Nos								
14	Supply and laying of MS Powder coated Trunking 300 x 50 mm x 2mm with cover & fixing supports etc as required for panel dressing etc., complete as required	10	Mtr								
15	SITC of 8 port 10/100/1000 PoE layer 2 switches with minimum two 1000baseT RJ45 uplink ports and twp 1000 baseT Fiber uplink ports and enclosure/rack for switch with mounting supports and all accessories etc., complete as required	1	Nos								

Name of work: Providing EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)

16	Supply and laying of CAT6 UTP 23AWG solid armoured cable shall inclusive of connectors, patch chord and other accessories complete with crimping etc., complete as required.	30	Mtr								
	SH-III IP CCTV SYSTEM										
1	SITC of indoor IP Dome camera with 1/2.7" 2MP Progressive Scan CMOS, at 1920 x 1080 Resolution, 25 FPS, Triple streaming, min one H.264 stream & one H.264/MPEG 4 stream compression support, 2.8 to 12mm Varifocal lens, Colour image at 0.01 lux, IR up to 30m, Tamper detection with built in True WDR of 120DB, BLC/HLC, True Day & Night with ICR, Auto Gain Control, 3D Noise Reduction, ONVIF profile S & G Support, Inbuilt Alarm mode for Network loss, Motion Detection i/c required wall / ceiling mounting accessories and complete as per detailed specification attached. The camera shall be capable of operating on POE/12VDC/24VAC . The camera shall be certified with CE, FCC, UL and ROHS certifications. Camera shall be supplied along with Suitable adaptor with 3 meter cable and suitable mounting support/back box.	18	Nos	UNPRICED SCHEDULE							

Name of work: Providing EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)

2	Supply , Installation , Testing and commissioning of 32 Channel NVR (Network Video Recorder), Up to 32-ch IP cameras can be connected, Incoming Bandwidth 320 Mbps, , SATA Hard Disks with interfaces, ANR Technology, H.265/H.264/MPEG4 video compression, 3 × USB at least 1 × USB with 3.0, up port H.265, MJPEG,Supports RAID0, RAID1, RAID5, RAID6 and RAID10 ,Supports HDD hot swap, Supports Dual Power-Redundant, Alarm I/O 16/4, RS-485, RS-232, 2 RJ-45 10 /100/1000 Mbps self-adaptive Ethernet interface, Multiple network monitoring: Web viewer, CE, FCC, UL certified, including fixing accessories and cable termination with required connectors/Jack, complete in all respect as per instructions of engineer in-charge i/c suitable capacity HDD Storage for 90 days @ 720P, 15FPS and 70% motion based recording .(HDD Calculations shall be submitted along with tender).	1	Nos								
3	Supply, Installation, Testing & Commissioning of 27U floor mounted Rack with shelves, PDUs, Fan trays, Associated Front Glass or perforated Metal Door with lock & Key, Floor mounted with wheels including accessories etc., complete as required.	1	Nos								
4	SITC of 8 port 10/100/1000 layer 2 , POE switches and with minimum two 1000 baseT RJ45 uplink ports and two 1000 baseTFiber uplink ports, patch cords, patch panel and enclosure/rack for switch with mounting supports and all accessories etc., complete as required	3	Nos								
5	Supply and laying of CAT6 UTP 23AWG solid Unarmoured POE cable including connectors on both ends, patch chord and other accessories complete with crimping etc., complete as required.	700	Mtrs								
Total Amount											

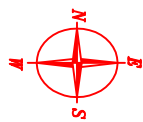
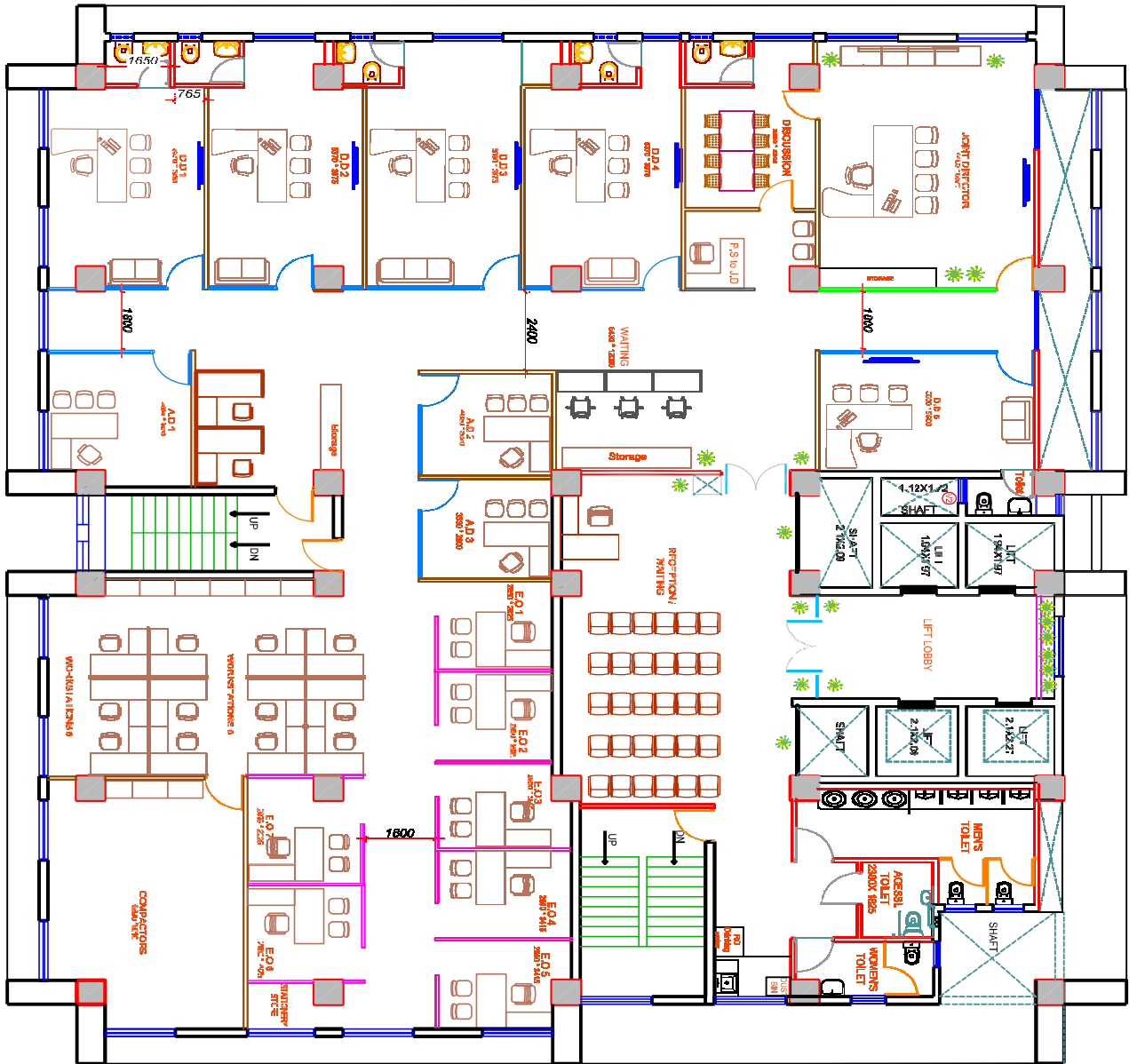
UNPRICED SCHEDULE

Name of work: Providing EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)

IMPORTANT POINTS	
1	The firm shall be responsible to ensure that GST shown in the above columns is correct & Input Tax Credit for the amount shown above is admissible as per GST Act as amended up to date.
2	Tax Invoice /Bill of supply should be pre-printed with all the details as per the requirement under GST Act.
3	The evaluation and comparison of responsive bids shall be done on the basis of Total cost on the prices offered inclusive of Taxes, packing, forwarding, freight and insurance charges etc.
4	The rates for all items of work shall, unless clearly specified otherwise, include cost of all labour, materials and other inputs involved in the execution of the terms as specified in the scope of work.
5	No advance payments can be made. Stipulations like levy of interest if payment is not made in a specified time are also not acceptable and the payment is governed by the normal BSNL practice.
6	Bidders must mandatorily quote for all GST components (CGST, SGST, IGST) as applicable.
7	Bidders must mandatorily mention correct HSN / SAC codes.

UNPRICED SCHEDULE

FIFTH FLOOR LAYOUT
CHENNAI ZONE



Legend	Description
[Red outline]	200 / 118 BRICK WALL
[Orange outline]	WALL TO BE DEMOLISHED
[Green outline]	FULL HT CORRUGATED COP BOARD PARTITION
[Yellow outline]	FULL HT CORRUGATED COP BOARD PARTITION
[Blue outline]	FULL HT CORRUGATED COP BOARD PARTITION ALUMINUM WITH LAMINATE PARTITION
[Purple outline]	FULL HT GLAZED PARTITION
[Pink outline]	GLAZED PARTITION WITH FRAMING AS PER DESIGN

Sl. No.	Material	Quantity	Unit	Remarks
1	1.00	1.00	1.00	1.00
2	2.00	2.00	2.00	2.00
3	3.00	3.00	3.00	3.00
4	4.00	4.00	4.00	4.00
5	5.00	5.00	5.00	5.00
6	6.00	6.00	6.00	6.00
7	7.00	7.00	7.00	7.00
8	8.00	8.00	8.00	8.00
9	9.00	9.00	9.00	9.00
10	10.00	10.00	10.00	10.00
11	11.00	11.00	11.00	11.00
12	12.00	12.00	12.00	12.00
13	13.00	13.00	13.00	13.00
14	14.00	14.00	14.00	14.00
15	15.00	15.00	15.00	15.00
16	16.00	16.00	16.00	16.00
17	17.00	17.00	17.00	17.00
18	18.00	18.00	18.00	18.00
19	19.00	19.00	19.00	19.00
20	20.00	20.00	20.00	20.00
21	21.00	21.00	21.00	21.00
22	22.00	22.00	22.00	22.00
23	23.00	23.00	23.00	23.00
24	24.00	24.00	24.00	24.00
25	25.00	25.00	25.00	25.00
26	26.00	26.00	26.00	26.00
27	27.00	27.00	27.00	27.00
28	28.00	28.00	28.00	28.00
29	29.00	29.00	29.00	29.00
30	30.00	30.00	30.00	30.00
31	31.00	31.00	31.00	31.00
32	32.00	32.00	32.00	32.00

NOTES

- ALL DIMENSIONS GIVEN ARE IN MM.
- ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- ANY DISCREPANCY IN THE DRAWING SHALL BE REPORTED TO THE NOTICE OF THE ARCHITECT BEFORE EXECUTION.
- சென்னை கட்டிடக் கட்டுமானப் பொறியியல் கழகம்
- சென்னை கட்டிடக் கட்டுமானப் பொறியியல் கழகம்
- சென்னை கட்டிடக் கட்டுமானப் பொறியியல் கழகம்
- சென்னை கட்டிடக் கட்டுமானப் பொறியியல் கழகம்

REVISION NOTE DATED 14/05/2021:

THIS DRAWING HAS BEEN MODIFIED BASED ON MAIL DATED 31/05/2021 & 02/06/2021 AND ENCLLOSURES IN THE SAME LINE LTR NO. D1/2/CEZ/2020 DATED 07/08/2021 AND CONCEPT PROPOSAL DWSR VIDE MAIL DATED 31/05/2021 RECEIVED FROM CLIENT.

THIS PROPOSAL IS COMPLETELY DIFFERENT FROM (CONCEPT) SINCE THE REQUIREMENT RECEIVED BY THIS OFFICE VIDE D1/2/CEZ/2020 DATED 28/07/2021 IS CHANGED DUE TO ADMINISTRATIVE REASON OF THE CLIENT DEPARTMENT STATED VIDE ABOVE MAIL OUT DWSR BY THE CLIENT DEPARTMENT HAVE BEEN FORWARDED TO THE CTD, CHENNAI FOR SITE FEASIBILITY OF THE OFFICE AND FEASIBILITY OF THE SAME WAS CONFIRMED TO THIS OFFICE BY THE EXECUTIVE ENGINEER.

REVISION NOTE 04/05/2021:

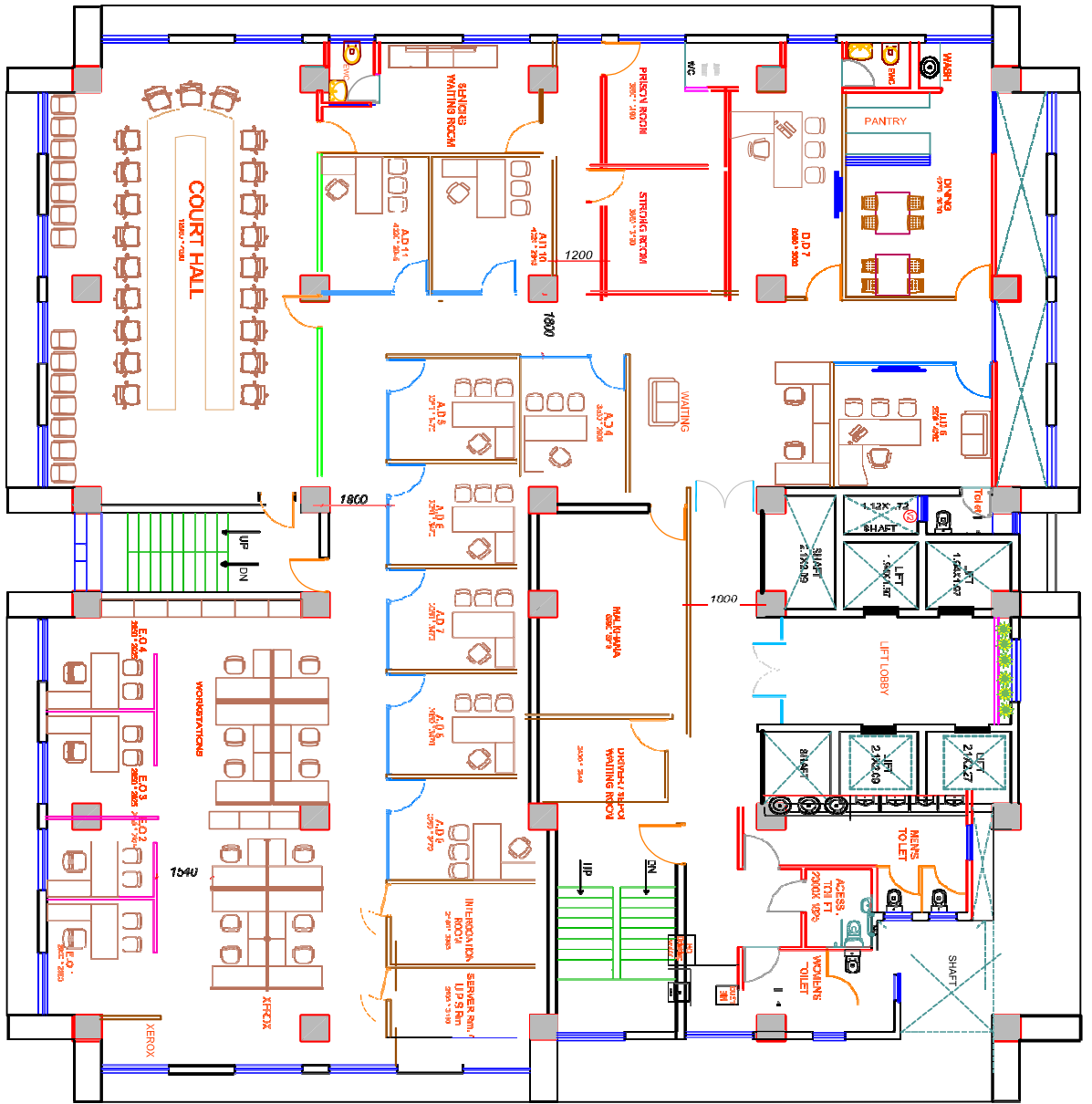
THIS DRAWING HAVE BEEN MODIFIED BASED ON MAIL DATED 16/04/2021.

NOTE:

THIS DRAWING HAVE BEEN PREPARED BASED ON THE CLIENT LTR NO. D1/2/CEZ/2020 DATED 28/07/2021 AND ALSO MODIFIED AS CONCEPT PROPOSAL DWSR VIDE MAIL DATED 31/05/2021 RECEIVED FROM CLIENT.

<p>PROJECT NAME: PROVIDING EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai.</p> <p>CLIENT: CHENNAI ZONE OFFICE, AT BSRM BUILDING, MANDALAYAM CHENNAI.</p> <p>DATE: 14/05/2021</p> <p>SCALE: AS SHOWN</p> <p>DESIGNER: P. D.</p>	<p>QUANTITY SURVEYOR: [Name]</p> <p>ARCHITECT: [Name]</p> <p>ENGINEER IN CHARGE: [Name]</p>
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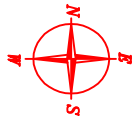
SIXTH FLOOR LAYOUT
CHENNAI ZONE



Sl.No	Name of the Work	Provide	Rate	Quantity	Amount	Remarks
1	WALL TO BE DEMOLISHED	1:1.5	2000	1	2000	1:1.5
2	WALL TO BE REINFORCED	1:1.5	2000	1	2000	1:1.5
3	WALL TO BE REPLACED WITH PRECAST CONCRETE	1:1.5	2000	1	2000	1:1.5
4	WALL TO BE REPLACED WITH RCC	1:1.5	2000	1	2000	1:1.5
5	WALL TO BE REPLACED WITH RCC AND REINFORCED WITH RWBARS AS PER DESIGN	1:1.5	2000	1	2000	1:1.5

LEGEND

- Red: WALL TO BE DEMOLISHED
- Yellow: WALL TO BE REINFORCED
- Green: WALL TO BE REPLACED WITH PRECAST CONCRETE
- Blue: WALL TO BE REPLACED WITH RCC
- Purple: WALL TO BE REPLACED WITH RCC AND REINFORCED WITH RWBARS AS PER DESIGN



NOTES

- ALL DIMENSIONS GIVEN ARE IN MM.
- CONSTRUCTION DETAILS TO BE FOLLOWED AS PER THE ARCHITECT'S DRAWINGS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE ARCHITECT BEFORE EXECUTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE ARCHITECT BEFORE EXECUTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE ARCHITECT BEFORE EXECUTION.

REVISION NOTE: 08/09/2021

THIS DRAWING HAS BEEN MODIFIED BASED ON MAIL DATED 31/08/2021 & 02/09/2021 AND ENCL. 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

REVISION NOTE OF 1 DATED: 08/09/2021

THIS DRAWING HAS BEEN MODIFIED BASED ON THE CLIENT LTR NO. D/1/2/2020 DATED 28/07/2020 AND ALSO MODIFIED AS CONVEYED BY CLIENT DEPARTMENT OVER TELEPHONIC CONVERSATION ON 02/04/2021.

CONTRACTOR

ENGINEER IN CHARGE

NOTES

REVISION NOTE OF 1 DATED: 08/09/2021

THIS DRAWING HAS BEEN MODIFIED BASED ON THE CLIENT LTR NO. D/1/2/2020 DATED 28/07/2020 AND ALSO MODIFIED AS CONVEYED BY CLIENT DEPARTMENT OVER TELEPHONIC CONVERSATION ON 02/04/2021.

SPECIFICATION

1 Scope of Work

The bidder shall Supply, Installation, Testing & Commissioning of Access Control system, IP CCTV System, Fire alarm system in O/o Enforcement Directorate, 5th & 6th Floor at Kush kumar Road admin building including cameras, Network video recorder system, Management servers, applications/software, access control system equipment, Fire Alarm panel, Detectors/ Devices, switches and any other items/accessories required for a fully functional system.

The number of cameras and their placement shall be decided in such a way that most critical areas can be monitored. Proximity card reader devices shall be placed as per site requirement. Multi-criteria detectors shall be placed in such a way all the areas to be covered.

2 Functional Requirements

2.1 *Access Control System*

Control and monitoring for security applies to all entry/exit doors and related areas. Access to buildings, gates, doors is restricted for unauthorized users. Card access system can offer facility managers the flexibility to control these access points.

Smart card reader shall be installed at entry to various rooms as per site requirement in 5th & 6th floor. Each door shall have a door locking mechanism, and a door status indicator. Allexit gates shall be open able through push button switches.

In case of fire, the FAS, using addressable outputs shall directly release the door locks controlled by the Access control system.

- 2.1.1** The system shall provide a mean to control access through nominated doors having electric locking door status monitoring and access control readers. Access rights associated with a presented access card shall be checked for validity based on card or identifier, access area, access time and any other access management function defined in this specification; as stored in access controllers. Access shall be granted or denied, dependant on the access privilege. Access rights shall be programmed in a variety of ways to allow flexibility as defined elsewhere in this specification.
- 2.1.2** All system communications must be totally integrated with either existing or new LAN networks. Bidder must make themselves familiar with the specific requirements for this project.
- 2.1.3** Connection to Access Controllers shall be achieved using cabling supporting Ethernet and TCP/IP protocols.
- 2.1.4** All data communication internal to the system between Access Controller and the Server shall be on TCP/IP Network and should be encrypted and an industry-standard encryption algorithm to a minimum of 128 bit AES.
- 2.1.5** The system shall report all events to the operator(s) as configured and shall produce and maintain a log of all system events and alarms.
- 2.1.6** The system shall provide a means for an operator to extract information relative to the event log and system configuration and produce this information in the form of printed reports, screen displays etc.
- 2.1.7** Comprehensive backup and archiving facilities shall be incorporated as an integral part of the system software.
- 2.1.8** Access Controllers must support peer to peer communications for input and output communications between Access Controllers.
- 2.1.9** The Access Controller shall be of **UL listed**.

2.2 IP CCTV System

IP CCTV system shall enable centralized online surveillance of various selected areas and to generate a record for post event analysis. The camera shall be a high resolution, visible at low light capability. The recording shall be in real time motion i.e. 25 frames per second at D1 resolution for each camera. Recording videos shall be kept for 90 days with RAID5 configuration. The camera shall be ONVIF S and G compliant.

One Network Video recorder with required client license shall be used to record & playback the camera videos. All the live view or recorded videos of cameras shall be displayed through client software on proposed workstation.

As an application, the video surveillance will do the following:

- Providing real-time monitoring of a facility's environment, people and assets.
- Recording in case there is a motion in the room
- Recording events for subsequent investigation, proof of compliance / audit purposes
- Shall facilitate motion search on recorded video

2.3 Fire Alarm System

The proposed Fire Alarm System will be one loop intelligent addressable panel. The loop will consist of detectors & devices making it a total capacity of detectors / devices per panel. The fire alarm panel has a large display. The proposed panel shall be UL listed/FM approved. We have proposed intelligent Multi-criteria detectors on ceiling, on false ceiling wherever applicable & below false flooring. Addressable relay module & monitor modules are proposed in the system for monitoring as well as control requirement respectively. The fire alarm system shall use monitor modules / relay modules / control modules which will operate based on cross-zoning of detectors.

CODES AND STANDARDS

The entire installation shall be installed to comply with one or more of the following codes or Standards:

- NBC of India, 2016 amended up to date
- IS 2189.
- British Standards, BS 5839 Part 1 or BS 6266
- NFPA 72 Standards, US.

PRODUCT / MATERIAL SPECIFICATIONS

1. Technical Specifications

1.1.1 Access Controller

The above Access control software shall be capable of monitoring; control of the system shall be powerful enough to enable security managers to manage their site's overall security. The Access Control System (ACS) shall be capable of integrating multiple building functions including access control, alarm management.

The system shall incorporate the necessary hardware, software, and firmware to collect, transmit, and process alarm, tamper and trouble conditions, access requests, and advisories in accordance with the security procedures of the facility. The system shall control the flow of authorized personnel traffic through the secured areas of the facility. The user interface at the host computer (server) shall be a mouse driven graphical user interface (GUI) allowing the user to open and work on multiple windows simultaneously.

- a) The Controllers shall be UL certified and conform to UL standards.
- b) Flash memory for easy online software updates.
- c) Supports two-man rule and escorted access for increased security
- d) Configurable audio tones to indicate valid card read, invalid card read, and other types of events.
- e) Large alarm buffer protects integrity of alarm data
- f) Dynamic memory management allows maximum storage of card holders and transactions

1.1.2 Proximity card readers ~~Biometric Fingerprint Card Reader & Enrolment Biometric Reader~~

Reading element	: Optic sensor
Timing	: Card read < 0.5 sec
Output	: Same card data as in the Input in case of validation.

No data in case of no validation

Access decisions shall be made at each controller.

Access criteria changes shall be downloaded from the controller automatically, according to a pre-programmed schedule.

All card readers shall unlock the controlled door within 0.2 seconds of the completion of the access attempt. The completion of the access attempt is defined as the end of the card shown for card only entry. This time delay shall never be exceeded, regardless of system loading.

The following fields shall be transmitted:

- Time of entry or exit
- Point of entry or exit
- Access granted or denied
- Card number

- Cardholder's name

Each card reader shall be capable of automatically switching the current access criteria at a door at different times of the day, based on access control data received from the site controller.

The following access criteria modes are required:

Free access - door is unlocked, no card entry is required

Secure access - door is locked (secure). A successful card attempt is required for valid entry. Door rescues after access attempt.

Pending access - door is locked (secure). Door switches automatically to unlock (free) upon first successful access attempt during pending mode period, or vice versa (see next clause). Within pending mode, two options shall exist:

The card reader is operating in secure access mode. When the first valid entry occurs, the card reader shall automatically set the access criteria for this reader to free (public) access.

The card reader is operating in free (public) access mode. When the first valid "access attempt" occurs, the card reader shall automatically set the access criteria for this reader to secure (card-required) access.

1.1.2.1 Database management:

The system shall create and maintain a master database of all cardholder records. The System shall support various databases – Microsoft SQL, MySQL and Oracle.

Alarm Input Point Reporting Delay: The ACS shall allow the operator to apply an input point reporting delay period from 0-60 seconds for each input point terminal. The default setting for each input point reporting delay shall be 0 seconds.

Alarm Input Point Suppression: The ACS shall provide an alarm input point suppression facility such that the operator may define a time zone suppression period for each individual input point. Alarm conditions for suppressed input points shall not be recorded or archived by the system, however, trouble conditions will be recorded.

Alarm graphics (maps): The alarm-graphics portion of the system shall provide dynamic colour alarm graphic maps with the following functions: User definable graphic maps to depict input and output point conditions, reader status, and sub-map attachments in the ACS.

The ACS shall support the importing of most bitmap file format graphics produced with any graphic drawing program such as TIF, BMP or JPG file format. Vector file formats are not acceptable.

The ACS map program shall support the importing of most bitmap file format graphics to produce custom icons for all map attachments (input, output, reader, etc.). The ACS software shall be capable of storing a number of graphic maps.

The ACS shall provide a palette that includes six categories of pre-defined alarm map icons:

Input: representing a user-defined alarm input point located anywhere in the system. The input point icon shall flash, change colour, and the computer's internal sounder shall beep when an alarm condition exists. It shall be possible to click on the icon to respond to the alarm condition or move directly to the alarm queue window to respond to the alarm. Each alarm-input icon shall have a pop-up box that indicates the point's current state (open, short, alarm/active, secure).

Output: representing a user defined output point located anywhere in the ACS. It shall be possible to click on the icon to set or reset the output point. In addition, it can display the set

or reset status of point.

~~**Map layer:** representing that lower level maps associated with the top layer map exist in the system. It shall be possible to navigate through the map layers by clicking on the map layer (up and down) icons.~~

Reader Terminals: reader icons shall have the capability of displaying: held open, forced open, locked, unlocked, unknown, override, up and down. Panels: representing a system panel controlled by the ACS. Panel icons shall have the capability of displaying the up or down status of the panel.

I/O Terminals: I/O terminal icons shall have the capability of displaying the up or down status.

Alarm handling: The alarm handling portion of the system, which consists of the point contacts, and the Alarm monitoring Window shall provide the following functions:

The Alarm Monitoring Window shall be capable of being sorted by any column. It shall also have displayed the total number of alarms in the queue and the number that are pending. The Alarm Monitoring Window shall have the capability to bring up the map to the input, which is highlighted in the window.

User definable alarm message/instructions description: The system shall provide the ability to assign alarm message/instructions to each state of an input point ('Open', 'Short', 'Alarm/Active', and 'Secure.')

Alarm message "pick list": all alarm message names and associated descriptions shall appear in the form of a pick list from which the operator may select an appropriate alarm name and message from all alarm messages defined in the database by the operator.

1.1.2.2 Event processing:

Panel card events: the ACS shall provide the capability for the user to define a panel card event, which may be executed by a cardholder at a reader equipped with a keypad. For each 'card event' the following data may be defined by the User:

- Alphanumeric event name
- Access code to control the triggering of the event (card activated event)
- ~~Event triggers type (card only, card + PIN, card + PIN + code, card + code, void card)~~
- Event Privilege level (0-7)
- Duration of the event execution (0-1440 minutes)
- Input point group to be suppressed or not
- Output point group to be activated or not
- Door strike operation enabled/disable
- Reset panel alarm relay

Host events:

Triggers: the ACS shall provide the operator with a scrolling list of the following event sequence triggers as a minimum that may be combined with the event sequence logical operators listed below to program a custom sequence of events. The ACS shall be delivered with this entire list functional whether or not these features are implemented by the User upon initial installation.

Actions: the ACS shall be provide a scrolling list of the following event sequence actions as a

minimum, and allow the user to attach one or more actions to one or more of the event sequence triggers listed above to program a custom sequence of events.

- Enable anti-passback
- Disable anti-passback
- Unlock door control relay
- Lock door control relay
- ~~Enable timed override of door control relay~~
- ~~Set time zone for PIN code suppression~~
- ~~Set time zone for reader~~
- ~~Set time zone for reader override~~
- ~~Enable reader override~~
- ~~Disable reader override~~
- ~~Enable soft In X It~~
- ~~Disable soft In X It~~
- ~~Enable local timed override~~
- ~~Disable local timed override~~
- Lock all doors
- Unlock all doors
- Enable history upload
- Disable history upload
- Include time zone in access decision
- Ignore time zone in access decision
- Set controller relay
- Reset controller relay
- Enable input point group
- Disable input point group
- Set output point group
- Reset output point group
- Display a user defined message in a pop-up window
- Print user defined message on any printer
- System Database backup
- System Panel Download
- Display map
- Event Counters

Time zones: The ACS shall provide the capability for the user to define time zones with the following identification and configuration parameters.

1.1.2.3 Alphanumeric name

Alphanumeric description Allowance for up to eight periods, four active and four inactive, during each day of the week and each of three different holiday types. Any day of the year may be designated as a holiday; each defined as one of three holiday types.

1.1.2.4 Other Features:

User defined cardholder database fields: The system shall support up to an unlimited number of user defined data fields, which may be used to store information for each cardholder. Each field may be of a type: alphanumeric text, numeric, date, toggle (Yes/No). The ACS shall provide standard menu items, which shall allow the operator to define these cardholder database fields at anytime. The system shall remain on-line while user defined cardholder database fields are added or edited

~~The System shall support the capturing of high quality finger prints and encoding the finger print into the card during enrolment process that is native of System.~~

~~Also the System shall allow operators to capture and store the fingerprint to the System database. The fingerprints shall be captured using a biometric reader and an enrolment reader shall be used for fingerprint encoding.~~

Event and Transaction History: The ACS shall maintain a record of all alarm, card transaction, and system exceptions, which take place, and provide a means for a user to access this information. It shall be possible to print information in the log in real-time or by a report.

Anti-Passback Control: The ACS shall provide the capability to prevent more than one person from gaining access to a controlled area by recognizing when a cardholder who is granted access is passing back the card to another person to use the same card to gain access. If so programmed, an alarm may be generated if the anti-passback rules are violated by the cardholder. It shall be possible to define on a reader by reader basis, which readers are subject to anti-passback rules.

Cardholder Definition: The ACS shall provide the capability for the user to define Cardholders with the following identification and operating parameters.

- Cardholder name (first, middle, last)
- Cardholder address
- Cardholder phone number and extension number
- Validation period using start and void dates
- Department and Company fields from selection list of user defined departments and companies
- Unlimited number of user defined cardholder fields. The ACS shall provide the capability to use these fields in filtering reports.

Badge Definition: The ACS shall provide the capability for the user to define Cardholders with the following Badge identification and operating parameters on a per badge basis.

- Badge number assignment
- Issue level (0-7), only (1) per badge
- Validation period using start and void date and time
- Globally disable badges in all partitions
- Executive privilege enabled or disabled
- Active/Disable badge toggle button
- Trace enabled or disabled
- Override enabled or disabled
- PIN code (4 or 5 digits)
- Badge event privilege level
- Assign eight Access Groups and Time zones per Badge

System Status Display: The ACS shall provide a dynamic system status summary display that graphically indicates the following status information, filtered by panel or terminal. All status display information shall be summarized in a single window.

Alarm routing: The ACS shall provide the ability for the user to define which input points or groups of input points are displayed on each ACS Operator Workstation Terminal (OWT) computer. The system shall provide a report showing which input points are routed to each OWT.

Control points: The ACS shall provide the ability to define input points as control points to be used in input/output linking and event processing sequences of operation. Control points shall not enter the alarm queue and shall not require that an operator acknowledge them when they change state. The control point activity will however, be automatically logged to the history file.

Real Time Printer: The ACS shall be capable of printing to a network accessible printer as well as printing from an LPT port. The ACS shall be capable of printing with the following parameters:

Be able to specify printing of the following items, independent from each other:

- Input Point Alarms
- System Exception and Event Messages
- Access Trace
- Access Deny
- Access Grant
- Entry/Exit Central
- Audit Trail.

1.2 IP CCTV System

1.2.1 System Description

The system shall include all network video cameras, network switch, server hardware, video management software, cabling, supports, hardware, software and interfaces to provide complete system. The system shall seamlessly integrate with the access control system and security management control system. The system shall be expandable to encompass the entire site.

A network camera combines a camera and computer in one unit, which includes the digitization and compression of the video, as well as a network connector. The video is transported over an IP-based network, via network switches. This represents a true network video system, and is also a fully digital system, where no analogue components are used.

A network video system using network cameras adds the following advantages:

- High resolution cameras (megapixel)
- Consistent image quality
- Power over Ethernet
- Full flexibility and scalability

The CCTV system shall comprise minimum of the following equipments (components) along with CAT6 cables, cable containment and associated accessories, hardware to provide a complete and operational CCTV system for alarm assessment and general surveillance purposes. Provide following minimum operational features:

- Network camera,
- Network switch with patch panel and necessary converters (if required)
- Viewing Station

1.2.2 Indoor High Definition Resolution IP Network Dome Camera

	Video:	
i.	Video standards	Dual H.264 and MJPEG stream
ii.	Sensor	1/2.7" 2MP progressive CMOS/CCD image sensor
iii	Resolutions and frame rates:	PAL
iv	Resolution	1920 x 1080
	Video out	
v	Signal	ONVIF S and G
vi	Connector	RJ-45 10BaseT / 100BaseTX
vii	Video S/N	> 50 dB
viii	Sensitivity:	
	Day/Night	Yes
	Color	0.01 lux
ix	Wide Dynamic Range	120DB
x	White balance	Yes

	Electronic shutter	
xi	PAL	1/5 – 1/10000 s
	Optical	
xii	Lens	Varifocal 2.8mm (W) – 12 mm (T)
xiii	Iris control	Automatic
	Camera Tampering	
xiv	Camera Sabotage	Alarm should be generated
	Software Control	
xv	Unit configuration	Via web browser or Configuration Manager
xvi	Motion detection	Yes
	Alarm	Yes; 1x Alarm In & 1x Alarm Out
	Network	
xvii	Protocols (Any of the following)	TCP/IP, UDP, HTTP, HTTPs, SMTP, SNMP, DNS, DHCP, NTP, FTP, RTSP (RTP), IGMP v3, UpnP, CIFS, NFS, IEC802.1x, ONVIF
xviii	Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
xix	POE	IEEE 802.3af compliant
xx	Operating Temperature	0°C to 50°C
xxi	Operating Humidity	0% to 80% (Non Condensing)
	CERTIFICATES & APPROVAL	
xxii	Safety	UL
xxiii	Ingress protection and Vandal	IP66, IK10

1.2.3. Network Recorder

The Network video Recorder shall be capable to seamlessly integrate to the video analytic software, if and when added to the system.

SI No	Specification	Minimum requirement
1	Type	Rack-mountable, Dedicated Network Video Recorder with suitable hardware to connect up to 32 IP cameras (i), offered storage is not an externally attached device to NVR, the total recording storage requirement shall be met through internally installed HDD itself. The bidder to submit the storage analysis for required no of cameras for a period of 90 days @15fps on minimum D1resolution. All channels must support recording resolution of D1@15fps. (ii) Additional hardware/ software/ license, if any required by the bidder to meet its offered solution, should be considered accordingly by the bidder in its offer.
2	Storage capacity	Each NVR storage unit should be provided with usable 8 SATA HDD slots with provision of future expansion of HDD Slots using eSATA
3	Operating system	Linux or Embedded or Microsoft

4	Video compression	H.265/ H.264, MJPEG/MPEG
5	Recording support	The offered NVR must be able to support simultaneous recording of 32 IP cameras at D1 resolution at 15 fps
6	Network Protocol Support	HTTP/HTTPS, TCP/IP, RTSP, UDP, NTP, DHCP, IPC Search
7	On-board diagnostics	Web based support for system configuration & Diagnostics
8	Documentation	Installation guide, Operation & Maintenance Manuals, Installation CD/DVD for licensed software
9	Input Voltage	100~240 V AC, 50/60 Hz.
10	Compatibility	The supplied NVR must be compatible in all respects to the cameras being supplied at the locations
11	Operating temperature	10°C ~ 40°C or better
12	Operating Humidity	20% to 80% RH, non□condensing
13	HDD	HDD Hot swap, 8 bays SATA HDD, up to 8TB storage.
14	Product Safety	To comply with CE, FCC, UL
15	Details Required with offer	Bidder to submit the details of complete offered solution (Item make, model/part code, block diagram etc.) as stated above along with the offer.

1.2.5. 27U” FLOOR MOUNT RACK

The Network shall be accommodate to storage server, core switch, network switch, light interface modules, patch panel etc. Shall also be a provision to add more switch and server. Network Rack shall Compliance the following specification

SL No	Specification	Minimum requirement
1	Size	Min 27U
2	Type	Network
3	Mount	Floor
4	Caster Wheel	4 No's with Lockable
5	Mounting Size	19”
6	Cable Manager	As Required
7	Shelves	Min 4
8	Doors	Front and Rear Lockable Glass Door
9	Power Strip	Min 10 No's of 5/15A
10	Cooling Fan	4 No's on Top

1.3 Cables & Conduits

Cat 6 cables shall be used for connection to the switch from the camera/ access controller

The 2 Core 1.5 Sq mm cable connecting the Detectors/ Field devices to Fire alarm Panel shall be PVC insulated copper, multi strand, FRLS cables shall be 1100V grades.

Cables connected to devices shall be given ‘S’ loop on both the sides of the devices which shall be properly clamped to the ceiling. Loop shall also be left where cables connect sounders, panels, dampers, etc. Appropriate glands shall be provided where the cable enters the junction box.

All the cables and wires shall be tagged for proper identification. Wires shall be identified by ferrules at junction and cables by colour bands.

1.3.1 Cat 6 Cable

i.	Conductors	23 AWG solid bare copper or better
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1.4 Fire alarm System

1.4.1 Fire Alarm Panel

The control panel shall be a microprocessor based fully Analogue Addressable, Analogue Control Unit which shall control all Analogue Addressable Detectors, Manual Call Stations and Switching Systems connected to it, single loop addressable unit, designed and manufactured to the requirements of UL for the control and indicating component and UL for the internal power supply.

A loop shall mean a 2-wire circuit connecting 125 addressable detectors/devices. The loop card shall have built-in circuit isolator to accommodate Class 'A' wiring. The loop cards shall be of modular construction.

It shall be possible to trip from the Fire Alarm Panel through the use of Addressable Output Modules, individual VRF Ac units activated by the fire signal of specified detectors.

All wiring shall be done using 2 x 1.5 mm² PVC insulated armoured FRLS copper cable.

1. All controls of the system shall be via the control panel only.
2. All site-specific data shall be field programmable and stored in an integral EEPROM.
3. All internal components of the control panel shall be fully monitored.
4. The control panel shall be capable of supporting a multi device, multi zone 2-wire detection loop. Removal of 1 or more detection devices on the loop shall not render the remaining devices on the loop inoperable.
5. All addressable units shall be connected to the Fire alarm control panel through the Loop Cards and shall be addressed through individual numbers. The Fire alarm control panel shall be able to obtain analogue value for all detectors in the circuit through a pulsed digitalized current data. The Fire alarm control panel shall be able to analyses all analogue inputs from all addressable units, and through its own software and ambient level screening the Fire alarm control panel shall be able to identify fire, possible fire or fault conditions. The unit supervision shall be dynamic and continuous.
6. Short / Open circuit fault shall also be reported at the Fire alarm control panel. In such cases, the system through the use of fault isolators shall be able to isolate that segment. The missing Detectors/Devices shall also be reported at the Fire alarm control panel with identification of the location.
7. When an alarm condition is sensed at the Fire alarm control panel from a smoke or heat detector, a delay time/alarm verification period shall be started. If the detector is still in alarm after the delay time expires, an alarm condition is reported. The delay time shall be adjustable from 0 to 990 sec's.
8. The Fire alarm control panel shall have the facility to perform walk test. In the walk test mode, the performance of each device is checked out by initiating the device. As each device is placed into alarm the Fire alarm control panel shall print the condition and automatically reset the device. Audible devices shall be initiated, if required at a pre-programmed time. If a zone is inadvertently left in walk test mode, it shall automatically reset to normal after the idle time is exceeded. During the walk test the zones other than

- the programmed zones shall perform continuous supervision (normal mode). In case of any alarm initiated by detector/devices the walk test shall get terminated automatically.
9. The Fire alarm control panel shall also be able to carry out continuous self-monitoring when in normal condition.
 10. The Fire alarm control panel shall also be able to discriminate between false alarms and fire conditions.
 11. The Fire alarm control panel shall carry out priority selection of alarm in case alarm activities in two or more remotely located units simultaneously. In such cases, the manual call stations shall have the highest priority.
 12. The System shall be fail safe and adequate safe guards should be ensured that in the event of a failure of a part of the System it shall not handicap the complete System.
 13. The system status shall be made available via panel mounted LEDs and a backlit 4 line or 168-character alphanumeric liquid crystal display.
 14. All user primary controls shall be password protected over 4 access levels in accordance with UL. Essential controls, such as Start / Stop sounders and Cancel fault buzzer, etc. will be clearly marked.
 15. Cancel fault and display test functions shall be configurable to be accessed from level 1 or level 2.
 16. All system controls and programming will be accessed via PC/Laptop / alphanumeric keypad. The control panel will incorporate form fill menu driven fields for data entry and retrieval.
 17. Fire, fault and disablement events shall be logged as they occur. Visual and audible conformation shall be given on an array of LEDs, the Liquid Crystal Display and the internal supervisory buzzer.
 18. The control panel shall have an integral automatic power supply and maintenance free sealed battery, providing a standby capacity of a minimum (48 Hrs) hours and further 30 minutes under full alarm load conditions. The system shall be capable of full re-charge within 24 hours following full system discharge. The performance of the power supply and batteries shall be monitored and alarm rose, should a fault be detected. The system shall protect the batteries from deep discharge.
 19. The Software shall be user friendly. The system shall have the ability to be upgraded so as to incorporate more features at a later date. The system shall be designed such that it shall have the add-on feature.
 20. The Fire alarm control panel shall be capable of being networked (future expansion) with other similar Fire alarm control panel's located at different part of the premises through a single RS485 bus.
 21. The Fire alarm control panel shall have provision for interfacing with the Public Address System.

1.4.2 ADDRESSABLE DETECTORS

MULTISENSOR DETECTOR

- a) All detectors shall be plug-in type, from the maintenance and compatibility point of view.
- b) An alarm condition should not affect a detector's good functioning.
- c) After resetting the alarm, the detector shall resume normal operations without readjustment of any kind.

- d) The detector shall have a Multi-sensor type integrated photoelectric smoke and fixed temperature heat sensing technology.
- e) It shall be possible to use a single detector type for both above and below false ceiling applications.
- f) The detector shall be capable of detecting fast flaming fires and slow smouldering fires equally well.
- g) The detector shall therefore be a multi technology detector or shall be of unique design whereby a single type/model can be used in applications where either ISD/OSD would be normally used.
- h) The sensitivity of the detector shall not vary with change in ambient temperature, humidity, pressure or voltage variation, and should not trigger the false alarm due to the above condition.
- i) The detector shall be suitably protected against dust accumulation/ ingress of moisture. The detector shall be free from maintenance and functionally tested at periodic intervals. All detectors shall be identical in construction design and characteristic to facilitate easy replacement and interchangeably by suitable programming.
- j) Devices shall be compatible with the CIE conforming to the requirements of UL Listed and be UL approved.
- k) Secondary response indicators shall be provided for all the Above False Ceiling Detectors.
- l) The detector shall have twin LED's/Single LED for 360/180 degree viewing angle. LED on the detector shall blink each time the sensor is scanned by the Fire alarm control panel.
- m) Detectors shall fit a common addressable base.

1.4.3 Manual call points (MCP)

- a) MCP's shall be addressable and of the Pull type / steady pressure break glass type shall be provided to allow the routine testing of the unit.
- b) The device shall be red in colour and suitable for surface or flush mounting.
- c) Manual stations shall be interfaced to an addressable input module. The manual station shall have normally open fire alarm and annunciator contacts and these contacts shall close on activation. Contacts shall remain closed until station is manually reset.

1.4.4 SOUNDER

- a) Electronic sounders shall be colour red ~~with adjustable~~ sound outputs and at least 3 sound signals. The sounders should be suitable for operation with a 24V DC supply providing a sound output of at least 92 dBA at 1 meter and 75 dBA min, for a bed head or sounder base type device.
- b) The sounder shall be addressable electronic type and shall give discontinuous/ intermittent audible alarm whenever any detector or MCP operates.
- c) The sounder shall be powered from Main Fire alarm control panel through separate 2 wire cable.

1.4.5 FIRE ALARM SYSTEM TESTING

1. FACP:

- a) The FACP shall be visually checked for input voltage and ampere. ~~All zones~~ Each loop one by one shall be de wired to check for fault signal indication in the FACP.
- b) The Power Source shall be cut off and checked for stand by Supply from the Batteries. After six hours the FACP Source shall be switched on to check for auto switch over to the Mains mode.
- c) Tests shall be conducted for AC fail, charger fail, DC fail, Battery Disconnect or Battery fail. In all such cases the relevant L E D should glow and the piezo sound shall also give sound output.
- d) Low battery indication, fault indication should be made available at the panel.

2. MULTISENSOR DETECTOR

- a) The testing shall be carried out for each loop / zone,
- b) Initially one detector in a zone and subsequently 2 or more disassociated detectors in each zone shall be tested for Alarm Priority, Alarm Queuing and Call Logging with time lapse between detectors.
- c) An identified detector shall be subject to smoke aspiration from burning paper/cigarette puffs, rubber and other materials which give dense smoke held at 0.3 M distance from the detector.
- d) The FACP should indicate increased analogue output for that address and after the programmed delay time, a fire alarm signal shall be indicated. This delay shall be utilized for alarm verification.

3. ADDITIONAL TEST:

- ~~a) One detector of each type will be disconnected and subjected to slow dust build up by means as desired by the Engineers in charge and again connected in the circuit.~~
- b) Any part of the Loop shall be short circuited. The FACP shall indicate the communication failure of all the devices connected in the short circuited segment.
- c) After the short circuit is corrected, the Fault Isolator shall return to its normal status automatically, this being reflected in the FACP.
- d) The Loop shall then be in normal operation again. Any part of the Loop shall be de wired and tested as given above for open fault.
- e) All other tests as required by the client at the time of handing over shall also to be conducted.

SPECIAL CONDITIONS

1.0 General

1.1 Except for the items, for which Particular Specifications are given or where it is specifically mentioned otherwise in the description of the items in the schedule of quantities, the work shall generally be carried out in accordance with the "CPWD Specifications 2019 Vol. I & II" with upto date correction slips and as per instructions of Engineer-in-Charge. Wherever CPWD Specifications are silent, the latest IS Codes / Specifications shall be followed and the rates should be all inclusive.

In the case of discrepancy between the Schedule of Quantities, the Specifications and/ or the Drawings, the following order of preference shall be observed:-

- a. Nomenclature of item as per Schedule of Quantities
- b. Special Conditions.
- c. Particular Specifications.
- d. Drawings and specification mentioned in the tender document.
- e. CPWD Specifications-2019 (Vol.-1 & 11) with upto date correction slips.
- f. Indian Standard Specifications
- g. Manufactures Specifications.
- h. Sound Engineering Practice as per the decision of Engineer-in-Charge.

1.2 Any reference made to any Indian Standard Specifications, shall imply to the latest version of that standard, including such revisions / amendments as issued by the Bureau of Indian Standards upto last date of receipt of tenders.

1.3 The work shall be executed and measured as per metric dimensions given in the Schedule of Quantities, drawings etc. (FPS units wherever indicated are for guidelines only).

1.4 The work should be planned in a systematic manner so that chase cuttings in the walls, ceilings and floors is minimized. Wherever absolutely essential, the chase shall be cut using chase cutting machines. Chases will not be allowed to be cut using hammer / chisel. The electrical boxes should be fixed in walls simultaneously while raising the brick work. The contractor shall ensure proper co-ordination of various disciplines viz. sanitary & water supply, horticulture & electrical etc.

1.5 All the hidden items such as conduits, etc. are to be properly tested before covering.

1.6 Samples including brand / quality of materials and fittings to be used in the work shall be got approved from the Engineer-in-Charge, well in advance of actual execution and shall be preserved till the completion of the work.

1.7 The contractor, his agents / representative, workman etc. shall strictly observe orders pertaining to fire precautions prevailing in the area.

1.8 Contractor(s) shall study the details of site, nature of work to be executed, site constraints etc and satisfy himself about complete characteristics and other parameters at site. However, no claim on the alleged inadequacy or incorrectness of the data supplied by the department shall be entertained.

1.9 Contractor shall take all precautionary measures to avoid any damage to adjoining property. All necessary arrangement shall be made at his own cost.

1.10 The contractor shall take instructions from the Engineer-in-Charge regarding collection and stacking of materials at any place. No excavated earth or building rubbish shall be stacked on areas where other buildings, roads, compound wall, services etc are to be constructed.

1.11 The contractor shall provide at his own cost suitable measuring arrangements/instruments as may be necessary at site for checking. All such equipments shall be got calibrated in advance from laboratory, approved by the Engineer-in-Charge. Nothing extra shall be payable on this account.

1.12 All fittings and accessories should conform to byelaws and municipal body / corporation/Electricity board, where CPWD Specifications are not applicable. The contractor should get the materials (fixtures/fittings) tested by the Municipal Body / Corporation authorities/Electricity board authorities wherever required at his own cost.

1.13 Existing drains, pipes, cables, over-head wires, sewer lines, water lines and similar services encountered in the course of the execution of work shall be protected against the damage by the contractor at his own expense. The contractor shall not store materials or otherwise occupy any part of the site in a manner likely to hinder the operation of such services. In case temporary supporting/shifting of such services is required to facilitate the work, the same shall be done by the contractor at no extra cost.

1.14 In case the existing services are to be shifted permanently, then before dismantling the existing services, alternate/diversion of service lines has to be laid by the contractor so that there is no interruption in use of existing services. The contractor has to plan the alternate suitable route for diversion/shifting of service lines and get the same approved from the Engineer-in-Charge before starting shifting of services. Nothing extra shall be paid except the payment of dismantling and laying of new service lines as per conditions of contract.

1.15 With each Running Bill, the details of test carried out shall be submitted by the contractor as per prescribed proforma.

1.16 On completion of work, the contractor shall submit at his own cost four prints of "as built" drawings to the Engineer-in-Charge. These drawings shall have the following information.

- (a) Electrical wiring layout diagram with position of switches, fittings,cablings etc.
- (b) Run off of all water supply lines with diameters, location of control valves, access panels etc. wherever applicable

1.17 In case the contractor fails to supply "as built drawing" aforesaid within 30 days of the date of completion, then the recovery @ Rs.10,000/- each for such set of drawings shall be made from the contractor's final bill.

2.0 Unless otherwise specified in the schedule of quantities or CPWD specifications, the rates for respective items shall be all inclusive and apply to the following: -

- a) All labour, material, tools and plants and other inputs involved in the execution of the item.
- b) Any of the conditions and specifications mentioned in the tender documents.
- f) Pumping / bailing out surface water / rain water / sub soil water, if necessary for any reason.
- g) Any legal or financial implications resulting out of disposal of waste, if any.

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- h) Performance test of the entire installation(s) before the work is finally accepted.
- i) All incidental charges for cartage, storage and safe custody of materials brought to site.

3.0 SECRECY

3.1 The contractor shall take all steps necessary that all persons employed on any work in connection with the contract have notice that the Indian Official Secrets Act 1923 applies to them & will continue so to apply even after the execution of such works under the contract.

3.2 The contract is confidential and must be strictly confirmed to the contractor's own use (except so far as confidential disclosure to sub-contractors or suppliers as necessary) and to the purpose of the contract.

3.3 All documents, copies thereof & extracts there from furnished to the contractor shall be returned to the Engineer-in-Charge on the completion of the work / works or the earlier determination of the contract.

4.0 LABOUR AND SECURITY

4.1 Contractor should provide his plan for deployment of labour and get it approved from the Engineer-in-Charge.

4.2 Contractor has to follow the security requirement of the campus and obtain necessary entry passes for the labour and vehicles and follow security checks at entry / exit gates, restriction on movement of vehicle, restricted timings of working etc. The Department however shall assist the contractor in obtaining such passes for movement of vehicles and labour. No claim whatsoever shall be entertained on account of delay in entry of vehicles **and labour** including restrictions in working hours, if there is any.

4.3 The contractor shall employ only Indian Nationals after verifying their antecedents and loyalty. The contractor shall, on demand submit list of his agents, employees and work people concerned & shall satisfy as to the bonafides of such people.

4.4 The contractor & his work people shall observe all relevant rules regarding security promulgated in which work is to be carried out by the Controlling Administrative Authority of the campus/area

4.5 The contractor, his representative, workman shall be allowed to enter through specified gates & timing as laid down by the controlling authority. They shall be issued an identity card or an individual pass in accordance with the standing rules & regulations & they should possess the same while working. The contractor shall be responsible for the conduct & actions of his workman, agents / representatives.

5.0 TRANSPORTATION AND OFFICE INFRASTRUCTURE:

5.1 In order to complete the work within the scheduled time if the contractor shall be required to do the work in more than one shift and accepted by the department the contractor will provide vehicular facilities to the BSNL site staff to reach the site and their residence at his own cost for their services required beyond the normal office hours. In case the contractor fails to provide the facilities Engineer-in-Charge shall be at liberty to make the arrangement themselves and deduct the respective cost from the contractor's bills.

6.0 PROGRAM CHART: -

6.1 The Contractor shall prepare an integrated program chart for the execution of work, showing clearly all activities from the start of work to completion, with details of manpower, equipment and machinery required for the fulfillment of the program within the stipulated period or earlier and submit the same for approval of the Engineer-in-Charge within **15 days** of the issue of letter of acceptance for the contract.

6.2 The work has to be completed in stages as indicated in the **Milestones (Wherever provided)** and the program should be prepared in such a manner to achieve these Milestones as indicated therein or earlier.

6.3 The program chart should include the following: -

- a) Descriptive note explaining sequence of various activities.
- b) Network (PERT / CPM / BAR CHART) which will indicate resources in financial terms, manpower and specialized equipment for every important stage.
- c) Program for procurement of materials by the contractor.
- d) Program of procurement of machinery / equipments having adequate capacity, commensurate with the quantum of work to be done within the stipulated period, by the contractor.

7.4 If at any time, it appears to the Engineer-in-Charge that the actual progress of work does not conform to the approved program referred above, the contractor shall produce a revised program showing the modifications to the approved program by additional inputs to ensure completion of the work within the stipulated time.

7.5 The submission of revised program or approval by the Engineer-in-Charge of such program or the furnishing of such particulars shall not relieve the contractor of any of his duties or responsibilities under the contract. This is without prejudice to the right of Engineer-in-Charge to take action against the contractor as per terms and conditions of the agreement.

Notwithstanding the fact that the contractor will have to pay to the labourers and other staff engaged directly or indirectly on the work according to the provisions of the labour regulations and the agreement entered upon and/or extra amounts for any other reason.

8.0 PROGRESS AND MONITORING OF WORK:

Contractor shall give the Engineer-in-Charge on the 10th day of each month, progress report of the work done during the previous month. Such progress report will include the project progress summary, work progress (planned v/s. actual), PERT chart, milestone status, financial progress status, manpower deployment status, important materials consumed, materials at site at the beginning of the month, materials consumed during the month and the balance quantities at the end of month and progress of the work stating the reasons for shortfall, if any including the steps and measures to be taken for making good the shortfall in the succeeding period. Non submission of aforesaid progress report shall make contractor liable for action under breach of contract conditions. In case of delay in submission of progress report, recovery will be done Rs. 5000/- per week from the Running Account bill, where the decision of EE(E) as to do recovery is final.

9.0 SAMPLE OF MATERIALS:-

9.1 All materials and fittings brought by the contractor to the site for use shall conform to the samples approved by the Engineer-in-Charge which shall be preserved till the completion of the work. If a particular brand of material is specified in the item of work in Schedule of Quantity, the same shall be used after getting the same approved from Engineer-in-Charge. Wherever brand / quality of material is not specified in the item of work, the contractor shall submit the samples as per **List of Preferred Makes** for approval of Engineer-in-Charge. For all other items, ISI Marked materials and fittings shall be used with the approval of Engineer-in-Charge. Wherever ISI Marked material / fittings are not available, the contractor shall submit samples of materials / fittings manufactured by firms of repute conforming to relevant Specifications or IS codes for the approval of Engineer-in-Charge.

9.2 To avoid delay, contractor should submit samples as stated above well in advance so as to give timely orders for procurement. If any material, even though approved by Engineer-in-Charge is found defective or not conforming to specifications shall be replaced / removed by the contractor at his own risk & cost.

9.3. **BIS** marked materials except otherwise specified shall also be subjected to quality test besides testing of other materials as per the specifications described for the item/material. Wherever BIS marked materials are brought to the site of work, the contractor shall, furnish manufacturer's test certificate or test certificate from approved testing laboratory to establish that the material procured by the contractor for incorporation in the work satisfies the provisions of specifications relevant to the material and / or the work done.

9.4 For certain items, if tests are neither mentioned in the CPWD Specifications & BIS, then tests shall be carried out as per decision of Engineer-in-Charge.

10.Coordination at site:

At the site of work, as more than one agency may be working, full cooperation shall be extended to other agencies during progress of work. Further, work shall be carried in such a way so that it may not cause abnormal noise and hindrance to the officers of the department engaged in erection as well as doing normal routine work.

11.Joint Inspection;

Since the work is to be executed for the third party, A joint inspection report will be made by the BSNL representative and representative of the firm & representative of client/user regarding the functioning of the system, defects and remedial action required in time schedule for the rectification/remedial action. Agency is bound to attend to the defects/discrepancies in timely manner, failing which Engineer in charge is fully empowered to set right the defects with reasonable notice.

12.TRAINING OF PERSONNEL-

The contractor shall arrange to impart the training to the BSNL Personnel and client on the following aspects prior to provisional takeover of the Systems.

- a) Operation of individual systems
- b) Fault diagnoses and rectification.
- c) Preventive maintenance.

13.GUARANTEE AND DEFECT LIABILITY: -

The guarantee shall be valid for a period of **12** months after **successful completion of work joint inspection**. The contractor shall guarantee that all equipments shall be free from any defect due to the defective materials and bad workmanship and that the equipment shall work satisfactorily and that the performance and efficiencies of the equipments shall be not less than the guaranteed values. Any part(s) found defective during the guarantee period shall be replaced or made good by the contractor without any charge whatsoever. The services of the contractor's personnel, if requisition during this period for such work, shall be made available free of any cost to the department.

- a) The contractor shall depute his representative within 48 hours of notification of the defect by the department.
- b) A joint report shall be prepared by the representative of **Client department** and firm regarding nature of defects and remedial action required. Time schedule for such action shall be also finalized.
- c) In case the contractor fails to depute his representative within 48 hours of notification of the defect or fails to cause remedial measure within reasonable time as decided during joint inspection, the department may proceed to do so at the contractor's risk and expenses and without prejudice to any other right.

14. Terms of Payment:

Payment to the Contractors is regulated as below:

For SITC items:-

- a) 80% of the price shall be paid on the receipt of goods at site by the consignee. For claiming this payment the following documents are to be submitted to the paying authority:
 - i) invoice or equivalent document
 - ii) Delivery Challan, Consignee receipt etc as applicable
- b) 10% payment shall be released after installation, testing and satisfactory commissioning of equipment
- c) The balance 10% payment shall be made after final testing and handing over of the equipments to client department.

LIST OF PREFERED MAKE

[To be downloaded, filled up, scanned & uploaded along with bid document]

Sl. No	Description of Items	Make of item offered by firm	Preferred Makes	Compliance as per NIT (Yes/No)
1	Addressable Fire Alarm Panel		NOTIFIER/SIMPLEX/EDWARDS/SECUTRON/HONEYWELL/RAVEL	
2	Addressable multisensory/multicriteria type photo cum thermal detector		NOTIFIER/SIMPLEX/EDWARDS/SECUTRON/HONEYWELL/RAVEL	
3	Addressable Smoke Detector		NOTIFIER/SIMPLEX/EDWARDS/SECUTRON/HONEYWELL/RAVEL	
4	Addressable Heat Detector		NOTIFIER/SIMPLEX/EDWARDS/SECUTRON/HONEYWELL/RAVEL	
5	Analogue Addressable Fault isolator module		NOTIFIER/SIMPLEX/EDWARDS/SECUTRON/HONEYWELL/RAVEL	
6	Analogue Addressable Monitor module		NOTIFIER/SIMPLEX/EDWARDS/SECUTRON/HONEYWELL/RAVEL	
7	Analogue Addressable Control module		NOTIFIER/SIMPLEX/EDWARDS/SECUTRON/HONEYWELL/RAVEL	
8	Analogue Addressable Control relay module		NOTIFIER/SIMPLEX/EDWARDS/SECUTRON/HONEYWELL/RAVEL	
9	Addressable Electronic Hooter cum Strobe		NOTIFIER/SIMPLEX/EDWARDS/SECUTRON/HONEYWELL/RAVEL	
10	Addressable Manual call point		NOTIFIER/SIMPLEX/EDWARDS/SECUTRON/HONEYWELL/RAVEL	
11	Power Supply Unit (PSU)		CTEC/CSYSTEM/INSYIN	
12	Battery		Panasonic/Exide/Amaron	
13	Copper Conductor Wire		POLYCAB / VARSHA/ DATA FLEX	
14	PVC Conduits (FRLS)		VIP/ PRECISION/ASTRA/ANCHOR	
15	Access Control Panel		HONEYWELL / SPECTRA/MATRIX	
16	Proximity Card Readers		HONEYWELL / SPECTRA/MATRIX	
17	Proximity Access Card		HID	
18	Electromagnetic Door Lock		Bell, SDC, ASSA ABLOY	
19	Magnetic Contact		Sentrol, Secoalarm,Ademco	

Name of work: Providing EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)

20	PC Server Station		HP/DELL	
21	Local scare alarm		C SYSTEM/INSYIN	
22	Panic Bar		DORMA	
23	Buzzer		VAISHNO	
24	EDR (EMERGENCY BREAK GLASS)		KAC, Europlex, Sentrol, Honeywell	
25	CAT-6 Cable		AMP/COMMSCOPE/MOLEX/D-LINK	
26	IP Camera		HIKVISION /UNV/MATRIX/HONEYWELL	
27	Network Video Recorder (NVR)		HIKVISION /UNV/MATRIX/HONEYWELL	
28	8 Port Layer-2 POE Switch		CISCO / HP / DLINK	

Name of work: Providing EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)

PROFORMA OF SCHEDULES

(Operative Schedules to be supplied separately to each intending tenderer)

SCHEDULE 'A'

Schedule of quantities : Attached

SCHEDULE 'B'

Schedule of materials to be issued to the bidder: Nil

SCHEDULE 'C'

Tools and plants to be hired to the bidder: Nil

SCHEDULE 'D'

Extra schedule for specific requirements/documents for the work, if any: Nil

SCHEDULE 'E'

Schedule of components of Materials, Labour etc. for escalation: Nil

SCHEDULE 'F'

Reference to General Conditions of contract:

Name of work:	As per NIT notification page
Estimated cost of work:	
Earnest money:	
Security Deposit and performance Guarantee	

General Rules & Directions: Officer inviting tender: EE(E), ED III, Chennai

Definitions:

2(v) Engineer-in-Charge : EE (E), ED III, Chennai

2(vi) Accepting Authority : **SE (E), BSNL Electrical Circle-II, Chennai.**

2(x) Percentage on cost of materials and labour to cover all overheads and profits : 10%(Ten)

CLAUSE 5

Time allowed for execution : Two months or 15 Days after completion of Civil work whichever is later

Authority to give fair and reasonable extension of time for completion of work : SE (E), EC-II, Chennai

Competent Authority for deciding reduced rates : SE (E), EC-II, Chennai

Clause 25

Competent authority for conciliation: SE (E) not in-charge of the work.

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BSNL EW-8

Bharat Sanchar Nigam Limited
Electrical Wing

Electrical Division: EE(E), ED III, Chennai

Sub Division: ESD II, Chennai

1. I/we have read and examined the notice inviting tender, schedule, specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, clauses of contract, special conditions, Schedule of Rates and other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.
2. I/We hereby tender for the execution of the work specified for BSNL within the time specified, schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions and other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.
3. I/We agree to keep the tender open for ninety (90) days from the due date of submission thereof and not to make any modifications in its terms and conditions.
4. If I/We, fail to commence the work specified, I/We agree that the said BSNL shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely and the same may at the option of the competent authority on behalf of BSNL be recovered without prejudice to any other right or remedy available in law out of the deposit in so far as the same may extend in terms of the said bond and in the event of deficiency out of any other money due to me/us under this contract or otherwise.
5. Should this tender be accepted, I/We agree to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered upto maximum of percentage mentioned in clause 12.3 of the tender form and those in excess of that limit at rates to be determined in accordance with provisions contained in clause 12.2.
6. I/we agree to furnish to BSNL, Deposit at Call receipt/FDR/ Bank guarantee of a Nationalized/ Scheduled Bank for an amount equal to 5% of the contract value in a standard format within two weeks from the date of issue of award letter. I/We agree to keep the performance bank guarantee valid as per the BSNL terms and conditions.
7. I/We hereby declare that I/We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person other than to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety or interest of BSNL.

Contractor

Engineer in Charge

Name of work: Providing EI & Fans, CCTV, Access control system and AFD system for the at V & VI floor of Administrative Bldg Kushkumar Road, Chennai. (SW:-SITC of AFD,Access Control & CCTV system) (Recall-2)

<p>Signature of Witness (required in the case of bidder's thumb impression is given by the bidder in place of signature) Occupation of Witness :</p>	<p>(Signature of bidder) (Name & Postal address)</p> <p>Seal of Bidder</p> <p>Date:</p>
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Acceptance of Tender

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of BSNL for a sum of Rs. _____ (Rupees _____)

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

- a)
- b)

For & on behalf of BSNL

Dated

Signature:

Designation: