

विषय सूची (INDEX)

कार्य का नाम:— Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)

NIT No.:- 54/CE/NDZ-3/2025-26

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प्रमाणित किया जाता है कि इस निविदा में कुल 1 से 134 पृष्ठ हैं। (इस पृष्ठ सहित)

Certified that this N.I.T. contains 1 to 134 pages (including this page)

“NIT approved for Rs. 11,28,09,697/- (Rupees Eleven Crore Twenty-Eight Lakh Nine Thousand Six Hundred Ninety-Seven only)”.

--Sd/-
Executive Engineer (E)
DED-302, CPWD

--Sd/-
Executive Engineer
Q-Divn, CPWD

AE(E)-P
NDZ-III, CPWD

AE(P)-II
NDZ-III, CPWD

Executive Engineer(P)
NDZ-III, CPWD

Approved

Chief Engineer
NDZ-III, CPWD
New Delhi

PART – A

**INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING FORMING PART OF
BID DOCUMENT**

The Executive Engineer (E), DED-302, Trikoot-II CPWD, R.K. Puram, New Delhi on behalf of President of India invites online **Percentage rate bids** from CPWD enlisted contractors of appropriate class in Buildings & Roads (erstwhile composite /Building/Infrastructure) category of CPWD for the work:

S. No.	NIT No.	Name of work & location	Estimated cost put to bid	Earnest Money	Period of Completion	Last date & time of submission of bid, EMD,e-tender processing fee and other documents as specified in notice inviting tender	Time & date of opening of bid
1	2	3	4	5	6	7	8
1	54/CE/NDZ-3/2025-26	Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)	Total Rs. 11,28,09,697/- Rs. 9,50,78,823/- (Elect.) Rs. 1,77,30,874/- (Civil)	Rs. 21,28,097/-	09 (Nine) Months	09.03.2026 Upto 3:00 PM	09.03.2026 at 3:30 PM

(-*- to be filled by EE)

- The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
- Information and Instructions for bidders posted on website shall form part of bid document.
- The bid document 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://etender.cpwd.gov.in> or www.cpwd.gov.in free of cost.
- But the bid can only be submitted after deposition of original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD, within the period of bid submission and upload the mandatory scanned documents such as Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (for balance amount as prescribed) from any of the Commercial Banks, towards EMD in favour of **Executive Engineer (E), ED-17, CPWD, R.K. Puram, New Delhi** as mentioned in NIT, receipt for deposition of original EMD to division office of any Executive Engineer (including NIT issuing EE/AE), CPWD and other documents as specified.
- Those contractors who have not registered or have not updated their profile on the website mentioned above, are required to get registered/update their profile beforehand. The necessary training materials including the videos with step to step process are available on download section of <http://etender.cpwd.gov.in>.

6. The intending bidder must have valid class-III digital signature certificate with encryption key (combo type) to perform any operations/transactions on the e-tendering portal/website and the bidder should download and install the eMsigner on their system as per instructions available on download section of <https://etender.cpwd.gov.in>.
7. On opening date, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
8. Contractor can upload documents in the form of JPG format and PDF format.
9. Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures appears in yellow colour and the moment rate is entered, it turns sky blue.
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).
However, If a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section / sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.
10. Pre-Bid conference shall be held in the chamber of Chief Engineer, NDZ-III, Sewa Bhawan, CPWD, R.K. Puram, New Delhi – 110066 at **3 PM** on **25.02.2026** to clear the doubt of intending bidders, if any.

(-*- to be filled by EE)

11. List of Documents to be scanned and uploaded within the period of bid submission:

1. PAN Card issued by Income Tax Department, GOVT OF INDIA.
2. Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank guarantee from any of the Commercial Banks against EMD **in favour of "Executive Engineer (E), ED-17, CPWD, New Delhi."**
3. Enlistment Order of the Contractor of the Buildings & Roads (erstwhile Composite / Building / Infrastructure) Category in CPWD
4. Copy of receipt for deposition of original EMD issued from Division office of any Executive Engineer, (including NIT issuing EE), CPWD. (As per performa at Page No. 21)

Note :- EMD is required to deposit in the office of Executive Engineer (E), DED-302 (Formerly known as ED-17), CPWD, R K Puram New Delhi who is inviting bid or Division office of any Executive Engineer, CPWD within the period of bid submission as per CPWD Works Manual-2024 and associated SOP 2024(SOP 5/1 Para-6)

5. Copy of Certificate of Registration in GST & acknowledgment of upto date filed return of GST. If the bidder has not obtained GST registration as applicable, then he shall scan and upload following undertaking along with bid documents."If work is awarded to me, I/we shall obtain GST registration certificate, as applicable, within one month from the date of receipt of award letter or before release of any Payment by CPWD, whichever is earlier, failing which I/we shall be responsible for any delay in payments which will be due towards me/us on account of the work executed and/or for any action taken by CPWD or GST department in this regard".

6. Valid Electrical Contractor License or undertaking that they will either obtain valid electrical license at the time of execution of electrical work or associate the contractor having valid electrical license of appropriate class. **(Undertaking Form Enclosed Pg. 34)**
7. The Buildings & Roads (Erstwhile Composite/Building/Infrastructure) Category contractor shall have work experience as per NIT (Page No.37 & upload the completion certificate of work/works required. OR If the Buildings & Roads (Erstwhile Composite/Building/Infrastructure) Category contractor doesn't have work experience as per NIT (Page No.37), then the said Buildings & Roads (Erstwhile Composite/Building/Infrastructure) Category contractor shall upload **An undertaking that if "I/We shall become the lowest tenderer then I/We shall submit the documents of Associated specialized Agencies for specialized E & M Services as per the eligibility criteria mentioned in the "SPECIAL CONDITIONS FOR ASSOCIATION OF SPECIALIZED AGENCIES FOR SPECIALIZED E & M WORK" after acceptance of tender alongwith Performance Guarantee otherwise department shall forfeit the deposited EMD absolutely & shall reject my/our tender and debar me/us from re-tendering for this work "****(Undertaking Form Enclosed Pg. 35)**
8. An undertaking that "I/We have visited the site where the work to be executed and familiar with the existing installation, space constraint, modification if required for Replacement of Fire Fighting System.". **(Undertaking Form Enclosed Pg. 36)**
9. **ERP training Certificate. (Note: The enlisted contractor will not be allowed to participate in the tendering process without uploading the certificate of ERP training w.e.f. 01.07.2024.)**
10. Email & mobile no. of the firm/ agency on the letter head of firm/ agency (For making correspondence)

Note:- The Lowest Bidder is required to produce original document on or before or at the time of submission of Performance guarantee Money which are uploaded by the bidder at the time of bid submission otherwise Performance guarantee Money shall not be accepted & EMD shall be forfeited.

CPWD-6 FOR e-TENDERING

Percentage rate online bids are invited on behalf of President of India from CPWD enlisted contractors of appropriate class in Buildings & Roads (erstwhile composite /Building/Infrastructure) category of CPWD for the work:- **Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)**

The enlistment of the contractors should be valid on the last date of submission of bids.

In case the last date of submission of bid is extended, the enlistment of contractor should be valid on the original date of submission of bids.

The work is estimated to cost **Rs. 11,28,09,697/- (Elect Rs. 9,50,78,823//- + Civil Rs. 1,77,30,874/-)**. This estimate, however, is given merely as a rough guide.

1. Agreement shall be drawn with the successful bidder on prescribed Form No. **CPWD 7** (or other Standard Form as mentioned) which is available as a Govt. of India Publication and also available on website <https://etender.cpwd.gov.in> or www.cpwd.gov.in. Bidder shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
2. The time allowed for carrying out the work will be **09 (Nine) Months** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
3. The site for the work is available.
4. The bid document 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 except Standard General Conditions of Contract Form can be seen from website <https://etender.cpwd.gov.in> or www.cpwd.gov.in free of cost.
5. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.
6. While submitting the revised bid, contractor 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 bid as notified.
7. When bid are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted, then the bid submitted earlier shall become invalid.
8. Earnest Money in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (for balance amount as prescribed) from any of the Commercial Banks (drawn in favour of **Executive Engineer (E), ED-17, CPWD, R.K. Puram, New Delhi**) shall be scanned and uploaded to the e-Tendering website within the period of bid submission. **The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE/AE) shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT.**

This receipt shall also be uploaded to the e-Tendering website by the intending bidder upto the specified bid submission date and time.

A part of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs. 20 lac, whichever is less, shall have to be deposited in shape prescribed above, and

balance may be deposited in shape of Bank Guarantee including e- Bank Guarantee of any Commercial bank having validity for a period of 90 days for single bid works and 180 days for two bid system or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders. The earnest money given by all the tenderers except the lowest tenderer shall be refunded immediately after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier. However, in case of two/ three bid system, earnest money deposit of bidders unsuccessful during technical bid evaluation etc. should be returned within 30 days of declaration of result of technical bid evaluation.

Interested contractor who wish to participate in the bid has also to make following payments within the period of bid submission:

- (i) **e-tender Processing Fee** – One time payment for new registration or renewal <https://etender.cpwd.gov.in> validity One year

Copy of Enlistment Order and certificate of work experience and other documents as specified in the notice inviting e- tender shall be scanned and uploaded on the e-Tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in e- tender notice shall have to be submitted by the lowest bidder within a week physically in the office of tender opening authority. Online bid documents submitted by intending bidders shall be opened only of those bidders, whose original EMD deposited with any division of CPWD and other documents scanned and uploaded are found in order.

Online bid documents submitted by intending bidders shall be opened only of those bidders, **whose EMD deposited with any division office of CPWD and other documents scanned and uploaded are found in order.**

The bid submitted shall be opened at **3:30 PM**. On **09.03.2026**

9. The bid submitted shall become invalid and cost of e-tender processing fee shall not be refunded if:

- (i) The bidder is found ineligible.
- (ii) The bidder does not deposit original EMD with division office of any Executive Engineer, CPWD.
- (iii) The bidder does not upload all the documents, as mentioned in information for bidders at **S.No. 11 (Page- 5 to 6)**, including GST registration Certificate of State in which the work is to be taken up, if already obtained by the bidder. If the bidder has not obtained GST registration in the State in which the work is to be taken up, or as required by GST authorities, then in such a case the bidder shall scan and upload following undertaking along with other bid documents. "If work is awarded to me, I/we shall obtain GST Registration Certificate of the State, in which work is to be taken up, within one month from the date of receipt of award letter or before release of any payment by CPWD, whichever is earlier, failing which I/we shall be responsible for any delay in payments which will be due towards me/us on a/c of the work executed and /or for any action taken by CPWD or GST department in this regard.
- (iv) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest bidder in the office of tender opening authority.
- (v) If a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section/sub head in percentage rate tender, the tender shall be treated as invalid.

....*****.... **To be filled by EE**

10. The contractor whose bid is accepted, will be required to furnish performance guarantee at 5% (Five Percent) of the tendered amount as mentioned in Schedule 'E' and within the period specified in Schedule F. This guarantee shall be in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt or Bank Guarantee from any of the Commercial Banks in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F', including the extended period if any, then EMD submitted shall be forfeited automatically without any notice to the contractor. The Earnest Money deposited alongwith the bid shall be returned after receiving the aforesaid Performance Guarantee.

The Contractor whose bid is accepted will also be required to furnish either copy of applicable licenses/registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC, and BOCW Welfare Board including Provident Fund Code No. if applicable and also ensure the compliance of aforesaid provisions by the sub contractors, if any engaged by the contractor for the said work and Programme Chart (Time and Progress) within the period specified in Schedule F.

11. The letter of award shall be issued to the lowest contractor only on receipt of applicable labour licenses, registration with EPFO, ESIC and BOCW welfare board or on submitting the proof of applying thereof.

12. No running account bill shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCW welfare board, whatever application are received from the contractor by the Engineer in Charge.

13. The contractor shall submit programme chart (time and progress) for each mile stone along with performance guarantee and get it approved from the department. The chart shall be prepared in direct relation to the time stated in the contract documents for completion of the items of the work. It shall indicate the forecast of the dates of commencement and completion of various trades of sections of the work and may be amended as necessary by agreement between the Engineer in Charge and the contractor within the limitations of time imposed in the contract documents, and further to ensure good progress during the execution of the work. The contractor shall in all cases in which time allowed for any work exceeds one month (save for special job for which a separate program has been agreed upon) complete the work as per milestone given in Schedule "F".

14. Intending bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), 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 bids. 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 bid by a 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 Government and local conditions and other factors having a bearing on the execution of the work.

15. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of

any reason. All bids 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.

16. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable to rejection.
17. The competent authority on behalf of President of India 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. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture/Nursery category) responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the Central Public Works Department or in the Ministry of Urban Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
19. No Engineer of gazetted rank or other gazetted officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the previous permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the tender or engagement in the contractor's service.
20. The bids for the work shall remain open for acceptance for a period of **30 (thirty) days** from the date of opening of bids in case of single bid system and ~~75 (seventy five) days from the date of opening of technical bids in case bids are invited in 2 or 3 bid system.~~ Further
 - (i) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department within 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - (ii) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department after expiry of 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - (iii) In case of forfeiture of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the rebidding process of the same work.
21. This notice inviting bid shall form a part of the contract document. The successful bidder/contractor, on acceptance of his bid by the Accepting Authority shall within **Fifteen Days (15 days)** from the stipulated date of start of the work, sign the contract consisting of:
 - a. The Notice Inviting bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
 - b. Standard **C.P.W.D. Form- 7** or other Standard C.P.W.D. Form as mentioned.

22. Composite Bids

- 22.1 The Executive Engineer in charge of the major component will call bids for the composite work. The cost of bid document and Earnest Money will be fixed with respect to the combined estimated cost put to tender for the composite bid.
- 22.2 The bid document includes following three components:
- Part A:-** CPWD-6, CPWD-7/8 including schedule A to F for the major component of the work, Standard General Conditions of Contract for CPWD 2023 (For Maintenance Work) as amended/modified up to date correction slip issued up to the date of online submission of tender
- Part B:-** General / specific conditions, specifications and schedule of quantities applicable to major component of the work.
- Part C:-** Schedule A to F for minor component of the work (competent authority under clause 2 and clause 5 shall be same authority as mentioned in schedule A to F for major components), General/specific conditions, specifications and schedule of quantities applicable to minor component(s) of the work.
- 22.3 The bidders must associate himself, with agencies as per NIT conditions.
- 22.4 The eligible bidders shall quote rates for all items of major component as well as for all items of minor components of work.
- 22.5 After acceptance of the bid by competent authority, the EE in charge of major component of the work shall issue letter of award on behalf of the President of India. After the work is awarded, the main contractor will have to enter into one agreement with EE incharge of major component and has also to sign two or more copies of agreement depending upon number of EE's/DDH incharge of minor components. One such signed set of agreement shall be handed over to EE/DDH incharge of minor component(s). EE of major component will operate Part A and Part B of the agreement. EE/DDH incharge of minor component(s) shall operate Part- C alongwith Part A of the agreement.
- 22.6 Entire work under the scope of composite bid including major and all minor components shall be executed under one agreement.
- 22.7 Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of works.
- 22.8 The main contractor has to associate agencies for specialized component(s) conforming to eligibility criteria as defined in the bid document and has to submit detail of such agency(s) to Engineer-in-Charge of relevant component(s) within prescribed time. Name of the agency(s) to be associated shall be approved by Engineer-in-Charge of relevant component(s).
- 22.9 In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer-in- Charge of relevant specialized component(s). The new agency/agencies shall also have to satisfy the laid down eligibility criteria. In case Engineer-in-Charge is not satisfied with the performance of any agency, he can direct the contractor to change the agency executing such items of work and this shall be binding on the contractor.
- 22.10 The main contractor has to enter into MoU with agency(s) associated by him. Copy of such MoU shall be submitted to EE/ DDH in charge of each relevant component as well as to EE-in-charge of major component. In case of change of associate contractor, the main agency(s) has to enter into MoU/agreement with the new contractor associated by him.
- 22.11 Running payment for the major component shall be made by EE of major discipline to the main contractor. Running payment for minor components shall be made by the Engineer-in-Charge of the discipline of minor component directly to the main contractor. The Measurement books shall be maintained independently by Engineer-in- Charge of major and minor components.

- 22.12 (a) The composite work shall be treated as complete when all the components of the work are complete. The completion certificate of the composite work shall be recorded by Engineer-in-Charge of major component after record of completion certificate of all other components.
- 22.12 (b) Final bill of whole work shall be finalized and paid by the EE of major component. Engineer(s) in charge of minor component(s) will prepare and pass the final bill for their component of work and pass on the same to the EE of major component for including in the final bill for composite contract.
23. GST or any other tax applicable in respect of inputs procured by the contractor for this contract shall be payable by the Contractor and Government will not entertain any claim whatsoever in respect of the same. However, component of GST at time of supply of services (as provided in CGST Act 2017) provided by the contract shall be varied if different from that applicable on the last date of receipt of tender including extension if any.
24. The intending bidders are required to update their profile in CPWD e- tender portal and to upload their bids well in advance of last date of submission of tender. Any issue related to updating profile / uploading tender can be resolved through the concerned Executive Engineer/ Assistant Engineer (Phone no.....**....., e- mail Id**.....) or ERP help line no. 18001803286 or e-mail Id cpwd.support@techmahindra.com. The e-tendering bidders are also advised not to wait to raise any issues till the last date of submission of bid in their own interest.

....*****.... To be filled by EE

**Signature of the Divisional Officer,
For and on behalf of the President of India**

CPWD-7
GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT

STATE : Delhi
BRANCH : B&R

DIVISION : **DED-302**
ZONE : **NDZ-III**

Percentage Rate Bid & Contract for Works

Bid for the work of: Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)

(i) To be submitted online by 15:00 hrs on 09.03.2026 to The Executive Engineer (E), DED-302, CPWD, Trikoot-II, R.K. Puram, New Delhi.

(ii) To be opened online in presence of Bidders who may be present at 15:30 hrs on 09.03.2026 in the office of The Executive Engineer (E), DED-302, CPWD, Trikoot-II, R.K. Puram, New Delhi.

Issued toxxx..... (Name of contractor)

Signature of officer issuing the documentsxxx.....

Designation **Executive Engineer (E), DED-302, CPWD, New Delhi,**

Date of Issue ...xxx.....

(xxx to be filled by EE)

BID

I/We have read and examined the notice inviting bid, schedule A, B, C, D, E & F Specifications applicable, Drawings & Designs, General rules & directions, Conditions of contract, clauses of contract, special conditions, schedule of rates, other documents and rules referred to in the conditions of contract and all other contents in the bid document for the work.

I/We hereby bid for the execution of the work specified for the President of India within the time specified in Schedule 'F' viz., schedule of quantities and in accordance in all respect with the specifications, designs, drawing and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respect of accordance with, such conditions so far as applicable.

We agree to keep the tender open for **Thirty (30 days) from the date of opening of bids** and not to make any modification in its terms and conditions.

I / We have deposited EMD for the prescribed amount in the office of concerned Executive Engineer as per the bid document.

A copy of earnest money deposit receipt of prescribed amount deposited in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (for balance amount as prescribed) from any of the Commercial Banks is scanned and uploaded (strike out as the case may be). If I/We, fail to furnish the prescribed performance guarantee within prescribed period. I/We agree that the said President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that President of India or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely.

The said performance guarantee shall be guarantee to execute all the works referred to in the bid documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the bid form. Further, I/We agree that in case of forfeiture of

Earnest Money & Performance Guarantee as aforesaid. I/We shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred for tendering in CPWD in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

I/We hereby declare that I/We shall treat the bid documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived therefrom to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

Dated

Dated: **xxx**

Signature of Contractor **xxx**

Witness: **xxx**

Postal Address **xxx**

Address: **xxx**

Occupation: **xxx**

(xxx to be filled by the contractor)

ACCEPTANCE

The above bid (as modified by you as provided in the letters mentioned hereunder) is accepted by me for an on behalf of the President of India for a sum of Rs..... **xxx** (Rupees **xxx**).

The letters referred to below shall form part of this contract agreement:-

(a) **xxx**

(b) **xxx**

For & on behalf of President of India

Signature **xxx**

Dated:

Designation **xxx**

(xxx To be filled by Executive Engineer)

PROFORMA OF SCHEDULES

SCHEDULE 'A'

Schedule of quantities (as per CPWD-3) **As per Schedule enclosed (Page 72 To 90)**

SCHEDULE 'B'

Schedule of materials to be issued to the contractor:

S. No.	Description of item	Quantity	Rates in figures & words at which the material will be charged to the contractor	Place of issue
1	2	3	4	5
NIL				

SCHEDULE 'C'

Tools and plants to be hired to the contractor

S. No.	Description	Hire charges per day	Place of issue
1	2	3	4
NIL			

SCHEDULE 'D'

Extra schedule for specific requirements/document for the work, if any. **---- NIL ----**

SCHEDULE 'E'

Reference to General Conditions of contract: **CPWD GCC Construction Works- 2023 as modified/amended upto last date of submission of bid.**

Name of Work:- Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)

- i) **Estimated cost of work** : **Rs. 11,28,09,697/- (Total)**
Rs. 9,50,78,823//- (Electrical)
Rs. 1,77,30,874/- (Civil)
- ii) **Earnest Money** : **Rs. 21,28,097-** (to be returned after receiving Performance guarantee)
- iii) **Performance Guarantee** : **5% of tendered value**
- iv) **Security Deposit** : **2.5% of tendered value**

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS:

Officer inviting bid : **Executive Engineer(E),
"DED-302" CPWD,
R.K. Puram, New Delhi**

Maximum percentage for quantity of items of work to be executed beyond which rates are to be Determined in accordance with Clauses 12.2 & 12.3:

See relevant clause

Definitions:

2(v) Engineer-in-Charge

Executive Engineer(E),
"DED-302", CPWD,
R.K. Puram, New Delhi

2(vi) Accepting Authority

Chief Engineer,
NDZ-III, CPWD,
R.K. Puram, New Delhi

2(vii) Percentage on cost of materials and Labour to cover all overheads and profits

15%

2(viii) Standard Schedule of Rates

DSR-2025 (E&M) & Based on
Current Minimum wages of
labour

2(ix) Department

Central Public Works Department

9 (ii) Standard CPWD Contract Form

CPWD -7

Clause 1

(i) Time allowed for submission of Performance Guarantee, Programme Chart (Time & Progress) and applicable Labour Licenses, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance.

7 days

(ii) (ii)Maximum allowable extension with late fee @ 0.1% per day of performance guarantee amount beyond the period provided in (i) above

3 days

Clause 2

Authority for fixing compensation under clause- 2

Chief Engineer,
NDZ-III, CPWD,
Sewa Bhawan, R.K. Puram

Clause 2A

Whether Clause 2A shall be applicable

No

Clause 5

Number of days from the date of issue of letter of acceptance for reckoning date of start

10 days

Mile stone(s) as per table given below:-

S.No.	Description of milestone (Physical)	Time allowed in days (from date of start)	Amount to be with held in case of non achievement of milestone (of agreement amount)
1	Submitting Technical data sheet and general arrangement drawing and obtaining of approval.	30 Days	1 %
	Dismantling of existing Fire Fighting and Fire Alarm System	60 Days	1%
2	Supplying of Pumps, Panels and associated material of Fire Fighting and Fire Alarm System	120 Days	1 %
3	Installation of Fire Fighting and Fire Alarm System	240 Days	1 %
4	Final testing & commissioning of Fire Fighting and Fire Alarm System	270 Days	1 %

Time allowed for execution of work

09 (Nine) Months

Authority to decide:

(i) Extension of time

(a) Without levy of Compensation

**Chief Engineer,
New Delhi Zone-III, CPWD,
R.K. Puram, New Delhi**

(b) Authority to give fair and reasonable with levy of compensation.

**Chief Engineer,
New Delhi Zone-III, CPWD,
R.K. Puram, New Delhi**

(ii) Rescheduling of mile stone

NA

(iii) Shifting of date of start in case of delay in handing over the site

**Chief Engineer,
New Delhi Zone-III, CPWD,
R.K. Puram, New Delhi**

Clause 6

Mode of measurement

Electronic Measurement Book (EMB)

Clause 7

Gross work to be done together with net payment /adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment

**Rs. 106.00 Lakh
(Subject to availability of budget)**

Clause 7A

Whether Clause 7A shall be applicable

Yes

Clause 10A

List of testing equipment to be provided by the contractor at site lab: **As per requirement of work at site**

Clause 10B (ii)

Whether Clause 10 B (ii) shall be applicable **N.A.**

Clause 10C

Components of labour expressed as percent of value of work **As per GCC**

Clause 10CC : Not Applicable

~~Clause 10 CC to be applicable in contracts with stipulated period of completion exceeding the period shown in next column~~ : **12 Months**

~~Schedule of component of other Materials, Labour, POL etc. for price escalation.~~

~~Component of civil /Electrical construction Materials expressed as percent of total value of work. $X_m = 25\%$~~

~~Component of Labour expressed as percent of total value of work. $Y = 75\%$~~

~~Component of P.O.L. expressed as percent of total value of work. $Z = \text{NIL}$~~

~~Note: $X_m + Y + Z$ should be equal to (100) (Component of labour + Component of P.O.L)~~

Clause 11

Specifications to be followed for execution of work: CPWD General Specifications for Electrical Works: Part I (Internal) 2013, Part II (External) 1994, Part IV (Sub Station) 2013, Part V (Wet Riser & Sprinkler system) 2020, Part-VI Fire Alarm System) 2018 amended upto date & as per Terms & conditions attached.

Clause 12

	Type of work	Original Work
12.3	(i) Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building work	100%
12.5	(i) Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (Except earth work)	100%
	(ii) Deviation Limit for items in earth work subhead of DSR or related items	100%

Clause 16

Competent Authority for deciding reduced rates

**Chief Engineer, NDZ-III, CPWD,
R.K. Puram, New Delhi**

Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site:

As per requirement at site & as per direction of Engineer-in-Charge.

Clause 25

Settlement of Disputes by Conciliation and Arbitration:

Conciliator	-	Additional Director General (Delhi)
Arbitrator appointing Authority	-	Chief Engineer, NDZ-III
Place of Arbitration	-	New Delhi

Clause 32

Requirement of Technical Representative(s) and recovery Rate: -

S. No.	Minimum Qualification	Discipline	Designation	Minimum Experience (in Years)	Number	Rate per month at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 32(i)	
						Figures	Words
1	Graduate Engineer	E&M	Project Manager	10 (and having experience of one similar nature of work)	1	Rs. 30,000/- Per Month	Rupees Thirty Thousands Per Month
2	Graduate Engineer or Diploma Engineer	E&M	Project/ Site Engineer	5 or 10 respectively	1	Rs. 25,000/ per Month	Rupees Twenty Five Thousands Per Month
3	Graduate Engineer or Diploma Engineer	E&M+ Civil	Planning/ Quality/ Billing Engineer	2 or 5 respectively	1+1	Rs. 15,000/ per Month per person	Rupees Fifteen Thousands Per Month per person
4	Graduate Engineer or Diploma Engineer	E&M+ Civil	Project/ Planning/ Quality/ Billing Engineer	2 or 5 respectively	1+1	Rs. 15,000/ per Month per person	Rupees Fifteen Thousands Per Month per person

Assistant Engineers retired from Government services that are holding Diploma will be treated at par with Graduate Engineers.

Diploma holder Engineer with minimum 10 year relevant experience with a reputed construction co. can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holder Engineers should not exceed 50% of requirement of degree engineers.

Clause 38

- | | | |
|------|--|--------------|
| (i) | (a) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates 2018 printed by C.P.W.D. | N.A. |
| (ii) | Variations permissible on theoretical quantities:
Cement For works with estimated cost put to bid not more than Rs. 25 lakh.
For works with estimated cost put to bid more than Rs.25 lakh | N.A.
N.A. |
| b) | Bitumen for all works. | N.A. |
| c) | Steel Reinforcement and structural steel sections for each diameter, section and category. | N.A. |
| d) | All other materials. | N.A. |

Receipt of deposition of original EMD

Receipt No.

Date

1. **Name of work: Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)**
2. **NIT No. :- 54/CE/NDZ-3/2025-26**
3. **Estimated Cost: - Rs. 11,28,09,697/-**
4. **Amount of Earnest Money Deposit: - Rs. 21,28,097/-**
5. **Last date of submission of bid 09.03.2026 upto 15:00 hrs**

(*To be filled by NIT approving authority/EE at the time of issue of NIT and uploaded along with NIT)

1. **Name of the Contractor.....***.....**
2. **Form of EMD***.....**
3. **Amount of Earnest Money Deposit***.....**
4. **Date of submission of EMD***.....**

**Signature, Name and Designation of EMD receiving officer
(EE/AE(P)/AE/AAO) along with office stamp**

(**To be filled by EMD receiving EE)

NOTE:- “EMD shall be in favour of “Executive Engineer (E), ED-17, CPWD, New Delhi.”

(Guarantee Offered By Bank to CPWD In Connection With The Execution Of Contracts) Form of Bank Guarantee for Performance Guarantee/Security Deposit/Mobilization Advance.
(CPWD, OM No.DG/CON/311 dated 20.10.2020)

(To be given on Non-Judicial Stamp Paper of Minimum Rs. 100)

1. Whereas, the **Executive Engineer (E), ED-17, CPWD, R K Puram New Delhi-66** on behalf of the President of India (hereinafter called "The Government") has invited bids under(NIT Number).....dated.....for “ **Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)**”

The Govt. has further agreed to accept irrevocable Bank Guarantee for Rs..... (Rs..... only) valid upto.....(date)*.....as Earnest Money Deposit from.....(name and address of the contractor).....(hereinafter called “the contractor”) for compliance of his obligations in accordance with the terms and conditions of the said NIT.

OR**

Whereas, the **Executive Engineer (E), ED-17, CPWD, R K Puram New Delhi-66** on behalf of the President of India (hereinafter called "The Government") has entered into an agreement bearing number.....with.....(name and address of the contractor).....(hereinafter called “the contractor”) for execution of work “ **Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)**”

The Government has further agreed to accept an irrevocable bank Guarantee for Rs.....(Rupees.....only) valid upto.....(date).....as Performance Guarantee/Security Deposit/Mobilization Advance from the said contractor for compliance of his obligations in accordance with the terms and conditions of the agreement.

- i. We,(indicate the name of the bank).....(herein after referred to as “the Bank”), hereby undertake to pay to the Govt. an amount not exceeding Rs..... (Rs.....only)on demand by the Govt. within 10 days of the demand.
- ii. We,(indicate the name of the bank)..... do here by undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Govt. stating that the amount claimed is reqd. to meet the recoveries due or likely to be due from the Said contractor. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.....(Rupees.....only)
- iii. We,(indicate the name of the bank)....., further undertake to pay the Govt. any money so demanded notwithstanding any dispute or disputes raised by the contractor in any suit or proceeding pending before any Court or Tribunal, our liability under this Bank Guarantee being absolute and unequivocal. The payment so made by us under this Bank Guarantee shall be a valid discharge of our liability for payment there under and the Contractor shall have no claim against us for making such payment.
5. We,(indicate the name of the bank)....., further agree that the Govt. shall have the fullest liberty without our consent and without affecting in any manner our obligation here under to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the Govt. against the said contractor and 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 contractor or for any forbearance, act of omission on the part of the Govt. or any indulgence by the Govt. to the said Contractor or by any such matter or thing what over which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. We,(indicate the name of the bank).....,further agree that the Govt. as its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor at the first instance without

proceeding against the Contractor and notwithstanding any security or other guarantee the Govt. may have in relation to the contractor's liabilities.

7. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.

8. We,(indicate the name of the bank).....,undertake not to revoke this guarantee except with the consent of the Govt. in writing.

9. This Bank Guarantee shall be valid upto.....unless extended on demand by the Govt. notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs.....(Rupees..... Only) and unless a claim in writing is lodged with us within the date of expiry or extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

DATE

WITNESS

Authorized signatory

1. Signature....

Name and Address

1. Signature....

Name of Address

Name

Designation

Staff Code No.

Bank Seal

*Date to be worked out on the basis of validity period of 90 days where only financial bids are invited and 180 days for two/three bid system from the date of submission of tender.

**In paragraph 1, strike out the portion not applicable. Bank Guarantee will be made either for earnest money or for performance guarantee/security deposit/mobilization advance, as the case may be.

PART – B

Electrical Work

GENERAL TERMS & CONDITIONS FOR ALL E&M WORKS

1. **The work shall be carried out strictly in accordance with CPWD Specification Part-I (Internal)-2023, Part-II (External) 2023, Part IV (Sub Sub Station work) – 2013, Part-V - Wet riser & sprinkler System – 2020, Part VI - Fire Detection and Alarm system Part VI. with correction upto date and in accordance with Indian Electricity Rules, 1956, India Electricity Act, 2003 as amended upto date and as per instructions of the Engineer-in-Charge.**
2. All the material to be used on this work by the contractor shall be approved from the Engineer-in-Charge in advance before installation at the site.
3. The contractor shall to submit the drawing/sketch/layout on the basis of BID document for the proposed work to Engineer-in-Charge, which shall be approved by Engineer-in-Charge after due examination. The contractor shall then start the work as per approved layout drawing.
4. All damages done to the building during the execution of electrical work shall be the responsibility of the contractor and the same will be made good immediately at his own cost to the satisfaction of the Engineer-in-Charge. In case, the repair is not satisfactory, the department will get it rectified & any expenditure incurred by the department in this condition shall be recovered from the contractor and decision of the Engineer-in-charge about recovery shall be final & binding on the contractor.
5. The bad workmanship will not be accepted and defects shall be rectified at contractor's cost to the satisfaction of the Engineer-in-Charge. The program of electrical works is to be coordinated in accordance with occupants of the building as well as with civil works.
6. All the debris of the electrical works should be removed and the site should be cleared by the contractor immediately after the accruing of debris daily. Similarly, any rejected material should be immediately cleared off from the site by the contractor.
7. The contractor or his engineer is bound to sign the site order book as and when required by the Engineer-in-Charge and to comply with the remarks therein.
8. The rates tendered should be inclusive all taxes and duties. Statutory deductions at source shall be made while releasing payment through running/final bills as applicable. A certificate specifying the rate and amount of deduction shall however issue by the department.
9. The entire installation shall be at the risk and responsibility of the contractor until these are tested and handed over to the department. The watch & ward is the responsibility of the contractor till handing over. In case of any loss due to theft, the same shall be made good by the contractor on its own expenses
10. Notwithstanding the schedule of quantities, all items of interrelated works considered necessary to make the installation complete and operative are deemed to be included, shall be provided by the contractor at no extra cost.
11. The connection, inter connection, earthing and inter earthing shall be done by the contractor wherever required and nothing extra shall be paid on this account.

12. Nothing extra shall be paid for inter connections with thimbles/Wires/Tapes strips etc. used on the work.
13. The contractor has to make his own arrangements for stores and watch and ward and no extra claim for this will be entertained.
14. Contractor shall be bound to execute such additional items which can be termed as logical, essential and necessary (even though not listed in schedule of work) for the effective execution of the work in totality, rates for such items of work shall be worked out as per Clause-12 of GCC and shall be binding on the contractor.
15. If the behavior of the worker is not found satisfactory, the contractor has to change staff within 3 days, failing which, the Engineer-in-Charge has the power to cancel the contract, and the contractor shall have no claim of compensation
16. The contractor shall discuss with EE(E) or his authorized representative/visit the site before placing the supply order/delivery of materials at site as per actual requirement as the actual Quantity of materials required may deviate (+/-) from the quantity taken in the schedule of work/inventory of the agreement.
17. The quoted rates should be inclusive of all taxes i/c GST etc. and nothing extra will be paid on this account.
18. The contractor shall take all precaution for safety of the workmen. If any accident/mishap occurs, the department shall not be responsible for the same. Consequently, any compensation payable shall be at the contractor cost.
19. Each work has its own particular requirements. Therefore, in addition to the General Specifications, governing BIS, I.E. Rules, Standard Contract Conditions etc. there would be necessity of additional conditions/ specifications for a particular work. In case of any discrepancy such additional conditions/ specifications will override these General Specifications.
20. All Electrical works shall be carried out in accordance with the provisions of Indian Electricity Act, 2003 and Indian Electricity Rules, 1956 amended up to date (Date of call of tender unless specified otherwise). List of Rules of particular importance to Electrical Installations under these General Specifications is given in Appendix C for reference.

1.0 **GENERAL AND COMMERCIAL CONDITIONS:**

- 1.1 This section covers the various commercial conditions applicable and to be read in connection with the conditions of contract of the standard form (CPWD-7 / 8) of the department (CPWD) forming part of the tender papers. In the event of any discrepancy between these two, the requirements of the former will be followed.
- 1.2 These additional conditions and additional specifications are applicable to all E&M works in general. For specific tenders some of the E&M services may not be a part of the particular tender. In such cases the conditions and specifications which are not related to the works or components thereof mentioned in the schedule of work shall not apply for that particular tender.
- 1.3 All the E & M works shall be carried out as per direction and to the entire satisfaction of the Engineer-in-charge.

- 1.4 Unless otherwise specified in the following conditions, the work shall, in general, be carried out as per following specifications:
- a) CPWD General Specifications for Electrical Works–Part-I(Internal),2023 amended up to date.
 - b) CPWD General Specifications for Electrical Works–Part-II(External),2023 amended up to date.
 - c) CPWD General Specifications for Electrical Works–Part IV (Substations) 2013 amended up to date.
 - d) CPWD General Specifications for Electrical Works–Part-V(Wet Riser and Sprinkler System), 2020 amended up to date.
 - e) CPWD General Specifications for Electrical Works–Part-VI (Fire Alarm System),2018 amended up to date.
 - f) Relevant BIS specifications amended upto date.
 - g) Indian Electricity Act 2003 and Indian Electricity Rules 1956 amended up to date.
 - h) Local Fire Regulations applicable at the place of installation.
 - i) Relevant and applicable foreign standards and specification as amended upto date.
 - j) Any other relevant actor rules and local bye laws.
 - k) Commercial and additional conditions and specifications for E&M works forth is tender.
- 1.5 If the specifications for any item or its component are not available in the CPWD specifications cited above, relevant BIS specification as amended up to date shall be followed, whether or not the specific reference of a particular BIS specification has been made in this specification / tender document.
- 1.6 Wherever any reference to any Indian Standard specification occurs in the document relating to this contract the same shall be inclusive of all amendments issued thereto or revisions thereof, if any, up to the date of opening of tenders.
- 1.7 All materials should conform to relevant BIS specifications wherever the same exists in absence of stipulation in this tender document.
- 1.8 Where manufacturers furnish specific instructions / recommendations relating to the materials used in this job and/or their installation, covering points not specifically mentioned in these documents, these instructions shall be followed in all cases and shall be deemed to be included in the schedule of work whether they have been specifically mentioned or not.
- 1.9 Manufacturer’s catalogue/literature on installation, testing, maintenance and troubleshooting of major equipment shall be submitted to the department while handing over the installation.

1.10 MATERIALS TO BE USED IN THE WORK:

- 1.10.1 All materials used in the work shall be new and of good quality, conforming to the relevant specifications as per good engineering practice.
- 1.10.2 The materials to be supplied/provided by the contractor in execution of the work should be ISI marked, wherever applicable and of make as specified in the agreement. Where the make of any particular material is not specified in the contract document, the material shall be supplied as per makes desired by the engineer-in-charge.
- 1.10.3 It will be the responsibility of the contractor / bidder to ensure use of genuine materials in the work. The department reserves the right to get (any / all materials / components) inspected by the manufacturer or their authorized representatives at any stage of the execution of work. If any of the materials, equipment supplied and used in work is found spurious at any stage, then the department reserves the right to ask the contractor to replace it by genuine one and make suitable recovery and / or withheld suitable amount till it is done, even if any payment against that material is already made.
- 1.10.4 The department may ask for any valid document like manufacturer's test certificate, document for purchase of the material, document for import/shipment of imported material etc. as deemed fit by the engineer-in-charge to ascertain genuinity of material supplied by /used in the work by the contractor. The contractor shall remain bound to submit all such documents to the department failing which payment may not be made or if already paid may be recovered / withheld from subsequent running account payment.
- 1.10.5 Copies of all purchase documents for all equipment, accessories, fittings, fixtures etc. which carry guarantee / warrantee shall be handed over to the department in suitable form so that proper guarantee of materials are available to the department.
- 1.10.6 All the equipment and their components and all the materials to be used in the work shall be suitable for the environmental conditions at the location of the work.
- 1.10.7 The materials to be supplied in this work shall be scheduled in such a way that milestones are achieved and no shortfall is there. At the same time materials should be brought at sight in phases in such a manner so that they are not brought much in advance at site and dumped in work site for long period before installation and guarantee / warrantee of the materials are available for full period as per tender conditions. If the materials / equipment are supplied at site much before actual use in work, the department shall not remain bound to make payment for such items of work involving the said materials / equipment. The decision of the engineer in charge will be final and binding on all.
- 1.10.8 Dismantle materials, if any, should be returned to the department unless otherwise anything in contrary has been specifically stated in the tender document /SOQ.

1.11 RATES:

1.11.1 Unless otherwise provided in the schedule of quantities of the work the rates tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the building and nothing extra shall be payable to him on this account.

The rates for all items of work shall, unless clearly specified otherwise, include cost of all labours, materials and other inputs involved in the execution of the item irrespective of whether they have been specifically mentioned in the tender document or not.

1.11.2 This being an indivisible works contract, GST, Import Duty or any other tax etc. are not payable separately. The rates tendered shall be firm and inclusive of all taxes, duties, cess and levies as applicable and all charges for packing, forwarding, insurance, freight and delivery, installation, testing and commissioning at site, watch and ward etc. including temporary constructional storage, risks, overhead charges, general liabilities/ obligation sand clearance from local bodies and State Fire Services, as applicable. How ever, fees payable to the local bodies/authorities for such clearance etc. shall be borne by the department.

1.11.4 The rate to be quoted by the contractor against each sub head of the schedule of quantity appended with this NIT will be treated as unique for that particular subhead and shall not be compared with the rates quoted/considered for the similar/same items existed in another subhead. The items mentioned in the sub head will be used for the execution of items related to that particular sub head only.

1.12 ACCIDENT:

1.12.1 The department (CPWD) shall not have any responsibility or liability in case of any accident injury to the personnel to the contractor at worksite or to the general public at the worksite due to mishandling equipment by the personnel of the contractor or any other similar reason. The responsibilities and liabilities for such accidents and incidents shall be borne in full by the contractor.

1.13 AFTER SALES SERVICE:

1.13.1 The contractor shall ensure adequate and prompt after sales service in the form of maintenance personal and spares as and when required with a view to minimize the break. Particular attention shall be given to ensure that all spares are easily available during the normal life of the installation.

1.14 REMOVAL OF SURPLUS MATERIALS AND TOOLS:

1.14.1 After completion of work the agency shall remove his men, materials and debris etc. from site.

1.15 QUALITY OF WORK AND WORKMAN SHIP:

1.15.1 The contractor shall be entirely responsible and answerable for all the works done by him regarding quality, adherence to the laid down specifications, terms and conditions, warranty/guarantee etc. and he shall be liable to bear any compensation that may be levied by the department under any of the clauses of the agreement.

1.15.2 Clause 1.15 of CPWD General Specifications for Electrical Works, Part – IV, Substation 2013 and clause 1.13 of CPWD General Specifications for Electrical Works, Part – VII (DG Sets), 2013 shall be applicable.

1.15.3 The materials having ISI mark shall have precedence over the one conforming to IS Specifications.

1.15.4 The contractor is advised to visit the site before quoting for his tender to apprise himself about the site environments and other conditions. Drawings and inventories can be seen in the office of the Engineer – in – charge.

1.16 **WATCH AND WARD:**

1.16.1 The contractor will make his own storage of his own materials. The watch and ward of the materials and of the installations would be responsibility of contractor till the work is completed / handed over to the department. Nothing extra shall be paid to the contractor on this account.

1.16.2 Making payment to the contractor in any form against supply of materials / equipment / components or execution thereof shall not absolve the contractor of his responsibility of watch and ward of the equipment / materials etc. and their satisfactory functioning until the same is taken over by the department after successful installation, testing, commissioning and running in period.

1.16.3 No separate storage space will be provided to the contractor for storage of his materials and equipment's to be brought at site and used in execution. The available open site space (if available) be used by the contractor for storage purposes in which case he may build up temporary store at available site space at his own cost.

1.17 **VARIATION IN QUANTITY:**

1.17.1 Quantities shown against each item of work or supply are tentative which may vary on either side (plus or minus). This variation shall, in general, be governed by clause no. 12 of the clauses of contract of CPWD form 7 / 8. The contractor should ensure from the Engineer-in-charge and from the site condition the actual quantity required / to be used / to be supplied before bringing the materials at site. In case the actual quantity of material required at the site is less than the stipulated quantity, the contractor cannot claim to supply entire quantity stipulated in the schedule of quantities of work (Schedule – A) as well as cannot demand for payment thereof. The contractor shall therefore, be very careful about the quantity of materials to be supplied/brought at site. The decision of the Engineer-in-charge in this regard shall be final and binding on the part of the contractor. Even if initial payment for supply of materials is made in any form for bringing material at site and if it is found at later stage that the actual requirement is less as per site requirement or as per decision of the Engineer-in-charge, the contractor shall have to take back the additional quantity brought / supplied at site and necessary adjustment shall be made from his next bill on this account. No claim in this regard shall be entertained.

1.18 **NATURAL CALAMITY:**

1.18.1 No payment will be made to the contractor for any damage caused by rain, snow fall, floods, dampness,

fire, sun or any other natural cause whatsoever during the execution of work. The damage to the work due to above reason, if any, shall have to be made good by the contractor at his own cost and no claim on this account shall be trained.

1.19 INSPECTION AND TESTING:

- 1.19.1 The Engineer-in-charge or his authorized representative may inspect any material at manufacturers' works and may witness routine tests as per relevant Indian Standard Specifications or other relevant specifications at manufacturers' works.
- 1.19.2 The contractor shall give in writing advance notice to the Engineer-in-charge and arrange for such inspection / presence for testing at manufacturers work. The TA/DA etc. of the departmental personnel who will be deputed to witness the tests etc. shall be borne by the Department.
- 1.19.3 The Engineer-in-charge or his authorized representatives shall have, at all the reasonable times, access to the contractor's premises or works or other works where manufacturing/fabrication shall be done and shall have the power, at all reasonable times, to inspect and examine the materials and workmanship during its manufacture or fabrication.
- 1.19.4 Inspection of imported materials at foreign works shall however not be carried out by the department. These materials shall be inspected and tested at site. Manufacturers' original test certificates and document of import / shipment should be provided to the department along with the materials without which no payment should be made to the contractor.
- 1.19.5 The contractor shall arrange for all the materials and labour required in connection with inspection of equipment or for any testing to be carried out at his works / manufacturers' works or at site of installation. Notice of such inspection / presence for testing shall be given by the contractor to -in-charge at least fifteen days in advance.
- 1.19.6 Not with standing approval for such tests/ inspection of equipment's / components by the Engineer-in-charge or his authorized representative, the contractor shall be required to perform site tests as desired by the Engineer-in-charge and prove the correctness of rating sand performance of equipment's / components and materials supplied and / or installed by him as per contract specifications and conditions at his own cost.
- 1.19.7 The Engineer-in-charge reserves the right to reject any equipment/machinery /material should it, on tests after installation, be found not to comply with contract specifications or its performance is not satisfactory.
- 1.19.8 Final inspection and testing will be done by the engineer-in-charge or his representative as be indicated by the engineer-in-charge.
- 1.19.9 It shall be the responsibility of the contractor to get the installation inspected and passed by the local authorities concerned, as may be required by the local bye laws. The contractor will extend all help including test facilities to the representatives of the local bodies. In case the contractor fails to make desired facilities available during inspection, the department reserves the right to provide the same at

the risk and cost of the contractor. The observation of the local authorities will be promptly attended by the contractor. The installation will be accepted by the department only after receiving clearance from the local bodies / fire authorities. The inspection charges leviable by the local / statutory authorities for the inspection shall however, be borne by the department.

1.20 **COMPLETION DRAWING AND MANUAL:**

1.20.1 In addition to the mode and form of submission of completion drawings and manuals as stipulated in the relevant CPWD Specifications for various sub-heads of E&M works, the contractor shall also submit soft copy of the completion drawings in CD /DVD.

1.21 **POWER SUPPLY AND WATER SUPPLY:**

1.21.1 No Power & Water Supply shall be provided by the department for the purpose of execution of the E&M work, except for testing and commissioning of installations. The contractor shall make his own arrangement in this regard. The power supply for testing and commissioning will be given at one point inside the premises and the contractor shall have to make arrangement for required cabling work and switch gears for extension of the power to the required location for testing. This will be applicable to all sub-heads of E&M works.

1.22 **WORKS TO BE DONE BY THE CONTRACTOR**

1.22.1 Unless otherwise mentioned in the tender documents, the following works shall be done by the contractor and therefore, their cost shall be deemed to be included in their tendered cost whether specifically indicated in the schedule of quantity/ work or not:

- a. Foundations for equipment's / structures / fuel tank / pumps including vibration isolation spring/ pads.
- b. All minor building works necessary for installation of equipment's such as making of openings in walls / floors, either of RCC or brick masonry, foundation trench for fuel line and cable, making of opening in walls or in floors and restoring them to their original condition / finish and necessary routing etc. as required.
- c. Dismantling of brick wall, if any, for inserting / positioning / placement of equipment's, Control panel / Diesel Tanks or for taking ducting / cable tray / pipes and rebuilding /making good the same to its original position / finish.
- d. Making good all damages caused to the structure during installation and restoring the same to their original finish.
- e. **Supply and installation of all necessary angle / channel / flat iron supports and brackets etc. for installation of the Fire fighting and fire alarm equipments & accessories on floor / wall / Shaft / terrace and at other places, if it is not specifically mentioned in the BOQ may be considered as included in the scope of the work and nothing extra shall be paid.**

- f. Responsibility to ensure safety of all materials against pilferage and damage till the installation is handed over to the department.
- g. All scaffolding as may be necessary for installation of wet riser and sprinkler pipes and all other equipment's and their sub-assemblies / accessories on floor / wall / Shaft / terrace and at other places during erection work and subsequent removal are included in the scope of work.
- h. Painting of all exposed metal surfaces of equipment's and components with appropriate /approved color as required and as desired by the Engineer-in -charge.
- i. Small wiring, inter-connection etc. inclusive of all materials and accessories necessary to comply with the regulations as well as proper and trouble-free operation of the equipment.
- j. Supply of POL i.e. HSD oil and lubricating oil and coolant for diesel engine for testing & commissioning including load testing at manufacturers works.
- k. Approval / clearance of the complete installation shall be obtained by the contractor from CPCB/State Pollution Control Board /Local Bodies/ Central Electricity Authority (CEA) / other licensing authorities wherever required. However, application shall be made by the Department and any statutory fee, as applicable, shall be paid by the department directly to the government authorities concerned.
- l. On site training of the staff / departmental official (two persons) to be engaged in the operation of Fire fighting & fire alarm system for at least 15 days.

Undertaking Form

UNDERTAKING FOR ASSOCIATING VALID ELECTRICAL CONTRACTOR LICENSE HOLDER

1. Name of Work:- Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)
1. NIT No. **54 / CE/NDZ-3/ 2025-26**
2. Estimated Cost. **Rs. 11,28,09,697/-**
3. Amount of Earnest Money Depsoit Rs. **21,28,097/-**
4. Last date of submission of bids **09.03.2026** upto **15:00** Hrs.

I undertake that I will either obtain valid Electrical license at the time of execution of electrical work or associate the contractor having valid Electrical license of appropriate class after acceptance of tender alongwith Performance Guarantee otherwise department shall forfeit the deposited EMD absolutely & shall reject my/our tender and debar me/us from re-tendering for this work”

Signature :-.....

Agency Name :-.....

Agency Address :-

.....

.....

Undertaking Form

UNDERTAKING FOR SPECIAL CONDITIONS FOR ASSOCIATION OF SPECIALIZED AGENCIES FOR SPECIALIZED E & M WORK

1. Name of Work: - Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work) .
2. NIT No. **54/ CE/NDZ-3/ 2025-26**
3. Estimated Cost. **Rs. 11,28,09,697/-**
4. Amount of Earnest Money Depsoit Rs. **21,28,097/-**
5. Last date of submission of bids **09.03.2026** upto **15:00** Hrs.

An undertaking that if “I/We shall become the lowest tenderer then I/We shall submit the documents of Associated specialized Agencies for specialized E & M Services as per the eligibility criteria mentioned in the “SPECIAL CONDITIONS FOR ASSOCIATION OF SPECIALIZED AGENCIES FOR SPECIALIZED E & M WORK” after acceptance of tender alongwith Performance Guarantee otherwise **department shall forfeit the deposited EMD absolutely & shall reject my/our tender and debar me/us from re-tendering for this work”**

Signature :-.....

Agency Name :-.....

Agency Address :-

.....

.....

Undertaking Form

UNDERTAKING FOR VISITED THE SITE WHERE THE WORK TO BE EXECUTED AND FAMILIAR WITH THE EXISTING INSTALLATION

1. Name of Work:- Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work) .
2. NIT No. **54/ CE/NDZ-3/ 2025-26**
3. Estimated Cost. **Rs. 11,28,09,697/-**
4. Amount of Earnest Money Depsoit Rs. **21,28,097/-**
5. Last date of submission of bids **09.03.2026** upto **15:00** Hrs.

An undertaking that **“I/We have visited the site where the work to be executed and familiar with the existing installation, space constraint, modification if required for Replacement of Fire Fighting System.”**

Signature :-.....

Agency Name :-.....

Agency Address :-

.....

.....

SPECIAL CONDITIONS FOR ASSOCIATION OF SPECIALIZED AGENCIES

1. The main contractor either have the required experience or shall have to associate with other agency(s)(Joint ventures are not accepted) for the execution of the specialized work(s), who fulfills the eligibility criteria as defined below.

Experience of having successfully completed works during last seven years ending Last day of month previous to the one in which tender are invited.

(a) Fire Alarm System

- (i) Three similar works each of financial value not less than Rs. 1,48,21,851/- (40% of the estimated cost of Rs 3,70,54,627/-)

OR

- (ii) Two similar works each of financial value not less than Rs. 2,22,32,776/- (60% of the estimated cost of Rs 3,70,54,627/-)

OR

- (iii) One similar works each of financial value not less than Rs. 2,96,43,702/- (80% of the estimated cost of Rs 3,70,54,627/-)

Similar work shall mean works of **“SITC of Fire Alarm System”**

(b) Fire Fighting System

- (iv) Three similar works each of financial value not less than Rs. 2,54,56,693/- (40% of the estimated cost of Rs 6,36,41,733/-)

OR

- (v) Two similar works each of financial value not less than Rs. 3,81,85,040/- (60% of the estimated cost of Rs 6,36,41,733/-)

OR

- (vi) One similar works each of financial value not less than Rs. 5,09,13,386/- (80% of the estimated cost of Rs 6,36,41,733/-)

Similar work shall mean works of **“SITC of Fire Fighting System”**

Note:- The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum calculated from the date of completion to Last day of month previous to the one in which tender is invited.

2. However the main contractor shall also be eligible to carry out himself any or all of the above specialized works without associating any specialized agency provided :-

i) The main agency fulfills the prescribed eligibility criteria respectively for the above specialized work(s).

The intending bidder shall upload an undertaking that if **“I/We shall become the lowest tenderer then I/We shall submit the documents of Associated specialized Agencies of the specialized E&M services as per the eligibility criteria mentioned in the special conditions of NIT for association of specialized agencies after acceptance of tender alongwith Performance Guarantee otherwise department shall forfeit the deposited EMD absolutely & shall reject my/our tender and debar me/us from re-tendering for this work”**

3. The main contractor shall have to submit documents such as self attested copies of Certificates of Work Experience/Completion issued by client department clearly indicating

1. Name of work
2. Scope of Work
3. Agreement No.
4. Estimated Cost
5. Tendered Cost
6. Final Value of Work Done
7. Date of Start

8. Stipulated date of Completion
9. Actual date of completion
10. Nature of the Work etc.

(In case some of above said details are not mentioned in the Completion certificate, the firm shall attach sample proof in support of above details), self attested copy of valid Electrical contractor license, GST registration of the proposed associated specialized agencies for verification (if required) and for approval of the department as per eligibility requirement mentioned in above condition no. 1 after acceptance of tender alongwith Performance Guarantee. Main contractor shall also be required to furnish either copy of applicable licenses/registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board of proposed associated specialized agencies alongwith above documents.

4. **Consent letter of such selected associated specialized agencies for association shall also be enclosed in the prescribed format as per “FORM-A – Consent Letter” and “FORM-B MOU” alongwith documents mentioned at sl.no-3 after acceptance of tender alongwith Performance Guarantee otherwise department shall forfeit the deposited EMD absolutely & shall reject my/our tender and debar me/us from re-tendering for this work”**
5. If the main contractor fails to submit all the documents of the proposed associated specialized agency(s) as mentioned at Sl No. 3 & 4 above, after acceptance of tender alongwith Performance Guarantee then department shall reject his/her tender & shall forfeit the deposited EMD absolutely & debar him from re-tendering for this work.
6. **The main contractor will submit MOU signed with the associated specialized agency as per FORM-B in shape of affidavit on stamp paper duly attested by notary in original alongwith performance Guarantee. The MOU shall be signed by both the parties” i.e. main contractor as 1st party and associated specialized Agency as 2nd party, independently for all specialized work(s).**
7. All technical discussions during currency of the contract, shall be attended by the associated specialized agencies and the main contractor.
8. The associated specialized agencies and the main contractor shall attend the site during inspection of the work by the Engineer-in-Charge or higher authority.
9. The main contractor shall be entirely responsible and answerable for all the works done by his associated specialized agency regarding their quality, adherence to the laid down specification, terms and conditions, warranty/guarantee etc as per the agreement and he shall be liable to bear any compensation that may be levied by the department under any of the clauses of the agreement.
10. In the event of the concerned Associated specialized Agency not performing satisfactorily or failure to complete the specialized works(s), the main contractor on written directions of the Engineer-in-charge, shall remove the Associated specialized Agency deployed on the work and shall submit name of new associated specialized Agency as per eligibility criteria mentioned in the NIT to execute the left over specialized work(s) without any loss of time after completion of all formalities mentioned as above .
11. Also if main contractor wants to change the associated specialized agency during the currency of the contract he shall submit name of new associated specialized Agency as per eligibility criteria mentioned in the NIT to execute the left over specialized work(s) after completion of all formalities mentioned as above.
12. The main contractor shall be responsible and liable for proper and complete execution of the all works including specialized work(s) and ensure coordination and completion of all associated specialized works.
13. Running payment for the work shall be made to the main contractor. In case main contractor fails to make the payment to the associated specialized agency(s) by him within 15 days of receipt of each running account payment then on the written complaint of any associated specialized agency(s) for such work, Engineer-in-Charge shall serve the show cause to main contractor and after considering the reply of the same he may make the payment directly to the concerned associated specialized agency(s) for the work as per the terms & conditions of the agreement/ M.O.U. drawn between main contractor and associated specialized agency(s) fixed by him, if reply of main contractor either not received or found unsatisfactory. Such payment made to the associated specialized agency(s) shall be recovered by Engineer-in-Charge from the next RA/final bill due to main contractor as the case may be.

Form -A

**CONSENT LETTER BETWEEN MAIN AGENCY AND ASSOCIATED SPECIALIZED
E & M WORK AGENCY (FOR EACH SPECIALIZED WORK SEPARATELY)**

Name of work: **Replacement and upgradation of existing fire safety system in main R&D Building ,
C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work) .**

I / We hereby give my consent to associate with M/s, for executing the of
work of (Mention specialized work(s)).

1. I / We will execute the work as per specifications and conditions of the agreement and as per directions of the Engineer-in-Charge for the corresponding specialized work(s) till the completion of the work.
2. I / We will be responsible for necessary action to handover the installations and for rectification of defects and repair during the maintenance / warranty period.
3. Also I / We will employ full time technically qualified Engineer/ supervisor for the specialized work(s) component of the work as required for the work. I/ We will attend inspection of officers of the department as and when required.

Date:

Signature with date of Main Agency/Contractor

Signature with date of Associate
Specialized Agency

Address

Address

1. Witness with address

(From main contractor side)

2. Witness with address

(From associated agency side)

Form-B

MEMORANDUM OF UNDERSTANDING [M.O.U] BETWEEN MAIN AGENCY AND ASSOCIATED SPECIALIZED E & M WORK AGENCY (FOR EACH SPECIALIZED WORK SEPARATELY)

1] M/S [Name of the firm/agency with full address]

Enlistment Status

Valid Upto:

[Henceforth called the main contractor]

And

2]M/S [Name of the firm/agency with full address]

Enlistment Status

Valid Upto:

[Henceforth, called Associated specialized Agency]

For the execution of Specialized Work(s)“ **Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)** . as per schedule, specifications, terms and conditions of the agreement.

We state that M.O.U between us will be treated as an agreement and has legality as per Indian Contract Act [amended upto date] and the department [CPWD] can enforce all the terms and conditions of the agreement for execution of the above work. Both of us shall be responsible for the execution of work as per the agreement to the extent this MOU allows. Both the parties shall be paid consequent to the execution as per agreement to the extent this MOU permits. In case of any dispute, either of us will go for mediation by the EE (E), DED-302, CPWD, Trikoot-II, New Delhi-110066. Any of us may appeal against the mediation to the CE, NDZ III, CPWD, Sewa Bhawan, New Delhi-110066. His decision shall be final and binding on both of us.

We have agreed on under:

- 1] The associated specialized agency will execute all specialized work(s) in a wholesome manner as per the terms and conditions of the agreement and as per the direction of the Engineer-in-charge.
- 2] That the Associated specialized agency has gone through the contract and has understood the scope of work required for executing the specialized work(s).
- 3] All the machinery and equipment, tools and plants, and special T&P required for the execution of the specialized work(s), as per agreement, shall be the responsibility of the associated specialized agency.
- 4] The site staff required for the specialized work(s) shall be arranged by the associated specialized agency as per the terms and conditions of the agreement.
- 5] The site order book maintained for the said work shall be signed by the authorized representative of the main contractor as well as the Associated Specialized Agency.
- 6] All the correspondence regarding the execution of the specialized work(s) shall be done by the Department with the Associated specialized agency with a copy to the main contractor. In case of non-compliance with the provisions of the agreement, the main contractor, as well as the associated agency shall be responsible. The action under clauses 2 and 3 shall be initiated and taken against the main contractor.

SIGNATURE OF MAIN CONTRACTOR

SIGNATURE OF ASSOCIATED SPECIALIZED AGENCY.

Date:

Place

ADDITIONAL CONDITIONS AND SPECIFICATIONS

AUTOMATIC FIRE ALARM SYSTEM:

1. GENERAL

This specification covers manufacturing, testing as may be necessary before dispatch, delivery at site, all preparatory work assembly and installation, commissioning putting into operation of AFAS including intelligent addressable fire alarm system & final testing & commissioning.

Location: The equipment's will be installed at **CDOT Building, Chattarpur, New Delhi**

The tenderer should in his own interest visit the site and get familiarize with the site conditions before tendering.

No T&P shall be issued by the Department and nothing extra shall be paid on account of this.

2. TERMS OF PAYMENTS:

The following percentage of contact rates for the various items included in the contact shall be payable against the stage of work shown herein.

2.1.1 80% after initial inspection and delivery at site in good condition on pro-rata basis.

2.1.2 10% after completion of installation in all respects.

2.1.3 Balance 10% will be paid after testing, commissioning and handing over to the department for beneficial use.

3. COMPLETENESS OF TENDER:

All sundry equipment's, fitting, unit assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections and all other items which are useful and necessary for efficient assembly and installation of equipment and components of the work

shall be deemed to have been included in the tender irrespective of the fact whether such items are specially mentioned in the tender documents or not.

4. CARE OF THE BUILDING:

Care shall be taken by the contractor while handling and installing the various equipment and components of the work to avoid damage to the building. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove at his cost all unwanted and waste material arising out of the installation from the site of work.

5. GUARANTEE:

All equipment's shall be guaranteed for a period of 12 months from the date of taking over the installation by the department against unsatisfactory performance and/ or breakdown due to defective design, workmanship or material. The equipment or component, or any part thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost to the satisfaction of the Engineer-in-Charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of the contractor. The decision of Engineer-in-Charge in this regard shall be final & binding on the contractor.

The tenderer shall guarantee among other things ,the following:

- (a) Quality, strength and performance of the material used as per manufacturer's standards.
- (b) Safe mechanical and electrical stress on all part under all specified conditions of operation.
- (c) Satisfactory operation during the maintenance period.

1. ACCEPTABLE MAKES OF VARIOUS EQUIPMENTS:

The acceptable makes of various equipment's / components / accessories have been indicated in "Acceptable Makes" indicated in the list attached. The tenderer shall workout the cost of the offer on this basis. Alternate makes are not acceptable.

6.DATA MANUAL & DRAWING TO BE FURNISHED BY THE TENDERER:

- 6.1 With tender: The tenderer shall furnish along with the tender, detailed technical literature, pamphlets and performance data for appraisal and evaluation of the offer.
 - 6.2 After award of work: The successful tenderer be required to submit the following drawings within 15 days of award of work of approval before commencement of installation.
 - 6.3 General arrangement drawing of the equipment's like Detectors, R.I., C&I Panel etc.in the building with complete dimensions.
 - 6.4 Any other drawing necessary for the job.
 - 6.5 The successful tender should furnish well in advance three copies of detailed instruction and manuals of manufacturers for all items of equipment's regarding installation, adjustment peration and maintenance including preventative maintenance and troubleshooting together with all the relevant data sheets, spare parts catalogue etc. allin triplicate.
- 7. EXTENT OF WORK:** The work shall comprise of entire labour including supervision and all material necessary to make a complete installation and such tests and adjustment and commissioning as may be required by the department. The term complete installation shall not only mean major items of the plant and equipment's covered by the specification but all incidental sundry components necessary for complete execution and satisfactory performance of installation with all layout charts whether or not those have been mentioned in details in the tender documents in connection with this contract as this is a turn key job.
- 7.1 In addition to supply, installation, testing and commissioning of FAS/ AFAS including intelligent addressable FAS equipment's, following works shall be deemed to be included with the scope of work to be executed by the tenderer as this is a turn key job.
 - 7.2 Minor building works necessary for installation of equipment's, foundation making of opening in walls or in floors and restoring them to their original condition / finish and necessary grouting etc. as required.

7.3 All supports for cable and MS Channel for erection as are necessary.

7.4 Getting CFO inspection done and obtaining clearance. However, necessary fees for inspection shall be borne by the department.

8. INSPECTION & TESTING:

8.1 The material and equipment's shall be offered for initial inspection at manufacturer's works. The contractor will intimate the date of testing of equipment's at the manufacturer's work before dispatch. The successful tenderer shall give advance notice of minimum two weeks regarding the date proposed for such test to the department representative to facilitate his presence during testing. The Engineer-in-charge may witness such testing. The cost of the Engineer visit to the factory will be borne by the Department. equipment's will be inspected at the manufacturer/ Authorized Dealers premises before dispatch to the site by the contractor. Nothing extra shall be paid for initial inspection/ testing at Manufacture Works.

8.2 Copies of all documents of routine and type test certificates of the equipment carried out at the manufacture's premises shall be furnished to the Engineer-in-charge and consignee.

9. COMPLIANCE WITH REGULATIONS AND INDIAN STANDARDS:

9.1 All works shall be carried out in accordance with relevant regulation both statutory and those specified by the Indian Standards related to the works covered by this specification in particular, the equipment and installation will comply with the following:

9.2 Factories Act.

9.3 Indian Electricity Rules

9.4 B.I.S. & other standards as applicable

9.5 Workmen's compensation Act.

9.6 Statutory norms prescribed by local bodies like fire department, CEA, Power Supply Co.etc.

9.7 After completion of the installation the same shall be offered for inspection by the representatives of the C.F.O. The contractor will extend all help including test facilities to the representatives of CFO. The observation of CFO will be attended by the contractor.

9.8 Nothing in this specification shall be constructed to relieve the successful tender of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with currently applicable statutory regulations and safety codes.

9.9 Successful tenderer shall arrange for compliance with statutory provisions of safety regulations and departmental requirements of safety codes in respect of labour employed on the work by the tenderer.

10. INDEMNITY:

The successful tenderer shall at all times indemnify the department, consequent on this works contract. The successful tenderer shall be liable, in accordance with the Indian Law and Regulations for any accident occurring due to any cause and the contractor shall be responsible for any accident or damage incurred or claims arising there from during the period of erection, construction and putting into operation the equipment's and ancillary equipment under the supervision of the successful tenderer in so far as the latter is responsible. The successful tenderer shall also provide all insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the successful tenderer on account of the above.

11.ERECTION TOOLS:

No tools and tackles either for unloading or for shifting the equipment's for erection purposes would be made available by the department. The successful tenderer shall make his arrangement for all these facilities.

12.VERIFICATION OF CORRECTNESS OF EQUIPMENTS ATDESTINATION:

The contractor shall have to produce all the relevant records to certify that the genuine equipment from the manufacturers has been supplied and erected.

13.PAINTING:

This shall include cost of painting of the entire installation. The major equipment like C&I Panel, cable trays etc. shall be factory final finish painted. The agency shall be required to do only touching to the damages caused to the painting during transportation, handling & installation at site, if there is no major damage to the painting. However hangers, supports etc. of cable tray etc. shall be painted with required shade including painting with two coats of anti corrosive primer paint at site.

14.TRAINING:

The scope of work includes the on job technical training of two persons of department at site. Nothing extra shall be payable on this account.

15.MAINTENANCE:

15.1 Sufficient trained and experienced staff shall be made available to meet any exigency of work during the guarantee period of one year from the handing over of the installation.

15.2 The maintenance, routine as well as preventative for one year from the date of taking over the installation as per manufactures recommendation shall be carried out.

16. Interpreting Specification:

In interpreting the specification, the following order of decreasing importance shall be followed in case of contradictions:

- (a) Schedule of quantities
- (b) Technical Specification
- (c) Drawing (if any)
- (d) General Specification
- (e) Relevant BIS or other international code in case BIS code is not available.

17. SITE FORMATION:

The tenderer should, in his own interest, visit the site and familiarizes himself with the site conditions before tendering. For any clarification, tenderer may discuss with the Engineer-in-Charge.

TECHNICAL SPECIFICATIONS OF FIRE ALARM SYTEM

1.MANUAL CALL POINTS:

This section covers the requirements of manual call points(MCP) used in addressable intelligent Fire Alarm System.

CONSTRUCTIONAL REQUIREMENTS OF MCP:

1.1 It is used to trigger a fire alarm manually, and should be suitable for connection to the system loop technology. The alarm is raised by breaking the glass with the alarm carrying on until a replacement glass panel is fitted or alarm to be made silent from control panel. Suitable arrangement likes cratching by a diamond bit shall be incorporated in the frangible element.

1.2 A micro switch within the units is held “off” by the edge of the glass when glass is broken the switch is released and a signal is transmitted to control panel where the alarm is raised. The glass is preferably plastic coated to eliminate the damage of splinters causing injury.

1.3 For testing without breaking the glass a test key, should be available so as to lower or remove the glass to release the micro switch. Full functional test is achieved accordingly.

1.4 Facility for reset/adjustment of manual call point alarm triggering.

1.5 The unit shall be made out of poly carbonate ABS blend with flame retardant & self-extinguishing properties, cast aluminum, or ASA plastic or as per manufacturer design and applicable standards.

1.6 It shall preferably contain an integrated short circuit isolator, which should ensure that a fault is localized and that the loop continues to function fully in the event of a wire break or a short circuit.

1.7 The call box shall have suitable provision to knock out of termination of a 20mm conduit. This shall also have suitable provision for being fixed on surface or semi recessed in wall.

1.8The word 'FIRE' shall appear embossed in red color on the front.

1.9 Acknowledgement LED displays – red for triggered alarm indication (Flashing) and / or maintenance evacuation.

1.10 Protective category shall be IP54 for indoors & IP65 for outdoors applications.

2 INTELLIGENT ADDRESSABLE FIRE DECETORS:

The section covers the requirement of automatic intelligent addressable fire detectors.

GENERAL FEATURES COMMON TO ALL DECETORS:Built-in-response Indicator:

2.1 Each detector shall incorporate indicator “LED” at the detector which shall blink on actuation of the detector to locate the detector which is operated while on fire. The detector shall not be affected by the failure of the response indicator lamp.

The detector shall have preferably 360° visible view of the alarm LED or twin LEDs blink when ever detector is addressed.

2.2 The detector shall have preferably with integrated built in short circuit isolator or as per manufacturer design so that in case of any short circuit in the detector, the detector can be isolated so that loop should be able to retain the full functionality or in case built in short circuit isolator not available/ provided by the

manufacturer a fault isolator unit shall be provided after every 20 detectors/ devices in a loop. But in later case isolator unit shall ensure that the loop is functional except the faulty detector.

2.3 The detect or shall be with IP54 protection category with base.

2.4 The detector shall be with built in microprocessor capable of making alarm on control panel based on the information stored in detector.

2.5 The detector shall confirm to international standard i.e. NFPA/EN or equivalent.

2.6 The detector shall provide electronic address setting by means of configuration software.

2.7 The detector shall be plug-in-type and shall have common base to facilitate exchange for cleaning & maintenance. The base of the detector shall be interchangeable with other smoke detectors.

2.8 The detector shall be supplied fully tested and each detector should be the Sl. No. and seal of the approving laboratory/ body.

2.9 The detectors, device including response indicator and control panel shall be of same make.

2.10 Reversed polarity or faulty zone wiring shall not damage the detector.

2.11 The detector shall be suitable for column/ ceiling mounting.

2.12 The detector should have static voltage over load protection.

2.13 The detector shall be individually identifiable from the control unit by geographical location in the system.

2.14 The detector shall connect to the local control unit via a fully supervised two wire circuit.

2.15 The detector shall be inserted into or remove from the base by a simple push twist mechanism with an appropriate tool.

3 ADDRESSABLE OPTICAL –THERMAL (Multi Criteria Detector):

3.1 The intelligent multi criteria detector shall have photo electric and thermal technologies in a signal sensing device.

3.2 The device shall include to combine the signal of the thermal sensor with the signal of the photo electric signal in an effort to react in the event of a fire condition.

3.3 It shall have an ability to distinguish between a fire condition and a fire alarm condition by examining the characteristics of the thermal and smoke sensing chambers and comparing them to database of actual fire and deceptive phenomena.

4 DETECTOR BASE:

4.1 The detectors of all types shall fit into a common type of standard base.

4.2 Once a base has been installed, it shall be possible to insert, remove and exchange different types of detectors by a simple push & twist movement.

4.3 The standard base shall be equipped with screw less wiring terminals suitable for securing wire size upto 1.5 sq.mm and with built in strain limits to prevent permanent terminals deformation and weakening of contact pressure.

4.4 It shall have a sealing plate, prevent dirt, dust condensation or water from the conduit reaching the wire

terminals of the detector contact points.

4.6 All standard base shall be supplied with a removable dust cover to protect the contact area during installation and construction phase of the building. It must allow the inspection and verification of the zone wiring before insertion of any detectors.

4.7 The standard base shall have a built-in mechanism, which allows mechanical locking of any installed detector head, thus preventing unauthorized removal or temper in while maintaining.

4.8 Reserved polarity or faulty zone wiring shall not damage the detector.

5. INTELLIGENT ADDRESSABLE MONITOR MODULE:

5.1 The module shall be suitable to monitor the polling of up to minimum four potential free contacts by using a single or multiple housing and designed for surface or flush mounting.

5.2 The operating mode can be selected and is assigned separately for each input the addressing of the module and the setting of parameters should be carried out using PC Software, via the fire alarm control panel.

5.3 The module should contain an integrated short circuit isolator which ensures that the fault is localized and the loop continues to function fully in the event of a wire break or a short circuit.

5.4 The module should be minimum IP40 protection category when housed in a case or as per manufacturer design.

5.5 The module should be with soft addressing to be set with a PC via Fire Alarm panel at the time of programming.

5.6 The module should have integrated buzzer force signaling maintenance alarm.

5.7 An LED shall be provided that shall flash under normal condition indicate that module is operational.

6. INTELLIGENT ADDRESSABLE RELAY/ CONTROL MODULE:

6.1 Relay module may contain upto four relays each with a potential free change over contact.

6.2 Each relay contact should be FAIL/SAFE programmable, means it should be possible to program each contact to operate in three conditions viz. NO FIRE CONDITION, FIRE CONDITION & LOOP POWER FAILURE CONDITION.

6.3 Both the addressing of the module and setting of parameters to be carried out using PC software via the fire alarm control panel.

6.4 The module contains a short circuit isolator, which ensures that the fault is localized and that the loop continues to function fully in the event of a wire break or a shot circuit.

6.5 The module should be minimum with IP 40 protection category when housed in a case or as per manufacture design.

6.6 It should have integrated buzzer for signaling maintenance alarms.

6.7 Its housing have is designed for surface or flush mounting.

7. ISOLATOR MODULE:

7.1 The module shall limit the number of module of detectors that may be rendered inoperative by a short circuit on the loop segment.

7.2 At least one isolator module shall be provided for each floor or protected zone of the building.

7.3 If a wire short circuit occurs, the isolator module shall automatically open circuit (disconnect) the loop. When the short circuit condition is corrected, the module shall automatically reconnect the isolated section.

7.4 The module shall not require any address setting and its operation shall be automatic. It shall not be necessary to replace or reset an isolator module after its normal operation.

7.5 It shall give information on the control panel in the form of audio- visual alarm enunciations along with list of detectors which have become non-functional.

8. ADDRESSABLE FIRE ALARM CONTROL PANEL:

This section covers the requirements of main fire alarm, control panel, repeater panel, graphical management system, response indicator etc. Used in addressable fire alarm system.

9. FUNCTIONAL REQUIREMENT:

9.1 General:

9.2 In the event of fire alarm but not in a fault condition, the exact location shall be shown on the Main Fire Alarm Panel (MFAP).

9.3 Local sounder should sound automatically.

9.4 Complete information shall be printed with time and date of occurrence.

9.5 Air handling units on the effected zones shall be automatically switched OFF and respective fire dampers shall also be closed.

9.6 Pressurization fans of staircase shall automatically be switched ON.

9.7 The audio portion integrated to the system shall direct the proper signal (tone or voice) to the appropriate speaker circuits.

9.8 Pre-recorded alarm messages shall be played on the Public Address System.

9.9 The panel shall have the facility to process the input signals and control the output functions either directly or through interface modules as per the requirements.

9.10 The panels shall have necessary interface units for addressable detectors alarm output modules for external actuations through fail safe programmable relays.

9.11 The processor shall interact with the other modules through a common bus.

9.12 The system shall store all basic information and job specific data in memory.

9.13 Different password shall protect any change to system operations.

9.14 The design of the panel hardware and software shall incorporate the capability to accept additional input from fire protection system such as sprinkler and water flow switch, operation of fire dampers, pressurization fans etc.

9.15 The panel shall have an extra loop card to serve as standby in case of burn out or malfunctioning of any operating loop cards.

9.16 The panel shall be totally enclosed, dust and vermin proof.

10. Type of control and indicating panels:

Following are the types of control and indication panels in Addressable Fire Alarm Control Panel:

- 10.1 Intelligent Addressable Main Fire Alarm Control and Indicating Panel.
- 10.2 Graphical Fire Alarm Management System.
- 10.3 Intelligent Repeater Panel.
- 10.4 Intelligent Response Indicator
- 10.5 Talk Back System/Fire Fighter Telephone Systems.

11. Addressable Fire Alarm Control Panel (FACP)

11.1 The addressable Fire Alarm Control Panel (FACP) shall function as a network panel & also as a fully standalone panel. FACP shall have its own microprocessor, software and memory. In the event of failure of panel or communication breakdown between the networked panels the FACP shall automatically operate on stand-alone mode without sacrificing any functions (The networking should be peer to peer). Information of all panel in the network should be available on all individual panels.

11.1 The panel should be modular micro processor based in nature and should be expandable from single loop upto 10 loops.

11.2 FACP shall supervise detection circuits and shall generate an alarm in case of abnormal conditions.

11.3 FACP shall provide general purpose inputs for monitoring such functions as low battery on AC power failure. FACP shall provide tamper protection and commendable outputs, which can operate relays or logic level devices.

11.4 Smoke detectors shall be powered using the FACP based smoke detection circuits FACP shall provide control for resetting smoke detectors, fault isolation and sensor loop operations. It shall be possible to mix different fire devices within same FACP to optimize field wiring.

11.5 It shall be possible for the panel to have a loop length with different modules offering 1.5km length of devices from the panel.

11.6 FACP shall provide monitoring and control of one floor or area or for multiple floors or areas. FACP shall meet the following requirements to assure the integrity and reliability of the system.

11.7 The FACP shall have proper listing and/ or approval from the following recognized agencies:

12. National Fire Protection Association (NFPA) -USA. This will cover the following approval:

- 12.1 UL (Underwriters Laboratories Inc.)
- 12.2 (Underwriters Laboratories Canada)
- 12.3 FM (Factory Mutual)
- 12.4 CSFM (California State Fire Marshal)
- 12.5 ULC (Underwriters Laboratories Canada)

12.6 FM (Factory Mutual)

12.7 CSFM (California State Fire

Marshal) EN (European)

13. This will cover the following approval:

13.1 LPCB (Loss Prevention Council Board)

13.2 VDS (Vertauen Durch Sicherhe it)

13.3 BRE

13.4 FACP shall be NFPA/EN listed independently and as per relevant IS Code as a Fire Alarm Control Panel.

13.5 The FACP should have integrated power distribution module and fixed cabling done internally to guarantee ac lear and tidy cable feed.

13.6 Panel should have an LCD display with minimum 300 characters and keypad. The display should enable a flexible design of the operating menu with variable keys and message windows. Fixed keys should be used for standard operating steps e.g. for fire alarms, securities, supervisory, trouble and other events. The current status of the system should be displayed by LEDs. Interfaces (RS232) enable the connection to a PC..

13.7 The panel should have a 230V AC power supply unit in plug-in design with rack and panel connector and 24VDC / 63Amp. single output power supply. The module should be protected against over voltage and reverse polarity. The output voltage is monitored and regulated externally.

13.8 LDD display at the FACP shall be provided to indicate point of alarm or trouble. In such systems means for manually scanning the points in trouble shall be provided and a trouble and alarm LED shall be used to indicate that there are points in alarm/trouble. The alarm/trouble LED shall only get switched off when all alarm/trouble are cleared from the loop.

13.9 It shall be possible to command test, reset and alarm silence from the FACP.

13.10 FACP switches shall allow authorized personnel to accomplish the following, independent of the central console

13.11 Acknowledge a general alarm condition.

13.12 Silence the local audible alarm shall be possible lience the alarm indicating devices (hooters).

13.13 Reset all zones(Logical Point Group)/ points, after all initiating devices have returned to normal

13.14 Performa complete operation al test of the memory with a visual indication

13.15 Test all panel LED's for proper operation without causing a change in the condition of any zone (Logical Point Group)

13.16 Walk test – The system shall provide both a basic and advanced walk test for testing the entire fire alarm system including testing of all devices, detectors module etc.in the complete system.

13.17 Software zone/ loops shall be circuited and protected by fault isolators such that in the event of zone

/loop short-circuit, smoke and thermal sensors shall be located and shall report alarm and fault isolator unit after every 20 detector or devices in a loop isolates the part.

13.18 Monitoring modules shall be provided to monitor and address contact-type input devices. The monitor module shall be housed in the FACP supervised by FACP.

13.19 The FACP shall have drift compensation facility to compensate for environment. When a detector accumulates dust in the chamber and reaches an unacceptable level but still below the allowed limits, the control panel shall indicate a maintenance alert warning. When the detector accumulates dust in the chamber above the allowed limit, the control panel shall indicate a maintenance urgent warning.

13.20 The FACP should be NFPA/EN listed approved to provide the sensitivity measurement and documentation required.

13.21 FACP shall be backed up with its built in UPS power or can be powered separately.

13.22 The display on FACP shall provide indication for AC power, system alarm, system trouble/security alarm, display trouble and signal silence to this would mean that in the event of change of any detector / zone sequence alterations, the operator can initiate these by use of the LCD & alpha-numeric keys on the FACP panel to reconfigure the above parameters.

14. Power supply unit of FACP shall have following characters:

14.1 The main power supply shall be 230V AC $\pm 10\%$ 50Hz $\pm 3\%$ and shall in turn provide all necessary power of FACP.

14.2 It shall provide a separate battery control module with charger. The battery should be last for 24 hours minimum in normal operation upon power failure and 30 minutes in alarm condition.

14.3 For ease of service, all wiring terminal blocks shall be plug-in type.

14.4 The fire alarm panels shall have a possibility of being interlinked by direct connectivity or an optical cable link between the various locations and should further have connectivity to the main control center.

14.5 Each loop shall have minimum 99 detectors/devices.

14.6 There shall be minimum 20% spare capacity in the looping system for future expansions. The firm has to intimate the maximum number of devices/ detect can be connected in one loop based on the manufacturer design. Some devices need external supply and some devices supported by loop power. The length of loop shall not exceed more than 3000 meter for wire size 1.5sq.mm as per manufacturer recommendations.

14.7 Each loop should not be divided into more than 8 fire zones.

15. SOUNDERS:

15.1 Panel Sounders.

15.2 Addressable Loop Fire Alarm Sounders.

16. FUNCTIONAL REQUIREMENTS:

16.1 Fire alarm sounder of low intensity type shall be installed to signal to the occupants of the building to

evacuate in the event of a fire.

16.2 Fire alarm sounders cum strobe of high intensity types shall be installed to draw the attention of the firefighting personnel towards the main location of fire in the premises where a fire has erupted. The strobe should have a light intensity of 15cd. To 100 cd.

16.3 Fire alarm sounders shall not be used for any purpose other than for fire operations.

16.4 Silencing facility shall be provided only for panel sounders and not for fire alarm sounders.

16.5 It shall be designed suitable for ceiling mounted or wall mounted.

17.Operation of sounders and silencing:

17.1 Fire alarm sounders in a zone affected by a fire shall be actuated automatically as soon as fire alarm signal is initiated from any trigger device in that zone. All other fire alarm sounders shall be actuated only automatically from the fire alarm panel.

17.2 The frequency of sound from sounders shall lie in the 500-1000 Hz band. The sound level shall be at least 65dB (A) or 5dB (a) above or any other noise likely persists for a period longer than 30 second at any part of the building sounders with a level greater than 120dB(A) shall not be provided.

17.3 The sound shall be continuous although the frequencies and amplitude may vary and of the same characteristics from the fire alarm sounders in a building. Coded fire alarm signaling from sounders shall not be provided which may cause hearing damage.

17.4 'Fault alarm' and 'Fire alarm' in a panel sounder shall be distinctly different.

17.5 The sounder shall be with IP 54 protection category.

17.6 It shall conform to EN/NFPA/Indian standards.

17.7 The volume of sounders can be adjusted from the fire detectors control panel. Minimum three volume settings from fire alarm control panel shall be available.

17.8 The strobe cum hooter are two wire devices that offer tone choices of either continuous horn or temporal tone when constant voltage from fire alarm control panel is applied. Each tone has minimum three volume levels that can be selected for installation.

17.9 The strobe cum hooter installed at entrance of building should have three tones programmable from the fire detector control panel so that at least one of these tones can be selected to comply with at least 110 dB (A) frequency range of 440Hz to 2850Hz. The Volume should be adjustable from control panel.

17.10 The strobe should have a light intensity from 15 cd to 110 cd.

18.Installation Requirements:

18.1 Low intensity fire alarm sounders may be installed on surface of ceilings, suspended from ceiling or recessed in flush with the ceiling, depending on the construction of the sounder and ceiling height.

18.2 These shall be installed at a height not lower than 2.4 mtrs. except when recessed in a false ceiling of lower height. In such cases the sounders shall be recessed at false ceiling level.

18.3 When installed flush with a false ceiling these shall match the ceiling surface. Necessary provisions

such as wooden boxing or frame work to accommodate the sounders shall be made in the ceiling in advance.

18.4 High intensity sounders shall be mounted on substantial supports. Provisions for terminating the electrical wiring cables shall be such as not to permit entry of rainwater through the wiring conduits or cables runs.

19. RESPONSE INDICATOR/ SPOT INDICATOR:

19.1 For indication of triggering of detectors lying above false ceiling space, spot / remote response indicators shall be provided in the false ceiling at a suitable location below the detector above false ceiling. These spot indicators have however, not been shown in the drawing. Their layout will be finalized at site maintaining proper aesthetics.

19.2 The response indicators shall be loop powered and no separate power supply shall be required to power the response indicator.

19.3 The degree of protection shall be IP42 or higher.

19.4 The response indicator shall be suitable for installation at an ambient temperature ranging from -20°C to $+60^{\circ}\text{C}$ and relative humidity of 5% to 95 % without condensation.

20. EARTHING OF FIRE ALARM SYSTEM:

A separate earthing with GI pipe earth electrode shall be provided for the main Control and Indication panel for all the buildings. Loop earthing from this panel shall be taken up to each repeater panel on each floor, in case of Administrative Building. Earth continuity wire shall be looped and tapped at the terminal block / connector to be provided in the junction box at each floor from which conduit to the respective repeater panel branches out.

21. BATTERIES:

Batteries for the panel, PA system etc. shall be maintenance free sealed battery of appropriate AH capacity. The capacity selection calculation shall have to be submitted at the time of submission of tender and also before installation.

22. LAYING OF STEEL CONDUIT :

The steel conduit for the AFAS system will be laid along with the IEI work. Normally majority of the conduit will be 20 mm size as 2 x 1.5 sq. mm copper conductor cable will run through them. However when more than one such pair cable are needed to be passed through the same conduit as in case of isolated detectors which are connected by a conduit such that both supply and return cable will pass through it, accordingly size of the conduit will be decided.

FIRE FIGHTING SYSTEM

FIRE FIGHTING SYSTEM GENERAL, COMMERCIAL, ADDITIONAL & TECHNICAL CONDITIONS FOR FIRE FIGHTING SYSTEM (WETRISER, SPRINKLER, DOWNCOMER AND YARD HYDRANT)

1 LOCATION

The work is to be executed at CDOPT Building, Chattarpur, New Delhi. The Contractor is advised to visit the site before submission of their tender and ensure that equipment being offered by them shall be accommodated in the spaces available.

2 ACCEPTABLE MAKES

The acceptable make of various equipment are indicated in the list attached. Alternative or equivalent makes will not be accepted.

3. TIME OF COMPLETION

The entire work shall be completed within the stipulated time of completion. The time when the materials are to be supplied is given in the milestones/Annexure.

4. QUALITY OF MATERIALS AND WORKMANSHIP

4.1 The components of the installation shall be of such designs so as to satisfactorily function under all conditions of operation.

4.2 The entire work of manufacture/fabrication, assembly, and installation shall conform to sound engineering practice.

4.3 All equipment and materials to be used in the work shall be manufactured in factories of good repute, having an excellent track record of quality, manufacturing performance, and proper after-sales service. Satisfactory operation during the maintenance period.

4.4 The BOQ is comprised of all the items necessary for making provisions of above mentioned firefighting installations as per the provisions laid in NBC – 2016. However any discrepancy in the BOQ /Specifications noted by the participating bidder shall be brought into the notice of the Department during pre-bid conference otherwise it is construed that tender BOQ/Specifications are acceptable in toto to the participating bidder.

4.5 The contractor will make his own arrangements for transportation of his materials upto the site of work, the security and watch and ward of the materials brought at site and the electrical installation executed by him shall be his responsibility till the work as a whole is completed and handed over to the department.

4.6 Any damage done to the building or installation during the execution of work shall be made good by the contractor free of cost. In the event of his failure to do so, the same shall be got rectified through another agency at his risk and cost.

4.7 The contractor or his authorized representative will have to sign site order book to acknowledge the instruction issued by Engineer-in-Charge or his authorized representative for all matters relating to the execution

of work. The instructions noted in the site order book shall have to be complied with in reasonable time as decided by the Engineer-in-Charge.

4.8 The work shall be carried out in accordance with the following relevant and applicable codes amended up to date, and to the best available standards of engineering practice, design, and workmanship.

5.Items of BOQ & Technical Specifications of the Agreement,CPWD General Specifications for Electrical Works:

Part V (Wet Riser & Sprinkler System) 2020.

Indian Standards Specifications by BIS, IS Code

National Building Code 2016

Indian Electricity Rules &Statutory Regulations.

TAC Regulations

6.Local Fire Authority Regulations.

Nothing extra shall be paid for executing the work as per these specifications/codes. The material having ISI mark shall have precedence over the one conforming to IS specifications. In case of any discrepancy in the description of any item in the schedule of quantities and the specifications/code, or if the specifications of any of the items are not available, the decision of the Engineering-In-Charge or his authorized representative shall be final and binding, and the work shall be executed in the manner as may be prescribed by him.

7.Execution

1.1 The contractor shall depute well- experienced/ skilled Engineer/ Supervisor/ Foreman and licensed wireman/ electrician for the execution of work. The Engineer-in-Charge reserves the right to reject/remove any person who is not suitable/fit in his opinion

1.2 The work shall be executed in well planned & engineered like manner. Poor/Bad workmanship shall not be accepted. The same shall be redone as per the directions of the Engineer-in-Charge, for which no extra payment shall be made.

8.Payment Terms

8.1 No advance payment shall be made.

8.2 On-account payments for part work (after stipulated and statutory deductions), as assessed by the Engineer-in-charge for the applicable items in the contract, shall be payable at partial rates not exceeding the percentage indicated against the stages of work.

Stage of Work % of rates payable

Sl. No.	Stage of Work	Percentage of rate of particular item
I)	After initial inspection (wherever specified) and delivery at site in good condition on a pro-rata basis	70%
II)	On completion of installation	85%
III)	On testing, commissioning, and handing over to the department for beneficial use.	100%

8.3 The substandard work, if any, shall not be accepted or measured unless approved by the competent authority.

8.4 The rates of any extra/substituted/deviated items of work shall be derived by the Department as per the provisions in the agreement or as decided by the Engineer-in-Charge, and the same shall be binding and acceptable to the contractor.

8.5 The Engineer-in-Charge reserves the right to recover any part/item not executed due to site requirements, etc. The rates of such items shall be derived by the Department as per the provisions in the agreement or decided by the Engineer-in-Charge, and shall be binding and acceptable to the contractor.

9. Completion & Guarantee

9.1 The completion of the work shall be certified by the competent authority of the department. Any defects, if any, shall have to be rectified to the entire satisfaction of the competent authority.

9.2 The contractor shall stand guarantee/warranty for a period of at least 12 months from the date of completion of work or after taking over the installations by the department, whichever is later, against any manufacturing defect in material, unsatisfactory performance/working of system/installation, and/or breakdown due to defective design or workmanship.

9.3 The material/equipment/installation found defective shall be replaced/repared free of cost to the satisfaction of the Engineer-in-Charge. Delay in rectification/replacement shall not be accepted. The department reserves the right to have it rectified at the risk and cost of the contractor. The decision of the Engineer-in-Charge shall be final and binding on the contractor.

9.4 The contractor must carry out routine inspection/testing as per the manufacturer's recommendations or as decided by the Engineer-in-Charge during the guarantee period. They must also attend to any defects occurring during this period. A sufficient number of trained and experienced staff shall be made available to address any exigency/emergency at the site of work during the guarantee period.

The contractor shall provide the following drawings for approval of Engineer-in-Charge before commencement of supply/fabrication.

10. Schematic diagram of complete wet riser and sprinkler system

General layout-Plans of Pumps in pump room Layout plans of internal hydrants and external yard hydrants Plumbing drawings showing the layout of entire piping, diameter and length, valves and accessories, plumbing connections, etc. Any other drawing the Engineer-in-Charge may deem fit.

11. Works to be arranged by the department

Unless otherwise specified in the tender document, the following works shall be arranged by the department.

Vacant space for accommodating all the equipment and components involved in the work.

Drain points at suitable location/s.

Under ground sump

Terrace tank

12. Works to be done by the contractor

12.1 Unless otherwise mentioned in the tender document, the following works shall be done by the contractor, and therefore their cost shall be deemed to be included in their tendered cost, whether specifically indicated in the schedule of work or not

12.2 Foundation for equipments including foundation bolts and vibration isolation springs and pads.

12.3 Suspenders, brackets, and floor/wall supports for suspending/supporting pipes/cable trays.

12.4 Excavation and refilling of trenches in soil wherever the pipes are to be laid directly in ground, including base treatment and supports.

12.5 Sealing of all floors/slabs/wall openings provided by the department or made by the contractor for pipes and cables from a fire safety point of view, after laying of the same.

12.6 Painting of all exposed metal surfaces of equipment and components with appropriate color. Making openings in the walls/floors/slabs or modifications in the existing openings wherever provided for carrying pipelines, cables, etc.

12.7 All electrical works including cables/wires, earthing, etc., beyond power supply made available by the department.

12.8 Making good all damages caused to the structure during installation and restoring the same to their original finish.

12.9 Approval from local bodies/fire authorities as may be required as per local by-laws. (The contractor's responsibility shall be limited to the work executed by him). The inspection fee of local bodies/fire authorities shall be borne by the department.

13 Provisional Fire NOC and Inspection by Chief Fire Officer

13.1 Before commencement of work, the agency shall obtain a Provisional fire NOC from the Delhi Disaster Response & Fire Services Department by submitting the necessary documents like fire drawings, etc. Nothing extra will be paid in this regard. However, necessary fees, if any, will be paid by the department.

13.2 After completion of the work to the entire satisfaction of the Engineer-in-Charge, the installation shall be offered for inspection by the Local Fire Officer or his representative. Testing as desired by the Fire Officer shall be carried out. The contractor will provide all necessary manpower during testing.

13.3 The observations of the Local Fire Officer on the executed part of the works under the contract shall be attended to by the contractor without any extra cost. Nothing extra is to be paid for testing as above. It shall be the responsibility of the Contractor to obtain approval/clearance from the Local Fire Authority and obtain an Occupancy Certificate before finalizing the bills

TECHNICAL PARTICULARS FOR FIRE FIGHTING SYSTEM:

14.Scope of Work

The detailed scope of work will be as follows:

14.1 Necessary electric fire pump with starter.

14.2 Necessary Diesel Engine Driven Fire Pump set, automatically starting on batteries complete with batteries, control panel, and ancillaries as specified.

14.3 Necessary Electric Motor driven automatic pressurization pump set, automatically starting complete with starter, control panel, and ancillaries as specified.

14.4 Necessary Electric Motor driven priming pump with starter as specified.

14.5 One lot of pipes and accessories such as bolts and nuts, rubber insertions, joint compound, etc., limited to quantities as per BOQ.

14.6 One lot of valves complete with accessories such as bolts and nuts, rubber insertions, etc., limited to quantities as per BOQ.

14.7 Sprinkler system.

Necessary Fire brigade inlet connections as specified.

Necessary Electrical work as per specifications.

Necessary Earthing system as per specifications.

□ 14.8 Necessary testing, commissioning, and handing over.

14.9 The control panel for the system shall incorporate the following functional requirements:

The control panel shall have status selection for all the pumps for both 'automatic' and 'manual' operation.

All pumps, when under manual status, shall be started manually by operation of relevant push buttons. The fire pump, once started, shall not be stopped automatically except due to low water level in the underground storage tank. Manual shutdown by push button from the panel shall be feasible.

14.10 The fire pump shall be locked out for both 'Manual' and 'Automatic' operation once the low water control operates and shall furnish an audible and visual alarm on the panel. Accepting the alarm can silence the audio alarm. The visual alarm shall be individual for each equipment, flashing type initially and remain steady on acceptance. A reset button shall be provided for each pump for returning the pump for fire duty. Automatic shutdown due to pressurization of the system by closure of landing valves or yard hydrants shall be feasible.

14.11 Once tripped, the electric pumps shall remain locked out for operation irrespective of the position of its operational status selection switch. Lockout indication shall be available on the panel. Return to normal operation availability shall be feasible only by manual re-set of locked out units by operation of appropriate push buttons/knob, etc.

14.12 When the fire pump is brought into operation, an audible tone indication shall be available. To distinguish between tones for healthy operation and alarms for failure and lockout of any unit, the audio alarm shall not be silenced until the unit shuts down, but the tone can be subdued by the operator if required. Failure alarms shall be loud and distinctive and can be silenced upon acceptance. The alarm indicating healthy running shall be silenced when the pump is stopped.

While a single integrated control panel in the pump house is acceptable, it shall be sectionalized for each unit installed in the pump house as per detailed specifications

15 Electric Fire Pump:

General:

The electric fire pump shall be suitable for automatic operation, complete with a necessary electric motor and automatic starting gear, suitable for operation on 415 volts, 3 phase, 50 Hz AC system. Both the motor and the pump shall be assembled on a common bed plate, fabricated from MS Channel type or cast iron type.

Drive:

The pump shall only be direct driven by means of a flexible coupling. A coupling guard shall also be provided

Fire Pump:

The fire pump shall be a horizontal centrifugal end suction back pull-out type. It shall have a capacity to deliver suitable lpm as specified, developing adequate head to ensure a minimum pressure of 3.5 kg/cm² at the highest and farthest outlet. The delivery pressure at the pump outlet shall be not less than 8 kg/cm² in any case the pump shall be capable of giving a discharge of not less than 150% of the rated discharge, at a head of not less than 65% of the rated head. The shutoff head shall be within 120% of the rated head.

The pump casing shall be of cast iron to grade FG 200 as per IS: 210, and parts like impeller, shaft sleeve, wearing ring, etc., shall be of non-corrosive metal such as bronze, brass, or gunmetal. The shaft shall be made of stainless steel.

Bearings of the pump shall be effectively sealed to prevent loss of lubricant or entry of dust or water.

The pump shall be provided with a plate indicating the suction lift, delivery head, discharge, speed, and number of stages.

The pump casing shall be designed to withstand 1.5 times the working pressure

Motor :

The motor shall be squirrel cage AC induction type suitable for operation on 415 volts 3 phase, 50Hz system. It shall be totally enclosed fan cooled type conforming to protection clause IP 21 as per IS 4691. The class of insulation shall be F. The synchronous speed shall be 1500 RPM as specified. The motor shall be rated for continuous duty and shall have a horsepower rating necessary to drive the pump at 150% of its rated discharge with at least 65% of rated head. The motor shall conform to IS 325-1978.

Motor Starter:

The motor starter shall be automatic Star Delta type conforming to IS: 1822-1967. The unit shall include a suitable current transformer and ammeter of suitable range on one line to indicate the current. The starter shall incorporate adjustable overload trip and SPP (Single Phasing Preventer).

The starter assembly shall be suitably integrated in the power and control panel for the wet riser system.

16 Diesel Fire Pump: General:

The engine and pump shall be TAC (Tariff Advisory Committee) approved. The diesel pump set for fire duty shall be suitable for automatic operation complete with necessary automatic starting gear, suitable for starting on a wet battery system, and shall be complete with all accessories. Both engine and pump shall be assembled on a common bed plate fabricated from MS (Mild Steel) type. The standard accessories for the engine shall include the following:

Flywheel dynamically balanced.

Necessary coupling for pump and coupling guard.

Electrical starting equipment and starting system.

Lube oil and air filters.

Governor.

Exhaust silencer and system.

Daily service tank with semi-rotary pump and hose pipe.

Engine cooling and lube oil system.

Instrumentation and protection system.

Necessary pipework.

Drive: -

The pump shall be directly driven by means of a flexible coupling. A coupling guard shall be included in the supply and installation.

Fire Pump:-

The pump shall have a capacity of delivering designed lpm (as per NBC 2016) to ensure a minimum pressure of 3.5 kg/cm² at the highest and farthest outlet at the specified flow rate. A single-stage centrifugal pump will be preferred, matching the duty requirements to the engine speed and direct drive if necessary. For a single impeller, a horizontal split casing will be preferred. The pump shall have a cast iron casing, bronze impeller, and stainless steel shaft.

The pump casing shall be designed to withstand the discharge pressure plus the static head plus at least 50% of the total head. Bearings of the pump shall be effectively sealed to prevent loss of lubricant or entry of dust or water the pump shall have a capacity of delivering 1620 liters per minute (as per NBC 2016) to ensure a minimum pressure of 3.5 kg/cm² at the highest and farthest outlet at the specified flow rate. A single-stage centrifugal pump will be preferred. If matching the duty requirements to the engine speed and direct drive make it inevitable, a horizontal split casing will be preferred for a single impeller configuration.

The pump shall have a cast iron casing, bronze impeller, and stainless steel shaft. The pump casing shall be designed to withstand the discharge pressure plus the static head plus at least 50% of the total head. Bearings of the pump shall be effectively sealed to prevent loss of lubricant or entry of dust or water.

Site and Climatic Condition:-

The engine shall be required to operate under the climatic conditions of the site.

Capacity: -

The capacity/horsepower rating at the chosen operating speed shall exclude the power requirements of auxiliaries that engage with the engine during operation. The continuous capacity available for load, excluding auxiliaries, shall consider any derating due to site and climatic conditions. Duty requirements include continuous, non-stop operation for 8 hours and at least 3000 hours of operation before a major overhaul of the engine.

Scope of installation work:

The scope of diesel fire pump installation work shall cover the following:-

Necessary cement concrete foundation including vibration isolation pads as necessary, foundation bolts, brackets, clamps, fixtures, groupings, etc.

Necessary controls, daily service tank, cooling and lubrication oil systems, fuel oil system, and exhaust piping work inclusive of all fittings and accessories to meet effective functional requirements.

17. ELECTRIC PRESSURISATION PUMP

General:-

The Electric pressurization pump shall be suitable for automatic operation, complete with necessary automatic starting gear suitable for operation on 415V (+/- 10%) voltage variation, 3-phase, 50 cycles AC system. Both motor and pump shall be assembled on a common base plate fabricated from MS channel type or cast iron type.

Drive: -

The pump shall be directly driven by means of a flexible coupling. A coupling guard shall be included in the supply and installation.

Motor:-

The motor shall be a squirrel cage AC induction type with a drip-proof, screen-protected enclosure conforming to protection clause IP-21 as per IS-4691. Additionally, the motor shall conform to IS-325 specifications.

The synchronous speed of the motor shall not exceed 1500/3000 RPM.

Pump:-

The pump shall be capable of building up pressurization within a run time of approximately 5 to 10 minutes. Preferably, it shall be a self-priming type pump. A multi-stage pump construction will be acceptable.

The pump shall have a cast iron casing, bronze impeller, and stainless steel shaft. The pump casing shall be designed to withstand the discharge pressure, the static head in the system, plus at least 50% of the total head. Bearings shall be suitably sealed to prevent loss of lubricant and entry of dust and water

Scope of installation work: -

The scope of pressurization pump installation work shall cover the following:-

Necessary cement concrete foundation work, foundation bolts, grouting, etc.

18. Electric Priming Pump:

Pump:-Shall be as per description of item of Tender.

Pump casing shall be of cast iron, impeller of bronze and shaft of high tensile stainless steel.

Scope of Installation work:-

The scope of installation of the automatic pressurization pump shall cover the following: Necessary cement concrete foundation work, foundation bolts, and grouting.

Power and Control Panel:-

Construction: -

General features:-

The power and control panel shall be fabricated out of sheet steel totally enclosed and vermin proof, free standing floor mounted cubicle type and front operated. All connections shall be accessible from the front. It shall be preferably made in sections, such as mains in comer, diesel fire pump, pressurization pumps, priming pump and control etc. so that there is no mix up of power and control wiring and connections in the same

sections and as far as possible they remain segregated excepting where they have to come together on a unit such as relay, contactor etc. Sheet steel used shall not be less than 2.0 mm thick Front doors shall be hinged type. All indication lamps, Instruments, meters etc. shall be flush mounted in the front.

19 Terminal Blocks and Wiring:-

Terminal blocks of robust type and generally not less than 15 Amps. Capacity 250 V grade up to 100 V and 600 V sgrade for rest of the functions shall be employed in such a manner that they are freely accessible for maintenance.

All control and small wiring from unit to unit inside the panel shall be done with not less than 2.5 Sq.mm. copper conductors, PVC insulated and 600 V grade cable. Suitable colour-coding may be adopted. Wiring harness shall be neatly formed and run preferably function wise and as far as feasible segregated voltage wise. All ends shall be identified with identification fer rules.

Labels:-

All internal components shall be provided with suitable identification labels. Suitable engraved labels shall be fixed at the point of panel for all switches, instruments, meters, push buttons, indication lamps etc.

20. Electrical works:-

This section covers the detailed requirements of electrical works, including earthing, for the wet riser installation:

Electric Power Supply: The electric power supply shall terminate in the incoming switchgear, to be provided by the tenderer, of the power and control panel with necessary earth leads by the department. The contractor shall be responsible for all further connections to various components of the wet riser system to ensure a complete and functional system.

Control Wiring: All control wirings shall be with single or multi-core unarmored copper cables of sizes as approved, between various control units and the control panel.

Power Cable Connections: Power cable connections between the panel and motors shall be made using multi-core armored copper cables of sizes as approved. These cables may be clamped on walls, run on cable trays, or laid in ducts as necessary. The cost of trays, trenches, clamps, supports, and all labor shall be included in the quoted cost.

Indication Lamps: All indication lamps shall be flush-mounted type in front of the panel and protected with HRC (High Rupturing Capacity) cartridge type fuses.

Earthing System: The earthing system shall conform to CPWD specifications.

The work shall be carried out in accordance with CPWD General Specifications for Electrical Works Part I (Internal) 2013 amended up to date and Part II (External) 1994 amended up to date.

21.Pipe Work :- General: -

The system shall comprise of mild steel or galvanized iron pipe work with MS/GI fittings as specified. The use of GI fittings in GI pipe work is also acceptable and is indicated as an alternate with adjustment in rates. It is essential that the system remains pressurized during operation to ensure its functionality and effectiveness.

Pipes and Pipe works:-

21.1 All GI/MS pipes and accessories shall conform to IS 1239 heavy class, with preferred makes as per the tender specifications. Each flanged section shall undergo testing, and the flanges themselves shall be smooth-faced.

21.2 Specifically for GI pipes, they shall be class 'C', vertically cast, conforming to IS 1239, and accessories shall be heavy class conforming to IS 3589. Flanges used in the system must also be smooth-faced.

21.3 Where screwed joints are permitted, they shall be taper-threaded. Joint sheets used in these joints must be suitable for high-pressure applications. Packing sheets used in the joints shall withstand at least one and a half times the operating pressure, which is taken as the test pressure requirement for the pipes.

The pipe work installation shall encompass all necessary clamps, supports, anchors, etc. The spacing between vertical supports shall generally not exceed 1.5 meters. Approved anchors shall be provided at locations such as bends or tees where required to ensure stability and proper alignment of the piping system.

21.4 T-joints for hydrants shall be either of welded construction or made with special. The pipe works shall be electrically earthed at the pump house by suitable clamps etc. by loop earthing to the earth system.

22.Jointing Technique:-

22.1 Electric welding joints shall be provided in the pipework installation. Flanged joints shall also be provided for connecting to valves, pumps, air vessels, etc., as well as on straight lengths at suitable points to facilitate easy erection and maintenance.

Hydrants:-

23 Internal hydrants & landing valves.

23.1 The internal hydrant to be installed at each floor of the wet riser stack shall be positioned approximately one meter above the floor level. Each internal hydrant outlet shall consist of an instantaneous pattern double outlet gun metal landing valve. Each valve will be individually controlled, with a cap chain on one side and an adapter on the other for hose reel connection. The first outlet, directed towards the ground, will be utilized in the event of a major fire and will accommodate a 65mm diameter hose. The second outlet will be connected to the hose reel system.

23.2 The landing valve will be installed on a tee fitting on the wet riser stack at the designated landing. The scope of work shall include the necessary orifice plate, where required, for pressure balancing as per approved drawings. The landing valve will be of the instantaneous coupled type suitable for coupling to hose pipes

24. Rubber lined hose pipes:-

Rubber lined (woven jacketed) fire-fighting hose shall be of length as specified each size 63mm conforming to IS 636. The hose shall be sufficiently flexible and capable of being rolled into a roll and shall be complete with necessary couplings at the ends so as to suit into the landing valve or with suitable hoses for extending the hose length or the branch pipe and nozzle.

25. Hose reel equipment:-

First aid hose reel equipment shall comprise of reel with hand control valve, hose reel tubing, and hose guide fixing bracket and nozzle. The fixing bracket shall be swinging type for normal mounting. The equipment shall conform to IS 884 – as amended up to date. The hose size shall be 20mm dia. Length of the hose shall be not less than 30.0 mtr. Each hose reel shall be fitted with necessary engraved operating instructions on the assembly.

26. Hose Cabinet:- A standard hose cabinet or wall box to accommodate the hose pipe reels, branch pipe and nozzle, lockable and fabricated out of 2.0mm sheet having central opening glazed doors shall be fitted at each landing. Hose boxes, etc shall be painted with bright "Post office "red.

27. External Hydrants:-

External yard hydrants shall conform to IS: 908 standards and shall be of the "stand post" type. Each hydrant will comprise a stand post for a single outlet, a duck foot bend, a flange riser, and a single-headed brass or gunmetal valve conforming to type A of IS 5290.

The standpost column shall be made of GI (galvanized iron), cast in one piece, conforming to grade 20 of IS 210/1970. The internal diameter at the top of the column shall be at least 80mm. The outlet of the standpost column shall be angled towards the ground and equipped with an instantaneous spring-back type gunmetal female coupling of 63mm diameter, designed for connecting to a hose pipe..

28 Fire Brigade inlet connection:

One set of collector head fire brigade connections shall be installed near the pump house or at individual wet risers as specified. Each set shall consist of 2 instantaneous male inlet couplings, plugs, and chains. Additionally, 4 sets of instantaneous male inlet couplings, plugs, and chains shall be provided near the main entry points.

The inlet to each wet riser shall be equipped with a sluice valve and a non-return valve. The scope of work shall include necessary reducers, tees, bends, and special fittings as required. An enclosure made of sheet metal with suitable support shall be provided, similar to hose cabinets, to house these connections.

29. Air release valves:-

An air release valve shall be installed at the topmost point of each riser. The function of the air release valve is to release any trapped air in the riser when it is being charged with water.

.30.SPRINKLER SYSTEM

The sprinkler system shall be designed and executed according to the following codes:

- i) IS: 15105 - Design and Installation of Fixed Automatic Sprinkler, Fire Extinguisher Systems - Code of Practice.
- ii) IS: 9972 - Specification for Automatic Sprinkler Heads for Fire Protection Service

31.Alarm Valve: - A sprinkler installation shall be fitted with a suitable main installation valve to control the water supply to the installation. The valve set shall comprise the following

A mains top valve and alarm valve A water monitor alarm gong

The main stop valve shall be placed in the vicinity of the main entrance of the protected area at an easily accessible place. The valve shall be secured open by a pad locked and protected against damage. A location plate shall be fixed near the valve bearing the following words in raised letters:

32.SPRINKLERS TOP VALVE

Alarm valve shall be fitted on the main supply pipe immediately after the main control valve and before any connection is taken off to supply any part of the installation. All other valves as per requirement shall be provided.

Alarm device:-

Water monitor alarm suitable for sprinkler service shall be provided very close to the installation and alarm valve. This alarm shall be provided on the outside of an external wall. Strainer shall be fitted between the motor nozzle and the alarm valve connection. The water outlet shall be positioned so that any flow of water can be seen. The alarm device shall provide audibility level of 85dB above the background noise level.

Sprinkler of different temperature rating are proposed and shall be corresponding colour coded as per specification (68°-Red, 141°Blue)

33.Installation of Sprinkler system:

The installation shall be carried out as per the detailed specification for wet riser. However, the following additional points are to be taken care for sprinkler installations.

For fixing sprinkler heads, 15mm. dia M.S. Socket to be welded to range pipes at the locations as per drawings. Dead plug shall be fixed in the socket.

If sprinkler head is to be provided away from range pipe, M.S. Pipe nipple of suitable size be used to extend the sprinkler head and socket is welded at desired location.

After completion of work in sections, pressure testing at 8.0 kg/cm² pressure shall be carried out for 24 hrs.

After completion of the entire work, pressure testing of entire pipe work shall be carried out for 24 hrs at a pressure of 8.0kg/cm².

The lines shall be flushed before completion of building work so that any foreign matter which might have entered the system is taken out. The pressurization pump (jockey Pump) be operated and valves opened at different locations.

During occupation of the building, sprinkler heads shall be provided in place of dead plugs. Teflon tape shall be used on threaded portion. The sprinkler heads shall be properly tightened in the socket.

When all sprinkler heads are installed, pressure is built up in the system slowly using a pressurization pump. If a leak is detected, the desired pressure is developed and maintained. Any leaks found must be attended to before further pressurizing the system.

34 COMMISSIONING:

As soon as the work is complete, the system shall be commissioned and made available for use in accordance with Para below.

Testing of the system:

After installing, the entire piping shall be flushed to remove any foreign matters which might have entered during the installation. The pipes shall be slowly charged with water so that the air is expelled from the pipes. The pipes shall be allowed to stand full of water for a period of not less than 24 hours and then tested under pressure. The test pressure shall be at least 10 kg/cm². The test pressure shall be applied by means of a manually operated test pump or by a power-driven test pump to be provided by the contractor. In either case, precautions shall be taken to ensure that the required pressure is not exceeded.

The open end of the piping shall be temporarily closed for testing.

Tests shall be conducted on each pump set after completion of the installation with respect to delivery head, flow, and pressure. The test shall be carried out by the contractor at his own cost, except for water and electricity which shall be provided by the department free of cost.

All leaks and defects in different joints noticed during the testing and before commissioning shall be rectified to the satisfaction of the Engineer-in-charge.

35.APPROVAL BY LOCAL BODIES

It shall be the responsibility of the contractor to obtain the approval of drawings and to get the installation inspected and obtain NOC (No Objection Certificate) from the local fire authorities as may be necessary. Any License fee, if required, shall be paid by the department as per actual.

36.DETAILED PARTICULARS AND REQUIREMENTS Scope:

This Annexure covers detailed particulars and requirements for supply, installation, testing, and commissioning of wet riser (requirements and equipment).

LIST OF PREFERRED MAKE

AUTOMATIC FIRE ALARM SYSTEM		
1.	Intelligent Addressable Fire Alarm Panel/Detectors/Hooter/Manual Call Point/Talk Back/Control Module/Monitor Module/Control Relay Module / Fault Isolator/ Repeater Panel / Response Indicator	Honey Well / Bosch/Edward/Notifier/Siemens
2.	Fire Survival Cable	Polycab/Finolex/RR Kabel/Havells
3.	PA Amplifier/Speaker/Microphone	Bosch/Philips/Bose/Honeywell
4.	SMF Battery	Exide/AmaraRaja/Panasonic

FIRE FIGHTING SYSTEM

S.NO	DESCRIPTION	Approved makes
1	Fire fighting pump	Mather & Platt, KSB, Grundfos, Kirloskar
2	Motor	Siemens/Bharat Bijlee, Crompton Greaves Ltd, Kirloskar
3	GI/MS Pipes (IS1239/3589)	Jindal Hissar, TATA
4	Fire fighting equipment such as Hydrant Landing Valves, First Aid Hose Reel Drum, RRL Hoses, Branch Pipes, Fire Brigade Inlet Valves, Fire Brigade Draw Out Connection & Sprinkler etc.	NAFFCO, Newage Minimax/ Lifeguard
5	Fire Extinguishers	NAFFCO, Minimax, CEASEFIRE/ Lifeguard
6	Flow Switch	Victaulic, NAFFCO, Tyco
7	Pressure Gauge	H.Guru, FIEBIG
8	Gate Valve/ Sluice Valve	Kirloskar, Sant, ADVANCE, Leader
9	Butterfly Valve	Advance, Audco, Danfoss Leader
10	Y Strainer	SKS, VTAMUTAM, Leader
11	Anti-Vibration Mounting & Flexible Connections	Resisto flex, Kanwal, Industrial
12	GM/Forged Brass Valves	Zoloto, Sant, Leader, Kirloskar
13	Air Release Valve	SKS, Arco, RB
14	Fire Sealant	Hilti,3M
15	Fasteners, Nuts, Bolts etc.	Mupro, Wurth, Hilti

16	Epoxy Paint	Asian Paints, Berger, ICI
17	Anti-Corrosive Paints	Asian Paints, Berger, ICI
18	Cable	Polycab / RR Kable/Finolex
19	Fire fighting panel	Adlec / Tricolite/Ambit/Control & Switchgear/Milestone/SPC Electrotek
<u>EI Work</u>		
S/No	DESCRIPTION	MAKES
1	MODULAR TYPE SWITCH, SOCKET, ELECTRONIC FAN REGULATOR (STEPPED TYPE), BELL PUSH (WITH INDICATOR) GI BOX,	Legrand Myrius Regular or equivalent model of Schneider/ SIMENS/ABB/Honeywell
2	STEEL CONDUIT (ISI MARKED)	NIC/BEC/AKG
3	WIRE/CABLE (ISI MARKED)	POLYCAB/HAVELLS/FINOLEX/R R KABEL
4	LED FITTING)	PHILIPS / LT / TRILUX / WIPRO / REGENT
5	MCB, MCCB, MCB DB, ISOLATOR, RCCB, INDUSTRIAL TYPE SOCKET, LOOSE WIRE BOX	LEGRAND/HAGER/ABB/L&T/SIMENS
6	CCTV Camera	Axis/Pelco/Bosch
THE ITEMS WHICH ARE NOT MENTIONED IN ABOVE LIST SHALL BE USED AS PER THE DIRECTION OF NIT APPROVING AUTHORITY.		

Schedule of Quantity

Name of Work :- Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)

Sub Head - I :- Fire Alarm System

S.No.	Description of Item	Qty		Rate	Amount
1	Supplying, installation, testing and commissioning of micro processor based intelligent addressable main fire alarm panel, central processing unit with the following loop modules and capable of supporting not less than 240 devices (including detectors) and minimum 120 detectors per loop and loop length up to 2 km, network communication card, minimum 320 character graphics/ LCD display with touch screen or other keypad and minimum 4000 events history log in the non volatile memory (EPROM), power supply unit (230 ± 5 % V, 50 hz), 48 hrs back-up with 24 volt sealed maintenance free batteries with automatic charger The panel shall have facility to connect printer to printout log and facility to have seamless integration with analog/digital voice evacuation system (which is part of the schedule of work under SH: PA System) and shall be complete with all accessories . The panel shall be compatible for IBMS system with open protocol BACnet/ Modbus over IP complete as per specifications.	-	-	-	-
1.1	Ten Loop Panel.	8	Nos.	476893.00	3815144.00
2	Supplying, installation, testing & commissioning of intelligent interface unit One M2M protocol i.e. supplying communication links between building management system and fire alarm control panel complete as required.	1	Nos.	196207.00	196207.00
3	Supplying, installation, testing & commissioning of central graphical fire alarm management system to centrally monitor and operate the fire alarm system complete as required.	1	Nos.	210264.00	210264.00

4	Supplying Installation Testing Commissioning of Client PC System comprising of PC Hardware with minimum 13th Gen Intel® I7 processor CPU, multicore processors minimum 3.1 Ghz and 8GB or higher RAM, Hard Drive Space of 512 GB SSD or better, Video card and monitor capable of 1920 x 1080 pixel resolution or better with Ethernet adapter (10/100/1000 Mbps with RJ-45 connector) with 2 GB or higher Graphics card suitable for BMS System complete etc. as required.	1	Nos.	66294.00	66294.00
5	Supplying Installation Testing Commissioning of LaserJet printer having printing resolution 1200 x 1200 dpi, (dot/inch) or better, 21 to 30 ppm printing speed (LaserJet) complete etc. as required	1	Nos.	22674.00	22674.00
6	Supplying, installation, testing & commissioning of intelligent analog addressable photothermal detector complete with mounting base complete as required.	2796	Nos.	3004.00	8399184.00
7	Supplying, installation, testing & commissioning of intelligent addressable thermal detector with rate of rise cum fixed temperature thermistor complete with base as required.	653	Nos.	2866.00	1871498.00
8	Supply, installation, testing and commissioning of Addressable Multicriteria (Smoke + Heat + CO) Detector . The detector shall be capable of Photo electric smoke, Heat, Carbon Monoxide & Infra Red Flame detection.	8	Nos.	35421.00	283368.00
9	Supplying, installation, testing & commissioning of response indicator on surface/recessed MS Box having two LED, metallic cover complete with all connections etc as required.	50	Nos.	306.00	15300.00
10	Supplying, installation, testing & commissioning of addressable beam detector with short circuit isolator (inbuilt or separate) complete with emitter and receiver including connections with remote test features etc complete as required.	4	Nos.	78525.00	314100.00
11	Supplying, installation, testing & commissioning of 6 zone, voice alarm controller with USB, MP4 player (including 6 zone button paging station) with seamless integration facility with main fire alarm panel for voice evacuation complete as required.	6	Nos.	132115	792690.00
12	Supplying, installation, testing & commissioning of digital audio amplifier 75 Watt, 25V rms operating at 240 Volt AC Supply complete as required.	14	Nos.	152368	2133152.00

13	Supplying, installation, testing & commissioning of repeater panel with 320 character/ Touch screen LCD display with inbuilt reset, acknowledge and silence switches complete as required	4	Nos.	113734	454936.00
14	Supplying, installation, testing & commissioning of addressable horn cum strobe complete as required.	96	Nos.	3682.00	353472.00
15	Supplying, installation, testing & commissioning of addressable fire control module complete as required.	192	Nos.	3156.00	605952.00
16	Supplying, installation, testing & commissioning of addressable fire Monitor module complete as required.	82	Nos.	4180.00	342760.00
17	Supplying, installation, testing & commissioning of fault isolator complete with base as required.	172	Nos.	3434.00	590648.00
18	Supplying, installation, testing & commissioning of addressable manual call point complete as required.	96	Nos.	4063.00	390048.00
19	Supplying, installation, testing & commissioning of 6 inches dia, watts, 70/100 volts ceiling speaker complete as required.	928	Nos.	1939.00	1799392.00
20	Supplying, installation, testing & commissioning of fire fighter phone jack complete as required.	96	Nos.	1689.00	162144.00
21	Supplying, installation, testing & commissioning of addressable fire Relay module complete as required	134	Nos.	4939.00	661826.00
22	Supplying, installation, testing & commissioning of talk back unit complete as required	8	Nos.	6312.00	50496.00
23	Supply, Installation, Testing and Commissioning of 12/24V DC Power Supply, input-230VAC, 50Hz having output-12/24V in existing FAS panel complete etc. as required.	7	Nos.	2563.00	17941.00
24	Supplying & laying of 2x1.5 sqmm fire alarm armoured cable, 600/1000V rated with annealed copper conductor having XLPE insulation, steel wire armouring & FRLS/HFFR outer sheath complete as required.	25000	Mtr.	192.00	4800000.00
25	Supplying & laying of 2x1.5 sqmm fire survival armoured cable, 600/1000V rated with annealed copper conductor having glass mica fire barrier tape covered by an extruded layer of Cross Linkable Ethylene Propylene Rubber (EPR) insulation and LSZH inner bedding, steel wire armouring & LSZH outer sheath complete as required.	15000	Mtr.	386.00	5790000.00

26	Supplying, Installation, Testing and Commissioning of following size LED display (LED monitor) industrial grade with 3840x2160 resolution or better, USB playback, bluetooth and miracast connectivity, 4X HDMI 2.0, DP 1.2, HDR 10/10+, brightness: 500-nits or better, Video wall mode should be available, contrast ratio : 1200:1, OPS slot, viewing angle (H/V): 170°/170°, response time less than 12ms, Display control shall be on monitor screen and programmable with remote (remote shall be supplied with system), Key Board, Optical Mouse, etc. as required.				
26.1	55 inch or larger	2	Nos.	82057.00	164114.00
27	Supplying and installation of Cloud based Facility Management Software , remote health monitoring solution shall utilize cloud based software-as-a-service web application & supplementary network gateway hardware. System shall provide secure web access to cloud based web application using any of the web browsers like Google Chrome (preferable), Internet Explorer etc. from any computer/ tablet/ smartphone connected over internet via defined credentials – username and password. The cloud based web application shall capture all fire alarm system data as received from the system via supplementary gateway hardware of the same make as Fire Alarm Panel. The software shall display real time view of fire system effectiveness, multi-location unified view, custom dashboard, device level information, 100000 events, scheduled reporting, e-mail of critical alarms with 5 year Cloud subscription including testing and commissioning etc complete as required.	1	Nos.	343463.00	343463.00
28	Supplying and drawing of cable Fire Retardant PVC insulated copper conductor cable in the existing surface / recessed steel conduit of following pairs, cores and size including connections and interconnections etc. as required.				
28.1	speaker cable Single pair, 2-core, 1.5 sqmm	5000	Mtr.	61.00	305000.00
28.2	speaker cable Two pair, 2-core, 1.5 sqmm	3000	mtr.	97.00	291000.00
28.3	speaker cable Three pair, 2-core, 1.5 sqmm	1500	mtr.	134.00	201000.00
28.4	speaker cable Four pair, 2-core, 1.5 sqmm	750	mtr.	171.00	128250.00

29	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
29.1	25 mm	6000	mtr.	168.00	1008000.00
30	Supplying and fixing 25 mm dia MS flexible pipe with PVC coating along with all ancillaries and accessories like coupler etc. as required.	500	mtr.	60.00	30000.00
31	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with two numbers GI Suspenders i/c base of suitable size GI angle, GI bolts & nuts, fastner etc as required.				
31.1	150 mm width X 50 mm depth X 1.6 mm thickness	500	mtr.	803.00	401500.00
32	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "bends" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with two numbers GI Suspenders i/c base of suitable size GI angle, GI bolts & nuts, fastner etc as required.				
32.1	150 mm width X 50 mm depth X 1.6 mm thickness	15	each	1368.00	20520.00
33	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Tee" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with two numbers GI Suspenders i/c base of suitable size GI angle, GI bolts & nuts, fastner etc as required.				
33.1	150 mm width X 50 mm depth X 1.6 mm thickness	15	each	1486.00	22290.00
TOTAL of Sub Head - I					37054627.00
Sub Head - II :- Fire Fighting System					

1	(A) Supplying, installation, testing and commissioning of Electric driven Main Fire Pump suitable for automatic operation and consisting of following, complete in all respects, as required : (B) Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520. (C) Suitable HP Squirrel cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 volts, 3 phase 50 Hz, AC supply with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325. (D) M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required. (E) Suitable cement concrete foundation duly plastered with anti vibration pads.				
1.1	2850 lpm at 70 m Head	2.00	Set	425556.00	851112.00
2	(A) Supplying, installation, testing and commissioning of diesel engine driven main fire pump suitable for automatic operation and consisting of following, complete in all respects, as required : (Diesel Driven Pump) (B) Horizontal type, multistage, centrifugal pump of cast of iron body and bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520. (C) Suitable HP, 1500 RPM water cooled with radiator, diesel engine conforming to relevant IS standard complete with auto starting mechanism, 12 /24 volts electric starting equipment, diesel tank, exhaust pipe extended upto 10 m outside pump house duly insulated with 50 mm thick glass wool with 1.0 mm thick aluminium sheet cladding, residential silencer, instruments and protection as per standard specification, stop solenoid for auto stop in the event of fault with audio indications, painted with post office red colour etc. as required. (D) M.S fabricated, common base plate, coupling, coupling guard, foundation bolts etc. as required. (E) Suitable cement concrete foundation duly plastered and with anti vibration pads.				
2.1	2850 lpm at 70 m Head	1.00	Set	647234.00	647234.00

3	<p>(A) Supplying, installation, testing and commissioning of electric driven pressurisation pump suitable for automatic operation and consisting of following, complete in all respects, as required : (Jockey Pump)</p> <p>(B) Horizontal type, multistage, centrifugal pump of cast iron body and bronze impeller with stainless steel shaft, mechanical seal conforming to IS: 1520.</p> <p>(C) Suitable HP squirrel cage induction motor TEFC type suitable for operation on 415 volts, 3phase 50 Hz AC supply with IP 55 class of protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS : 325.</p> <p>(D) M.S.fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(E) Suitable cement concrete foundation duly plastered and with anti vibration pads.</p>				
3.1	180 lpm at 70 m Head	2.00	Set	109254.00	218508.00
4	<p>Fabrication, supply, Installation testing & commissioning of Electrical control panel of cubical construction, floor mounted type, fabricated out of 2mm thick CRCA sheet, compartmentalised with hinged lockable doors, dust and vermin proof, powder coated of approved shade after 7 tank treatment process, cable alley, inter-connection with suitable size copper conductor cable/solid copper strip, having switchgears and accessories, mountings and internal wiring, earth terminals, numbering etc. complete in all respect, suitable for main fire pump, pressurisation pump & diesel pump set complete as per CPWD specification with following in coming and Outgoings, suitable for operation on 415V, 3 phase, 50Hz Ac Supply with enclosure protection class IP 54 as required :</p>				

<p>Incomings 630A, 50kA 4 Pole MCCB, Ics=100% Icu Rating Digital Voltmeter 0-500V with selector switch Ammeter (0-630 A) with selector switch & CTs etc. LED type RYB phase indicating lamps, ON, OFF, trip indicating lamps Set of Copper Bus Bar 800Amps Outgoings (Note : All outgoing feeders for pumps should have digital Ammeter with selector switches, and LED type ON, OFF, trip indicating lamps) Main Fire Pump 200 Amp, 50kA TPN MCCB, Ics=100% Icu, with fully automatic Star/Delta starter suitable for 75 hp pump with overload protection, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual/OFF operation. - 2 sets Jockey Pump 100 Amp, 50kA TPN MCCB, Ics=100% Icu, with Suitable HP fully automatic Star/Delta starter with overload protection, current sensing type single</p>				
<p>phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual/OFF operation. - 2 sets Diesel Engine Control Control for diesel engine comprising - Automatic/Manual selector switch & 3 attempts starting device, timers and relays as required, push buttons, start/stop in manual mode Indicating lamp for high/ Low Lub. Oil pressure, High Water Temp and Engine on indication Battery charger suitable for 12V/24 V DC with boost and trickle selector switch, 0-30 V DC volt meter, and 0-20 A DC Ammeter All standard relays and accessories for automatic operation of diesel engine System Controller Designing, Supply, Installation, Testing and commissioning of system controller to controperation of main electric fire pump, diesel pump, Pressurization pump, Terrace pump in sequence as per specification consisting of relays, timers. Sensors, annunciation window for fault indication, complete as per specification</p>	1.00	Set	469546.00	469546.00

5	Providing laying, testing & commissioning of 'C' class heavy duty MS Pipe conforming to IS 1239/3589 i/c fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. in existing trenchless bore/existing trench for crossing roads/pathway/all type of soil/ground etc including welding, anticorrosive treatment with coaltar/asphalt tape as per IS 10221 etc. of following sizes complete as required.				
5.1	200 mm. dia (wall thickness = 6.3 mm)	20.00	Mtr	5581.00	111620.00
5.2	150 mm. Dia	950.00	Mtr	3763.00	3574850.00
5.3	80 mm. Dia	500.00	Mtr	2331.00	1165500.00
6	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 3589/IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :				
6.1	25 mm dia	9270.00	Mtr	920.00	8528400.00
6.2	32 mm dia	1192.00	Mtr	1039.00	1238488.00
6.3	40 mm dia	1881.00	Mtr	1259.00	2368179.00
6.4	50 mm dia	2165.00	Mtr	1557.00	3370905.00
6.5	65 mm dia	2130.00	Mtr	1955.00	4164150.00
6.6	80 mm dia	835.00	Mtr	2277.00	1901295.00
6.7	100 mm dia	1005.00	Mtr	3077.00	3092385.00
6.8	150 mm dia	2130.00	Mtr	4299.00	9156870.00
6.9	200 mm dia (wall thickness 6.3 mm)	100.00	Mtr	6620.00	662000.00
6.10	250mm dia (wall thickness 6.3 mm)	50.00	Mtr	8023.00	401150.00
7	Supplying and fixing single headed internal hydrant valve with instantaneous Gunmetal/Stainless Steel coupling of 63 mm dia with cast iron wheel ISI marked conforming to IS 5290 (Type -A) with blank Gunmetal/Stainless Steel cap and chain as required :				
7.1	Single headed Stainless steel	70.00	Set	6632.00	464240.00

8	Supplying and fixing Single headed external yard hydrant valve with 1 No. 63 mm dia instantaneous FM Gunmetal/Stainless Steel coupling and cast iron wheel, ISI marked, conforming to IS 5290 (type A) with blank Gunmetal/Stainless Steel cap and chain as required :				
8.1	Single headed Stainless steel	30.00	Set	6632.00	198960.00
9	Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required :				
9.1	80 mm dia	6.00	Set	5406.00	32436.00
9.2	150 mm dia	38.00	Set	9737.00	370006.00
9.3	200 mm dia	4.00	Set	16248.00	64992.00
9.4	250 mm dia	2.00	Set	21721.00	43442.00
10	Supplying and fixing orifice plate made out of 6 mm thick stainless steel (Grade 304) with orifice of required size to be fitted between flange & landing valve of external and internal hydrants to reduce pressure at the outlet to the level of 3.5 kg/cm ² complete as required.	80.00	Each	1436.00	114880.00
11	Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required : (Note:- Non return valves shall be swing check type in horizontal run and lift check type in vertical run of pipes.)				
11.1	80mm dia	3.00	Set	8255.00	24765.00
11.2	150 mm dia	3.00	Set	18884.00	56652.00
11.3	200 mm dia	1.00	Set	30896.00	30896.00
12	Providing, installation, testing and commissioning of stainless steel Y-strainer fabricated out of 1.6 mm thick stainless steel, Grade 304, sheet with 3 mm dia holes with stainless steel flange.				
12.1	250mm dia	2.00	Each	28985.00	57970.00
13	Supplying and fixing 63 mm dia, 15 m long RRL hose pipe with 63 mm dia male and female couplings duly bound with GI wire, rivets etc. conforming to IS 636 (type-A) as required :				
13.1	Stainless Steel (Grade 304)	200.00	Set	4667.00	933400.00

14	Supplying and fixing first-aid Hose Reel with MS construction spray painted in post office red, conforming to IS 884 complete with the following as required. 20 mm nominal internal dia water hose thermoplastic (Textile reinforced) type -2 as per IS: 12585 20 mm nominal internal dia gun metal globe valve & nozzle. Drum and brackets for fixing the equipments on wall. Connections from riser with 25 mm dia stop gun metal valve & M.S. Pipe and socket.				
14.1	40m	70.00	Set	17034.00	1192380.00
15	Supplying & fixing 63 mm dia short branch pipe with 20 mm nominal internal diameter size nozzle conforming to IS 903 suitable for instantaneous connection to interconnect hose pipe coupling as required:				
15.1	Stainless Steel (Grade 304)	100.00	Set	3402.00	340200.00
16	Supplying and fixing of fire brigade connection of cast iron body with gun metal male instantaneous inlet couplings complete with cap and chain as reqd. for suitable dia MS pipe connection conforming to IS 904 as required:				
16.1	4 way - 150 mm dia M.S. Pipe	2.00	Set	14820.00	29640.00
16.2	3 way - 150 mm dia M.S. Pipe	7.00	Set	10097.00	70679.00
17	Supplying and fixing air vessel made of 250 mm dia, 8 mm thick MS sheet, 1200 mm in height with air release valve on top and flanged connection to riser, drain arrangement with 25 mm dia gun metal wheel valve with required accessories, pressure gauge and painting with synthetic enamel paint of approved shade as required.	15.00	Set	19402.00	291030.00
18	Providing & fixing of pressure switch in M.S. pipe line including connection etc. as required.	2.00	Each	1670.00	3340.00
19	Providing and fixing in position the industrial type pressure gauges with gun metal / brass valves complete as required	100.00	Each	1491.00	149100.00
20	Providing, fixing, testing & commissioning of installation control valve of cast iron body, brass/bronze working parts comprising of water motor alarm, bronze seat clapper, clapper arm and hydraulically driven mechanical gong bell to sound continuous alarm when the wet riser/sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves, MS pipe of required				

	size, flanges, orifice plate, gasket etc of following sizes as required				
20.1	150mm dia	7.00	Set	50805.00	355635.00
21	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
21.1	225 mm width X 50 mm depth X 1.6 mm thickness	350.00	Mtr	991.00	346850.00
21.2	375 mm width X 50 mm depth X 2.0 mm thickness	30.00	Mtr	1322.00	39660.00
22	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "bends" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
22.1	225 mm width X 50 mm depth X 1.6 mm thickness	20.00	Each	1811.00	36220.00
22.2	375 mm width X 50 mm depth X 2.0 mm thickness	6.00	Each	2580.00	15480.00
23	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Tee" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
23.1	375 mm width X 50 mm depth X 2.0 mm thickness	4.00	Each	3012.00	12048.00
23.2	225 mm width X 50 mm depth X 1.6 mm thickness	12.00	Each	2097.00	25164.00
24	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
24.1	3½ X 50 sq. mm (35mm)	4.00	Each	484.00	1936.00
24.2	3½ X 95 sq. mm (45mm)	8.00	Each	684.00	5472.00
	3½ X 400 sq. mm (57mm)	2.00	Each	1713.00	3426.00
25	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing along with existing surface/ recessed conduit/ submain wiring/ cable as required.	550.00	Mtr	50.00	27500.00

27	Supplying of following size XLPE insulated and PVC sheathed aluminium conductor armoured power cable of 1.1 KV grade conforming to IS 7098(Part-I) etc. as required.				
27.1	3.5 X 400 Sqmm	500.00	mtr	3904.00	1952000.00
27.1	3.5 X 95 Sqmm	100.00	mtr	1052.00	105200.00
27.1	3.5 X 50 Sqmm	100.00	mtr	626.00	62600.00
28	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
28.1	Above 185 sq. mm and upto 400 sq. mm	400.00	Meter	170.00	68000.00
29	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
29.1	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	100.00	mtr	226.00	22600.00
29.2	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	100.00	mtr	109.00	10900.00
30	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
30.1	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	100.00	mtr	151.00	15100.00
31	Supplying and erection of channel iron 75 mm X 40 mm X 6 mm (7.14 kg per metre) cross arm for two 33 KV over head line conductors complete with 50 mm X 50 mm X 6 mm angle iron bracket welded to the channel iron and complete with 50 mm X 6mm M.S. flat iron clamps, bolts and nuts including drilling holes for insulator pins, bolts, nuts, washers etc and painting with primer and finish paint as required.	500.00	mtr	3155.00	1577500.00
32	Fabrication, supplying, testing and commissioning of Standard fire hose cabinet of following size with IP65 protection and made of 1.6 mm thick powder coated GI/CRCA sheet having double opening glazed (4.0mm thick glass) shuttered i/c necessary locking arrangement by Allen key stove enameled fire red finish with 'Fire Hose' marked on front, suitable for housing 1 No Single Headed Hydrant Valve, 2 Nos. 15 mtr long 63mm dia hose pipe, 1 No. branch pipe & nozzle spanner etc. complete as reqd.				

32.1	(900mm L x 600mm W x 500mm D)	15.00	Job	25443.00	381645.00
32.2	(750mm L x 900mm W x 450mm D)	15.00	Job	28294.00	424410.00
33	Supplying and fixing of fire brigade draw out collecting head with 63mm dia instantaneous male draw out of cast iron body with gun metal couplings complete with cap and chain as reqd. for suitable for G.I pipe connection etc required:	2.00	Job	6414.00	12828.00
34	Making trenchless boring suitable for minimum 150 mm dia MS pipe for crossing road using manual/Machine moling technique atleast 0.75 mtr below the ground level including survey of under ground utilities, excavation of pits,, backfilling, compaction and restoration of the pits to original condition etc as required. The rate for moling, as indicated are inclusive of excavation of pits, backfilling, compaction and restoration of the pits to original condition. Any damage occurred to other utilities during the moling operation shall be immediately notified and rectified by the contractor without any cost implication to the department. The length of the Hole (excluding the sizes of the pits on both ends) shall be considered for the measurement of moling length.However, intermediate pits will consider in the moling length.	250.00	Mtr	726.00	181500.00
35	Providing, fixing, testing & commissioning of 15mm dia quartzoid bulb type sprinklers of rating 68 degree centigrade with required accessories :				
35.1	Pendent Sprinkler	5300.00	Each	599.00	3174700.00
35.2	Upright Sprinkler	500.00	Each	599.00	299500.00
35.3	Horizontal side wall sprinkler	580.00	Each	699.00	405420.00
35.4	Concealed sprinkler	250.00	Each	1553.00	388250.00
36	Providing, installation, testing & commissioning of water curtain nozzle 15mm dia nickel chrome plated brass, BSPT, K-factor as per design consideration complete as required.	1400.00	Each	787.00	1101800.00
37	Providing, installation, testing & commissioning of electric release trim assembly for deluge wall with two way solenoid valve, weather proof operation on 24 volts DC supply complete as required.	48.00	Each	7755.00	372240.00

38	Supplying, installation, testing & commissioning of deluge valve (to be used for water curtains) UL listed with wet pilot basic trim assembly for DVA with test and alarm, drip and drain valve with water motor gong complete as required.				
38.1	80mm dia	48.00	Each	87862.00	4217376.00
39	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and for all lift, as directed by Engineer-in-charge.				
39.1	All kinds of soil	815.00	cum	177.5	144663.00
40	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 and for all lift.				159740.00
		815.00	cum	196	
41	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc.direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required.				
41.1	160 mm dia (OD-160 mm & ID-135 mm nominal)	500.00	Mtr	537.00	268500.00
42	Providing and fixing inspectors test assembly complete with test valve, sight glass sectional drain valve, 25mm and 50mm dia medium class (Class B) G.I. pipes conforming to IS:1239 cut to required lengths including threaded fittings,union with corrosion resistant orifice all complete strictly as per drawing.	35.00	Set	8119.00	284165.00
43	Providing, installation, testing & commissioning of adjustable rosette plate for 15mm dia in white finish UL Listed or FM approved complete as required.	280.00	Each	264.00	73920.00
44	Providing & fixing flow switch in following sizes M.S. pipe including connection etc as required.				
44.1	150mm dia	35.00	Each	9644.00	337540.00

45	Providing & fixing dial type (100 mm) pressure gauge with isolation ball valve suitable for working pressure of 250 PSI. Cost shall be inclusive of providing any short pieces, nipples, elbows etc as required.	105.00	Each	3229.00	339045.00
Total Sub Head-II Rs.					63641733.00
Sub Head - III :- EI Work					
1	Dismantling existing LED fitting and temporary safe keeping/storage of above fixtures etc. And reinstallation of the same fixtures during civil/electrical work including connection, and complete testing and commissioning and complete handover to the department/client etc complete as required.	664	Nos.	194.00	128816.00
2	Dismantling existing CCTV and temporary safe keeping/storage of above CCTV etc. And reinstallation of the same CCTV during civil/electrical work including connection, and complete testing and commissioning and complete handover to the department/client etc complete as required.	48	Nos.	388.00	18624.00
3	Supplying, installation, Testing & Commissioning of LED Recessed/surface Down lighter (Round/square/ Rectangular) SMD type of following body material with PMMA and prismatic diffuser and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -5 0C to 40 0C centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10%, P. F. ≥0.95, IP20, CRI >80, UGR (Unified Glare Rating) <19, Flicker free (flicker should be below 5 %), life time (LED, Driver & electrical circuitry), life time of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard. Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing Complete in all respect i/c external connections with 1.5 sq mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 <135				

	lm/Watt output . LM79 & LM80 Test report and all testing required for LED				
	fixtures as per BIS shall be submitted.. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C). Powder coated die cast /Extruded aluminium Body including trim .				
3.1	18 watt	20	Each	942	18840.00
4	Supplying, Installation, Testing & Commissioning of Panel light 2x2 ft., of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -5 0C to 40 0C, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80, UGR (Unified Glare Rating) <19, Flicker free, (flicker should be below 5 %), life time (LED, Driver & electrical circuitry), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard. Manufactures Word Mark/ Name Engraved/Embossing/ Screen printing on housing. complete in all respect i/c external connections with 1.5 sq mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 <135 lm/Watt output .LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).				
4.1	Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm)				
4.2	36 watt	40	Each	2962	118480.00
Total Sub Head-III Rs.					284760.00

Sub Head IV : Credit of Materials					
Credit on account of following old and dismantled material i/c dismantling and taken away by contractor on AS IS WHERE BASIS.					
1	Assorted size of Fire fighting complete panel i/c all accessories	1	Job	-29367.00	-29367.00
2	Singh Headed Hydrant Valve 63mm dia SS	100	Each	-250.00	-25000.00
3	Fire Hose Reel Drum	70	Each	-400.00	-28000.00
4	Main Fire Pump	2	Each	-180000.00	-360000.00
5	Diesel Driven pump	1	Each	-230000.00	-230000.00
6	Submersible jokey pump	2	Each	-18000.00	-36000.00
7	25 mm dia MS Pipe	9270	Mtr	-80.00	-741600.00
8	32 mm dia MS Pipe	1192	Mtr	-103.00	-122776.00
9	40 mm dia MS Pipe	1881	Mtr	-119.00	-223839.00
10	50 mm dia MS Pipe	2165	Mtr	-166.00	-359390.00
11	65 mm dia MS Pipe	2130	Mtr	-213.00	-453690.00
12	80 mm dia MS Pipe	1335	Mtr	-271.00	-361785.00
13	100 mm dia MS Pipe	1005	Mtr	-390.00	-391950.00
14	150 mm dia MS Pipe	3080	Mtr	-570.00	-1755600.00
15	200 mm dia (wall thickness 6.3 mm) MS Pipe	120	Mtr	-890.00	-106800.00
16	250mm dia (wall thickness 6.3 mm) MS Pipe	50	Mtr	-1105.00	-55250.00
17	Assorted size of Sluice Valve/ Butterfly valve	50	Each	-2500.00	-125000.00
18	Assorted size of NRV	7	Each	-2500.00	-17500.00
19	Assorted size of MS Stainer	2	Each	-500.00	-1000.00
20	Assorted size of Rusted Air vessel	14	Each	-3000.00	-42000.00
21	MS hose cabinet, small pieces of metal, angels, Fire Hose Box Door(assorted)	500	Kg	-35.00	-17500.00
22	Different type of sprinkular/ water curtain nozzle	8030	Each	-25.00	-200750.00
23	Aluminum armoured Cable of 120 sqmm or higher	100	mtr	-80.00	-8000.00
24	1.5 sqmm copper conductor PVC insulated wire	400	Kg	-400.00	-160000.00
25	MS conduit Assorted size	500	Kg	-35.00	-17500.00
26	Fire Alarm Detector	3500	Each	-5.00	-17500.00
27	Fire alarm panel of assorted size	5	Each	-1500.00	-7500.00
28	LED 2 x 2 fitting	40	Each	-150.00	-6000.00
29.0	LED Downlighter	20	Each	-50.00	-1000.00
Sub Head IV : Credit of Materials					-5902297.00

Abstract of cost	
Sub Head I : Fire Alarm System	3,70,54,627.00
Sub Head II : Fire Fighting System	6,36,41,733.00
Sub Head III : EI Work	2,84,760.00
Sub Head IV : Credit of Materials	-59,02,297.00
Grand Total	9,50,78,823.00

Assistant Engineer (E)
NDZ-III, CPWD

Executive Engineer (P)
NDZ-III, CPWD

PART – C

CIVIL WORK

PROFORMA OF SCHEDULES

SCHEDULE 'A'

Schedule of quantities (as per CPWD-3) **As per Schedule enclosed (Page 127 To 133)**

SCHEDULE 'B'

Schedule of materials to be issued to the contractor:

S. No.	Description of item	Quantity	Rates in figures & words at which the material will be charged to the contractor	Place of issue
1	2	3	4	5
NIL				

SCHEDULE 'C'

Tools and plants to be hired to the contractor

S. No.	Description	Hire charges per day	Place of issue
1	2	3	4
NIL			

SCHEDULE 'D'

Extra schedule for specific requirements/document for the work, if any. **---- NIL ----**

SCHEDULE 'E'

Reference to General Conditions of contract	:	CPWD GCC Construction Works- 2023 as modified/amended upto last date of submission of bid.
Name of Work	:	Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)
Estimated cost of work	:	Total Rs. 11,28,09,697/- {Rs. 9,50,78,823/-(Elect.) Rs. 1,77,30,874/-(Civil) }
(i) Earnest Money	:	As per major component (Electrical wing)
(ii) Performance Guarantee	:	As per major component (Electrical wing)
(iii) Security Deposit	:	2.5% of tendered value

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS:

: As per major component (Electrical wing)

Officer inviting bid

Maximum percentage for quantity of items of work to be executed beyond which rates are to be

Determined in accordance with Clauses 12.2 & 12.3:

See relevant clause

Definitions:

2(v) Engineer-in-Charge	Executive Engineer, “Q” Division, CPWD, R.K. Puram, New Delhi
2(vi) Accepting Authority	Chief Engineer, NDZ-III, CPWD, R.K. Puram, New Delhi
2(vii) Percentage on cost of materials and Labour to cover all overheads and profits	15%
2(viii) Standard Schedule of Rates	DSR 2023 Volume-I & II (Civil works) with amendments up to last date of submission of bid
2(ix) Department	Central Public Works Department
9 (ii) Standard CPWD Contract Form	CPWD -7

Clause 1

- | | |
|--|--|
| (iii) Time allowed for submission of Performance Guarantee, Programme Chart (Time & Progress) and applicable Labour Licenses, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance. | As per major component (Electrical wing) |
| (iv) (ii) Maximum allowable extension with late fee @ 0.1% per day of performance guarantee amount beyond the period provided in (i) above | As per major component (Electrical wing) |

Clause 2

Authority for fixing compensation under clause- 2

**Chief Engineer,
NDZ-III, CPWD,
Sewa Bhawan, R.K. Puram**

Clause 2A

Whether Clause 2A shall be applicable

No

Clause 5

Number of days from the date of issue of letter of acceptance for reckoning date of start

As per major component (Electrical wing)

Mile stone(s) as per table given below:-

S. No	Financial Progress	Time allowed (from date of start)	Amount to be withheld in case of non-achievement of milestone
N/A			

Time allowed for execution of work

As per major component (Electrical wing)

Authority to decide:

(j) Extension of time
(c) Without levy of Compensation

Chief Engineer,
New Delhi Zone-III, CPWD,
R.K. Puram, New Delhi

(d) Authority to give fair and
reasonable With levy of
compensation.

Chief Engineer,
New Delhi Zone-III, CPWD,
R.K. Puram, New Delhi

(ii) Rescheduling of mile stone

NA

(iv) Shifting of date of start in case of
delay in handing over the site

Chief Engineer,
New Delhi Zone-III, CPWD,
R.K. Puram, New Delhi

Clause 6
Mode of measurement

Electronic Measurement Book (EMB)
EMB

Clause 7

Gross work to be done together with net payment /adjustment
of advances for material collected, if any, since the last such
payment for being eligible to interim payment

Rs. 20.00 lacs

Clause 7A

Whether Clause 7A shall be applicable

Yes

Clause 10A

List of testing equipment to be provided by the contractor at site lab: **As per requirement of
work at site**

Clause 10B (ii)

Whether Clause 10 B (ii) shall be applicable

N.A.

Clause 10C

Components of labour expressed as percent of value of work

As per GCC

Clause 10CC

: Not Applicable

~~Clause 10-CC to be applicable in contracts with stipulated period
of completion exceeding the period shown in next column~~

~~: 12 Months~~

~~Schedule of component of other Materials, Labour, POL etc.
for price escalation.~~

~~Component of civil /Electrical construction Materials
expressed as percent of total value of work. $X_m = 46\%$~~

~~Component of Labour—
expressed as percent of total value of work. $Y = 54\%$~~

~~Component of P.O.L.—
expressed as percent of total value of work. $Z = \text{NIL}$~~

~~Note: $X_m + Y + Z$ should be equal to (100) (Component of labour + Component of P.O.L)~~

Clause 11

Specifications to be followed for execution of work:

CPWD specification 2019, Volume-I & II as amended upto last date of submission of bid.

Clause 12

	Type of work	Original Work
12.3	(i) Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building work	100%
12.5	(i) Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (Except earth work)	100%
	(ii) Deviation Limit for items in earth work subhead of DSR or related items	100%

Clause 16

Competent Authority for deciding reduced rates

**Chief Engineer, NDZ-III, CPWD,
R.K. Puram, New Delhi**

Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site:

As per requirement at site & as per direction of Engineer-in-Charge.

Clause 25

Settlement of Disputes by Conciliation and Arbitration:

Conciliator	-	Additional Director General (Delhi)
Arbitrator appointing Authority	-	Chief Engineer, NDZ-III
Place of Arbitration	-	New Delhi

Clause 32**Requirement of Technical Representative(s) and recovery Rate**

S. No.	Minimum Qualification	Discipline	Designation	Minimum Experience (in Years)	Number	Rate per month at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 32(i)		
						Figures	Words	
1	As per Major Component							

Clause 38

(i) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates

DSR 2023 modified & corrected up to date.

(ii) **Variations permissible on theoretical quantities:**

a. Cement

For works with estimated cost put to
bid not more than Rs.25 lakh.

3% plus/minus.

For works with estimated cost put to
bid more than Rs.25 lakh.

2% plus/minus.

b. Bitumen All Works

2.5% plus only & nil on minus side

**c. Steel Reinforcement and structural steel sections for
each diameter, section and category**

2% plus/minus

d. All other materials

Nil

List of testing equipment to be provided by the contractor at site lab

1. Set of standard sieves.
2. Concrete cube moulds 6 Nos.
3. Slump cone.
4. Weighing equipment.
5. Measuring glass.
6. Any other equipment required at site as per item execution.

RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION

S.No.	Description of Item	Rates in figures and words at which recovery shall be made from the Contractor (Rate in schedule 'B' plus 10% in case materials issued by Department)	
		Excess beyond permissible variation	Less use beyond permissible variation
1.	Cement in bags	NIL	*Rs. 9000/- (Rs. Nine thousand only) per tonne
2.	Steel Reinforcement	NIL	*Rs. 75,000/- (Rs. Seventy Five thousand only) per tonne
3.	Structural Sections	---	---
4.	Bitumen issued free	---	---

***Subject to acceptance of quality of work by the competent Authority. ***

GENERAL CONDITIONS OF CIVIL WORK

1. The work shall be carried out according to CPWD specification for works, 2019 (Volume I & II), modified and corrected up to date of submission of bid and specifications as per additional conditions/ specification.
 2. The contractors shall quote their rates inclusive of all sorts of taxes, cartage, royalties etc. complete.
 3. Unless otherwise specified, the agreement rates for all items of work of the schedule of quantities are for all heights, depths, leads and lifts involved in the execution of work.
 4. Electric connection, if required shall be arranged by the agency. The contractor shall make his own arrangements for obtaining electric connection for execution of work and make necessary payment directly to the department concerned. In the absence of electric connection or failure of power supply, the contractor shall make his own arrangement of silent type generators.
- (i) ~~In occupied quarters where tile in flooring/walls and welding works etc. in the quarters itself will be done under upgradation /major renovation, if the contractor use the electricity connection from the resident's electric connection than he has to pay electricity charge to the resident at the following rates.~~

S.No.	TYPE OF QTR	RATE OF RECOVERY
1.—	Type I/Single suit	Rs. 200 per qtr
2.—	Type II/ Double Suit	Rs. 400 per qtr
3.—	Type III/ Type IV	Rs. 500 per qtr
4.—	Type V including servant room	Rs. 700 per qtr
5.—	Type VI and above including servant rooms	Rs. 1000 per qtr.

A necessary certificate of payment to resident shall be produced by the contractor along with bill to the Engineer-In-Charge of major component of work. In case of failure the Engineer-In-Charge will recover the necessary amount as said above from the bill and make the payment o the resident.

- (ii) ~~In un occupied quarters where upgradation/major renovation work is executed the contractor shall make his own arrangements of electric connection as stated above.~~
5. The contractor shall comply with proper and legal orders and directions of the local or public authority or Municipality and abide by their rules and regulations and pay all fees and charges of which he may be liable.
 6. The contractor shall take all precautions to avoid accidents by exhibiting caution boards, red flags, red lights and providing necessary barriers and all other measures required from time to time. The contractor shall be responsible for all damages and accidents due to negligence on his part.
 7. The contractor shall give due notices to Municipality, Police and/ or other authorities that may be required under the law/ rules under force and obtain all requisite licenses for temporary obstructions/ enclosures and pay all charges which may be leviable on account of his execution of the work under the agreement. Nothing extra shall be payable on this account.
 8. Other agencies working at site will also simultaneously execute the work entrusted to them and the contractor shall offer necessary co-operation wherever required to other agencies.
 9. On account of security consideration, there could be some restrictions on the working hours, movement of vehicles for transportation of materials. The contractor shall be bound to follow all such restrictions and adjust the programme for execution accordingly.

10. The work shall be carried out in a manner complying in all respects with the requirements of relevant bye laws of the local bodies, labour laws, minimum wages act, workmen compensation act and other statutory laws enacted by Central Govt. as well as State Govt.
11. (a) All the malba/ building rubbish obtained from dismantling during the execution of the work shall be brought down through the stair case and shall not be thrown to the ground directly from upper floors.
- (b) All the malba/ building rubbish obtained from dismantling, during the execution of work or generated due to any operation shall be collected in the mobile container of suitable size, which shall be arranged by contractor, placed near the working place. The malba or building rubbish so collected shall be disposed off **free of cost** to the specified common disposal point in the campus (**i.e. nothing extra shall be paid over agreement items**), from where the contractor will finally disposed off the collected malba or building rubbish to the authorized municipal dhalao/dumping ground. In no case the malba / building rubbish shall be allowed to dump at ground near the working place.
- (c) After the collection of full truck load of the said malba (approx 4.5 cubic meters), the same shall be disposed off on same day by the contractor to the authorized municipal dhalao/ dumping ground. In case of non-removal/disposal in the specified period, a recovery of **Rs.1000/-** (rupees One thousand only) per day shall be recovered from the contractor. for every default day till the final disposal of malba.
12. No residential accommodation shall be provided to any of the staff engaged by the contractor. The contractor shall also not be allowed to erect any temporary set up for staff in the campus.
13. No claims of the labours shall be entertained by the Department including that of providing employment, regularization of services etc.
14. All required register will be issued by Engineer-in-charge duly marked in chronological order but the contractor will have to arrange all such registers/stationery etc. Nothing extra shall be paid on this account.
15. The Engineers and Supervisor shall carry mobile telephone(s) to enable the Engineer-in-charge to have easy and quick communication. Nothing extra shall be paid to the contractor on this account and his quoted rates for various items under this contract will be inclusive of this obligation.
16. In no case, Mortar/ cement concrete shall be mixed directly on floor/ road surface. For mixing of mortar, G.I. Sheet/ Ply etc. shall be used to maintain the surface of flooring/ road. If at any instance, any worker is found, mixing mortar/ cement concrete directly on floor/ road surface, recovery of Rs. 1000/- instance shall be made from running bill.
17. All materials, T & P (other than routine T & P items), consumable and contingent articles required for the work shall be arranged by the contractor, Viz:-
- (i) **For civil work: -**
- a) Tool kit for every mason having 300 mm digital sprit level, water level, plumb-bob, Try square set measurement tool (Right angle 90 degree), tile / stone cutter etc.
- b) G.I. Sheet/ Ply etc. for mixing of mortar/ CC.
- c) Water jet pump with sprinkler nozzle for curing of all cement work mainly for vertical surface.
- d) Chase cutting machine
- e) Drill machine
18. Materials used shall be in order of preferences as under: -
- (i) As mentioned in Nomenclature of the item.
- (ii) As per list of approved makes of materials attached.
- (iii) CPWD specifications
- (iv) ISI marked.
- (v) CPWD approved
- (vi) Direction of the Engineer-in-Charge.
19. The order of preference in case of any discrepancy as indicated in condition no 8.1 under “Conditions of Contract” given in General conditions of contract for Central P.W.D. works 2023 form may be read as the following:

- 29.1 Description of item nomenclature in the schedule of quantities.
- 29.2 Particular specifications for Repair and Rehabilitation works (if applicable)
- 29.3 Particular specifications.
- 29.4 Additional and Special conditions.
- 29.5 Contract Clauses of General conditions of contract for Central P.W.D. works.
- 29.6 MORTH specifications for Road & Bridge works with correction slips upto date of receipt of tender.
- 29.7 CPWD specifications as mentioned in Schedule 'F'.
- 29.8 Architectural Drawings, if any.
- 29.9 Indian Standard Specifications.
- 29.10 Sound Engineering Practice.
20. The words "Equivalent", "Approval" and authorized" in these specifications shall imply and require written approval of the Engineer-in-Charge.
21. The rates shall include the following:-
All necessary materials, bolts, nuts, fasteners, nails, screws, rawl plugs, etc. as may be necessary to complete the work detailed in the specifications, whether or not specifically mentioned. The bidder should ensure that he has studied the drawings carefully and should seek any clarifications he may have from the Executive Engineer, in-charge of the work. No extra claims will be entertained later on.
22. Cutting, making and repairing of any holes/opening Junction Box for electrical purpose etc. required for any light fittings, loudspeakers, air-conditioning grills etc.
23. Staff employed by the contractor should be well behaved, Polite & courteous. Any complaint against staff on behavior should be taken very seriously and such staff should be removed by the contractor immediately from the site and arrange replacement for the same failing which the Engineer-in-Charge has to recover as per condition.
24. Police verification of every staff deployed by the contractor shall be got done by the contractor compulsorily and a copy of police verification shall be provided to Engineer-in-Charge after which an identity card duly countersigned by Engineer-in-Charge or his representative shall be issued to each employee of the contractor for proper identification. The contractor shall provide uniform along with Badge and shoes within 15 days of start of work. In the event of non compliance a recovery of Rs.25/- per day per employee shall be made. The employee and labours engaged by the contractor under this contract shall wear neat and clean uniforms alongwith name badges as approved by Engineer-in-Charge.
25. Safety of the staff employed will be the responsibility of the contractor, CPWD will not be responsible for any mishap, injury/accident or death of the staff. No. claim in this regard shall be entertained/ accepted by the department.
26. Contractor shall be fully responsible for any damages caused to govt. property or allottee's property by his or his labour in carrying out the work and shall be rectified by the contractor at his own cost.
27. The contractor shall maintain sufficient quantity of materials and spares at site to meet the requirement of attending the complaints as per direction of the Engineer-in-charge.

ADDITIONAL CONDITION OF CIVIL WORK

1. Chases, holes & drilling works etc. shall be done using power operated tools.
2. **Items under sub head renovation work, shall be executed only with the written permission of Engineer-in-charge.** The contractor shall have to carry out the work other than day to day maintenance according to programme given by the Executive Engineer / Assistant Engineer / Junior Engineer-in-charge. The contractor shall not carry out any work in any building without permission of Engineer-in-charge or his authorized representatives. The contractor shall have to adhere to this programme failing which he shall be wholly responsible for any inconvenience caused to the occupants. No claim for idle labour on any account shall be entertained. The contractor shall depute his representative daily to the site of work. His name and Signature shall be attested by the contractor for record in the department.
3. The quarters / flats and portions of quarters / flats where the work is to be executed on any day shall be got approved from the representative of the Engineer-in-charge at the site of work. No work shall be carried out in any quarters/flats without the approval of the representative of the Engineer-in-charge.
4. Any work carried out without the approval of the representative of the Engineer-in-charge at the site of work shall be rejected and shall not be measured and paid for.
5. Before the start of execution of work materials shall be brought in adequate quantity to be sufficient at least for 50% of the total requirement of the whole work per year and deposited with the Department. Remaining materials shall be brought and deposited with the department as directed by Engineer-in-charge. All samples of sanitary, water supply and fittings required for wood work shall be got approved from Engineer-in-charge and shall be displayed on board in each enquiry office.
6. If the material as instructed is not brought to the site within 7 days from the date of start of work, Earnest money/ Performance Guarantee shall be forfeited by Engineer in charge or his authorized representative by giving notice through site order book.
7. The manufacturing date and batch number shall be either inscribed or printed on the packaging/containers by the manufacturer. Only such materials bearing these details shall be accepted. As far as possible, fresh materials shall be brought to the site. Finishing material like paint, Distemper, polish, putty etc. older than four months from the date of manufacture reckoned from the date of start shall be liable for rejection.
8. The paints/other material shall be issued by the Junior Engineer / Assistant Engineer to the contractors after breaking the seal of the containers / packing and quantity to be issued shall be as per the daily requirement at the site. After days use balance quantity of paints etc., if any left, will be returned by the contractor to the Department. After use, the empty container shall have to be returned to the Department and shall be preserved by JE in charge and will not be disposed off till the finalization of the work. **Genuinity of Painting material before use shall also be got verified from manufacturer and in this regard a certificate from manufacturer shall be obtained and kept in the record.**
9. The site for the collection and stacking of the material shall be got approved from the Engineer- In-charge.
10. In order that the contractor may take daily instructions regarding all complaints / works except day to day maintenance, a site order book will be maintained at the Enquiry Office. The JE will note down the work in flats to be attended to and the dates on which the work in these flats is to be started.
11. The theoretical consumption of materials like, satna lime, distemper, paint, water proof cement paint etc. shall be computed, as per the consumption given in the schedule of Theoretical consumption of materials. If there is variation between the actual and the theoretical calculations action shall be taken as below:-
 - A) In case the materials used are less than theoretical requirements, the cost for the materials used less shall be recovered from the contractor, subject to acceptance of quality of work accepted by the competent authority as below:-

i) If quoted rates of agency are above the estimated rates :-

Recovery shall be made at 2 times of basic rate as given in D.S.R. 2023/ market rate for items not available in DSR 2023 plus carriage, plus 1% W.C., plus 18% GST, plus 15% contractor profit and over heads, plus 1% Labour Cess plus contractors enhancement as per the clause 12 of the agreement.

ii) If quoted rates of agency are below the estimated rates :-

Recovery shall be at 2 times of basic rate as given in D.S.R. 2023/ market rate for items not available in DSR 2023 plus carriage, plus 1% W.C., plus 18% GST, plus 15% contractor profit and over heads, plus 1% Labour Cess.

B) For all excess use of materials over the theoretical consumption no extra payment shall be made to the contractor.

~~12. Old doors, windows, floors, furniture, Electrical and other fittings shall be cleaned from all splashes, dust, dirt and mortars etc. The rate for the white washing/colour washing / distemping / painting etc. includes the cost of removal splashes and paint marks. In the event of failure on the part of contractor to remove the splashes and the paint mark the recoveries will be made at the following rates.~~

S.No	Type of Quarter	Rate of recovery for Each Quarter for splashes on doors, windows, floor, glass panes & electrical fixtures etc.
1	Type-I/ Single Suit	Rs. 2500/-
2	Type-II	Rs. 2500/-
3	Type-III/ Double Suit	Rs. 3000/-
4	Type-IV	Rs. 3500/-
5	Type-V i/e Servant Qtrs	Rs. 4000/-
6	Type-VI i/e Servant Qtrs	Rs. 4500/-

13. The labour for attending complaints shall carry necessary tool kit, container (Tasla), required for mixing any cement sand or other material, water bottle and waste bag for collection of minor rubbish material if received during attending the complaints, so that the site of work remains neat and clean.

14. The material such as sanitary items / water supply items / Aluminum fittings etc. as required shall be of approved brand and manufacture as given in the list of approved makes of materials or as approved by the Engineer-in-Charge.

15. The sample of all the items shall have to be got approved by the Contractor from the Engineer-in-charge before the supply commences and shall be without prejudice to the right of Engineer-in-Charge to get random samples tested out of the actual lot received.

16. The contractor shall furnish the manufacturer's certificate that the material supplied satisfy the requirements of the relevant specifications.

17. The Engineer-in-Charge shall be at liberty to take respective sample(s) of each item of schedule of quantity in any approved laboratory as decided by him. The sample for testing shall be provided by the contractor. All expenditure required to be incurred for taking sample, conveyance and packing & testing charges etc. shall be borne by the contractor himself. In case any sample particular lot fails in testing the contractor shall be bound to replace the entire lot with fresh material of prescribed specification and the rejected lot shall be returned to the contractor only after fresh lot is supplied. Testing charges shall be borne by the contractor.

18. Unless otherwise specifically provided in the Schedule of quantities, the rates tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the building and nothing extra quoted rates in agreement shall be payable to him on this account. However, payment for centering, shuttering, if required to be done for floor heights greater than 3.5m, shall be admissible at rates arrived at, in accordance with clause 12 of the agreement, if not already specified otherwise.

19. Some restrictions may be imposed by the security staff etc. on the working and for movement of labour, materials etc. The contractor shall be bound to follow all such restriction /instructions and nothing extra shall be payable on this account.
20. Other agencies doing works related with this project will also simultaneously execute the work and the contractor shall afford necessary facilities for the same. The contractor shall leave such necessary holes, opening etc., for laying/burying in the work pipes, cables, conduits, clamps, boxes and hooks for fan clamps etc. as may be required for other agencies. Conduits for electrical wiring/cables will be laid in such a way that they leave enough space for concreting and do not adversely affect the structural members. Nothing extra over the agreement rates shall be paid for the same. The contractor shall extend necessary co-operation to other such agencies without any claim on this account.
21. Scrapping shall be got checked from Engineer-in-charge of the work before carrying out finishing work over it and it must be 100% test checked by Assistant Engineer.
22. The contractor shall have to remove all splashes after completing the day's work. In case the splashes are not removed by the contractor the same shall be got removed by the Engineer-in-Charge and necessary recovery for the cost of removal of splashes shall be made from the contractor as below:
 - a) For splashes of internal white wash/ distemper etc. Rs. 500/- per bungalow/ flat/room of office
 - b) For splashes of paint marks Rs. 1000/- per bunglow/ flats/ room of office.
 - c) For splashes of external white wash/ colour wash/ water proofing cement paint Rs. 500/- bunglow/ flat/ room of office.
23. Rejected materials shall have to be removed by the contractor at his own cost immediately of the instructions of doing so.
24. In case of any dispute regarding rejection of quality of materials the decision of the Engineer-in-Charge shall be final and binding upon the contractor.
25. Royalty octroi terminal, tax etc. at prevalent rates shall have to paid by the contractor himself and the rates quoted by him shall include these duties and nothing extra on, this account shall be payable.
26. The contractor shall have to produce the cash memo to satisfy department that the material has been purchased from the authorized dealer and the GST tax has been paid.

27. CEMENT

21.1 The contractor shall procure 43 grade OPC as required in the work from reputed manufacturers of cement having a production capacity not less than one million tones or more per annum, such as ACC, Ultra Tech, J.P. Rewa, Vikram, Shri Cement, Birla Jute & cement corporation of India etc., as approved by the Ministry of Industry, Government of India and holding license to use ISI certification mark for their product The tenderers may also submit a list of names of cement manufacturers which they propose to use in the work. The tender accepting authority reserves right to accept or reject name (s) of cement manufacturer(s) which the tenderer proposes to use in the work. No change in the tendered rates will be accepted if the tender accepting authority does not accept the list of cement manufacturers, given by the tenderer fully or partially.

The supply of cement shall be taken in 50 kg. bags bearing manufacturer's name and ISI marking. Samples of cement arranged by the contractors shall be taken by the Engineer-in-Charge and got tested in accordance with provisions of relevant BIS codes. In case the test results indicate that the cement arranged by the contractor does not conform to the relevant BIS Codes, the same shall stand rejected, and it shall be removed form the site by the contractor at his own cost within a week's time of written order from the Engineer-in-Charge to do so.

21.2 The cement shall be brought at site as decided by the Engineer-in-charge.

21.3 The cement godown shall be maintained as per CPWD specification.

- 21.4 The cement shall be got tested by the Engineer-in-Charge and shall be used on the work only after satisfactory test results have been received. The contractor shall supply free of charge the cement required for testing including its transportation cost to testing laboratories. The cost of tests shall be borne by the contractor.
- 21.5 The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in clause 10 of the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in clause of the contract and shall be governed by conditions laid therein. In case the cement consumption is less than theoretical consumption including permissible variation, recovery at the rate so prescribed shall be made. In case of excess consumption, no adjustment need to made.
- 21.6 The Cement brought to site and the cement remaining unused after completion of work shall not be removed from site without written permission of Engineer-in-Charge.
- 21.7 The damaged cement shall be removed from the site immediately by the contractor on receipt of a notice in writing form the Engineer-in-Charge. If he does not do so within three days of receipt of such notice, the Engineer-in-Charge shall get it removed at the cost of the contractor.

24. STEEL

Special Condition for Steel Reinforcement

- 22.1 (a) The CPWD/Contractor shall procure IS marked TMT Bar Set-1 of various grades from the steel manufacturers or their authorized dealers {as per following selection criteria) having valid BIS license for IS:1786-2008(Amendment -1 November 2012) as per OM No. CSQ/SE(TAS)/Steel/2024/262 – No., 14 August 2024.

The procured steel should have following qualities: -

- i. Excellent ductility, bend ability and elongation of finished product due to possible refining technology.
- ii. Consumption of steel should be accurate as per design.
- iii. Steel should have no brittleness problem in finished product.
- iv. Steel should carry the quality of corrosion and earthquake resistance.
- v. Quality steel with achievement of proper level of sulphur and phosphorus as per IS:1786-2008

(b) Selection Criteria of steel manufacturers

The supply of reinforcement steel for all CPWD works should have following selection criteria of steel manufacturers: -

Steel producers of any capacity using iron ore/ processed iron ore as the basic raw material adopting advanced refining technologies as given hereunder,

- (i) DRI-EAF = Direct Reduced iron - Electric arc furnace.
or
- (ii) BF-BOF = Blast furnace - Basic oxygen furnace
Or
- (iii) COREX-BOF = COREX - Basic oxygen furnace

for production of liquid steel to finish product at single/multiple locations with NABL or any other similarly placed accrediting Government body which operates in accordance with ISO/IEC17011 and accredits labs as per ISO/IEC 17025 conforming to IS:1786-2008 (Amendment -1 November 2012). The check list for incorporation any quality steel producer is enclosed for technical assessment is given in Annexure-1.

Chief Engineer / CPM / PM shall approve the steel manufactures for projects under their jurisdiction. NIT approving authority shall specify the manufacturers in the tender document.

- 22.2 The contractor shall have to obtain and furnish test certificates to the Engineer-in-charge in respect of all supplies of steel brought by him to the site of work.

- 22.3** Samples shall also be taken and got tested by the Engineer-in-Charge as per the provisions in this regard in relevant BIS codes. In case the test results indicate that the steel arranged by the contractor does not conform to the specifications, the same shall stand rejected, and it shall be removed from the site of work by the contractor at his cost within a week time on written orders from the Engineer-in-Charge to do so.
- 22.4** The steel reinforcement bars shall be brought to the site in bulk supply of 10 tonnes or more, or as decided by the Engineer-in-charge.
- 22.5** The Steel reinforcement bars shall be stored by the contractor at site of work in such a way as to prevent their distortion and corrosion and nothing extra shall be paid on this account. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.
- 22.6** For checking nominal mass, tensile strength bend test, re-bend test etc. specimens of sufficient length shall be cut from each size of the bar at random and a frequency not less than that specified below:-

Size of bar	For consignment below 100tonnes	For consignment above 100 tonnes
Under 10 mm dia bars	One sample for each 25 tonnes or part thereof	One sample for each 40 tonnes part thereof
10 mm to 16mm dia bars	One sample for each 35 tonnes or part thereof	One sample for each 45 tonnes part thereof
Over 16mm dia bars	One sample for each 45 tonnes or part thereof	One sample for each 50 tonnes part thereof

- 22.7** The contractor shall supply free of charge the steel required for testing including its transportation of testing laboratories. The cost of test shall be bone by the contractor.
- 22.8** The actual issue and consumption of steel on work shall be regulated and proper accounts maintained as provided in clause 10 of the contract. The theoretical consumption of steel shall be worked out as per procedure prescribed in clause 42 of the contract and shall be governed by condition laid therein. In case the consumption is less than theoretical consumption including permissible variations recovery at the rate so prescribed shall be made. In case of excess consumption, no adjustment need to be made.
- 22.9** The steel brought to site and the steel remaining unused shall no be removed from site without the written permission of the Engineer-in-Charge.

SPECIAL CONDITION

1. The agency shall provide the uniform to their employees of approved fabric. The jacket should have marked with CPWD on Front and Back side with reflective neon colour of size 75X20mm, 200X100mm size respectively.
2. Contractor shall require to submit the daily program of major complaints to the representative/ AE/JE of Engineer in charge for ascertaining the authority of carrying out special repairs/replacement. The Engineer in charge or their representative will give orders through site order book or through letter to carry out extend of special repair/replacements. The contractor shall have to carry out the work other than day to day maintenance according to programme given by the Executive Engineer / Assistant Engineer / Junior Engineer-in-charge. The contract shall not carry out any work in any building without permission of Engineer-in-charge or his authorized representatives. The contractor shall have to adhere to this programme failing which he shall be wholly responsible for any inconvenience caused to the occupants. No claim for idle labour on any account shall be entertained. The contractor shall depute his representative daily to the site of work. His name and Signature shall be attested by the contractor for record in the department. Any work carried out without such approvals, the work shall be rejected and shall not be measured and paid for.
3. Agency shall employ such semi skilled/skilled/Highly skilled persons so that the person who has been assigned the main task will ensure that the related main task is carried out in one go by the same skilled preferably so as to ensure minimum inconvenience and interference to the allottee.
4. ~~No A/A works shall be carried out in any quarter/flats without the approval of representative of the Engineer In-Charge. Any work carried out without such approvals, the work shall be rejected and shall not be measured and paid for.~~
5. The Contractor has to upload following details by using their PAN No. as user ID on CPWD website for the works mentioned there in:-
 - i. Address & Contact details of Contractor.
 - ii. Number of labour employed for the work
 - iii. Copy of labour licenses.
 - iv. Registration details with EPFO ESIC, BOCW Welfare Board.
 - v. ESI smart card
 - vi. Details and mode of payment made to the labour along with details of ESI and EPF contribution paid on the part of employer
 - vii. Prosecution launched by CIRM.

These details to be uploaded on CPWD website against each work pertaining to construction or maintenance within 7 days of start of the execution of work, So that all data against each work will be available for all labour welfare authorities. The contractor has to supply print out of the related details available on WBPMS with each running account bill.

6. The contractor will employ separate labour for Civil, Electrical & Horticulture work and deposited ESI and EPF contribution (Vide separate ECR and challans) deducted from the employee and contribution on the part of employer paid by the contractor to the concerned authorities for reimbursement of ESI & EPFO from the department the contractor shall submit an affidavit on stamp paper of Rs. 10 along with the duly paid challans stating “I have not claimed the reimbursement of this bill from anywhere else. I shall also not claim this from any other office in future.”

SPEICAL CONDITION FOR FINISHING WORK

1. CEMENT PLASTER

1.1 Preparation of Surface

The joints shall be raked out properly. Dust and loose mortar shall be brushed out. Efflorescence if any shall be removed by brushing and scrapping. The surface shall then be thoroughly washed with water, cleaned and kept wet before plastering is commenced. In case of concrete surface if a chemical retarder has been applied to the form work, the surface shall be roughened by wire brushing and all the resulting dust and loose particles cleaned off and care shall be taken that none of the retarders is left on the surface.

1.2 Mortar

The mortar of the specified mix using the type of sand described in the item shall be used. It shall be as specified in Subhead 3.0. For external work and under coat work, the fine aggregate shall conform to grading IV. For finishing coat work the fine aggregate conforming to grading zone V shall be used.

1.3 Application of Plaster

Plastering shall be started from the top and worked down towards the floor. All putlog holes shall be properly filled in advance of the plastering as the scaffolding is being taken down. To ensure even thickness and a true surface, plaster about 15 × 15 cm shall be first applied, horizontally and vertically, at not more than 2 metres intervals over the entire surface to serve as gauges. The surfaces of these gauged areas shall be truly in the plane of the finished plaster surface. The mortar shall then be laid on the wall, between the gauges with trowel. The mortar shall be applied in a uniform surface slightly more than the specified thickness. This shall be brought to a true surface, by working a wooden straight edge reaching across the gauges, with small upward and side ways movements at a time. Finally the surface shall be finished off true with trowel or wooden float according as a smooth or a sandy granular texture is required. Excessive troweling or over working the float shall be avoided.

All corners, arrises, angles and junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Rounding or chamfering corners, arrises, provision of grooves at junctions etc. where required shall be done without any extra payment. Such rounding, chamfering or grooving shall be carried out with proper templates or battens to the sizes required. When suspending work at the end of the day, the plaster shall be left, cut clean to line both horizontally and vertically. When recommencing the plastering, the edge of the old work shall be scrapped cleaned and wetted with cement slurry before plaster is applied to the adjacent areas, to enable the two to properly join together. Plastering work shall be closed at the end of the day on the body of wall and not nearer than 15 cm to any corners or arrises. It shall not be closed on the body of the features such as plasters, bands and cornices, nor at the corners of arrises. Horizontal joints in plaster work shall not also occur on parapet tops and copings as these invariably lead to leakages. The plastering and finishing shall be completed within half an hour of adding water to the dry mortar. No portion of the surface shall be left out initially to be patched up later on. The plastering and finishing shall be completed within half an hour of adding water to the dry mortar.

Thickness Where the thickness required as per description of the item is 20 mm the average thickness of the plaster shall not be less than 20 mm whether the wall treated is of brick or stone. In the case of brick work, the minimum thickness over any portion of the surface shall be not less than 15 mm while in case of stone work the minimum thickness over the bushings shall be not less than 12 mm.

1.4 Curing

Curing shall be started as soon as the plaster has hardened sufficiently not to be damaged when watered. **Water jet pump with sprinkler nozzle shall be used for Curing.** The plaster shall be kept wet for a period of at least 7 days. During this period, it shall be suitably protected from all damages at the contractor's expense by such means as the Engineer-in-Charge may approve. The dates on which the plastering is done shall be legibly marked on the various sections plastered so that curing for the specified period thereafter can be watched.

1.5 Finish

The plaster shall be finished to a true and plumb surface and to the proper degree of smoothness as required. The work shall be tested frequently as the work proceeds with a true straight edge not less than 2.5 m long and with plumb bobs. All horizontal lines and surfaces shall be tested with a level and all jambs and corners with a plumb bob as the work proceeds.

1.6 Precaution

Any cracks which appear in the surface and all portions which sound hollow when tapped, or are found to be soft or otherwise defective, shall be cut out in rectangular shape and redone as directed by the Engineer-in-Charge. (i) When ceiling plaster is done, it shall be finished to chamfered edge at an angle at its junction with a suitable tool when plaster is being done. Similarly when the wall plaster is being done, it shall be kept separate from the ceiling plaster by a thin straight groove not deeper than 6 mm drawn with any suitable method with the wall while the plaster is green. (ii) To prevent surface cracks appearing between junctions of column/beam and walls, 150 mm wide chicken wire mesh should be fixed with U nails 150 mm centre to centre before plastering the junction. The plastering of walls and beam/column in one vertical plane should be carried out in one go. For providing and fixing chicken wire mesh with U nails payment shall be made separately

2. REPAIRS TO PLASTER

2.1 Cutting

The mortar of the patch, where the existing plaster has cracked, crumbled or sounds hollow when gently tapped on the surface, shall be removed. The patch shall be cut out to a square or rectangular shape at position marked on the wall as directed by the Engineer-in-Charge or his authorized representative. The edges shall be slightly under cut to provide a neat joint.

2.2 Preparation of Surface

The masonry joints which become exposed after removal of old plaster shall be raked out to a minimum depth of 10 mm in the case of brick work and 20 mm in the case of stone work. The raking shall be carried out uniformly with a raking tool and not with a basuli, and loose mortar dusted off. The surface shall then be thoroughly washed with water, and kept wet till plastering is commenced. In case of concrete surfaces, the same shall be thoroughly scrubbed with wire brushes

after the plaster had been cut out and pock marked. The surface shall be washed and cleaned and kept wet till plastering is commenced.

2.3 Application of Plaster

Mortar of specified mix with the specified sand shall be used. The surface shall be finished even and flush and matching with the old surrounding plaster. All roundings necessary at junctions of walls, ceilings etc. shall be carried out in a tidy manner. All dismantled mortar & rubbish etc. shall be disposed off within 24 hours from its dismantling promptly as directed by the Engineer-in-Charge.

2.4 Protective Measure

Doors, windows, floors, articles of furniture etc. and such other parts of the building shall be protected from being splashed upon. Splashing and droppings, if any, shall be removed by the contractor at his own cost and the surface cleaned. Damages, if any, to furniture or fittings and fixtures shall be recoverable from the contractor.

2.5 Curing

Curing shall be started as soon as the plaster has hardened sufficiently not to be damaged when watered. **Water jet pump with sprinkler nozzle shall be used for Curing.** The plaster shall be kept wet for a period of at least 7 days. During this period, it shall be suitably protected from all damages at the contractor's expense by such means as the Engineer-in-Charge may approve. The dates on which the plastering is done shall be legibly marked on the various sections plastered so that curing for the specified period thereafter can be watched.

3. PAINTING

Materials Paints, oils, varnishes etc. of approved brand and manufacture shall be used. Only ready mixed Paint (Exterior grade) as received from the manufacturer without any admixture shall be used. If for any reason, thinning is necessary in case of ready mixed Paint, the brand of thinner recommended by the manufacturer or as instructed by the Engineer-in-Charge shall be used. Approved Paints, oil or varnishes shall be brought to the site of work by the contractor in their original containers in sealed condition. The material shall be brought in at a time in adequate quantities to suffice for the whole work or at least a fortnight's work. The materials shall be kept in the joint custody of the contractor and the Engineer-in -Charge. The empties shall not be removed from the site of work, till the relevant item of work has been completed and permission obtained from the Engineer-in-Charge.

3.1 Commencing Work

Painting shall not be started until the Engineer -in-Charge has inspected the items of work to be painted, satisfied himself about their proper quality and given his approval to commence the painting work. Painting of external surface should not be done in adverse weather condition like hail storm and dust storm. Painting, except the priming coat, shall generally be taken in hand after practically finishing all other building work. The rooms should be thoroughly swept out and the entire building cleaned up, at least one day in advance of the Paint work being started.

3.2 Preparation of Surface

The surface shall be thoroughly cleaned and dusted off. All rust, dirt, scales, smoke splashes, mortar droppings and grease shall be thoroughly removed before painting is started. The prepared surface shall have received the approval of the Engineer-in-Charge after inspection, before painting is commenced.

3.3 Application

Before pouring into smaller containers for use, the Paint shall be stirred thoroughly in its containers, when applying also, the Paint shall be continuously stirred in the smaller containers so that its consistency is kept uniform. The painting shall be laid on evenly and smoothly by means of crossing and laying off, the latter in the direction of the grains of wood. The crossing and laying off consists of covering the area over with Paint, brushing the surface hard for the first time over and then brushing alternately in opposite direction, two or three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. The full process of crossing and laying off will constitute one coat.

Where so stipulated, the painting shall be done by spraying. Spray machine used may be (a) high pressure (small air aperture) type, or (b) a low pressure (large air gap) type, depending on the nature and location of work to be carried out. Skilled and experienced workmen shall be employed for this class of work. Paints used shall be brought to the requisite consistency by adding a suitable thinner.

Spraying should be done only when dry condition prevails. Each coat shall be allowed to dry out thoroughly and rubbed smooth before the next coat is applied. This should be facilitated by thorough ventilation. Each coat except the last coat, shall be lightly rubbed down with sand paper or fine pumice stone and cleaned off dust before the next coat is laid.

No left over Paint shall be put back into the stock tins. When not in use, the containers shall be kept properly closed.

No hair marks from the brush or clogging of Paint puddles in the corners of panels, angles of mouldings etc. shall be left on the work.

In painting doors and windows, the putty round the glass panes must also be painted but care must be taken to see that no Paint stains etc. are left on the glass. Tops of shutters and surfaces in similar hidden locations shall not be left out in painting. However, bottom edge of the shutters where the painting is not practically possible, need not be done nor any deduction on this account will be done but two coats of primer of approved make shall be done on the bottom edge before fixing the shutters.

On painting steel work, special care shall be taken while painting over bolts, nuts, rivet overlaps etc.

The additional specifications for primer and other coats of Paints shall be as according to the detailed CPWD specifications under the respective headings.

3.4 Brushes and Containers

After work, the brushes shall be completely cleaned of Paint and linseed oil by rinsing with turpentine. A brush in which Paint has dried up is ruined and shall on no account be used for painting work. The containers when not in use, shall be kept closed and free from air so that Paint does not thicken and also shall be kept safe from dust. When the Paint has been used, the containers shall be washed with turpentine and wiped dry with soft clean cloth, so that they are clean, and can be used again.

3.5 Precautions

All furnitures, fixtures, glazing, floors etc. shall be protected by covering and stains, smears, splashings, if any shall be removed and any damages done shall be made good by the contractor at his cost.

Minimum Quality Assurance Plan

1. Tests which are mandatory as per CPWD specification amended up to date are to be carried out by the contractor. While deciding these criteria CPWD Specifications & Provisions of BIS Code and Standard Practices may be referred.
2. Machinery and other Tool & Plants required to be deployed at site by the contractor as per requirement. Entire Machinery and T&P may not be required at the start of work, therefore, a proper time schedule by which each Machinery & T&P is to be brought at site should be submitted by the contractor to the site staff before start of the work.
3. Field laboratory is required if necessary for this work then testing equipments to be arranged by the contractor. If field lab is to be setup by the Department then contractor may be allowed for conducting the test there.
4. **It shall be mandatory for the agencies/ contractors to submit the self-attested (by agencies/ contractors) copies of Tax paid bills of the materials entered in the MAS Register viz., Steel, Cement, Bitumen, Paint, Primer, Distemper, varnishes, Tile Adhesive, Admixture, Anti termite chemical, Water proofing compound material and any other item as decided by the NIT approving authority.**
5. **Self-attested copies of Tax paid bills of materials taken in MAS Register shall be submitted by the agencies/ contractors before settling the payments. In case of any doubt the same can be verified by the field staff. However, onus of genuineness of Tax paid bills rests with the agencies/contractors.**
6. Maintenance of Register of Tests -
 - (i) All the registers of tests carried out at Construction Site or in outside laboratories shall be maintained by the contractor which shall be issued to the contractor by Engineer-in-charge at the time of issue of award letter.
 - (ii) All Samples of materials including Cement Concrete Cubes shall be taken by Contractor jointly with JE in charge of work and out of this at least 50% samples shall be taken in presence of AE in charge. If there is no JE, all Samples of materials including Cement Concrete Cubes shall be taken by contractor in presence of AE in charge of work. All the necessary assistance shall be provided by the contractor. Cost of sample materials is to be borne by the contractor and he shall be responsible for safe custody of samples to be tested at site.
 - (iii) All the test in field lab setup at Construction Site shall be carried out by the Engineering Staff deployed by the contractor in presence of JE-in-charge and at least 50% of tests in presence AE-in-charge. At least 10% of tests shall be carried out in presence of Executive Engineer.
 - (iv) All the entries in the registers will be made by the designated Engineering Staff of the contractor and same should be presented before JE/AE/Divisional Engineer for their review.
 - (v) Contractor shall be responsible for safe custody of all the test registers.
7. It is mandatory to the contractor to submit copy of all test registers, Material at Site Register and hindrance register along with each alternate Running Account Bill and Final Bill. These registers shall further be checked by AE(P)/Senior Draughtsman in Division Office and receipts of registers should also be acknowledged by Accounts Officer by signing the copies and register to confirm receipt in Division office.

If all the test registers and hindrance register is not submitted by contractor along with each alternate R/A Bill & Final Bill, no payment shall be released to the contractor.

8. Maintenance of Material at Site (MAS) Register -
- (i) All the MAS Registers including Cement and Steel Registers shall be maintained by Contractor which shall be issued to the contractor by Engineer-in-charge along with the award letter.
 - (ii) The contractor shall get 100% test checked by JE or by AE if there is no JE after each entry of receipt of material at site in MAS register.
 - (iii) The contractor shall get MAS Register test checked by JE at least twice a week and at least once a week by AE. If there is no JE is available then MAS register must be checked by AE at least twice a week.
 - (iv) Cement register shall be got reviewed by Divisional Engineer at least once in a month.
9. Contractor will co-operate with the staff of Third Party Quality Control, if appointed/authorized by the Engineer-in-Charge. Contractor will provide all the sample of the material/Items as desired by the Third Party Quality Control Team free of cost including packing and it's transportation upto testing laboratory.

LIST OF PREFERRED MAKE OF MATERIALS (FOR CIVIL WORKS)

Specification/brands names of materials (Refer materials, whichever are applicable for the scope of work) and finishes approved by the Architect/ Engineer-in-Charge are listed below. However, approved equivalent materials and finishes of any other specialized firms may be used, in case it is established that the brands specified below are not available in the market and subject to approval of the alternate brand by the Architect/ Engineer-in-Charge, (See also conditions of contract).

Sl.No	Material	Preferred Make
1	OPC, PPC	ACC, Birla, Ultratech, Ambuja.
2	White Cement	J.K. White, Birla White, Ultratech.
3	Reinforcement bars Fe-500	TATA, SAIL, RINL, JSW, Jindal Panther.
4	Structural Hollow Tubes/Pipes, Hot Finished Welded Tubes Seamless & ERW types tubes	TATA, SAIL, RINL, JSW.
5	Structural M.S. Section, I-Section, Channels, Angle, Tee & Flats etc.	TATA, SAIL, RINL, Jindal (Hissar).
6	Stainless steel pipe and fittings	Jindal Stainless Steel Ltd., J-Press, Tata Steel, VSH.
7	Aluminum Door, Window (Factory Made)	Fenesta Building Systems, Encraft India Pvt. Ltd., Beautex, Arcuzo Décor.
8	Aluminium Section	Jindal, Hindalco, Indalco, Nalco.
9	Anodised Aluminium Hardware (Heavy duty)	Hardima, Everite, Jindal Aluminium, Hindalco.
10	Aluminum Extruded Profiles	Hindalco, Jindal, Nalco.
11	Aluminum Composite Panels	M/s Alutech Industries, Alucobond, Alpolic
12	Block Board & Plywood, Veneer	Greenlam, Century Ply, Merino, Green Ply
13	Flush Door shutters (Decorative/ Non Decorative) Factory made	Century ply board, Merino Greenply, Archid Ply
14	Fire Check Door (Wooden)	Promat, Greenlam, Mikasa.
15	Lamination sheet (Mica)	Greenlam, Marino, Century,
16	Prelaminated HD Board (Fungus, Termite, Borer, Moisture Resistant.)	Action Tesa, Century, Archidpanel, Greenlam, Merino
17	BWP-High density fibre board – Marine grade	Century, Marino, Green Ply
18	MS Fittings	Ashish, Oxford, Garg, Adarsh
19	Aluminium Fittings	Dorma, Godrej, Hettich, Hafele
20	Brass Fittings	Dorma, Godrej, Hettich, Hafele
21	SS Fittings	Dorma, Godrej, Hettich, Hafele
22	Sliding door bolt	Dorma, Godrej, Hettich, Hafele
23	Automatic sliding door system and Fittings	Ozone, Dorma, Godrej
24	UPVC window/ doors	Fenesta, Saint-Gobain, Veka, Kommerling
25	Synthetic Enamel paint	Asian Paints (Apolite Gloss), Berger (Luxol Hi-Gloss & Luxol Satin), ICI Dulux (Gloss),
26	Water proofing cement paint	Super Snowcem, Asian Paints, Berger (Durocem)
27	Acrylic emulsion paint	Asian (Apolite All Protek), Berger (Silk Glamor), Dulux (Velvet Touch/Pearl Go)

28	Premium Acrylic Emulsion	Berger (Rangoli Total Care), Asian Paints (Apolite Premium Emulsion), Nerolac (Beauty Gold Washable)
29	Premium Acrylic Smooth Exterior	Berger (Weather Coat Long Life), Asian Paints (Apex Ultima Protek), Nerolac Excel Everlast
30	Primer for interior	Berger (Walmasta Exterior Interior), Asian (True Care), Nerolac (Premium Primer)
31	Acrylic exterior paint	Asian Paints (Apex Ultima), ICI Dulux (Weather Shield Ultra clean), NEROLAC (Excel Top Guard), Berger (Weather Coat All Guard)
32	Texture Exterior Paint	Berger (Florentina Sand Stone), Asian (Rustic Texture), Dulux (Weathershield Signature)
33	POP	Snowcem Paint, Dulux, Asian Paints
34	Wall Putty	J.K. Cement, Birla white, Asian Paints
35	Acrylic distemper	Asian Paints (Tractor Uno), ICI Dulux (Duwel), Nerolac (Beauty Gold)
36	Duco Paint	Asian Paints, Dulux, ICI Duco Paint
37	Powder coating Paint	Asian Paints-PPG, ICI Paint.
38	Metallic Paint	Asian Paints (with Royale Play Metallics), Kansai Nerolac, Nippon Paint, Jotun
39	Bituminous Paint	Makphalt, STP, Asian.
40	Thermoplastic Road Marking Paint	Alcolite, Zigma Paints, Prime Roads, Asian Paints PPG.
41	Cement Primer	Asian Paint, Dulux, Berger Paint, Snowcem Paint
42	Steel Primer – Red oxide	Asian Paints, Nerolac, ICI Dulux
43	Wood Primer	Asian Paints, Nippon Paint, Dulux
44	Wooden Flooring	Vista, Greenlam (Mikag), Action Tesa,
45	Terrazzo Tiles (Precast), Plain, Chequered.	Nitco, Hindustan, Modern, Ultra, Unistone
46	Glazed Vitrified Tiles, Double Charge tile, Polished tile.	Kajaria, Somany, RAK
47	Cement Concrete Tiles, Hardonite Tiles	Nitco, NTC, Hindustan, KK, Dalal, Unistone
48	Glazed Ceramic tiles	Somany, Kajaria, Rak
49	C.C. Pavers	Nitco-(Rockard), K.K., Dalal
50	Interlocking Paver Block, Grass Paver, Precast CC Slab, Kerbstone, Kerb channel.	K.K., Nitco & Dalal tiles Ind.
51	G.I. Metallic Tiles of False Ceiling, Gypsum board alongwith frame, GRG tile alongwith frame.	Armstrong, Saint-Gobain (Gyproc), Dexune
52	Calcium Silicate False Ceiling System Along with supporting.	Aerolite, Armstrong,
53	Baffle False Ceiling-Aluminum/G.I.	Armstrong, Hunter Douglas, Durlum
54	Open cell steel ceiling	Aerolite, Armstrong, Durlum
55	Mineral Fibre	Armstrong, Hunter, Douglas, Durlum

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56	G.I. Pipes	Tata, Jindal (Hissar)
57	G.I. Fittings (Malleable Cast Iron)	UNIK, Sury, KS
58	C.P. Brass Fittings	Jaquar, Roca, Kohler
59	UPVC Pipe	Supreme, Prince, Finolex, Astral
60	CPVC Pipe	Supreme, Prince, Finolex, Astral
62	PE-AL-PE Pipes & Fittings (Polyethylene/ Aluminum/ Polyethylene)	Jindal, KiTEC Industries (India) Pvt. Ltd., Nexgen
63	PVC/ Synthetic Water Tank/ Loft Tank	Sintex, Sheetal, Tirupati
64	PTMT Fittings	Prayag, Shakti, Polytuf
65	Gunmetal Valves	Leader, Sant, Zoloto
66	Ball Valves	Zoloto, IBP, Leader, SANT
67	Butterfly Valves	Audco, Zoloto
68	Self Closing Pillar Taps (Pressmatic)	Jaquar, Roca, Kohler
69	Fully Hygiene hand dryer	Jaquar, Roca, Kohler
70	SMC (Sheet Moulded Compound Panel Tank)	Sintex, Amitex, Sovisy
71	Centrifugal Cast Iron LA pipes	Electro Steel, Klinga, Jai Balaji
72	Ductile Iron pipe (DI Pipe)	Jindal, Electro Steel, Tata
73	Sanitary Fixture (Chinaware)	Jaquar, Roca, Kohler, Grohe
74	Soil, Waste & Vents Pipes & Fittings	NECO, RIF, SRIF, RPMF, Hepco
75	Stone Ware Pipe & Gully Traps	Perfect, Parry, Hind, HDP
76	RCC Pipes-(NP-2)	Lakshmi, Sood & Sood Jain & Co., Jain & Co.
77	C.I. Double Flanged Sluice Valves	Kirloskar, Sant, Zoloto
78	C.I Double Flanged Non Return Valves	Kirloskar, Sant, Zoloto
79	FRP Cover	Thermodrain, Fibreone, HP, Fibre Light
80	C.I. Double Covers with Frame	Neco, RIF, SKF, Electro Steel
81	DI (Ductile Iron) Manhole cover & grating	NECO, RBAC, Plazma, Nindi
82	Stainless Steel Sinks	Nilkanth, Cobra, Jayana,
83	Steel Fibre Reinforced Concrete, Manhole covers with frame	K.K. Manholes, Nitco & Dalal
84	Hubless Centrifugally Cast (Spun) Iron Pipes & Fittings	Neco, Hepco, SKF, RPMF
85	Admixture	Forsroc, Sika, BASF
86	Tile Adhesive	Pidilite, MYK Latticrete, Sika
87	Adhesive Tape, Antiskid Tapes	Norton, 3M Tapes
88	APP	Apex, M/s IWL India Limited, Asian Paints
89	Bitumen	Indian Oil, Hindustan Petroleum, Bharat Petroleum.
90	Bevelled Edge Mirror	Saint-Gobain, Modiguard, AIS
91	Damp Proof Material	Pidilite Dr. Fixit, Sika, MYK, Fosroc
92	Dash Fasteners	Hilti, Ficher, Canon, Howorth
93	Glass Door Closer Lock	Dorma, Hardwyn, Hafele
94	Drapery Rod, Venetian Blinds	Mac, Vista, Deck.
95	Roller Blinds	Vista, Hunter Dougus, Deck.
96	Epoxy Mortar	Fosroc, MYK, Sika
97	Welding Electrodes	ADVANI-OERLIKON, MODI, TATA

98	Friction Stay Hinges	Hafele, Hettich, Dorma.
99	Grass Paver	Unistone, Ultra, Shree, Dalal
100	Hydraulic Door Closer/ Floor Spring	Godrej, Dorma, Hafele, Hettich
101	Injection Grouting	Pidilite, Fosroc, Sika, BASF
102	Locks, Mortice lock, Latch, Cupboard	Dorma, Hettich, Hafele
103	Ms Pipe	Tata, Jindal (Hissar)
104	Nuts, Bolts and Screws, Steel	Kundan, Priya, Atul
105	Non-Metalic Surface Hardner	MC Deritop F.H. Armstrong, NITOFLOOR, Fosroc
106	Poly-Sulphide Sealent	Pidilite, Choksey, Makphalt
107	Polyster Powder Coating Shades	Nerolac, J&N, Asian Paints.
108	Rolling shutters	Rama Rolling Shutters, Jyoti Rolling Shutters, Anand Industries.
109	Fire Sealant/ Fire Smoke Seal	HILTI, 3M INDIA, Fischer
110	Structural Silicone	Dow Corning, Wacker.
111	Spider Fittings	Dorma, Sevax.
112	Tempered Glass	Modi Float, Saint-Gobain,
113	Clay Tiles on Roof	Kenzai, Johnson.
114	Water Proofing Compound	Fosroc, Pidilite, MYK, Sunanda Specialty Coating
115	S.S. Wire mesh	Sterling Enterprises, Trimurty Welded Mesh, Tiger Brand, Grand Metal Corporation.
116	Polycarbonate Sheet	GE LEXAN, Danpalon, Gallina, DPI System, MPP
117	Glass Film for interior & Exterior	3M, Shibuza, Saint-Gobain
118	FRP Door & Chajja	Rajshree, Fiber Engineer, Selected Door Co., Fiber Techno Products.
119	Anti-termite chemicals- Chloropyriphos	Srchloro 20 TC, Vadh, Durban-20, Piramid-20
120	RMC	ULTRATECH, ACC, LAFARGE
121	Modular Kitchen accessories (Basket, Handle, Hinges, Telescopic channels etc.)	Stallion, Hettich, Hafele
122	G.I. Profile sheet of all patterns	SAIL, Tata & Jindal (Hisar)
123	APP water proofing Treatment	Fosroc, Pidilite, Makphalt, Sika, Velosit
124	PVC door frames & shutters	Sintex, Rajshri Plastiwood, Finolex Plastics
125	Anti-corrosive epoxy coating	FOSROC, Sikka, Pidilite
126	Float Glass	Saint-Gobain, Modi, Ashai India
127	Reinforcement cleaning agents	FOSROC, Sikka, Armstrong Chemicals Private Limited
128	Non-re-emulsifying latex bonding	NITOBOND, FOSROC, Sikka Latex,
129	Frosted decorative sparkle film	LLUMAR, 3M
130	Glazed GRC Tiles	Unistone, Nitco, Hindustan Tiles
131	Silicon Sealant	Pidilite, Forsoc, Mcoy
132	Fibre Glass sheet	Koemmerling, Greenply
133	Melamine Polish	Asian Paints, Melamine Gold wudfin, Dulux, Pidilite
134	Wood Plastic Composite Board	Alstone, Century, Aluplast
135	Hybrid Poly urea / Elastomeric water proofing material	Fosroc, Pidilite, Sika, Sunanda, Mapei
136	Furniture Items	Rockworth, Godrej, Haworth,
137	Rock Wool	ROCKWOOL Asia, Roxul Rockwool, Kanuf

138	Toughened Glass	Saint-Gobain, Asahi,
139	Polysulphide sealant	FOSROC, SIKA, Pidilite, MYK, Laticrete, STP LTD
140	High Pressure Laminate (HPL)	Greenlam, Century, Archid Ply, Merino
141	Sunglass Film for interior & Exterior	Saint-Gobain, Shibuza, 3M
142	PVC Self adhesive decorative film	Reatec, Proton, Bodaq
143	Glass fiber wall coverings	Saint-Gobain Classic, Novelio, Newmore, Nilaya.
144	Fiber Glass Ready made door shutter & frame.	Ashoo, Everdoor Composites, Fibreways Technology, Ashish Industries FRP.
145	Glass Mosaic Tiles	Bisazza, Mridul, OPIO, Palladio, IT
146	Waterproofing Compound (Crystalline)	Kryton, Penetron, MYK, Arment, Velosit, STP Ltd.
147	Elastomeric Acrylic UV resistant liquid applied coating	Pidilite, Sika, Fosroc, Mapei
148	Moisture Resistant HDF/MDF Board	Action Tesa, Greenpanel, Century, Greenply
149	Rock Wool Insulation	LLOYDS, ROXUL Rockwool, KANUF
150	uPVC Door/Windows Hardware	G-U, YALE, HOPPE, HIVIK
151	Cement Fibre Board	Lafarge, Century, NCPL, Everest
152	Gypsum Plaster	Ultratech, Ferrouscrete, Sakarni, Berg ER, JK Plasto MAX, Elite (90) of Gyprock
153	Cement based Ready Mix Plaster	Ultratech, MYK Arment, Saint Gobain, Ardex Endura, Ferrouscrete
154	Pre-Cast GRC Jali	Birla GRC, Unistone, Dalal
155	Polysulphide sealant	Fosroc, Sika, Pidilite, MYK, Laticrete, STP Ltd
156	Stainless Steel	JSW, SAIL, TATA Steel, JSPL
157	Curing Compound	Sika, Pidilite, Fosroc, BASF, MYK Arment, STP LTD
158	Metal / Glazed- Fire rated Door System	Pacific Fire Controls, Shakti-Hormann, Bhawani Fire
159	Anodised Aluminium Hardware (Heavy Duty)	Jindal Aluminium, BALCO, NALCO, INDALCO, HINDALCO
160	Aluminium Structural Members –Windows, Glazing and Partitions	Jindal, Hindalco, Nalco, INDALCO
161	Acoustical Tile False ceiling	Armstrong, SAINT Gobain, DEXUNE, Aerolite
162	Tile Grout	MYK Laticrete, Pidilite, BASF, Ferrouscrete
163	Modular Toilet Cubicles	Merino, Greenlam, Dormakaba
164	Hardware for Fire Check Door/ panic bar/panic trim/ door closer/ hinges/ mortise lock / Dead Lock, etc.	Dormakaba, Geze, Hormann, Briton, Becker FS
165	EPDM Gasket	IGP, Crown Gasket, Osaka
166	SS Wire Mesh	GKD, WMW, Equivalent AS Approved by Engineer in Charge
167	Deck Sheet	JSW, TATA Bluescope, Interarch, JSPL, Roofclad
168	SELF-Drilling Screws	TW Buildex & Bousted, Corroshield, Atul Faterners ltd., Wurth, HP
169	Tactile	Somany, Kajaria, Orient Bell, Johnson, Asian(Agl), Restile, Pavit
170	Ready Mix Plaster	Birla Aerocon, Ultratech, Ramco, Weber, Laticrete

171	LGSF Frame	Tata Blue Scope, J.S.W, Essar, Ispat Steel,
172	Fibre Glass Sheet	Simcryl (Simba), Fibreways, Advance Fibre, ROOFCLAD
173	FRP Chajja, Sheet & Doors, FRP Shutters, Railings, Covers	Fibreways, Kutty, Jindal Stainless, Bhatt Fibreways, Wurth, Sika
174	Hdpe Pipes & Fittings	Supreme, Aashirvad, Oriplast
175	Revolving Doors	Dorma, Geze, Kone, Boonedam
176	Glass Railing	Q RAIL, NEKI, KICH, FAÇADE ONE, ALLY DZINE Services Pvt. Ltd
177	PU Based Elastomeric Water Proofing Material	Fosroc (Brassbond roof guard), Sikka (Sikalastic-562 IN), Mapei, Sunanda,
178	Water Proofing Primer	Fosroc (Nitoproof WB Primer), Sikka (Sikalastic-11 Primer W), Mapei, Sunanda

- 15. Note:- 1) Contractor has to bring samples as per above preferred brands only and Engineer in Charge shall approve one sample out of the samples brought by the contractor. The contractor has to use material of that approved sample only. No claim in this regard shall be entertained.**
- 17. 2) Items which are not included in the list but required at site, brand will be approved before use from the NIT approving authority.**

GENERAL CONDITIONS FOR SUPPLY OF MATERIALS

1. The sample of all the items shall have to be got approved by the Contractor from the Engineer-in-charge before the supply commences and shall be without prejudice to the right of Engineer-in-Charge to get random samples tested out of the actual lot received.
2. The contractor shall if required furnish the manufacturer's certificate that the material supplied satisfy the requirements of the relevant specifications.
3. The Engineer-in-Charge shall be at liberty to take respective sample(s) of each item of schedule of quantity in any approved laboratory as decided by him. The sample for testing shall be provided by the contractor. All expenditure required to be incurred for taking sample, conveyance and packing & testing charges etc. shall be borne by the contractor himself. In case any sample particular lot fails in testing the contractor shall be bound to replace the entire lot with fresh material of prescribed specification and the rejected lot shall be returned to the contractor only after fresh lot is supplied. Testing charges shall be borne by the contractor.
4. Rejected materials shall have to be removed by the contractor at his own cost immediately of the instructions of doing so.
5. In case of any dispute regarding rejection of quality of materials the decision of the Engineer-in-charge shall be final and binding upon the contractor.
6. Royalty octroi terminal, tax etc. at prevalent rates shall have to paid by the contractor himself and the rates quoted by him shall include these duties and nothing extra on, this account shall be payable.
7. The contractor shall have to produce the cash memo to satisfy department that the material has been purchased from the authorized dealer and the GST has been paid.

SCHEDULE OF THEORETICAL CONSUMPTION OF MATERIALS

S. No.	Description of item	Theoretical consumption coefficient	
1	Satna Lime Wash on walls one coat	0.01	Quintal per 10 sqm
2	White washing with lime to give and even shade		
	(a) Old work (One or more coats)	0.01	Quintal per 10 sqm
	(b) Old work (Two or more coats)	0.02	Quintal per 10 sqm
	(c) New work (Three or more coats)	0.03	Quintal per 10 sqm
3	Colour washing such as green, blue or buff to give an even shade:		
	(a) Old work (One or more coats)	0.01	Quintal per 10 sqm
	(b) Old work (Two or more coats)	0.02	Quintal per 10 sqm
4	Finishing walls with water proofing cement paint		
	(a) Old work (Two or more coats)	2.20	Kilogram per 10 sqm
	(b) New work (Two or more coats)	3.84	Kilogram per 10 sqm
5	Painting with ready mixed paint		
	(a) Old work (Two or more coats)	0.75	Litre per 10 sqm
	(b) New work (Two or more coats)	1.25	Litre per 10 sqm
6	Painting with synthetic enamel paint		
	(a) Old work (Two or more coats)	0.70	Litre per 10 sqm
	(b) New work (Two or more coats)	1.16	Litre per 10 sqm
7	Wall painting with plastic emulsion paint		
	(a) Old work (Two or more coats)	0.73	Litre per 10 sqm
	(b) New work (Two or more coats)	1.21	Litre per 10 sqm
8	Lettering with black Japan paint		Litre per 100 letters 15 cm height
		0.56	
9	Re-letting with black Japan paint		Litre per 100 letters 15 cm height
		0.37	
10	Painting flushing cistern, flush pipe and fittings with white synthetic enamel paint on external surface	0.20	Litre per each
11	Applying priming coat with		
	(a) Ready mixed pink or grey primer on wood work (hard and soft wood)	0.75	Litre per 10 sqm
	(b) Ready mixed aluminium primer on resinous wood and ply wood.	0.75	Litre per 10 sqm
	(c)Ready mixed Zinc chromate yellow primer on steel galvanized iron/steel works.	0.54	Litre per 10 sqm
12	Repainting sand cast iron/centrifugally cast (spun) iron, soil, waste, vent pipes and fittings with paint of any colour such as chocolate, grey of buff etc.		
	(a) 50mm diameter pipe	1.20	Litre per 100 metre
	(b) 75mm diameter pipe	1.80	Litre per 100 metre
	(c) 100 mm diameter pipe	2.40	Litre per 100 metre
13	Painting with black anti-corrosive bitumastic paint.		
	(a) Old work (Two or more coats)	0.57	Litre per 10 sqm
	(b) New work (Two or more coats)	0.95	Litre per 10 sqm
14	Painting(One or more coats) (on old work) on rain water, soil waste, vent pipes and fittings with black anti-corrosive bitumen.		
	(a) 50mm diameter pipe	1.011	Litre per 100 metre
	(b) 75mm diameter pipe	1.457	Litre per 100 metre
	(c) 100 mm diameter pipe	1.906	Litre per 100 metre
	(d) 150mm diameter pipe	2.816	Litre per 100 metre
15	Painting GI pipes and fittings with white paint of approved quality		
	(a) 15mm diameter pipe	0.68	Litre per 100 metre
	(b) 20mm diameter pipe	0.85	Litre per 100 metre
	(c) 25mm diameter pipe	1.07	Litre per 100 metre

	(d) 32mm diameter pipe	1.35	Litre per 100 metre
	(e) 40mm diameter pipe	1.53	Litre per 100 metre
	(f) 50mm diameter pipe	1.92	Litre per 100 metre
	(g) 80mm diameter pipe	2.81	Litre per 100 metre
16	Repainting GI pipes and fittings with white paint of approved quality		
	(a) 15mm diameter pipe	0.3533	Litre per 100 metre
	(b) 20mm diameter pipe	0.471	Litre per 100 metre
	(c) 25mm diameter pipe	0.5888	Litre per 100 metre
	(d) 32mm diameter pipe	0.7538	Litre per 100 metre
	(e) 40mm diameter pipe	0.9428	Litre per 100 metre
	(f) 50mm diameter pipe	1.1775	Litre per 100 metre
17	Finishing walls with acrylic smooth exterior paint		
	(a) New work(Two or more coats)	1.67	Litre per 10 sqm
	(b) Old work (Two or more coats)	1.67	Litre per 10 sqm
	(c) Old work (One or more coats)	0.90	Litre per 10 sqm
18	Finishing walls with Premium Acrylic smooth exterior paint		
	(a) New work(Two or more coats)	1.43	Litre per 10 sqm
	(b) Old work (Two or more coats)	1.43	Litre per 10 sqm
	(c) Old work (One or more coats)	0.83	Litre per 10 sqm
19	Distempering with oil bound washable distemper		
	(a) New work(Two or more coats)	1.50	kg. per 10 sqm
	(b) Old work (Two or more coats)	1.50	kg. per 10 sqm
	(c) Old work (One or more coats)	1.00	kg. per 10 sqm
20	All other non schedule items		As per description of item

Annexure-XVIII (FORM 31)
INDENTURE FOR SECURED ADVANCES

(Referred to in paragraphs 10.2.20 and 10.2.22 of CPW A Code) (For use in cases in which the contract is for finished work and the contractor has entered into an agreement for the execution of a certain specified quantity of work in a given time) THIS INDENTURE made the..... day of20..... BETWEEN (hereinafter called the Contractor which expression shall where the context so admits or implies be deemed to include his executors administrators and assigns) of the one part and the PRESIDENT OF INDIA (hereinafter called the President which expression shall where the context so admits or implies be deemed to include his successors in office and assigns) of the other part. WHEREAS by an agreement dated..... (hereinafter called the said agreement) the Contractor has agreed AND WHEREAS the Contractor has applied to the President that he may be allowed advances on the security of materials absolutely belonging to him and brought by him to the site of the works the subject of the said agreement for use in the construction of such of the works as he has undertaken to execute at rates fixed for the finished work (inclusive of the cost of materials and labour and other charges) AND WHEREAS the President has agreed to advance to the Contractor the sum of Rupees on the security of materials the quantities and other particulars of which are detailed in Accounts of Secured Advances attached to the Running Account Bill for the said works signed by the Contractor onand the President has reserved to himself the option of making any further advance or advances on the security of other materials brought by the Contractor to the site of the said works. Now THIS INDENTURE WITNESSETH that in pursuance of the said agreement and in consideration of the sum of Rupeeson or before the execution of these presents paid to the Contractor by the President (the receipt whereof the Contractor doth hereby acknowledge) and of such further advances (if any) as may be made to him as aforesaid the Contractor doth hereby covenant and agree with the President and declare as follows: -

(1) That the said sum of Rupeesso advanced by the President to the Contractor as aforesaid and all or any further sum or sums advanced as aforesaid shall be employed by the Contractor in or towards expediting the execution of the said works and for no other purpose whatsoever.

(2) That the materials detailed in the said Account of Secured Advances which have been offered to and accepted by the President as security are absolutely the Contractor's own property and free from encumbrances of any kind and the contractor will not make any application for or receive a further advance on the security of materials which are not absolutely his own property and free from encumbrances of any kind and the Contractor indemnifies the President against all claims to any materials in respect of which an advance has been made to him as aforesaid.

(3) That the materials detailed in the said Account of Secured Advances and all other materials on the security of which any further advance or advances may hereafter be made as aforesaid (hereinafter called the said materials) shall be used by the Contractor solely in the execution of the said works in accordance with the directions of the Divisional Officer Division (hereinafter called the Divisional Officer) and in the term of the said agreement.

(4) That the Contractor shall make at his own cost all necessary and adequate arrangements for the proper watch, safe custody and protection against all risks of the said materials and that until used in construction as aforesaid the said materials shall remain at the site of the said works in the Contractor's custody and on his own responsibility and shall at all times be open to inspection by the Divisional Officer or any officer authorised by him. In the event of the said materials or any part thereof being stolen, destroyed or damaged or becoming deteriorated in a greater degree than is due to reasonable use and wear thereof the Contractor

will forthwith replace the same with other materials of like quality or repair and make good the same as required by the Divisional Officer.

(5) That the said materials shall not on any account be removed from the site of the said works except with the written permission of the Divisional Officer or an officer authorised by him on that behalf.

(6) That the advances shall be repayable in full when or before the Contractor receives payment from the President of the price payable to him for the said works under the terms and provisions of the said agreement. Provided that if any intermediate payments are made to the Contractor on account of work done than on the occasion of each such payment the President will be at liberty to make a recovery from the Contractor's bill for such payment by deducting there from the value of the said materials then actually used in the construction and in respect of which recovery has not been made previously, the value for this purpose being determined in respect of each description of materials at the rates at which the amounts of the advances made under these presents were calculated.

(7) That if the Contractor shall at any time make any default in the performance or observance in any respect of any of the terms and provisions of the said agreement or of these presents the total amount of the advance or advances that may still be owing to the President shall immediately on the happening of such default be repayable by the Contractor to the President together with interest thereon at twelve per cent per annum from the date or respective dates of such advance or advances to the date of repayment and with all costs charges, damages and expenses incurred by the President in or for the recovery thereof or the enforcement of this security or otherwise by reason of the default of the Contractor and the Contractor hereby covenants and agrees with the President to repay and pay the same respectively to him accordingly.

(8) That the Contractor hereby charges all the said materials with the repayment to the President of the said sum of Rupeesand any further sum or sums advanced as aforesaid and all costs charges, damages and expenses payable under these presents PROVIDED ALWAYS and it is hereby agreed and declared that notwithstanding anything in the said agreement and without prejudice to the powers contained therein if and whenever the covenant for payment and repayment herein before contained shall become enforceable and the money owing shall not be paid in accordance therewith the President may at any time thereafter adopt all or any of the following courses as he may deem best :-

(a) Seize and utilize the said materials or any part thereof in the completion of the said works on behalf of the Contractor in accordance with the provisions in that behalf contained in the said agreement debiting the Contractor with the actual cost of effecting such completion and the amount due in respect of advances under these presents and crediting the Contractor with the value of work done as if he had carried it out in accordance with the said agreement and at the rates thereby provided. If the balance is against the Contractor he is to pay same to the President on demand.

(b) Remove and sell by public auction the seized materials or any part thereof and out of the moneys arising from the sale retain all the sums aforesaid repayable or CON 297 Page 26 payable to the President under these presents and pay over the surplus (if any) to the Contractor. (c) Deduct all or any part of the moneys owing out of the security deposit or any sum due to the Contractor under the said agreement.

(9) That except in the event of such default on the part of the Contractor as aforesaid interest on the said advance shall not be payable.

(10) That in the event of any conflict between the provisions of these presents and the said agreement the provisions of these presents shall prevail and in the event of any dispute or difference arising over the

construction or effect of these presents the settlement of which has not been herein before expressly provided for the same shall be finally resolved as per provisions of clause 25 of the contract.

In witness whereof the saidandby the order and under the direction of the President have hereunto set their respective hands the day and year first above written.

Signed, sealed and delivered by..... the said contractor in the presence of

Signature
Witness Name
Address
Signed by.....
by the order and direction of the President in the presence of
Signature
Witness Name
Address

APPENDIX – XVII (Refer Clause 5)

FORM OF APPLICATION BY THE CONTRACTOR FOR SEEKING EXTENSION OF TIME

1. Name of contractor
2. Name of work as given in the agreement
3. Agreement no
4. Estimated amount put tender
5. Date of commencement of work as per agreement
6. Period allowed for completion of work as per agreement
7. Date of completion stipulated in agreement
8. Period for which extension of time if has been given by authority in Schedule ‘F’ previously

	Letter no. and date	Extension granted	
		Months	Days
(a) 1st extension			
(b) 2nd extension			
(c) 3rd extension			
(d) 4th extension			
(e) Total extension previously given			

9. Reasons for which extension have been previously given (copies of the previous applications should be attached)
10. Period for which extension if applied for
11. Hindrances on account of which extension is applied for with dates on which hindrances occurred and the period for which these are likely to last (for causes under clause 5.2/ and 5.3) . Submitted to the Authority indicated in Schedule F with copy to the Engineer-in-charge and Sub Divisional Officer

Signature of Contractor
Dated.

SCHEDULE OF QUANTITIES

Name of Work :- Replacement & Upgradation of existing Fire Safety System in Main R& D building, C-DOT Campus, Mandi Road, New Delhi-110030. (SH:- Electrical & Civil Work).

S.No.	Description of work	Qty	Unit	Rates	Amount
1	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in :				
1.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	29.00	cum	9344.35	2,70,986.00
2	Providing and fixing factory made ISI marked partially insulated metal fire rated doorset assembly, for staircase / exit pathway and refuge areas applications, consisting of galvanized iron steel frame and double leaf shutter including necessary hardware accessories, conforming to FD 120 PI classification of IS 3614 2021 with fire rating of 120 minutes integrity and 30 minutes insulation. The door frame and shutter shall be made out of minimum 1.20 mm thick GI Sheet with minimum 120 GSM Zinc coating as per IS: 277. The entire fire rated doorset assembly shall be tested in latched condition as per IS 17518 (Part-1): 2022				
	Frame:				
	The frame shall be of minimum size 90 x 60 mm with grooved profile to take appropriate fire rated smoke seal, having mitred cut joint (self tab/screwed assembled at site) and provided with appropriate reinforcement suitable for taking hardware and flush fixing as per IS 4351. The smoke seal material shall be of EPDM tested in accordance with ASTM E-84 of minimum size 10 x 4mm, fixed within the inbuilt groove or stuck with adhesive on the entire perimeter of the frame. The door frame shall be fixed to the three sides to masonry wall opening with CSK/Hex headed fastener of minimum 8 mm dia size and minimum 80mm long hot dip				

galvanized with 8mm dia Polyamide sleeves @ 5 number at each on vertical sides and 3 number on top side.				
<u>Door shutter:</u>				
<p>The double skinned double leaf partially insulated door shutters shall be consisting of minimum 50 mm thickness and having box like structure, slots cut and holes punched, for fixing of hardwares with stiffners as per IS: 16074 including resin bonded mineral wool / ceramic wool infill material of minimum density 96 kg/cum. Each door leaf shall be provided with vision panel, having maximum area of 0.06 sqm, of 120 minute fire rated minimum 6 mm thick clear borosilicate glass pane fixed with clip-on arrangement and fire rated ceramic tape having minimum size 13×2 mm to be fixed all around the glass on both the sides. The intumescent seal of minimum size 15×1.5 mm or of size as per test evidence shall be fixed on all the three edges of the door leaves. Integral astragals to be provided for double leaf door on the meeting style each on active and inactive leaf. The door shutters shall be mounted on the frame with SS 304 grade ball bearing butt hinges as per EN 1935: 2002 or butt hinges as per IS 12817, of minimum size 100x75x3 mm @ 5 numbers hinges upto 2400mm height or as per test evidence, whichever is more, fixed with M6 25 screws. All doors shall be factory prepared for receiving appropriate hardware and provided with necessary reinforcement for hardware accessories.</p>				
<u>Accessories Hardware:</u>				

	<p>Fire doorset assembly shall be provided with one number of single point panic push bar (cross bar) for active leaf and one number double point panic push bar (cross bar) with bottom strike of desired finish with verticle shoot bolts on top and bottom for inactivie leaf of double leaf door as per EN 1125, one number external trim with half cylinder 42 mm long with one side key as per EN 1125, two number heavy duty door closers of size EN 3-5 with standard arm with of desired finish (suitable for 1250 mm wide door leaf) conforming to IS 3564/EN 1154, and one number surface mounted door coordinator for sequencing of closing.</p>				
	<p>Finishing:</p>				
	<p>Both frame and door shutters shall be factory finished with polyester powder coating of minimum 50 microns thick and shall have passed salt spray test as per IS:13871 of approved colour and shade all complete as per manufacturer's specifications and as per direction of the Engineer-in-charge. Installation: The hollow space in the door frame shall be filled / injected with fire rated self extinguishing type polyurethane foam (PUF) after installation at site of work. The rate shall be inclusive of complete fire rated door assembly, supply and installation by the approved manufacturer.</p>				
2.1	<p>Double leaf partially Insulated metal fire rated doorset of FD 120 PI classification with 120 minutes integrity and 30 minutes insulation as per IS 3614:2021 for Staircase/ Exit pathway / Refuge area etc.</p>	440.00	sqm	20285.60	89,25,664.00
3	<p>Providing and fixing false ceiling at all heights including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm,</p>				

	<p>at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50 mm long with 6 mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25 mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with :</p>				
3.1	12.5 mm thick tapered edge gypsum moisture resistant board	2900.00	sqm	1529.10	44,34,390.00

4	15 mm cement plaster on rough side of single or half brick wall of mix:				
4.1	1:4 (1 cement: 4 coarse sand)	110.00	sqm	411.75	45,293.00
5	Finishing walls with Acrylic Smooth exterior paint of required shade :				
5.1	New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior primer applied @ 0.90 litre/10 sqm)	110.00	sqm	160.60	17,666.00
6	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	3010.00	sqm	156.05	4,69,711.00
7	Wall painting with premium acrylic emulsion paint of interior grade, having VOC (Volatile Organic Compound) content less than 50 grams / litre of approved brand and manufacture, including applying additional coats wherever required to achieve even shade and colour.				
7.1	Two coats	2900.00	sqm	142.80	4,14,120.00
8	Dismantling doors, windows and clerestory windows (steel or wood) shutter including chowkhats, architrave, holdfasts etc. complete and stacking within 50 metres lead :				
8.1	Of area beyond 3 sq. metres	138.00	each	502.75	69,380.00
9	Dismantling aluminium/ Gypsum partitions, doors, windows, fixed glazing and false ceiling including disposal of unserviceable material and stacking of serviceable material with in 50 meters lead as directed by Engineer-in-charge.	2900.00	sqm	56.35	1,63,415.00
10	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, i/c cutting and making good the walls etc. Internal work - Exposed on wall				
10.1	25 mm dia nominal bore	300	metre	551.70	1,65,510.00
10.2	50 mm dia nominal bore	500	metre	1048.35	5,24,175.00

11	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :				
11.1	25 mm nominal bore	10	each	622.40	6,224.00
11.2	50 mm nominal bore	10	each	1026.65	10,267.00
12	Providing and fixing G.I. Union in G.I. pipe including cutting and threading the pipe and making long screws etc. complete (New work) :				
12.1	25 mm nominal bore	50	each	439.25	21,963.00
12.2	50 mm nominal bore	50	each	823.80	41,190.00
				Total	1,55,79,954.00
				Add Cost Index @ 3% on all DSR Items	4,67,399.00
				Total	1,60,47,353.00
				Modify Estimate Cost after using correction factor on DSR 2023 on account of GST @ 0.973= Total "A"	1,56,14,074.00
13	Providing and placing of panels & other fixing materials Hot Compressed Moulded SMC (Sheet Moulding Compound) tanks IS:14399 part-I -1996 part-II ISI marked of approved brands tanks of approved size with base of tanks having panels of approved size. Walls of tank shall be constructed using SMC panels of approved size panel. Roof of tank should have one manhole should be provided on the roof of tank with double lip construction and proper locking arrangement. The panel should with stand Hydro Static pressure of at least 4 times the working load and should be provided with HDG nuts bolts rubber foam gasket cover washer cleats including PVC support for the roof top panels as per manufacturers specifications & design Provision of holes for inlet and outlet overflow should be made as per direction of Engineer-in-charge excluding the cost of float valve GI connections etc. as per direction of Engineer-in-charge. Note: The tank should be NSF certified and the copy of NSF certificate provided by contractor at the time of	120000.00	per litre	23.85	28,62,000.00

	<p>installation. The agency shall have to submit drawings of approved make for prior approval from Engineer-in-charge. The Agency shall have to submit all the warranty certificate as per approved make from Manufacturer. The installation of the tank shall have to be done by "Manufacturer-Authorised installer.</p>				
14	<p>Deduct for taking away dismantled M.S. Fire Resistant Door and Frame etc. received from dismantling, the material so received shall be the property of the contractor after dismantling duly weighed / measured before removing from site in the presence of engineer-in-charge or his authorised representative all complete, nothing extra shall be paid on a/c of dismantling.</p>	13800.00	Kg	-54.00	-7,45,200.00
				Total "B"	21,16,800.00
				Total (A+B)	1,77,30,874.00

Assistant Engineer (P)
NDZ-III, CPWD

Executive Engineer (P)
NDZ-III, CPWD

Price Bid

कार्य का नाम:- Replacement and upgradation of existing fire safety system in main R&D Building , C-Dot Campus, Mandi Road, New Delhi. (SH:- Electrical & Civil work)

NIT No.:- 54/CE/NDZ-3/2025-26

Sl. No.	SUB-HEAD	AMOUNT	Remarks	% above/below
1	2	3	4	5
1.	Electrical Work	₹ 9,50,78,823.00	-	
2.	Civil Works	₹ 1,77,30,874.00	-	
	Total	₹ 11,28,09,697.00	-	

Note:- The agencies are requested to quote Percentage above and below for all the 02 sub heads otherwise tender will be rejected.

--Sd/-
Executive Engineer (E)
DED-302, CPWD

--Sd/-
Executive Engineer
Q-Divn, CPWD

AE(E)-P
NDZ-III, CPWD

AE(P)-II
NDZ-III, CPWD

Executive Engineer(P)
NDZ-III, CPWD