Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY
G T Road By Pass, Jalandhar-144011, Punjab (India)
EPABX-0181-2690301 & 453 website: www.nitj.ac.in email: registrar@nitj.ac.in

## Name of work:

# Renovation work near student activity center building at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar

# Part-A

**Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY**
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**INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING FORMING PART OF BIDDOCUMENT AND TO BE POSTED ON WEBSITE**

The Registrar, Dr. B R Ambedkar National Institute of Technology, Jalandhar invites online, Item Rate Bids fromCPWD/ MES/State PWD-B&R/ PSU approved and eligible contractors only for following work:

| Sl. No | NIT No. | Name of Work and Location | Estimated CostPut to Tender | Earnest Money | Time/ Period of completion | Downloading & Submissionof Online e-tender/bids | Last date & time of submissionof bid. EMDand other documents | Date and Time of opening of tender |
|---|---|---|---|---|---|---|---|---|
| 1 | **NITJ/EO/ Works/R and M/62/22** | **"Renovation work near student activity center building at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar"** | **Rs. 21,95170.37** | **Rs. 43903** | **45 Days** | **02.11.2022** | **Upto 03:00 PM on 22.11.2022** | **Upto 03:00 PM on 23.11.2022** |

1. 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.

2. Information and Instructions for bidders posted on website shall form part of bid document.

3. 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 www.nitj.ac.in **or** CPP Portal free of cost.

4. The bid can only be submitted after uploading the mandatory scanned documents such as Demand Draft towards EMD in favour of Security A/c, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar and other documents as specified.

5. Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online bidding process as per details available on the website.

6. The intending bidder must have valid class-III digital signature to submit the bid.

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 PDF format.

9. Integrity Pact of the bid document (Page No62 to69) shall be signed between Registrar and the successful bidder after acceptance of bid.

10. It is mandatory to upload scanned copies of all the documents listed below including registration /GST registration/PAN Card as stipulated in the bid document. If such document is not uploaded his bid will become invalid.

11. 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 contractor the bid shall become invalid.

**List of Documents to be scanned and uploaded upto date and time mentioned above:**

1. Demand Draft/ Pay order or Banker`s Cheque of any Scheduled Bank against EMD.
2. Registration for GST.
3. Enlistment order of the contractor.
4. Copy of PAN Card.
5. The contractor has to upload EPFO, ESIC Registration or Proof of applying registration with EPFO,ESIC.
6. **Scan Copy of original EMD**
7. Signed copy of Tender Document
8. Any other document as specified in Eligibility Criteria and/or in CPWD-6.

**Executive Enginner –Civil**
**Dr. B.R Ambedkar NIT Jalandhar**
**Email – eecivil@nitj.ac.in**

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The Registrar, Dr. B R Ambedkar National Institute of Technology, Jalandhar invites online, Item Rate Bids from CPWD/ MES/State PWD-B&R/ PSU approved and eligible contractors for following work: **"Renovation work near student activity center building at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar"** The enlistment of the contractors should be valid on the last date of submission of bids. In case the last date of submission of tender is extended, the enlistment of contractor should be valid on the original date of submission of bids.

1 The work is estimated to cost **Rs. 21,95170.37**. This estimate, however, is given merely as a rough guide.

2. Agreement shall be drawn with the successful bidders on prescribed Form No. CPWD-8 (or other Standard Form as mentioned) which is available as a Govt. of India Publication and also available on website **www.nitj.ac.in**. Bidders shall quote his rates as per various terms and conditions of the said form which willform part of the agreement.

3. The time allowed for carrying out the work will be **45 Days** 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.

4. (i) The site for the work is available.

(ii) The drawing shall be made available in phased manner as per requirement of the same as per approved programme of completion submitted by the contractor after award of the work.

5. 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 **CPP Portal** or **www.nitj.ac.in**of cost.

6. After submission of the bid the contractor can re-submit revised bid any number of times but before last timeand date of submission of bid as notified.

7. 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.

**8.** **Earnest Money Rs. 43903/-** in the form of Demand Draft/ Pay order or Banker`s Cheque in favour of **Security A/c, Dr. B R Ambedkar National Institute of Technology, Jalandhar)** shall be scanned and uploaded to the e-tendering website within the period of bid submission. **The original EMD should be deposited in the office of Dr.B R Ambedkar NIT, Jalandhar within the period of bid submission.**

Copy of Enlistment order and other required as per NIT documents shall be scanned and uploaded to the e- tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in press notice shall have to be submitted by the lowest bidder only within aweek physically in the office of tender opening authority.

Online bid documents submitted by intending bidders shall be opened only of those bidders, **whose EMDDeposited with NIT, Jalandhar office** and other documents scanned and uploaded are found in order.

The bid submitted shall be opened at **Upto 03:00 PM on 23.11.2022**

9. The bid submitted shall become invalid if:
   (i) The bidder is found ineligible.
   (ii) The bidder does not deposit original EMD with the office of NIT, Jalandhar
   (iii) Does not uploaded all the documents (including GST registration/ PAN Card) as stipulated in the bid document.

**(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 tenderer in the office of tender opening authority.**

**(v)** **If a tenderer quotes nil rates against each 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.** The contractor whose bid is accepted will be required to furnish **performance guarantee of 3 % (Five Percent)** of the bid amount within the period specified in Schedule F. This guarantee shall being the form of cash (in case guarantee amount is less than Rs. 10000/-) or Deposit at Call receipt of any Scheduled Bank/Banker's cheque of any scheduled bank/Demand Draft of any scheduled bank/Pay order of any Scheduled Bank of any scheduled bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India 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, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with 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 and Programme Chart (Time and Progress) within the period specified in Schedule 'F'.**

**11.** **The description of the work is as follows: "Renovation work near student activity center building at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar"**
Intending bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature of the ground and sub-soil (so far as is practicable), the formand nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent upon any misunderstanding or otherwise shall be allowed. The tenderer shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a tenderer 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, Conditions imposed by NIT, Jalandhar authorities and other factors having a bearing on the execution of the work.

12. The competent authority on behalf of the Director NIT Jalandhar does not bind itself to accept the lowest or any other tender and reserves to itself the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the tenderer shall be summarily rejected.

13. Canvassing whether directly or indirectly, in connection with tenderers is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.

14. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.

15. The contractor shall not be permitted to tender for works in the NIT, Jalandhar whose blood relation is serving in NIT Jalandhar.

16. 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 anytime 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.

17. **The bid for the works shall remain open for acceptance for a period of Forty Five (45) days from the date of opening of bid.** If any bidders withdrawls his bid before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the bid which are not acceptable to the department, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the bidders shall not be allowed to participate in the rebidding process of the work.

18. This notice inviting bid shall form a part of the contract document. The successful bidder/specialized agency, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign contract consisting of:
   a) The Notice Inviting bid, all the documents including Special Conditions, General Specifications/ Particular 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 8 is applicable.

**19. For Bids**

19.1.1 The bid document will include following four components:

**Part A** CPWD-6, CPWD Form-8 including Schedule A to F for the work, Standard General Conditions ofContract for CPWD 2019 as amended/ modified up to date.

**Part B:** General/ specific conditions, specifications, Schedule of Quantities applicable to the work

**Part C:** Schedule A to F, General/specific conditions and specifications, Schedule of Quantities applicable tothe work

Entire work under the scope of tender shall be executed under one agreement.

Security Deposit @2.5% will be worked out for the Tendered cost of the work.

Running payment as per recommended by EE in-charge shall be made by Registrar to the contractor.

A. The work shall be treated as complete when all the components i.e civil and electrical of the work are complete. The completion certificate of the work shall be recorded by Registrar after record of completion certificate of all other components.

Bills submitted by Contractor of whole work shall be finalized and paid by the Registrar.

It will be obligatory on the part of the tenderer to sign the tender documents before the first payment isreleased.

**Registrar,Dr. B R Ambedkar National Institute of Technology**
**Jalandhar**

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**COMPOSITEITEMRATE TENDER & CONTRACT FOR WORKS**

**(A)** Tender for the work of: **"Renovation work near student activity center building at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar"**

i) to be submitted online by 22.11.2022 upto 03:00 PM through website **CPP Portal** to Registrar, Dr. B RAmbedkar National Institute of Technology, Jalandhar.

ii) to be opened through online in presence of tenderers who may be present 23.11.2022 at 03:00 PM in theoffice of Registrar, Dr. B R Ambedkar National Institute of Technology, Jalandhar.

**T E N D E R**

I/We have read and examined the Notice Inviting Tender, Schedule A, B, C, D, E & F, Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, Clauses of Contract, Special Conditions, Schedule of Rate and other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for the Registrar, Dr. B R Ambedkar National Institute of Technology, Jalandhar within the time specified in Schedule 'F', viz. Schedule of Quantities and in accordance in all respects with the Specifications/ Special conditions, Designs, Drawings and instructions in writing as referred to in thistender document and with such materials as are provided for, by and in respects in accordance with, such conditions so far as applicable.

We agree to keep the tender open for **(45) Forty Five days** from the date of opening of technical bid and not to make any modifications in its terms and conditions.

A sum **of Rs. 43,903/-** is hereby forwarded demand draft of a scheduled bank as earnest money.
A copy of earnest money in demand draft of a scheduled bank is scanned and uploaded. If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that the said Director NIT Jalandhar 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 Director NIT Jalandhar or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely. The said Performance Guarantee shall be a guarantee to execute all the works referred to in the tender 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 tender form.
**Further, I/We agree that in case of forfeiture of earnest money or both 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 contractoron back to back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred from the tendering in NIT, Jalandhar in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Registrar shall be free to forfeit the entire amount of Earnest Money.

I/We hereby declare that I/we shall treat the tender documents, drawings and other records connected with the workas Secret/ Confidential documents and shall not communicate information/ derived therefrom to any person other than a person to whom I/we/am/are may authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

Dated: XX  Signature of Contractor .....

Witness: - XX  Postal Address: - .....

Address: - XX

Occupation: - XX

Telephone No.
Fax:-
E-Mail:-

**ACCEPTANCE**

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and onbehalf of the President of India for a sum of Rs.....
(Rupees.....
The letters referred to below shall form part of this contract agreement.

For & on behalf of the President of India.

i) XXX
ii) XXX
iii) XXX.

Signature XXX

Dated: -.....  Registrar

XXX To be filled in by the Registrar To
XX be filled in by the contractor

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## SCHEDULES (A to F)

**SCHEDULE 'A'**

Schedule of quantities - **Schedule of Quantities (Civil Work)**

**SCHEDULE 'B'**

Schedule of materials to be issued to the contractor

| S.No. | Description of item. | Quantity. | Rate 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** |
|---|---|---|---|
| | **NIL** | | |

**SCHEDULE 'D'**

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

1. Special Conditions -
2. Particular Specifications.-

**SCHEDULE 'E'**

Reference to General Conditions General Conditions of contract 2019 works of Contract: amended up to date of submission of bid.

Name of Work: "**Renovation work near student activity center building at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar"**

Estimated Cost of work: **Rs. 21,95170.37**

Earnest Money: **Rs. 43,903.00 (To be returned after receiving Performance guarantee)**

Performance Guarantee 3.00% of tendered value

Security Deposit 2.5% of tendered value

**SCHEDULE 'F':**

**General Rules & Directions:**

| | |
|---|---|
| Officer Inviting Tender | **Registrar,**<br>**Dr. B R Ambedkar National Institute of Technology,Jalandhar.** |
| Maximum percentage for quantity of itemsof work to be executed beyond which ratesare to be determined in accordance with Clauses 12.2 & 12.3 | Refer Clause-12 |

**Definitions:**

| | | |
|---|---|---|
| 2(v) | Registrar | Dr. B R Ambedkar **NIT, Jalandhar** |
| 2(viii) | Accepting Authority | **Registrar, NIT, Jalandhar** |
| 2(x) | Percentage on cost of materials and labour tocover all overheads and profits | 15% |
| 2(xi) | Standard Schedule of Rates | **Delhi Schedule of Rates 2021** with upto date correction slips |
| 2(xii) | Department | Dr. B R Ambedkar NIT, Jalandhar |
| 9(ii) | Standard NIT, Jalandhar Contract Form | GCC 2019, Form 8 as amended upto the date of submission of bid. |

**Clause-1:**

| | | |
|---|---|---|
| i | Time allowed for submission of Performance Guarantee ProgrammeChart (Time & Progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board or proofof applying thereof from the date ofissue of letter of acceptance. | **10days** |
| ii | Maximum allowable extension with late fee @0.1% per day of the performance guarantee amount beyond the period provided in (i) above | **1 to 5days** |

**Clause-2**:

| | |
|---|---|
| Authority for fixing compensation under Clause 2 | Director, NIT, Jalandhar |

**Clause – 2A:**

| | |
|---|---|
| Whether clause-2A shall be applicable. | Not applicable |

**Clause-5**:

| | |
|---|---|
| Number of days from the date of issueof letter of acceptance for reckoning date of start | 15days |
| Time allowed for execution of work | 45 Days. |

**Authority to decide**

| | |
|---|---|
| i. Extension of time for completion of work. | Registrar, Dr. B R Ambedkar National Institute of Technology, Jalandhar. |
| ii. Re-scheduling of Mile stone | Dean-PD, Dr. B R Ambedkar National Institute of Technology, Jalandhar. |
| iii Shifting of date of start in case of delay in handing over of site. | Dean PD, NIT, Jalandhar. |
| **Clause-6, 6A**: Clause applicable- (6 or 6A): | Clause-6A (Computerized Measurement to be submittedby agency) |
| **Clause-7**: Gross work to be done togetherwith net Payment/ adjustment of advances for material collected If any, since the last such payment | Rs.3.5.00lacs |
| **Clause-7A**: (No Running Account Bill shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCWWelfare Board, whatever applicable are submitted by the contractor to the Registrar.) | **Yes, if applicable** |
| **Clause-10A:** List of testing equipment to be Provided by the contractor at site lab. | Not applicable |
| **Clause-10-B (ii).** Whether clause 10-B (ii) shall be applicable | Not applicable |
| **Clause-10C:-** (i) Component of labour expressed as percent of total value of work for | Not applicable |
| **Clause-11:** Specifications to be followed for execution of work | C.P.W.D. Specifications 2019 Vol. I & II with correction slips issued upto last date of submission of bid. |
| **Clause-12**: Type of Work**:** | New work. |
| 12.2 & 12.3 Deviation limit beyond which clause 12.2 & 12.3 shall apply for building work in superstructure. | 50% |
| 12.5 (i) Deviation limit beyond which clause 12.2 & 12.3 shall apply for foundation works (except earth work) | 50% |

| | | |
|---|---|---|
| | (ii) Deviation limit for items in Earth work Sub-head of DSR or related items | 100% |
| **Clause-16**: | Competent Authority for deciding reduced rates. | **Director, NIT, Jalandhar** |
| **Clause -17:** | **Contractor liable for damages, Defects during defect liability period** | **2 months** |
| **Clause-18**: | List of mandatory machinery tools & Plants to be deployed by the Contractor at site | Refer **Sheet No. 58** |
| **Clause-19**: | The ESI and EPF contribution on the partof employer in respect of this contract shallbe paid bythe contractor. These contributions on the part of the employer paid by the contractor shall be reimbursedby the Registrar to the contractor on actualbasis. **The applicable and eligible amount of EPF&ESI shall be reimbursed preferably within 7 daysbut not later than 30 days of submission of documentary proof of payment provided same are in order. The contractor shall also comply withprovisions of the inter-state migrantworkmen (Regulation of Employmentand conditions of service Act, 1979).** | **Applicable** |

**Clause-25:**

| Constitution of Dispute Redressal Committee (DRC) | Competent Authority to appoint DRC. |
|---|---|
| DRC shall constitute on Chairman and Two members | Director NIT Jalandhar |

Dr. B R Ambedkar National Institute of Technology, Jalandhar.

**Name of work: "Renovation work near student activity center building at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar"**

PART B

## SPECIAL CONDITIONS

**General**

Except for the items, for which Particular Specifications are given or where it is specifically mentioned otherwise in the description of the items in the schedule of quantities, the work shall generally be carried out in accordance with the "C.P.W.D. Specifications 2019 Vol. I & II with correction slips issued up to last date of submission of bid. Additional/ Particular Specifications, Architectural/ structural drawings and as per instructions of Engineer Incharge

The several documents forming the tender are to be taken as mutually complementary to one another. Detailed drawings shall be followed in preference to small scale drawings and figured dimensions in preference to scaled dimensions.

Should there be any difference or discrepancy between the description of items as given in the schedule of quantities, particular specifications for individual items of work (including special conditions) and I.S. Codes etc., the following order of preference shall be observed:

i. Description of Schedule of Quantities
ii. Particular Specifications and Special Conditions, if any.
iii. Drawings
iv. C.P.W.D. Specifications 2019 Vol. I & II.
v. Indian Standard Specifications of B.I.S.
vi. NBC-2016
vii. CPHEEO Sewage Manual
viii. Manufacturers' specifications & as decided by Executive Enginner.

"In the event of any variation/ discrepancy in the drawings, specifications and tender documents etc. the decision of the Registrar shall be final binding and conclusive on the contractor and in the case the contractor have any doubt and the same should be got clarified immediately from the Registrar and no claim of the contractor shall be entertained thereafter. Moreover, the agency is not allowed to take benefit out of any clerical/ grammatical mistake in the standard clauses/ Schedule of Quantities/ Specifications etc. being used in the agreement".

The works to be governed by this contract shall cover delivery and transportation upto destination, safe custody at site, insurance, erection, testing and commissioning of the entire works.

The works to be undertaken by the contractor shall interalia include the following:

i. Preparation of detailed SHOP drawings and AS BUILT drawings wherever applicable.
ii. Obtaining of Statutory permissions where-ever applicable and required.
iii. Pre-commissioning tests as per relevant standard specifications, code of practice, Acts and Rules wherever required.
iv. Warranty obligation for the equipment and/or fittings/fixtures supplied by the contractor.

Contractor shall provide all the shop drawings or layout drawings for all the coordinated services before starting any work or placing any order for any of the services etc. These shop drawings/layout drawings shall be got approved from Executive Engineer before implementation and this shall be binding on the contractor. The contractor shall submit material submittals along with material sample for approval of Executive Engineer prior to delivery of material at site.

Any reference made to any Indian Standard Specifications, shall imply to the latest version of that standard, including such revisions/ amendments as issued by the Bureau of Indian Standards upto last date of receipt of tenders. The Contractor shall keep at his own cost all such publications including relevant Indian Standard Codes applicable to the work at site.

All the hidden items such as water supply lines, drainage pipes, conduits, sewers etc. are to be properlytested before covering.

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

Equipments like batching plant, concrete pumps excavators/ Transit mixers etc. shall be allowed to be moved away from the site when, in written opinion of Engineer Incharge, the same are no longer required at site of work.

The contractor, his authorized representative, workmen etc. shall strictly observe orders pertaining to fire precautions prevailing in the area.

Contractor(s) shall study the soil investigation report for the site, available in the office of the Estate Office and satisfy himself about complete characteristics of soil and other parameters at site. However, no claim on the alleged inadequacy or incorrectness of the soil data supplied by the department shall be entertained.

The tenderer shall see the approaches to the site. In case any approach from main road is required at site or existing approach is to be improved and maintained for cartage of materials by the contractor, the same shall be provided, improved and maintained by the contractor at his own cost.

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

The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards day and night, speed limit boards, red flags, red lights and providing barriers. He shall be responsible for all damages and accidents caused to work due to negligence on his part. No hindrances shall be caused to traffic, during the execution of the work.

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

The contractor shall provide at his own cost suitable weighing, surveying and leveling and measuring arrangements as may be necessary at site for checking. All such equipments shall be got calibrated in advance from laboratory, approved by the Engineer Incharge. Nothing extra shall be payable on this account.

Contractor shall provide permanent bench marks, flag tops and other reference points for the proper execution of work and these shall be preserved till the end of work. All such reference points shall be in relation to the levels and locations, given in the Architectural and plumbing drawings.

Water tanks, taps, sanitary, water supply and drainage pipes, fittings and accessories should conform to approved manufacturers specifications where C.P.W.D. Specifications 2019 Vol. I & IIare not applicable. The contractor should get the materials (fixtures/fittings) tested from approved labs wherever required at his owncost.

The work shall be carried out in accordance with the Architectural drawings and Structural drawings, to be issued from time to time, by the Executive Engineer. Before commencement of any item of work, the contractor shall correlate all the relevant architectural and structural drawings issued for the work, nomenclature of items, specifications etc. and satisfy himself that the information available there from is complete and unambiguous. The figures & the written dimensions of the drawing shall super cede the measurement by scale. The discrepancy, if any, shall be brought to the notice of the Executive Enginner for immediate decision before execution of the work. The contractor alone shall be responsible for any loss or damage occurring by the commencement

of work on the basis of any erroneous and/ or incomplete information and no claim, whatsoever shall be entertained on this account.

The contractor should submit the shop drawing of staging and shuttering for approval of Engineer Incharge before actually commencing the execution of work under the item. Nothing extra shall be payable on this account.

Other agencies may also simultaneously execute and install the works and the contractor shall afford necessary facilities for the same. The contractor shall leave such recesses, holes, openings, trenches etc. as may be required for such related works (for which inserts, sleeves, brackets, conduits, base plates, clamps etc. shall be available as specified elsewhere in the contract) and the contractor shall fix the same at the timeof casting of concrete, stone work and brick work, if required, and nothing extra shall be payable on this account.

All material shall only be brought at site as per program finalized with the Engineer Incharger. Any pre- delivery of the material not required for immediate consumption shall not be accepted and thus not paid for.

The contractor shall procure the required materials in advance so that there is sufficient time for testing of the materials and approval of the same before use in the work.

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

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

The contractor shall be responsible for the watch and ward/ guard of the buildings, safety of all fittings and fixtures including sanitary and water supply fittings and fixtures provided by him against pilferage and breakage during the period of installations and thereafter till the building is physically handed over to the client department. No extra payment shall be made on this account.

The contractor shall be fully responsible for the safe custody of materials brought by him/ issued to him even though the materials may be under double lock key system.

For construction works which are likely to generate malba/ rubbish, contractor shall dispose of malba, rubbish& other unserviceable materials and wastes at his own cost to the notified specified dumping ground and under no circumstances these shall be stacked/ dumped even temporarily, outside the construction premises.

The rates quoted by the Contractor are deemed to be inclusive of site clearance, setting out work, profile, establishment of reference bench mark(s), taking spot levels, construction of all safety and protection devices, barriers, preparatory works, working during monsoon, working at all depths, height, lead, lift and location etc until/ unless specified otherwise and any other incidental works required to complete this work. Nothing extra shall be payable on this account.

For works below ground level the contractor shall keep that area free from water. If dewatering or bailing outof water is required the contractor shall do it and nothing extra shall be paid except otherwise provided in theitems of schedule of quantities.

1.26 ----Deleted----

Any legal or financial implications resulting out of disposal of earth shall be sole responsibility of the contractor. Nothing extra over the schedule shall be paid on this account.

The Contractor shall keep himself fully informed of all acts and laws of the Central & State Governments, all orders, decrees of statutory bodies, tribunals having any jurisdiction or authority, which in any manner may affect those engaged or employed and anything related to carrying out the work. All the rules & regulations and bye-laws laid down by Collector/ MC, LAWDA etc. and any other statutory bodies shall be adhered to, by the contractor, during the execution of work. The Contractor shall also adhere to all traffic restrictions notified by the local authorities. It is clarified that the extra sewerage charges (one time charges for commencement of work) required to be paid to the Municipal Corporation/ other statutory bodies shall be paid by the department and need not be considered by the contractor. The water charges (for municipal water connection as well as tanker water) shall be borne by the contractor. Also, if the contractor obtains water connection for the drinking purposes from the municipal authorities or any other statutory body, theconsequent sewerage charges shall be borne by the contractor. All statutory taxes, levies, charges (including water and sewerage charges, charges for temporary service connections and/ or any other charges) payable to such authorities for carrying out the work, shall be borne by the Contractor. The Contractor shall arrange to give all notices as required by any statutory / regulatory authority and shall pay to such authority all the fees that is required to be paid for the execution of work. He shall protect and indemnify the Department and its officials & employees against any claim and /or liability arising out of violations of any such laws, ordinances, orders, decrees, by himself or by his employees or his authorized representatives. Nothing extra shall be payable on these accounts. The fee payable to statutory authorities for obtaining the various permanent service connections and Occupancy Certificate for the building shall be borne by the Department.

Royalty at the prevalent rates shall be paid by the Contractor as per the terms of supply between them on all materials such as boulders, metals, sand and bajri etc. collected by him for the execution of the work, directly to the revenue authority of the state government concerned. Nothing extra shall be payable on this account.

No foreign exchange shall be made available by the Department for importing (purchase) of equipment, plants, machinery, materials of any kind or any other items required to be carried out during execution of the work. No delay and no claim of any kind shall be entertained from the Contractor, on account of variation in the foreign exchange rate.

The Contractor shall conduct his work so as not to interfere with or hinder the progress of the work being performed by other Contractors or by the Registrar. As far as possible, he shall arrange his work and place, so as not to interfere with the operations of other Contractors or shall arrange his work with that of the others, in an acceptable and coordinated manner and shall perform it in proper sequence.

The Contractor shall assume all liability, financial or otherwise in connection with this contract and shall protect and indemnify the Department from any and all damages and claims that may arise on any account. The Contractor shall indemnify the Department against all claims in respect of patent rights, royalties, design,trademarks of name or other protected rights, damages to adjacent buildings, roads or members of public, in course of execution of work or any other reasons whatsoever, and shall himself defend all actions arising from such claims and shall indemnify the Department in all respect from such actions, costs and expenses. Nothing extra shall be payable on this account.

The Contractor shall make all necessary arrangements for protecting from rains, the work already executed and for carrying out the further work, during monsoon including providing and fixing temporary shelters, protections etc. Nothing extra shall be payable on this account. Also, no claims for hindrance shall be entertained on this account.

In case of flooding of site on account of rain or any other cause and any consequent damage, whatsoever, no claim financially or otherwise shall be entertained not withstanding any other provisions elsewhere in the contract agreement. Also, the Contractor shall make good, at his own cost, the damages caused, if any.

The Contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupants of the adjacent properties and to the public in general .The Contractor shall take all

care, as not to damage any other adjacent property or other services running adjacent to the plot. If any damage is done, the same shall be made good by the Contractor at his own cost and to the entire satisfaction of the Registrar. The Contractor shall use such methodology and equipment for execution of the work, so as to cause minimum environmental pollution of any kind during construction, to have minimum construction time and minimum inconvenience to road users and to the occupants of the buildings on the adjacent plot and public in general, etc. He shall make good at his own cost and to the entire satisfaction of the Engineer in Charge any damage to roads, paths, cross drainage works or public or private property whatsoever caused, due to the execution of the work or by traffic brought thereon, by the Contractor. Further, the Contractor shall take all precautions to prevent any pollution of streams and waterways. All waste or superfluous materials shall be carted away by the Contractor, entirely to the satisfaction of the Registrar. Utmost care shall be taken to keep the noise level to the barest minimum so that no disturbance asfar as possible is caused to the occupants/ users of adjoining buildings. No claim what so ever on account of site constraints mentioned above or any other site constraints not specifically stated here, shall be entertained from the Contractor. Therefore, the Contractors are advised to visit site and get first-hand information of site constraints. Accordingly, they should quote their tenders. Nothing extra shall be payable on this account.

All ancillary and incidental facilities required for execution of work like labour camp, stores, fabrication yard, offices for Contractor, watch and ward, temporary ramp required to be made for working at the basement level, temporary structure for plants and machineries, water storage tanks, installation and consumption charges of temporary electricity, telephone, water etc. required for execution of the work, liaison and pursuing for obtaining various No Objection Certificates, completion certificates from local bodies etc., protection works, barricading, testing facilities/ laboratory at site of work, facilities for all field tests and for taking samples etc. during execution or any other activity which is necessary (for execution of work and as directed by Registrar), shall be deemed to be included in rates quoted by the Contractor, for various items in the schedule of quantities. Nothing extra shall be payable on these accounts. Before start of the work, the Contractor shall submit to the Registrar, a site/ construction yard layout, specifying areas for construction, site office, positioning of machinery, material yard, cement and other storage, steel fabrication yard, site laboratory, water tank, etc.

The Contractor shall display all permissions, licenses, registration certificates, bar charts, other statements etc. under various labour laws and other regulations applicable to the works, at his site office.

No tools and plants including any special T&P etc. shall be supplied by the Department and the Contractor shall have to make his own arrangements at his own cost. No claim of hindrance (or any other claim) shall be entertained on this account.

The Contractor shall cooperate with and provide the facilities to the associate-Contractors and other agencies working at site for smooth execution of the work. The Contractor shall

i. Allow use of scaffolding already erected, toilets, sheds etc.
ii. Properly co-ordinate their work with the work of other Contractors.
iii. Provide control lines and benchmarks to his associate-Contractors and the other Contractors.
iv. Provide electricity and water at mutually agreed rates.
v. Provide hoist and crane facilities for lifting material at mutually agreed rates.
vi. Co-ordinate with other Contractors for leaving inserts, making chases, alignment of services etc. at site.
vii. Adjust work schedule and site activities in consultation with the Registrar and other Contractors to suit theoverall schedule completion.
viii. Resolve the disputes with other Contractor amicably and the Registrar shall not be made intermediary or arbitrator. The contractor shall indemnify the Department against any claim(s) arising out of such disputes.

On completion of work, the contractor shall submit at his own cost four prints of “as built” drawings of the completed work to the Registrar. These drawings shall have the following information.

a) Run off of all piping and their diameters including soil, waste pipes and vertical stacks.

b) Ground and invert level of all drainage pipes together with locations of all manholes and connections, uptoout fall.

c) Run off of all water supply lines with diameters, location of control valves, access panels etc.

Unless otherwise specified in the schedule of quantities or C.P.W.D. Specifications 2019 Vol. I & II, the rates for respective items shall be all inclusive and apply to the following:

i. All lifts & all heights, floors including terrace, leads and depths.
ii. All labour, material, tools and plants and other inputs involved in the execution of the item.
iii. Any of the conditions and specifications mentioned in the tender documents.
iv. Providing sunk flooring in bath-rooms, kitchen, etc.
v. Any legal or financial implications resulting out of disposal of earth, if any.
vi. Payment of Royalty at the prevailing rates, if any, on the boulders, metal, shingle, sand and bajri etc. or any other material collected by him for the work direct to revenue authorities.
vii. Performance test of the entire installation(s) before the work is finally accepted.
viii. Any cement slurry added over base surface (or) for continuation of concreting for better bond is deemed to have been built in the items.
ix. All incidental charges for cartage, storage and safe custody of materials brought to site
x. All local taxes, Entry taxes, and all other taxes of J&K State government and central taxes.

3.0 **QUALITY ASSURANCE/TESTING OF MATERIALS**:

**FIELD LABORATORY**

~~The contractor has to establish field laboratory at site including all necessary equipments and skilled manpower for the~~ Field Tests as at Sheet No.46-50 at his own cost to have proper quality control.

~~For performing the above tests, the Field Testing Equipments and Instruments as at~~ **~~Sheet No.46-50~~** ~~are tobe arranged~~ and maintained by the contractor.

The contractor shall ensure quality construction in a planned and time bound manner. Any sub-standard material/ work beyond set-out tolerance limit shall be summarily rejected by the Registrar& contractor shall be bound to replace/ remove such sub-standard/ defective work immediately.

The list of Laboratory/ Field equipment referred above are to be arranged and maintained by the contractorat the ~~site of work. In case the equipment required for any test is not available at site, the department shall get the test conducted from the third party. However in that event, besides providing free materials of sample, the cost of taking of sample, packing, transportation, testing charges etc. shall be borne by the contractor irrespective of the results.~~

**SAMPLE OF MATERIALS**:

All materials and fittings brought by the contractor to the site for use shall conform to the samples approved by the Executive Engineer which shall be preserved till the completion of the work. If a particular brand of material is specified in the item of work in Schedule of Quantity, the same shall be used after getting the same approvedfrom Executive Engineer. Wherever brand/ quality of material is not specified in the item of work, the contractor shall submit the samples as per List of Approved Makes as at **Sheet No.60-62** for approval of Executive Engineer. For all other items, ISI Marked materials and fittings shall be used with the approval of Engineer Incharge. Wherever ISI Marked material/ fittings are not available, the contractor shall submit samples of materials/ fittings manufactured by firms of repute conforming to relevant Specifications or IS codes for the approval of Engineer Incharge.

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

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

BIS marked items (except cement & steel for which separate provisions have been made in para 4.0) required on the work shall be got tested, for only important tests, which govern the quality of the product, as decided by the Registrar. The frequency of such tests (except the mandatory test) shall be 5% of the frequency as specified in BIS. For mandatory test, frequency shall be as specified in the NIT, Jalandhar Specifications.

For certain items, if frequency of tests is neither mentioned in the NIT, Jalandhar Specifications & BIS, then tests shall be carried out as per decision of Registrar.

**CEMENT & STEEL REINFORCEMENT (IF NOT STIPULATED TO BE SUPPLIED BY THE CONTRACTOR**).

Contractor has to produce manufacturers test certificate and challan for each lot of Cement & Steel Reinforcement procured at site.

**CEMENT**:

The contractor shall procure 43 grade ordinary Portland Cement conforming to IS: 8112/ Portland Pozzolona Cement conforming to IS: 1489 (Part-1) as required in the work from reputed manufacturers of cement as mentioned in Preferred Make List or from any other reputed Cement Manufacturer having a production capacity not less than one million ton per annum as approved by the Director NIT Jalandhar.

Samples of cement arranged by the contractor shall be taken by the Engineer Incharge and got tested in accordance with provisions of relevant BIS Codes. The cement for such testing purpose shall be supplied by the contractor free of charge. In case test results indicate that the cement arranged by the contractor does not conform to the relevant BIS Codes, the same shall stand rejected and shall be removed from the site by the contractor at his own cost within a week's time of written order from the Registrar to do so. The cost of tests shall be borne by the contractor/department in the manner indicated below:

a. By the contractor, the results show that the cement conforms to relevant BIS Codes.

Cement shall be brought at site in bulk supply of approximately 100 tonnes or as decided by the Engineer Incharge.

OPC & PPC bags shall be stored in separate godowns. Separate godowns for tested cement and fresh cement (under testing) to be constructed by the contractor at his own cost as per sketches given in C.P.W.D Specifications having weather-proof roofs and walls. The size of the cement godown is indicated in the sketches for guidance. The actual size of godown shall be as per site requirements and nothing extra shall be paid for the same. Each godown shall be provided with a single door with two locks. The keys of one lock shall remain with Registrar or his authorized representative of the work and that of other lock with the authorized agent of the contractor at the site of work so that the cement is issued from godown according to the daily requirement with the knowledge of both parties. The account of daily receipt and issue of cement shall be maintained in a register in the prescribed proforma and signed daily by the contractor or his authorized agent and Registrar or his authorized representative in token of its correctness. The day to day receipt and issue accounts of different grade/brand of cement shall be maintained separately in the standard

proforma by the contractor or his authorized representative which shall be duly signed by the authorized representative of the Registrar before issue to the work on day to day basis.
Four separate cement godowns each having capacity of 50 MT or more as decided by the Registrar shall be constructed by the contractor at site of work for which no extra payment shall be made. The contractor shall be responsible for the watch and ward and safety of the cement go-downs. The contractor shall facilitate the inspection of the cement go-downs by the Registrar at any time.

The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in Clause-42 of the contract and shall be governed by the conditions laid therein.

If the quantity of cement actually used in the work is found to be more than the theoretical quantity of cement including authorized variation, nothing extra shall be payable to the contractor on this account. In the event of it being discovered that after the completion of the work, the quantity of cement used is less than the quantity ascertained as herein before provided (allowing variation on the minus side as stipulated in Clause-42), the cost of quantity of cement not so used shall be recovered from the contractor as specified in schedule. Decision of the Registrar in regard to theoretical quantity of cement which should have been actually used as per the schedule and recovered at the rate specified, shall be final and binding on the contractor.

For non-scheduled items, the decision of the Registrar, Dr. B R Ambedkar National Institute of Technology, Jalandhar regarding theoretical quantity of the cement, which should have been actually used, shall be final and binding on the contractor.

Cement brought to site and cement remaining unused after completion of work shall not be removed from site without written permission of the Executive Enginner.

In case the contractor brings surplus quantity of cement the same shall be removed from the site after completion of work by the contractor at his own cost after approval of the Executive Engineer.

Cement, which is not used within 90 days from its date of manufacture, shall be retested at approved laboratory. Until the results of such tests are found satisfactory, it shall not be used on the work.

**Special Conditions for Steel Reinforcement**:

The contractor shall procure IS Marked TMT Bars of Fe 500D grade from the following Steel Manufacturer or their authorized dealers:

i. SAIL
ii. Rashtriya Ispat Nigam Ltd.
iii. Tata Steel Ltd.
iv. Jindal Steel & Power Ltd.
v. JSW Steel Ltd.

The procured steel should have following qualities:

a. Excellent ductility, bend ability and elongation of finished product due to possible refining technology.
b. Consumption of steel should be accurate as per design.
c. Steel should have no brittleness problem in finished product.
d. Steel should carry the quality of corrosion & earth quake resistance.
e. Quality steel with achievement of proper level of sulphur & phosphorus as per IS: 1786-2008.

The contractor shall have to obtain and furnish test certificates to the Registrar in respect of all supplies brought by him to the site of work.

Samples shall also be taken and got tested by the Engineer Incharge 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 or written orders from the Executive Engineer to do so.

The steel reinforcement bars shall be brought to the site in bulk supply of 10 tonnes or more or as decided by the Engineer Incharge.

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 these accounts. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.

For checking nominal mass, tensile strength, bend test, rebend test etc. specimens of sufficient length shall be cut from each size of the bar at random & at frequency not less than that specified below:

| SIZE OF BAR | FOR CONSIGNMENT BELOW 100 TONNES | FOR CONSIGNMENT OVER 100 TONNES |
|---|---|---|
| Under 10 mmdia | One sample for each 25 tonnes or part thereof. | One sample for each 40 tonnes or partthereof |
| 10 mm to 16mm dia | One sample for each 35 tonnes or part thereof. | One sample for each 45 tonnes or partthereof |
| Over 16 mm dia | One sample for each 45 tonnes or part thereof | One sample for each 60 tonnes or partthereof |

The contractor shall supply free of charge the steel required for testing including its transportation to testing laboratories. The cost of tests shall be borne by the contractor.

The Actual issue and consumption of steel on work shall be regulated and proper account 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 conditions laid therein. In case the 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 be made.

Steel brought to site and steel remaining unused shall not be removed from site without the written permission of the Executive Engineer.

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The contractor shall submit original vouchers from the manufacturer for the total quantity of steel supplied under each consignment to be incorporated in the work. All consignment received at the work site shall be inspected by the Site staff along with the relevant documents before acceptance. The contractor shall obtain Original Vouchers and Test Certificates and furnish the same to the Executive Engineer in respect of all the lots of steel brought by him from approved supplier to the site of work. The original vouchers and test certificates shall be defaced by the Site staff and kept on record in the site office.

Reinforcement including authorized spacer bars and lap pages shall be measured in length of different diameters as actually (not more than as specified in the drawings) used in the work nearest to a centimetre. Wastage and unauthorized overlaps shall not be measured.

The standard sectional weights referred to as in Table 5.4 in para 5.3.4 in NIT, JalandharSpecifications will beconsidered for conversion of length of various sizes of M.S. Bars, Steel Bars and T.M.T. bars into Standard Weight.

Records of actual Sectional weights shall also be kept dia-wise and lot-wise. The average sectional weight for each diameter shall be arrived at from samples from each lot of steel received at site. The decision of the Executive Engineer shall be final for the procedure to be followed for determining the average sectional weight of each lot. Quantity of each diameter of steel received at site of work each day will constitute one single lot for the purpose. The weight of steel by conversion of length of various sizes of bars based on the actual weighted average sectional weight shall be termed as Derived Actual Weight. However for the stipulated issue of steel reinforcement up to and including 10mm diameter bars, the actual weight of steel issued shall be modified to take into account the variation between the actual and the standard coefficients and the contractors'accounts will be debited by the cost of modified quantity.

4. 3.15 (a) If the Derived Weight as in sub-para (4.3.13) above is less than the Standard Weight as in Sub-para (4.3.12) above then the Derived Actual Weight shall be taken for payment provided, it is within the following tolerances specified in IS1786-2008, otherwise whole lot will be rejected.

Tolerances on Nominal Mass

| Nominal Size in mm | Tolerance on Nominal mass Percent | | |
|---|---|---|---|
| | Batch | Individual sample* | Individual sample for coil** |
| Upto and including 10 | +7 | -8 | +8 |
| Over 10 upto and Including 16 | +5 | -6 | +6 |
| Over 16 | +3 | -4 | +4 |

* For individual sample plus tolerance is not specified.
**For coils batch tolerance is not specified.

b) If the Derived Actual Weight is found more than the Standard Weight, the Standard Weight as per in sub- para (4.3.13) above shall be taken for payment. In such case nothing extra shall be paid for the difference between the Derived Actual Weight and the Standard Weight.

**SECRECY**

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

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

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

**LABOUR AND SECURITY**

Contractor should provide his plan for labour huts as per his requirement and get it approved from the Registrar. The contractor will be provided space for labour huts etc. inside the campus but the space requirement and location, as assessed by Registrar shall be final and binding.

Contractor has to follow the security requirement of the campus and obtain necessary entry passes for the labour and vehicles and follow security checks at entry/ exit gates, restriction on movement of vehicle, restricted timings of working etc. The Department however shall assist the contractor in obtaining such

passes for movement of vehicles and labour. No claim whatsoever shall be entertained on account of delay in entry of vehicles and labour including restrictions in working hours, if there is any.

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

The contractor & his work people shall observe all relevant rules regarding security promulgated in which work is to be carried out by the Controlling Administrative Authority of the campus/area (hereinafter referred to as "Administrator").

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

Normally contractor shall be allowed to carry out work between 7 AM to 6 PM. However, he may also be allowed to carry out the work beyond 6 PM &upto 7 AM if the site conditions/ circumstances so demand with prior written permission from the "Administrator". However, if the work is carried out in more than one shift or at night, no claim on this account shall be entertained.

Normally contractor's material/ vehicles etc shall be allowed to move in/ go-out between 7 AM to 7 PM only & no movement of material/ vehicles out of site of work shall be allowed during night hours unless specific permission is obtained from the "Administrator".

In case if a separate entry has been allowed, the contractor has to make all arrangement for making a separate entry gate and barricading of the working area to segregate/separate the same from other areas.All these have to be done by the contractor at his own cost including safeguarding any untoward incident in the restricted area due to separate entry gate and barricading arranged by the contractor. No extra amount on this account shall be payable by the department.

**TRANSPORTATION AND OFFICE INFRASTRUCTURE**:

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

The contractor shall make arrangement for Helmets and leather shoes (meant of construction work at sites) for all field staff of the department during the entire period of construction for safety reasons. One helmet and two pairs of shoes per staff member (maximum ten members) of the departments per year shall be arranged by the contractor.

8.0 **DOCUMENTATION**

The Contractor shall render all help and assistance in documenting the total sequences of this project by way of photography, slides, audio/ video recording & other records etc. Nothing extra shall be payable to Contractor on this account. However, cost of photographs, slides, audio/ video graph etc. shall be borne by the Department. The original films shall be the property of the Department. No copy shall be prepared without the prior approval of the Registrar.

**PROGRAM CHART**:

The Contractor shall prepare an integrated program chart for the execution of work, showing clearly all activities from the start of work to completion, with details of manpower, equipment and machinery required for the fulfilment of the program within the stipulated period or earlier and submit the same for approval of the Executive Engineer within 15 days of the issue of letter of acceptance for the contract. This program chart should clearly indicate that work will simultaneously be started on all different locations of Class rooms and hostels. The integrated program chart so submitted should not have any discrepancy with the milestones attached in the Contract Agreement.

The program chart should include the following:

a. Descriptive note explaining sequence of various activities.

b. Network (PERT/ CPM/ BAR CHART) prepared on MS project which will indicate resources in financial terms, manpower and specialized equipments for every important stage.

c. Program for procurement of materials by the contractor.

d. Program of procurement of machinery/ equipments having adequate capacity, commensurate with the quantum of work to be done within the stipulated period, by the contractor.

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

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

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

**PROGRESS AND MONITORING OF WORK**:

Apart from the above integrated program chart, the contractor shall be required to submit monthly progress report of the work in a computerized form. The progress report shall contain the following, apart from whatever else may be required as specified:

i. Construction schedule of the various components of the work through a bar chart for the next three quarters(or as may be specified), showing the milestones, targeted tasks and up to date progress.

ii. Progress chart of the various components of the work that are planned and achieved, for the month as well as cumulative up to the month, with reason for deviations, if any in a tabular format.

iii. Plant and machinery statement, indicating those deployed in the work.

iv. Man-power statement, indicating individually the names of all the staff deployed on the work, along with their designations.

v. Financial statement, indicating the broad details of all the running account payment received up to date, such as gross value of work done, advances taken, recoveries effected, amount withheld, net payments details of cheque payment received etc.

For completing the work in time, the Contractor might be required to work in two or more shifts (including night shifts). No claim whatsoever shall be entertained on this account, not with-standing the fact that the Contractor may have to pay extra amounts for any reason, to the labourers and other staff engaged directly or indirectly on the work according to the provisions of the labour and other statutory bodies regulations and the agreement entered upon by the Contractor with them.

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

The contractor shall conduct his work, so as not to interfere with or hinder the progress or completion of the work being performed by other contractor(s) or by the Registrar and shall as far as possible arrange his work and shall place and dispose off the materials being used or removed so as not to interfere with the operationsof other contractor or he shall arrange his work with that of the others in an acceptable and coordinated manner and shall perform it in proper sequence to the complete satisfaction of Registrar.

The Contractor shall do proper sequencing of the various activities by suitably staggering the activities within various pockets in the plot and at different plots so as to achieve early completion. The agency may deploy adequate equipment, machinery and labour as required for the completion of the entire work within the stipulated period specified. Also ancillary facilities shall be provided commensurate with requirement to complete the entire work within the stipulated period. Nothing extra shall be payable on this account. Adequate number/sets of equipment in working condition, along with adequate stand-by arrangements, shall be deployed during entire construction period. It shall be ensured by the Contractor that all the equipment, Tools & Plants, machineries etc. provided by him are maintained in proper working conditions at all times during the progress of the work and till the completion of the work. Further, all the constructional tools, plants, equipment and machineries provided by the Contractor, on site of work or his work shop for thiswork, shall be exclusively intended for use in the construction of this work and they shall not be shifted/ removed from site without the permission of the Registrar.

All material shall only be brought at site as per program finalized with the Registrar. Any pre-delivery of the material not required for immediate consumption shall not be accepted and thus not paid for.

**ENGAGING SPECIALIZED AGENCIES FOR WORKS**:

The Contractor shall engage specialized agencies having adequate technical capability and experience of having executed at least one work of similar items of 80% or more magnitude or two works of similar items of value minimum 60% individually for executing the following items of the work and/or any other items of work where specialized firm is required to be engaged as per contract conditions. For determining the required magnitude, the value of the work executed may be suitably enhanced with the prevailing approved cost index.

i. Anti Termite treatment work.
ii. Factory made Wooden Shutters of all types except Flush Doors.
iii. Water proofing treatment work of all types.
iv. Aluminium Work
v. Fabrication and erection of structural steel.
vi. Aluminium semi unitized/Curtain wall four way structural glazing/Aluminium composite panel cladding.
vii. All type false ceilings.
viii. Galvalume/ aluminum roofing sheet Double skin insulated system
ix. Plumbing works.
x. Fire rated doors.

The Specialized agency for the work shall be got approved from the Registrar well before actual commencement of the item of work. The contractor shall submit the list of specialized agencies except for Internal Electrical Installation, proposed to be engaged by him along with necessary performance certificates,within 30 days from the date of issue of acceptance letter to substantiate technical capability and experience of the agency for prior approval of the Registrar.

For Electrical work as contained in the Electrical component work under Part C, the Electrical Agency to be engaged as an associate electrical contractor for the Internal E.I/External E.I work should be enlisted contractor of CPWD appropriate class as per the value of the work. The firm will be required to submit the credentials of the associate electrical contractor including their registration documents, electrical contractor license, sales tax documents apart from submission of the MOU.

If the main contractor fails to associate agency/agencies for execution of minor components of work within prescribed time or furnishes incomplete details or furnishes details of ineligible agencies even after the tenderer is given due opportunity, the entire scope of such component of works shall be withdrawn from the tender and the same shall be got executed by the Registrar at the risk and cost of the main contractor.

Same milestones shall be applicable for all components of work.

For the specialized item of door & window fittings, water supply and sanitary installations; the contractor shallengage such vendors/installers as approved by the manufacturers. Provisions mentioned under Sr. No. 11.1 above shall not be applicable for the items mentioned herein above.

**Defect liability**:

The contractor's liability during the defect liability period from the final date of completion as per clause 17 shall be limited to rectification of defects including replacement as follows which in the opinion of Registrar are not manmade.

| Sl. No. | Description | Defect Liability |
|---|---|---|
| (i) | Ant termite treatment. | (a) Termites found if any till guarantee period to be rectified through post ATT. |
| (ii) | Concrete | Rectification of structural/ superficial/ non-structural cracks.<br>Rectification of dampness/ seepage in roof slab/ junctions &sunken portion.<br>Rectification of cracks in beam, shade, column. |
| (iii) | Brick work/ Concrete Block Masonry | Rectification of cracks in panel wall/ portion.<br>Cracks/ settlement of dwarf walls.<br>Rectification of efflorescence/ leaching. |
| (iv) | Joinery | Replacement of warped joinery.<br>Cracks in panels, rails/ styles etc. |
| (v) | Builders Hardware | Repairs/ Replacement of loosened / pre-mature failure of fittings.<br>Tightening/ Replacement of sag in mosquito proofing. |
| (vi) | Steel & Iron work | Rectification/ Replacement of defective part of rolling shutter. Redoing of defective portion in fabrication/ welding includingpainting.<br>Steel windows, grills, gates etc. – defects to be rectified. |
| (vii) | Roof treatment | Rectification of leakage/ seepage of roof slab including covering at junction till guarantee period. |
| (viii) | Plastering | Rectification of structural/ superficial cracks if any.<br>Rectification of protruding / peeling off plaster if any.<br>Rectification of efflorescence |

| Sl. No. | Description | Defect Liability |
|---|---|---|
| (ix) | Flooring | Rectification of sinking portion of plinth protection including saucerdrain. Settlement of foundation & floors, hollow sounding, cracks intiles/stones. |
| (x) | Plumbing / Sanitary fittings | Making good of leakage through soil / waste pipe joints.Replacement of looking mirror if found wavy.<br>Rectification of leakage of overhead tanks.<br>Leakage/ seepage of sunken floor, blockage of taps/ pipes, non-functioning of cistern. |
| (xi) | Finishes | Making good of defective/ dissimilar patches of painting to matchwith remaining surfaces, peeling of paint. |
| (xii) | Internal Water Supply | Repairs/ Replacement of defective taps/ fittings.<br>Repair to leakage of GI water pipe lines including joints.Removal of blockage of GI pipe lines. |
| (xiii) | Roads | Repair of sinked portion of road & potholes, if any |
| (xiv) | Sewage | Rectification of slope/ system if found defective during use.Rectification of major blockage in Sewer lines.<br>Cracks & settlement of sewage lines. |
| (xv) | Drains | Repair to Drains.<br>Settlement of Drains |
| (xvi) | External Water Supply | Repairs to installations & fittings. |
| (xvii) | General | All manufacturing defects of structures/ fixtures/ fittings/ equipments other than listed above including any defects of shrinkage or other faults that appear in the work within twelve<br>months after a certificate of its completion is given by the Registrarshall be rectified by the contractor. |

This list is not exhaustive but it is only indicative.

**SAFETY MEASURES**

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

**Warning/ Caution Boards**

All temporary warning/ caution boards/ glow signage display such as “Construction Work in Progress”, “Keep Away”, “No Parking”, Diversions & protective Barricades etc. shall be provided and displayed during day time by the Contractor, wherever required and as directed by the Engineer Incharge. These glow signage and red lights shall be suitably illuminated during night also. The Contractor shall be solely responsible for damage and accident caused, if any, due to negligence on his part. Also he shall ensure that no hindrance, as far as possible, is caused to general traffic during execution of the work. This signage shall be dismantled & taken away by the Contractor after the completion of work, only after approval of the Executive Engineer. Nothing extra shall be payable on this account.

**Sign Boards**

The Contractor shall provide and erect a display board of size and shape as required and paint over it, in a legible and workman like manner, the details about the salient features of the project, as required by the Executive Engineer. The Contractor shall fabricate and put up a sign board in an approved location and to an approved design indicating name of the project, client/ owner, architects, structural consultants, Department etc. besides providing space for names of other Contractors, Associate contractors and specialized agencies. Nothing extra shall be payable on this account.

Necessary protective and safety equipments shall be provided to the Site Engineer, Supervisory staff, labour and technical staff of the contractor by the Contractor at his own cost and used at site.

No inflammable materials including P.O.L shall be allowed to be stored in huge quantity at site. Only limited quantity of P.O.L may be allowed to be stored at site subject to the compliance of all rules / instructions issued by the relevant authorities in this regard. Also all precautions and safety measures shall be taken by the Contractor for safe handling of the P.O.L products stored at site. All consequences on account of unsafe handling of P.O.L shall be borne by the Contractor.

Special condition for Hardware and sanitary wares:

Engineer Incharge will take a decision regarding model numbers of equivalent Door/ window hardwares/ sanitary wares at the time of execution, in case the material, from the manufacturer whose model number is mentioned, is not available. However, in case, the equivalent model so approved, is cheaper than the model already mentioned in item/approved makes list, the price adjustment will be made based on the difference in market rate. In case, the rate of subsequently approved model is more, no extra payment will be made onthis account."

**ADDITIONAL CONDITIONS OF CONTRACT SPECIFIC TO GREEN BUILDING PRACTICES**

The contractor shall strictly adhere to the following conditions as part of his contractual obligations:

**SITE**

The contractor shall ensure that adequate measures are taken for the prevention of erosion of the topsoil during the construction phase.

The Contractor should follow the construction plan as proposed by the Executive Engineer to minimize the site disturbance such as soil pollution due to spilling.

No excavated earth shall be removed from the campus unless suggested otherwise by Executive Engineer. All subsoil shall be reused in backfilling/landscape, etc. as per the instructions of the Engineer Incharge. The surplus excavated earth shall be disposed of by the contractor at his own cost for reuse. Royalty on the soil is to be deposited with the State Govt. Deptt.

The contractor shall not change the natural gradient of the ground unless specifically instructed by the Engineer in Charge. This shall cover all natural features like water bodies, drainage gullies, slopes, mounds, depressions, etc. Existing drainage patterns through or into any preservation area shall not be modifiedunless specifically directed by the Executive Engineer.

The contractor shall not carry out any work which results in the blockage of natural drainage.

The contractor shall ensure that existing grades of soil shall be maintained around existing vegetation and lowering or raising the levels around the vegetation is not allowed unless specifically directed by the Registrar.

1.1.8 Overloading of trucks is unlawful and creates the erosion and sedimentation problems, especially when loose materials like stone dust, excavated earth, sand etc. are moved. Proper covering must take place. No overloading shall be permitted.

**CONSTRUCTION PHASE AND WORKER FACILITIES**

The contractor shall specify and limit construction activity in pre- planned/designated areas and shall start construction work after securing the approval for the same from the Registrar. This shall include areas of construction, storage of materials, and material and personnel movement.

**Preserve and Protect Landscape during Construction**

a. The contractor shall ensure that construction activities should be restricted to the areas outside of the canopy of the tree, or, from a safe distance from the tree/plant by means of barricading. Trees will not be used for support; their trunks shall not be damaged by cutting and carving or by nailing posters, advertisements or other material. Lighting of fires or carrying out heat or gas emitting construction activity within the ground, covered by canopy of the tree is not to be permitted.

b. The contractor shall take steps to protect trees or saplings identified for preservation within the construction site using tree guards of approved specification.

c. Contractor should limit all construction activity within the specified area as per the Construction Management Plan (CMP) approved by Registrar.

d. The contractor shall ensure that maintenance activities during construction period shall be performed as needed to ensure that the vegetation remains healthy.

The contractor shall provide potable water for all workers.

The contractor shall provide the minimum level of sanitation and safety facilities for the workers atsite. The contractor shall ensure cleanliness of workplace with regard to the disposal of waste and

effluent; provide clean drinking water and latrines and urinals as per applicable standard. Adequate toilet facilities shall be provided for the workman within easy access of their place of work. Toilet facilities shall be provided from the start of building operations, connection to a sewer shall be made as soon as practicable. Every toilet shall be so constructed that the occupant is sheltered from view and protected from the weather and falling objects. Toilet facilities shall be maintained in a sanitary condition. A sufficient quantity of disinfectant shall be provided. Natural or artificial illumination shall be provided.

The contractor shall ensure that air pollution due to dust/generators is kept to a minimum, preventing any adverse effects on the workers and other people in and around the site. The contractor shall ensure that the speed of vehicles within the site is limited to 10 km/hr.

- Spills of dirt or dusty materials will be cleaned up promptly so the spilled material does not become a sourceof fugitive dust and also to prevent of seepage of pollutant laden water into the ground aquifers.

The contractor shall ensure that no construction leachate (e.g. cement slurry etc.), is allowed to percolate into the ground.

Staging (dividing a construction area into two or more areas to minimize the area of soil that will be exposed at any given time) should be done to separate undisturbed land from land disturbed by construction activity and material storage.

The contractor shall comply with the safety procedures, norms and guidelines (as applicable).

The contractor shall ensure the following activities for construction workers safety, among other measures:

- Guarding all parts of dangerous machinery.
- Precautionary signs for working on machinery
- Maintaining hoists and lifts, lifting machines, chains, ropes, and other lifting tackles in good condition.
- Durable and reusable formwork systems to replace timber formwork and ensure that formwork where used isproperly maintained.

The storage of material shall be as per standard good practices to the satisfaction of the Engineer in Charge. Watch and ward of the Contractor's materials shall be his own responsibility.

The contractor shall provide for adequate number of garbage bins around the construction site and the workers facilities and will be responsible for the proper utilization of these bins for any solid waste generated during the construction

Where possible, the contractor shall select materials / vendors, harvested and manufactured regionally, within a 800-km radius of the project site.

The contractor shall ensure that a flush out of all internal spaces is conducted prior to handover. This shall comprise an opening of all doors and windows for 14 days to vent out any toxic fumes due to paints, varnishes, polishes, etc.

Contractor shall make efforts to reduce the quantity of indoor air contaminants that are odorous or potentiallyirritating harmful to the comfort and well-being of installer and building occupants. Contractor shall ensure that the VOC (Volatile Organic Compounds) content of paints, coatings and primers are low.

Water Use during Construction
Contractor should spray curing water on concrete structure and shall not allow free flow of water. Concrete structures should be kept covered with thick cloth/gunny bags and water should be sprayed on them. Contractor shall do water poundings on all sunken slabs using cement and sand mortar.

The contractor shall provide O & M Manuals wherever applicable.

**MATERIALS & FIXTURES FOR THE PROJECT**

i. Contractor will produce wherever feasible certificate regarding distance of the source of the relevant material.

ii. The contractor shall ensure that all paints, polishes, adhesives and sealants used both internally and externally, on any surface, shall be Low VOC products. The contractor shall get prior approval from the Registrar before the application of any such material.

iii. The contractor shall ensure that all composite wood products/agro-fiber products used for cabinetwork, etc. do not contain any added urea formaldehyde resin.

**RESOURCES CONSUMED DURING CONSTRUCTION**

a. The contractor shall ensure that the water and electricity is not wasted during construction. The Engineer in Charge can bring to the attention any such wastage and the contractor will have to ensure that such bad practices are corrected.

b. The contractor shall ensure that all run-off water from the site, during construction is collected and reused to the maximum.

**EQUIPMENT**

a. To ensure energy efficiency during and post construction all pumps, motors and engines used during construction or installed, shall be subject to approval and as per the specifications of the Registrar.

b. Generally the lighting installed by the contractor around the site and at the labour quarters during construction shall be CFL bulbs of the appropriate illumination levels.

**PARTICULAR SPECIFICATIONS**

**EARTH WORK**:

Earth work shall be executed as per NIT, Jalandhar specifications. The surplus earth if any shall be disposedof within the campus as per the directions of Engineer Incharge.

Anti-Termite Treatment constructional measures as specified in para 2.28.3 of C.P.W.D. Specifications 2009 Vol. I & II shall be adopted at the site as per final recommendations incorporating the constructional details given in above para and shown in Fig 2.4 of NIT, Jalandhar Specifications mentioned above.

**R.C.C. WORK**:

Design Mix Concrete (applicable if mentioned in agreement item).

The RCC work shall be done with Design Mix Concrete. Wherever letter M has been indicated, the same shall imply for the Design Mix Concrete. The Design Mix Concrete will be designated based on the principles given in IS: 456, 10262 & SP 23. The Conditions & Specifications stated herein shall have precedence over all conditions & specifications stated in relevant I.S. Codes/ NIT, Jalandhar Specifications. The concrete mix shallbe designed for the specified target mean compressive strength in order to ensure that work test result donot fall below the acceptance criteria specified for the concrete mix. The Contractor shall design mixes for each class of concrete indicating that the concrete ingredients and proportions will result in concrete mix meeting the requirements specified.

a. The contractor has to submit design mix without use of admixtures. The grade of concrete for water retainingstructure shall be minimum M-30.

b. Admixture may be added in case of specific technical requirement so as to meet the workability/ slump requirement or for any other reason but nothing extra is to be paid to contractor on account of adding admixtures.

The sources of coarse aggregate, fine aggregate, water, admixture& cement to be used in concrete work shall be identified by the contractor & he will satisfy himself regarding their conforming to the relevant specifications & their availability before getting the same approved from the Registrar.

a. **Coarse Aggregate**: As per C.P.W.D. Specifications 2019 Vol. I & II

b. **Fine Aggregate**: As per C.P.W.D. Specifications 2019 Vol. I & II

c. **Water**: It shall conform to requirements laid down in IS:456-2000/ Para 3.1.1 C.P.W.D. Specifications 202019 Vol. I & II

d. **Cement**: Portland Pozzolona Cement (Fly Ash based) conforming to IS: 1489/ OPC of grade 43 shall confirm to IS: 8112, required in the work from reputed manufacturers of cement as per the approved make in 50 kg. bags bearing manufacturer's name and ISI marking, along with manufacturers test certificate for each lot. Portland Pozzolona Cement is to be used for RCC works only subject to fulfilment of conditions of circular number CDO/ SE (RR)/ fly ash (MAN) 02 dated 09.04.09 shall be used for design mix concrete and shall conform to IS-1489 (Part I). However, if the contractor uses higher grade of cement nothing extra shall be paid.

e. **Admixture/ Plasticizer**: The admixture shall conform to IS: 9103. Whenever required, the admixture of approved quality & approved make only shall be used to attain the required workability. Nothing extra on account of use of Admixture/ Plasticizer shall be payable.

**Water Cement Ratio and Slump**:

In proportioning a particular mix, the manufacturer/producer/contractor shall give due consideration to the moisture content in the aggregates, and the mix shall be so designed as to restrict the maximum free water cement ratio to less the 0.5.

Due consideration shall be given to the workability of the concrete thus produced. Slump shall be controlled on the basis of placement in different situations. For normal methods of placing concrete, maximum slump shall be restricted to 100mm when measured in accordance with IS:1199.

**Characteristic Compressive Strength compliance Requirement**

| Specified Grade | Mean of the Group of 4 Non-overlapping consecutive test results in N/mm2 | Individual Test Results in N/mm2 |
|---|---|---|
| (1) | (2) | (3) |
| M20<br>Or<br>Above | ≥ Fck + 0.825 x established standard deviation (rounded off to nearest 0.5 N/mm2)<br>Or<br>Fck + 4 N/mm2, whichever is greater where fck is characteristic compressive strength of CC cube at 28 days. | Fck – 4 N/mm2 |
| **Note**: (i) In the absence of established value of standard deviation, the values given in Table as mentioned below may be assumed, and attempt should be made to obtain results of 30 samples as early as possible to establish the value of standard deviation.<br>(ii) The acceptance criteria for compressive strength as mentioned in IS:456-2000 as amended upto date shall prevail over the above criteria in case of any difference. | | |

The Contractor shall engage one of the following approved laboratories/ test house for designing the concrete mix in accordance with relevant IS Code and to conduct laboratory tests to ensure the target strength & workability criteria for a given grade of concrete:

i. IIT New Delhi
ii. NIT Jalandhar
iii. CBRI Roorkee.
iv. National Institute of Technical Teachers Training and Research, Sector 26, Chandigarh..
v. Chandigarh Engineering College, Sector 26, Chandigarh.

The various ingredients for mix design/ laboratory tests shall be sent to the lab / test houses through the Engineer Incharge and the samples of such aggregates sent shall be preserved at site by the department. In the eventif all the above laboratories are unable to carry out the requisite design/ testing, the contractor may have it done from any other laboratory with prior approval of the **Registrar, NIT, Jalandhar**.

The contractor shall submit the report on design mix from any of above approved laboratories for approval ofEngineer in Charge within 30 days from the date of issue of letter of acceptance of the tender. No concreting shall be done until the design mix is approved. In case of White Portland Cement and the likely use of admixtures in concrete with Portland Pozzolona/ White Portland Cement, the contractor shall design and test the concrete mix by using trial mixes with white cement and / or admixtures also, for which nothing extra shall be payable.

In case of change of source or characteristic properties of the ingredients used in the concrete mix during thework, the contractor as per the directions of the Engineer Incharge shall submit a revised laboratory mix design report conducted at laboratory established at site.

All cost of mix designing and testing, connected therewith, including charges payable to the laboratory shall be borne by the Contractor including redesigning of the concrete mix whenever required & as directed by Engineer Incharge.

The mix design for a specified grade of concrete shall be done for a target mean compressive strength Tck =Fck + 1.65s
Where Fck = Characteristic compressive strength at 28 days.
s = Standard deviation which depends on degree of quality control.
The assumed standard deviation for different grades of concrete shall be as follows:

| GRADE OF CONCRETE | STANDARD DEVIATION |
|---|---|
| | |
| M-20 | 4.0 |
| M-25 | 4.0 |
| M-30 | 5.0 |
| M-35 | 5.0 |

However, actual standard deviation based on test strength of samples for each grade of concrete shall becalculated separately as per procedure laid down in clause 9.2.4 of Code of Practice IS 456:2000.

**TRIAL BATCHES**

i. The designed mix proportions shall be checked for target mean compressive strength by means of trial batches.

ii. Minimum three sets of separate preliminary tests shall be carried out for each trial batch of concrete mix. Each test shall comprise of six specimens and only one test-set of six specimens shall be made on any particular day.

iii. The quantities of materials for each trial mix shall be sufficient for at least six specimens (cubes) and the concrete required for carrying out workability tests.

iv. The workability of trial mix No.1 shall be measured and mix shall be carefully observed for freedom from segregation, bleeding and its finishing characteristics. The water content, if required, shall be adjusted corresponding to the required changes in the workability.

v. With the modified Water Content, the mix proportions shall be recalculated by keeping with water cement ratio unchanged. The mix proportion, as modified, shall form the Trial Mix No.2 and tested for the specified strength and workability.

vi. In addition, trial mix No.3 and 4 shall be designed by keeping water contents same as that determined fortrial mix 2 but varying the water cement ratio by +10 percent of the specified value and tested for their design characteristics.

vii. Out of the six specimen of each set, three shall be tested at seven days and remaining three at 28 days. The preliminary tests at seven days are intended only to indicate the strength to be attained at 28 days, while the design mix shall be approved only on the basis of test strength at 28 days.

**APPROVAL OF DESIGN MIX**

The design mix shall be considered satisfactory and approved if at least three preliminary test-setsindividually satisfy the following strength and workability criteria:

a. The average strength of each test-set is not less than the specified target mean compressive strength (Tck).

b. The strength of any specimen cube is not less than 0.85 Tck.

c. The concrete mix is of required degree of workability and acceptable concrete finish.

**BATCHING &MIXING**:

a. All design mix concrete shall be done using fully automatic computerized batching plant conforming to IS: 4925 of minimum 7.5 cum per hour capacity. The automatic batching plant shall be charged by devices when actuated by a single starter switch, will automatically start the weighing operation of each material (i.e. stone aggregate, sand, cement, water, admixture etc.) and stop automatically when designated weight of each material has been reached and also it should have rated capacity ( in terms of concrete in a single batch). It shall have control panel for operation of the batching plant complete with printing facility.

b. The contractor shall be free to use Ready Mix Concrete (RMC) in place of Batch mix concrete at his own cost. The contractor shall ensure that transit mixtures shall transport the concrete to site. All the precautions shall be taken during the transportation and handling of concrete to achieve the desired strength, durability, etc.as envisaged in the Mix Design. Contractor has to get the approval from Enginner Incharge regarding source of RMC by giving the details of such plants indicating name of owner/ company, its location, technical establishment, past experience and text of Memorandum of Understanding (proposed to be entered between purchaser and supplier). The Engineer Incharge, after satisfying himself about quality/ capability of the company shall give approval in writing (subject to drawing of MOU). The MOU shall be drawn with RMC plant owner/ company and submitted to Engineer Incharge within a week of such approval. The contractor will not be allowed to purchase RMC without completion of above formalities for use in the project. Not with standing the approval granted by Registrar in aforesaid manner, the contractor shall be fully responsible for quality of concrete including input control, production, transportation and placement etc. The Executive Engineer will reserve the right to deploy his supervisor at plant site to inspect at any such stage and reject the material/ concrete etc. if he is not satisfiedabout quality of material/ product.

c. All measuring equipment shall be maintained in a clean and serviceable condition and their accuracy shall be checked at least once a month.

d. Only single sized good quality stone aggregate shall be brought to site of work from the approved source. The grading of the stone aggregate shall be controlled by blending the aggregate of different sizes in the required proportions at site of work. The aggregate of different sizes shall be stock-piled separately, preferably a day before use. The grading of coarse and fine aggregates shall be checked as frequently as possible and as directed by the Engineer Incharge to ensure that the specified grading and quality of aggregate is maintained.

e. It is important to maintain the Water Cement Ratio constant at its specified or approved value by making adjustment for the moisture contents of both fine and coarse aggregates.

The moisture contents in the aggregate shall be determined as frequently as possible in keeping with the weather conditions and as per the provisions of IS: 2386 (Part-III).

**OTHER OPERATIONS**:

All other operations in concreting work like mixing, slump, laying, placing of concrete, compaction, curing etc. not mentioned in this particular specifications for Ready Mix Concrete/Batch mix concrete shall be as per NIT, Jalandhar Specifications.

**SAMPLING AND STRENGTH OF DESIGNED CONCRETE MIX**

**General**

Samples from fresh concrete shall be taken as per IS 1199 and cubes shall be made, cured and tested at 28 days in accordance with IS 516. 15.1.1 In order to get a relatively quicker idea of the quality of concrete,

optional tests on beams for modulus of rupture at 72 + 2 h or at 7 days, or compressive strength tests at 7 days may be carried out in addition to 28 days compressive strength test. For this purpose the values should be arrived at based on actual testing. In all cases, the 28 days compressive strength specified in Table 2 of code of practice, IS:456 2000 shall alone be the criterion for acceptance or rejection of the concrete.

**Frequency of Sampling**

**Sampling Procedure**
A random sampling procedure shall be adopted to ensure that each concrete batch shall have a reasonable chance of being tested that is the sampling should be spread over the entire period of concreting and coverall mixing units.

**Frequency**
The minimum frequency of sampling of concrete of each grade shall be in accordance with the following:

| Quantity of Concrete in the Work, m3 | Number of Samples |
|---|---|
| I - 5 | 1 |
| 6 - 15 | 2 |
| 16 - 30 | 3 |
| 31- 50 | 4 |
| 51 and above | 4 plus one additional sample for –each additional 50 m3 or part thereof |

**NOTE**- At least one sample shall be taken from each Shift. Where concrete is produced at continuous production unit, such as batch-mixed concrete plant, frequency of' sampling may be decided by Executive Enginner in such a manner so as to ensure that each concrete batch shall have a reasonable chance of being tested.

**Test Specimen**

Three test specimens shall be made for each sample for testing at 28 days. Additional samples may be required for various purposes such as to determine the strength of concrete at 7 days or at the time of striking the formwork, or to determine the duration of curing, or to check the testing error. Additional samples may also be required for testing samples cured by accelerated methods as described in IS 9103. Thespecimen shall be tested as described in IS 516.

**Test Results of Sample**
The test results of the sample shall be the average of the strength of three specimens. The individualvariation should not be more than ± 15 percent of the average. If more, the test results of the sample are invalid.

**ACCEPTANCE CRITERIA**

**Compressive Strength**
The concrete shall be deemed to comply with the strength requirements when both the following condition are met:

a. The mean strength determined from any group of four consecutive test results compiles with the appropriatelimits in col 2 of Table given under para 2.1.4 above.

b. Any individual test result complies with the appropriate limits in col 3 of Table given under para 2.1.4 above.

**Quantity of Concrete Represented by Strength Test Results**
The quantity of concrete represented by a group of four consecutive test-results shall include the batches from which the first and last samples were taken together with all intervening batches. Where the mean rate

of sampling is not specified the maximum quantity of concrete that four consecutive test results representshall be limited to 60 m3.

Concrete of each grade shall be assessed separately.

Concrete is liable to be rejected if it is porous or honey-combed, its placing has been interrupted without providing a proper construction joint, the reinforcement has been displaced beyond the tolerances specified, or construction tolerances have not been met. However, the hardened concrete may be accepted after carrying out suitable remedial measures to the satisfaction of the Engineer Incharge.

**MEASUREMENT**: C.P.W.D. Specifications 2019 Vol. I & II.

**TOLERANCES**: C.P.W.D. Specifications 2019 Vol. I & II.

**RATES**:

i. The rate includes the cost of materials, labour and T&P, including mixing, placing, transportation involved in all the operations described above except for the cost of centring, shuttering & reinforcement which will be paid for separately.

ii. In case of rejection of concrete on account of unacceptable compressive strength, governed by para "Standard of Acceptance" as above, the work for which samples have failed shall be redone at the cost of contractor. However, the Registrar may order for additional tests (like cutting cores, ultrasonic pulse velocity test, load test on structure or part of structure, etc.) to be carried out at the cost of contractor to ascertain if the portion of structure wherein concrete represented by the sample has been used, can be retained on the basis of results of individual or combination of these tests. The Contractor shall take remedial measures necessary to retain the structure as approved by the Registrar without any extra cost. However, for payment,the basis of rate payable to contractor shall be governed by the 28 days cube test results and reduced rates shall be regulated in accordance with NIT, Jalandhar Specifications.

**RCC WORK (ORDINARY)**

The work shall be done in accordance with C.P.W.D. Specifications 2019 Vol. I & II.

Water Cement ratio for Ordinary RCC work shall not be more than 0.5. Contractor shall use concrete mixture of proper design having arrangement for measuring water for mixing of concrete.

**FORM WORK**

The work shall be done in general as per C.P.W.D. Specifications 2019 Vol. I & II.

Only M.S. centering/ shuttering and scaffolding material unless & otherwise specified shall be used for all R.C.C. work to give an even finish of concrete surface. However, marine-ply shuttering in exceptional cases as per site requirement may be used on specific request from contractor to be approved by the Registrar.

Nothing extra shall be paid for the centering and shuttering, circular in shape whenever the formwork is having a mean radius exceeding 6m in plan.

Nothing extra shall be paid for grid beams and the corresponding slabs having clear span more than 1.20 meters.

In order to keep the floor finish as per architectural drawings and to provide required thickness of the flooring as per specifications, the level of top surface of R.C.C. shall be accordingly adjusted at the time of its centering, shuttering and casting for which nothing extra shall be paid to the Contractor except the places where different type of flooring is provided in the same room.

As per general engineering practice, level of floors in toilet/ bath, balconies, shall be kept 12 to 20 mm or as required, lower than general floors shuttering should be adjusted accordingly. Nothing extra is payable onthis account.

Steel shuttering as approved by the Engineer Incharge shall be used by the contractor. Minimum size of shuttering plates shall be 600 mm x 900 mm except for the case when closing pieces are required to complete the shuttering panels.

Dented, broken, cracked, twisted or rusted shuttering plates shall not be allowed to be used on the work.

The shuttering plates shall be cleaned properly with electrically driven sanders to remove any cement slurry or cement mortar or rust. Proper shuttering oil or de-bonding compound shall be applied on the surface of the shuttering plates in the requisite quantity before assembly of steel reinforcement.

**REINFORCEMENT**:

The reinforcement shall be done as per C.P.W.D. Specifications 2019 Vol. I & II.

The rate of item of reinforcement of RCC work includes all operations including straightening, cutting, bending, welding, binding with annealed steel or welding and placing in position at all the floors with all leads and lift complete as per C.P.W.D. Specifications 2009 Vol. I & II.

The contractor shall provide approved type of support for maintaining the bars in position and ensuring required spacing and correct cover of concrete to reinforcement as called for in the drawings, spacer blocksof required shape and size. Chairs and spacer bars shall be used in order to ensure accurate positioning of reinforcement. Spacer blocks shall be cast well in advance with approved proprietary pre-packed free flowing mortars (Conbextra as manufactured by M/S Fosroc Chemicals India Ltd. **or approved equivalent**) of high early strength and same color as surrounding concrete. However, Cover Guard Bars shall also be used to maintain proper cover of RCC Columns in addition to spacer blocks as mentioned above. The rate of RCC items is inclusive of cost of such cover blocks & Cover Guard Bars.

**PRE-CAST RCC WORK**

The work shall be done in accordance with C.P.W.D. Specifications 2019 Vol. I & II..

Pre-cast reinforced concrete units shall be of grade or mix as specified. Provision shall be made in the mould to accommodate fixing devices such as hooks etc. and forming of notches and holes. Each unit shall be cast in one operation. A sample of the unit shall be got approved from Executive Engineer before taking up the work.

Pre-cast units shall be clearly marked to indicate the top of member and its location.

Pre-cast units shall be stored, transported and placed in position in such a manner that these are not damaged.

The compaction of the concrete shall be done by vibrating, table or external vibrator, as approved by Engineer incharge. The rate quoted for the item shall include the element for framework and mechanical vibration.

Rate for item includes cost of all materials. labour, and all operations involved. Cost of M.S. frames, lugs including their welding, lifting hooks is also included.

In the item of providing and fixing precast reinforced cement concrete in shelves the cost of cutting chases and making good the same shall be inclusive in the item and nothing extra shall be paid on this account.

**BRICK WORK**:

The brickwork shall be carried out with good quality well burnt FPS bricks of class designation 7.5 as per C.P.W.D. Specifications 2019 Vol. I & II. Exposed brick work for ground level to plinth level shall be executedwith selected FPS bricks of class designation 7.5.

The rate shall also include for leaving chases/ notches for dowels/ cramps for all kinds of cladding to come over brick work.

Brick work provided around shaft or lift walls or around slab cutouts shall be measured in the brick for corresponding floor level. Nothing extra shall be paid on this account.

M.S. Strip/ Bar provided at every third course of half brick masonry shall be in single piece. If required, welding joint can be used without overlaps. Nothing extra shall be paid for welding and overlaps.

4.0 **PRECAST CEMENT CONCRETE BLOCKS**:

Machine moulded precast cement concrete blocks of mix 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate of nominal size 20 mm) shall conform to C.P.W.D. Specifications 2019 Vol. I & IIvolume-I 2019 with up to date correction slips as applicable to cement concrete work (chapter-IV). These precast cement concrete solid blocks shall be manufactured & tested as per IS 2185 (Part-1): 2005. The 28 days compressivestrength of these solid concrete blocks shall be 10 N/mm. All other parameters including physical requirements thereof except compressive strength as aforesaid shall conform to IS 2185 (Part-1): 2005.

**STONE/ MARBLE WORK**

**General**: The execution of stones work shall be in general as per C.P.W.D. Specifications 2019 Vol. I & II (Volume-I) 2019 with up-to-date correction slips.

**GRANITE/ MARBLE WORKS**

The granite/ marble stonework shall, in general, be carried out as per the C.P.W.D. Specifications 2019 Vol. I & II. The specifications for dressing, laying, curing, finishing, measurements, rate etc. for the granite/ marblestone flooring shall be same as that of works for the Marble flooring, skirting and risers of steps under Flooring Sub Head of the C.P.W.D. Specifications 2019 Vol. I & II. The wall lining / veneer work with granite/ marble stone shall be as per the C.P.W.D. Specifications 2009 Vol. I & II for Marble work Sub Head.

The decision of the Engineer Incharge as regards the approval of the samples for the various types of the granite/ marble stones shall be final and binding on the Contractor. No claim of any kind whatsoever shall be entertained from the Contractor on this account. The Contractor shall then procure and get the mock up prepared at site of work for approval of quality of workmanship and the granite/ marble stone as specified. The mock up shall be prepared in lift lobby, toilet etc. on one of the floors. The size of the stones shall be as per the architectural drawings. If the quality of the workmanship and the material is as per the required standards, the mock up shall be allowed as part of the work and measured for payment and shall not be dismantled. Otherwise, it shall be dismantled by the contractor as directed by the Engineer Incharge and taken away from the site of the work at his own cost. Nothing extra shall be payable on this account.

That the curvilinear profile of the entrance steps for the building shall be negotiated in segmental manner (using trapezoidal shaped granite stone pieces with straight edges for treads and rectangular stone pieces forthe risers) and not in curved profiles as specified earlier. However the granite/ marble stone slabs shall be cut to required sizes and shapes, as per the architectural drawings, to negotiate the curved steps in segmented manner. The risers shall also be cut to required sizes and shapes and the edges chamfered at the joints, allow per the architectural drawings. However, the Contractor shall prepare the detailed shop drawings for the same and commence work only after the approval by the Executive Engineer. The rate shall also include any

consequent wastage, incidental charges involved in this work. Nothing extra shall be payable on this account.For the purpose of payment, the actual area of each type of granite/ marble stone as laid shall be measured.

For the steps (risers and treads) in the linear profile, the granite/ marble stone shall be provided in single pieces up to 2.0m as per the architectural drawings, unless otherwise specifically permitted by the Engineer Incharge. Wherever grooves are required to be provided the same is to be done as per architectural drawings and as directed by the Engineer Incharge. Wherever required, the joints shall be provided as per the architectural drawings. Nothing extra shall be payable on these accounts.

The granite/ marble slabs used for providing and fixing in the sills, soffits and jambs of doors, windows, ventilators and similar locations shall be in single piece unless otherwise directed by the Engineer Incharge. Wherever stone slab other than in single piece is allowed to be fixed, the joints shall be provided as per the architectural drawings and as per the directions of the Engineer Incharge. In the cabin areas, the joints in sills shall preferably be provided in line with the partition wall. Depending on the number of joints, as far as possible, the stone slabs shall be procured and fixed in slabs of equal lengths as per the architectural drawings and as directed by Executive Engineer.

While fixing the granite/ marble slabs in sills, soffits and jambs of doors, windows, ventilators etc., rebates shall be made by overlapping the stones at the required places for fixing shutters for doors, windows and ventilators etc. as shown in the architectural drawings and as per the directions of the Engineer Incharge. Epoxy basedadhesives shall be used for fixing the granite/ marble stones to each other, or wherever required. The authorized overlap as per the architectural drawings or as directed by the Executive Enginner shall be measured for payment under the same item. However, any extra mortar thickness required due to the overlap arrangement shall be deemed to have been included in the rate of this item. Nothing extra shall be payable on thisaccount. The granite/ marble stone slab shall be fixed over low level storage cabinets using necessary adhesive as per the manufacturer's specification. The stone shall have uniform thickness and shall be provided in sizes as per the architectural drawings. The stone slab shall have uniformly leveled surface after fixing. All the joints shall be finished smoothly in a workmanlike manner.

The granite/ marble work shall be adequately protected by a layer of Plaster of Paris, which shall be maintained throughout and removed just before handing over of the works for which nothing extra shall be payable.

**SAMPLES FOR STONE WORK**

Samples of each item of stone work either individually or in combination shall be prepared for approval of Executive Enginner before commencement of work.

**WOOD WORK**

The wood work in general shall be carried out as per C.P.W.D. Specifications 2019 Vol. I & II with up-to-datecorrection slips

The sample of timber to be used shall be deposited by the contractor with Executive Engineer before commencement of work

The shape and size of beading shall be as per drawings. The joints of beading shall be mitred.

Timber shall be of specified species, good quality and well seasoned. It shall have uniform color, reasonably straight grains and shall be free from knots, cracks, shakes and sapwood. It shall be close grained. The contractor shall deposit the samples of species of timber to be used with the Engineer Incharge for testing before commencement of the work.

Wood work shall not be painted, oiled or otherwise treated before it has been approved by the Engineer Incharge. All portion of timber including architrave abutting against masonry, concrete, stone or embedded in ground shall be painted with approved wood preservative or with boiling coal tar.
The contractor(s) shall produce cash voucher and certificates from approved Kiln Seasoning Plants about the timber used on the work having been kiln seasoned and chemically treated by them, falling which it would not be so accepted as kiln seasoned and/or chemically treated.

**Deleted.**

Factory made wooden flush door shutters shall be carried out as per C.P.W.D. Specifications 2019 Vol. I & II(Volume-I, 2019 with upto date correction slips).

The work shall be executed through specialized agencies to be approved by the Executive Engineer.

The contractor shall propose well in advance to Executive Engineer, the names and address of the factory where from the contractor intends to get the shutters manufactured along with the credential of the firm. The contractor shall place the order for manufacturing of shutters only after obtaining approval of the Engineer Incharge whose decision in this case shall be final & binding. In case the firm is not found suitable he shall propose another factory. The factory may also be inspected by a group of officers before granting approval; shutters shall however he accepted only if these meet the specified test.

Contractor will arrange stage wise inspection of the shutters at factory by the Engineer Incharge or his authorized representative. The contractor will have no claim if the shutters brought at site in part or full lot are rejected by the Engineer Incharge due to bad workmanship / quality. Such defective shutters will not be measured and paid. The contractor shall remove the same from the site of work within 7 days after the written instruction in this regard are issued by the Executive Engineer.

The shutters should be brought at site without primer / painting.

7.0 **STEEL WORK**

All steel work shall be carried out as per C.P.W.D. Specifications 2019 Vol. I & II. (Volume-1) 2019 with up-to-date correction slips.

**FLOORING**

All work in general shall be carried out as per C.P.W.D. Specifications 2019 Vol. I & II(Volume-1) 2019 with up-to-date correction slips.
Whenever flooring is to be done in patterns of tiles and stones, the contractor shall get samples of each pattern laid and approved by the Engineer Incharge before final laying of such flooring. Nothing extra shall be payable on this account.

Different stones/ tiles used in pattern flooring shall be measured separately as defined in the nomenclature ofthe item and nothing extra for laying pattern flooring shall be paid over and above the quoted rate. No additional wastage, if any, shall be accounted for any extra payment.

Samples of flooring stones/ Tile (Kota/ Marble/ Granite/ Ceramic tiles/ Vitrified tiles etc.) shall be deposited well in advance with the Engineer Incharge for approval. Approved samples should be kept at site with the Engineer Incharge and the same shall not be removed except with the written permission of Engineer Incharge. No payment whatsoever shall be made for these samples.

The Marble/ Kota/ Granite or any other stone shall be fully supported by the details establishing the quarry and its location.

Full width Marble/ Kota/ Granite stone over kitchen platform shall be provided which shall not be less than 900 mm long except to adjust for closing pieces. The marble/ stone flooring in treads and risers of staircase

shall not be less than 1500 mm long except to adjust the closing pieces. Nothing extra shall be paid on these accounts

**Vitrified Tile Flooring**

The tiles shall be of approved make and shall generally conform to Table 12 of IS 15622.The full body Vitrified tiles of specified sizes shall be used & sample of tiles shall be got approved from the Engineer Incharge. The Mandatory tests for vitrified tiles shall be got done as per C.P.W.D. Specifications 2019 Vol. I & II (volume- 1)/relevant BIS Code.

**Ceramic Tiles Flooring**

i. The tiles shall be procured from the approved manufactures of the specified shade &color.
ii. The floor & wall tiles shall be conforming to IS: 15622 for floor and wall tiles respectively.
iii. Tiles for dado shall be 300 mm x 600 mm (minimum size) or more (GROUP: B-III) as approved.
iv. Tiles for flooring shall be 300 mm x 300 mm (minimum size) or more (GROUP: B-II for commercial application) as approved.
v. Test shall be conducted to satisfy the quality of material as per NIT, Jalandhar Specifications

The rate of items of flooring is inclusive of providing sunken flooring in bathrooms, kitchen etc. and nothing extra on this account is admissible. The proper gradient shall be given to flooring for toilets, verandah, kitchen, courtyard, etc. as per the directions of Engineer Incharge.

**WATER PROOFING FOR SUNKEN FLOORS**:

The work shall be got executed from the specialized agency, if the contractor does not have specialization in Water Proofing Works.

Total quantity of the water proofing compound required shall be arranged only after obtaining the prior approval of the make by Engineer Incharge in writing. Materials shall be kept under double lock and key and proper account of the water proofing compound used in the work shall be maintained. It shall be ensured that the consumption of the compound is as per specified requirements.

The finished surface after water proofing treatment shall have adequate smooth slope as per the direction of the Engineer Incharge.

Before commencement of treatment on any surface, it shall be ensured that the outlet drain pipes/ spouts have been fixed and the spout openings have been chased and rounded off properly for easy flow of water.

**GUARANTEE BOND FOR ALL WATER PROOFING ITEMS**:

Ten years Guarantee bond in prescribed proforma at **Sheet No.54** shall be submitted by the contractor which shall be signed by the contractor to meet their liability/ liabilities under the guarantee bond. However, the sole responsibility about efficiency of water proofing treatment shall rest with the contractor. 10% (Ten per cent) of the cost of water-proofing work shall be retained as Security Deposit and the amount so deducted would be released after ten years from the date of completion of the entire work under the agreement, if the performance of the treatment is found satisfactory. If any defect is noticed during the guarantee period, the contractor shall rectify it within 15 days of receipt of intimation of defects in the work.If the defects pointed out are not attended to within the specified period, the same will be got done from another agency at the risk and cost of contractor.

**FINISHING**:

The work shall be done in accordance with C.P.W.D. Specifications 2019 Vol. I & II(Volume-II) 2019 with up-to-date correction slips and/or manufacturers specifications wherever applicable.

All painting material of approved brand and manufacturer shall be brought to the site of work in the original sealed containers. The material brought to the site of work shall be sufficient for at least 30 days of work. The material shall be kept under the joint custody of contractor and representative of the Registrar. The empty containers shall not be removed from the site till the completion of the work without permission of the Registrar.

In the item of finishing walls with water proofing cement paint, only the plain/flat area shall be measured for payment and nothing extra shall be paid on account of pointed wall surface.

**SANITARY INSTALLATIONS/ WATER SUPPLY/ DRAINAGE**:

The contractor shall submit schematic drawing of water supply and sanitary installation showing details of layout, including internal water supply and drainage details, showing the detail of water supply lines including fittings diameter wise and fixtures connecting to soil waste through traps and connection of W.C. to main shaft pipe for drainage including its ventilation system for approval of Executive Engineer.

For the work of water supply and sanitary installations, the contractor shall engage the approved licensed plumbers and submit the name of proposed plumbing agencies with their credentials for approval of the Executive Engineer.

The work in general shall be carried out as per C.P.W.D. Specifications 2019 Vol. I & II(Volume II) 2019 with up-to-date correction slips.

The tendered rates shall include the cost of cutting holes in walls, floors, RCC slabs etc. wherever required and making good the same for which nothing extra shall be paid.

The Centrifugally spun cast iron pipe IS: 3989-1984 wherever necessary shall be fixed to RCC columns,beams etc. with rawl plugs of approved quality and nothing extra shall be paid for on this account.

The pig lead to be used in the jointing should be as per C.P.W.D. Specifications 2019 Vol. I & II.

Nothing extra for providing & fixing CP Brass caps/extension pieces wherever required for CP Brass fittings shall be paid beyond the rates payable for corresponding CP Brass fittings.

12. **Aluminium work**

Aluminum doors, windows, ventilators etc. glazing specifications

**Extent and Intent**:The work shall be carried out in the factory through Special Agency, who shall furnish all material, labour, accessories, equipment, tool and plants and incidentals required for providing and installing anodized/powder coated aluminum doors, windows, claddings, louvers and other items as called for on the drawings. The drawings and specifications cover the major requirements only. The supplying of additional fastenings, accessories, fixtures and other items not mentioned specifically herein, but which are necessary to make a complete installation shall be a part of this contract. Hinges for openable panel shall be stainless steel friction hinges/ stays selected for specified wind load and dead loads or specifically extruded in-built hinges.

**General**: Aluminum doors, windows etc. shall be of sizes, section details as shown on the Architectural drawings. The details shown on the drawings indicate generally the sizes of the component parts and general standards. These may be varied slightly to suit the standard adopted by the manufacturers. Before proceeding with any manufacturing, the contractor shall prepare and submit complete manufacturing and installation drawings for approval of the Engineer Incharge and no work shall be performed until the approval of these drawings is obtained.

**Shop Drawings**: The contractor shall submit the shop drawings of doors, windows, louvers, cladding and other aluminum work, based on the architectural drawings to the Engineer Incharge for his approval. The shop

drawing shall show full size sections of doors, windows etc. thickness of metal (i.e. wall thickness) details of construction, sub frame/rough ground profile, anchoring details hardware as well as connection of windows, doors and other metal work to adjacent work. Samples of all joints and methods of fastening and joining shallbe submitted to the Engineer Incharge for approval well in advance of commencing the work.

**Samples**: Samples of doors, windows louvers etc. shall be fabricated, assembled in the factory and submitted to Registrar for his approval. They shall be of sizes, types etc. as decided by Engineer Incharge. All samples shall be provided at the cost of the contractor.

**Sections**: Aluminum doors and windows shall be fabricated from extruded sections of profiles as detailed on drawings. The sections shall be extruded by the manufacturers approved by the Engineer Incharge. The aluminum extruded sections shall conform to BIS designation IIE/IIV 9 WP alloy, with chemical composition technical properties, as per IS: 733 and IS: 1285. The permissible tolerance of the extruded sections shall be such as not to impair the proper and smooth function/ operations and appearance of doors and windows.

**Fabrication**: Doors, windows etc. shall be fabricated to sizes at factory and shall be of section, sizes, combinations and details as shown on the drawings. All doors, windows etc. shall have mechanical joints. Thejoints shall be designed to withstand a minimum wind load of 150 Kg. per Sqm. The design shall also incur that the maximum deflection of any member shall not exceed 1/175 of the span of the member. All members shall be accurately machined and fitted to form hairline joints prior to assembly. The joints accessories such as cleats, brackets etc. shall be of such material as not to cause any bimetallic action. The design of the jointsand accessories shall be such that the accessories are fully concealed. The fabrication of doors, windows, etc. shall be done in suitable sections to facilitate easy transportation, handling and installation. Adequate provision shall be made in the door and window members for anchoring to support and fixing of hardwareand other fixture as approved by the Architect.

**Anodizing/ powder coating**: All aluminum sections shall be Powder coated (minimum 50 micron thickness) as per requirement as per IS: 7088 and to required color as specified in the item as per IS: 1868 grading as specified in item schedule after cutting the member to requisite sizes before the final assembly. Powder coating shall be of minimum 50 micron thickness. Anodizing confirming to specified grade with minimum average thickness of 15 microns when measured as per IS: 612. The anodic coating shall be properly sealed by steams or in boiling water are cold sealing process as per IS:1868/IS: 6057. Polythenetape protection shall be applied on the anodized section before they are brought to site. All care shall be taken to ensure surface protection during transportation, storage at site and installation. The tape protection shall be removed on installation. The sample will be tested in the approved laboratory and cost of samples; etc. shall be borne by the contractor.

**Protection of finish**: All aluminum members shall be wrapped with approved self-adhesive non-staining PVC tapes.

**Handling and Stacking**:

i. Fabricated materials shall be carried in an approved manner to protect the material against any damage during transportation. The loading and unloading shall be carried out with utmost care. On receipt of materialat site, it shall be carefully examined to detect any damaged pieces. Arrangements shall be made for expeditious replacement of damaged pieces/ parts. Materials found to be acceptable on inspections shall be repacked in crates and stored safely.

ii. In the case of composite windows and doors, the different units are to be assembled first. The assembled composite units should be checked for line, level and plumb before final fixing is done. Units may be serial numbered and identified as out how to be assembled in their final locations if situation so warrants.

iii. The contractor shall be responsible for assembling composite, bedding and filling the grove with polysulphide sealant inside and outside, at transoms and mullions placing the doors, windows etc. in their respective openings. After the doors/ windows have been fixed in their correct assigned position, the open hollow sections abutting masonry concrete shall be fitted with approved polysulphide sealant densely packed and finished neat.

iv. The contractor shall be responsible for doors, windows, etc. being set straight, plumb, level and for their satisfactory operation after fixing is complete.

**Installation**:

Just prior to installation the doors, windows, etc. shall be uncreated and stacked on edge on level bearers and supported evenly. The frame shall be fixed into position true to line and level using adequate number of expansion machine bolts, anchor fasteners, of approved size and manufacture and in an approved manner. The holes in concrete/masonry members for housing anchor bolts shall be drilled with an electric drill.

The door/ windows assembled as shown on drawings shall be placed in correct final position on the opening and marks made on concrete members at jambs, sills and heads against the holes provided in frames for anchoring. The frame shall then be removed from the opening and laid aside. Neat holes with parallel sidesof appropriate size shall then be drilled in the concrete members with an electric drill at the marking to house the expansion blots. The expansion bolts shall then be inserted in the holes, struck with a light hammer tillthe nut is forced into the anchor shell. The frame shall then be placed in final position in the opening and anchored to the support thought cadmium plated machine screws of required size and anchored to the support through cadmium plated machine screws of required size threaded to expansion bolts. The frame shall be set in the opening by using wooden wedges at supports and be plumbed in position. The wedges shall invariably be placed at the meeting at points of glazing bars and frame.

**EPDM Rubber/ Neoprene gaskets**: The contractor shall provide and install EPDM Rubber/ Neoprene gaskets of approved size and profile at all locations as shown and as called for to render the doors, windows etc. absolutely air tight and weather tight. The contractor shall produce samples of the gaskets for approval and shall procure the same after approval only.

**Fittings**: Hinges, stays, handles, tower bolts, locks and other fittings shall be of quality and manufacturer as approved by the Engineer Incharge.

**Manufacturer's Attendance**: The manufacturer immediately prior to the commencement of glazing shall adjust and set all windows and doors and accept responsibility for the satisfactory working of the opening frames.

**Poly-sulphide**: The gaps between frames and supports and also any gaps in the door and windows sections shall be raked out as directed and filled with poly-sulphide of approved color and make to ensure complete water tightness. The poly-sulphide shall be of such color and composition that it would not stain the masonry/concrete work, shall receive paint without bleeding, will not sag or run and shall not set hard or dry out under any conditions of weather. The sample of poly-sulphide to be used for this purpose shall be got approved from the Engineer Incharge before its actual use.

**Details of Test**:

The various tests on aluminum sections shall be conducted in accordance with the relevant IS codes.

The minimum number of tests for anodizing/powder coating and corrosion resistance shall be as given below:

| S.No. | Details | No. of Tests |
|---|---|---|
| 1. | Doors, windows and ventilators | One test for every 1000 kg or part thereof. |

The samples of major member of each unit of doors/ windows shall be selected at random by Engineer Incharge as such that all the aluminum section shall be got tested.

**Acceptance Criteria**: The entire responsibility for the quality of work will however rest with the building contractor only. The aluminum work shall carry Two years guarantee after completion of work against unsound material, workmanship and defective anodizing/ powder coating as per Guarantee Bond. Two years guarantee in prescribed Performa attached must be given by the specified firm, which shall be counter signed by the contractor, in token of his overall responsibility. 10% (ten percent) of the cost of these items would be retained as security deposit and the amount so deducted would be released after two years from the date of completion of the entire work under the agreement, if the performance of the items is found satisfactory. If any defect is noticed during the guarantee period, the contractor should rectify it within seven days and if notattended to the same will be got done from another agency at the risk and cost of contractor. However, this security deposit can be released in full if bank guarantee of equivalent amount is produced and deposited with the department.

**Rates**:

The rates of the item shall include the cost of materials, labour required in all the above operations.

The rates exclude the cost of stainless steel friction hinges/ stays selected for specified wind load and dead loads or specifically extruded in-built hinges, and rest of the fittings shall also be paid separately.

13.0 **List of Bureau of Indian Standards Codes**

All equipment, supply, erection, testing and commissioning shall comply with the requirements of Indian Standards and code of practices given below as amended up to date. All equipment and material being supplied by the contractor shall meet the requirements of IS. Tariff advisory committee's regulation (fire insurance), electrical inspectorate and Indian Electricity rules and other Codes/ Publications as given below:

| | | |
|---|---|---|
| 1. | Pipes and Fittings | |
| | IS: 458, (2003) amendment 1, Active August 2011 | Specification for precast concrete pipes (with andwithout reinforcement) |
| | IS: 651 ( 2007 ) amendment 1, Active August 2011 | Salt glazed stone ware pipes and fittings'. |
| | IS: 1239 (Part 1) 2004, amendment 4, Active August 2011 | Mild steel, tubes, tubular and other wrought steelfittings: Part 1 Mild Steel tubes. |
| | IS: 1239 (Part 2), 1992, amendments 7, Active August 2011 | Mild Steel tubes, tubular and other wrought steel fittings: Part 2 Mild Steel tubular and other wroughtsteel pipe fittings. |
| | IS: 1536, 2001, amendment 4, active August 2011 | Centrifugally cast (spun) iron pressure pipes for water, gas and sewage. |
| | IS: 1537, 1976, amendment 6, active August 2011 | Vertically cast iron pressure pipes for water, gasand sewage. |
| | IS: 1538 1993, amendments 4, Active august 2011 | Cast Iron fittings for pressure pipes for water, gasand sewage. |
| | IS: 1729, 2002 ,amendments 4, active, August 2011 | Cast iron/ / Ductile Iron drainage pipes and pipes fittings for over ground Non pressure pipe line socket and spigot series. |
| | IS: 1879, 2010, active August 2011 | Malleable cast iron pipe fittings. |
| | IS: 2643 (Part 1) 2005 , active August 2011 | Dimensions for pipe threads for fastening purposes:Part 1 Basic profile and dimensions. |
| | IS: 2643 (Part 2) | Dimensions for pipe threads for fastening purposes:Part 2 Tolerances. |
| | IS: 2643 (Part 3) | Dimensions for pipe threads for fastening purposes:Part 3 Limits of sizes. |

| | | |
|---|---|---|
| | IS: 3468,1991, amendment 1, Active August 2011 | Pipe nuts. |
| | IS: 3589, 2001 ,amendments 4 , Active August 2011 | Seamless or electrically welded steel pipes for water, gas and sewage (168.3 mm to 2032 mm outside diameter). |
| | IS: 3989, 1984, amendments 5 , Active 2011 | Centrifugally cast (spun) iron spigot and socket soil, waste and ventilating pipes, fittings and accessories. |
| | IS: 4346, 1982, Active August 2011 | Specifications for washers for use with fittings forwater services. |
| | IS: 4711,2008, amendments 1, Active August 2011 | Methods for sampling steel pipes, tubes and fittings. |
| | IS: 6392, 1971,amendments1,Active August 2011 | Steel pipe flanges |
| | IS: 6418, 1971, Active August 2011 | Cast iron and malleable cast iron flanges for general engineering purposes. |
| | IS: 7181,1986 amendments 3, Active August 2011 | Specification for horizontally cast iron double flanged pipe for water, gas and sewage. |
| 2. | Valves | |
| | IS: 778,1984, amendments 3, Active August 2011 | Specification for copper alloy gate, globe and checkvalves for water works purposes. |
| | IS: 1703,2000,amendments1 Active August 2011 | Specification copper alloy float valves (horizontal plunger type) for water supply fittings. |
| | IS: 3950,yr(1979), amendments 1, Active August 2011 | Specification for surface boxes for sluice valves. |
| | IS: 5312 (Part 1),yr(2004),amendments 2, Active August 2011 | Specification for swing check type reflux (non return) valves: part 2 Multi door pattern. |
| | IS: 5312 (Part 2),yr(1986), Active August2011 | Specification for swing check type reflux (non return) valves: part 2 Multi door pattern. |
| | IS:12992(Part1), yr(1993), Active August 2011 | Safety relief valves, spring loaded : Design |
| | IS:13095, yr (1991), amendments 1, Active August 2011 | Butterfly valves for general purposes. |
| 4. | Pumps & Vessels | |
| | IS: 2002, yr (2009), Active August 2011 | Steel plates for pressure vessels for intermediateand high temperature service including boilers. |
| | IS: 2825 Yr.1969, amendments 5, Active August 2011 | Code for unfired pressure vessels. |
| | IS: 4648 (Part 1) Yr.1968, amendments 1, Active August 2011 | Code of practice for Electrical layout in residentialbuilding. |
| | IS: 5600, yr 2002,Active August 2011 | Specification for sewage and drainage pumps |
| | IS: 8034 Yr. 2002, amendments 2, Active August 2011 | Specification for submersible pump sets for clear,cold, fresh water. |
| | IS: 8418 Yr.1999 amendment 1, Active August 2011 | Specification for horizontal centrifugal self-priming pumps. |
| 5. | **General** | |
| | SP: 6 (1) | Structural Steel Sections |
| | IS: 325 Yr. 1996, amendments, Active August2011 | Three Phase Induction Motors |
| | IS: 554 Yr.1999, amendments 1, Active August 2011 | Dimensions for pipe threads where pressure tightjoints are required on the threads. |
| | IS: 694 Yr. 2010, amendments 5, Active August 2011 | PVC insulated cables for working voltages up to& including 1100 V. |

| | | |
|---|---|---|
| | IS: 779 Yr.1994, amendments 5, Active August 2011 | Specification for water meters (domestic type). |
| | IS: 782 Yr.1978, Active August 2011 | Specification for caulking load. |
| | IS: 800 Yr.2007, Active August 2011 | Code of practice for general construction in steel |
| | IS: 1068 Yr.1993, amendments 1 Active August 2011 | Electroplated coatings of nickel plus chromium andcopper plus nickel plus chromium. |
| | IS: 1172Yr.1993, Active August 2011 | Code of Basic requirements for water supply drainage and sanitation. |
| | IS: 1367 (Part 1)Yr.2002, Active August 2011 | Technical supply conditions for threaded steelfasteners: Part 1 introduction and general information. |
| | IS: 1367 (Part 2)Yr.2002, Active August 2011 | Technical supply conditions for threaded steel fasteners: Part 2 product grades and tolerances. |
| | IS: 1554 (Part 1) Yr.1988, amendments 4 Active August 2011 | PVC insulated (heavy duty) electric cables: Part 1for working voltages upto and including 1100 V. |
| | IS: 1554 (Part 2)Yr.1988, amendments 3 Active August 2011 | PVC insulated (heavy duty) electric cables: Part 2 for working voltages from 3.3 KV upto and including 11 KV. |
| | IS: 1726Yr.1991, Active August 2011 | Specification for cast iron manhole covers and frames. |
| | IS: 1742Yr.1983, Active August 2011 | Code of practice for building drainage. |
| | IS: 2064Yr.1993, Active August 2011 | Selection, installation and maintenance of sanitary appliance code of practice. |
| | IS : 2065Yr.983, Active August 2011 | Code of practice for water supply in buildings. |
| | IS : 2373Yr.1981, amendments 3 Active August 2011 | Specification for water meter (bulk type) |
| | IS : 2379 Yr.1990, amendments 1 Active August 2011 | Color code for identification of pipe lines. |
| | IS : 2527Yr.1984, Active August 2011 | Code of practice for fixing rainwater gutters and down pipes for roof drainage. |
| | IS : 2629 Yr.1985, amendments 3 Active August 2011 | Recommended practice for hot dip galvanizing oniron and Steel. |
| | IS : 3114Yr.1994, Active August 2011 | Code of practice for laying of cast iron pipes |
| | IS : 4111 (Part 1)Yr.1986, Active August 2011 | Code of practice for ancillary structures in sewerage system: Part 1 manholes. |
| | IS : 4127Yr.1983, Active August 2011 | Code of practice for laying glazed stoneware pipes. |
| | IS : 4853Yr.982, Active August 2011 | Recommended practice for radiographic inspectionof fusion welded butt joints in steel pipes. |
| | IS : 5329Yr.1983, Active August 2011 | Code of practice for sanitary pipe work above ground for buildings. |
| | IS : 5455Yr.1969, Active August 2011 | Cast iron steps for manholes. |
| | IS : 6159Yr.1998, Active August 2011 | Recommended practice for design and fabrication of material, prior to galvanizing. |
| | IS : 7558Yr.974, Active August 2011 | Code of practice for domestic hot water installations. |
| | IS : 8419 (Part 1)Yr.1977, Active August 2011 | Requirements for water filtration equipment: Part 1 Filtration medium sand and gravel. |
| | IS : 8419 (Part 2)Yr.1984, Active August 2011 | Requirements for water filtration equipment: Part 2 |

| | | |
|---|---|---|
| | | under drainage system. |
| | IS : 9668Yr.1990, Active August 2011 | Code of practice for provision and maintenance of water supplies and fire fighting. |
| | IS : 9842 Yr.1994,amendments 2 Active August 2011 | Preformed fibrous pipe insulation. |
| | IS : 9912Yr.1981, Active August 2011 | Coal tar based coating materials and suitable primers for protecting iron and steel pipe lines. |
| | IS : 10221Yr.2008, Active August 2011 | Code of practice for coating and wrapping of underground mild steel pipelines. |
| | IS : 10446Yr.1983, Active August 2011 | Glossary of terms relating to water supply andsanitation. |
| | IS : 11149 Yr.1984,amendment 1 Active August 2011 | Rubber Gaskets |
| | IS : 11790Yr.1986, Active August 2011 | Code of practice for preparation of butt-welding ends for pipes, valves, flanges and fittings. |
| | IS : 456, 2000 | Code of practice for Plain and RCC construction |

**Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY**
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**EPABX-0181-2690301 & 453 website: www.nitj.ac.in email: registrar@nitj.ac.in**

**Form of Earnest Money DepositBank Guarantee Bond**

WHEREAS, contractor. .....(Name of contractor) (hereinafter called "the contractor") has submitted his tender dated ..... (date) for the construction of .....(name of work) (hereinafter called "the Tender")

KNOW ALL PEOPLE by these presents that we ..... registered office at ..... (hereinafter called "the Bank") are bound unto **Director, Dr. B R Ambedkar National institute of Technology, Jalandhar** in the sum of Rs. ..... (Rs. in words .....) for which payment well and truly to be made to the said **Director, Dr. B R Ambedkar National institute of Technology JALANDHAR** the Bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this ..... day of ..... 20..... THE CONDITIONS of this obligation are:

(1) If after Technical Bid opening of tender; the Contractor withdraws, his tender during the period of validity of tender (including extended validity of tender) specified in the Form of Tender;

(2) If the contractor having been notified of the acceptance of his tender by the **Director, Dr. B R Ambedkar National institute of Technology JALANDHAR**(a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to contractor, if required;

OR

(b) fails or refuses to furnish the Performance Guarantee, in accordance with the provisions of tender document and Instructions to contractor,

OR

(c) fails or refuses to start the work, in accordance with the provisions of the contract and Instructions to contractor,OR
(d) fails or refuses to submit fresh Bank Guarantee of an equal amount of this Bank Guarantee, against Security Deposit after award of contract.

We undertake to pay to the **Director, Dr. B R Ambedkar National institute of Technology JALANDHAR**either up to the above amount or part thereof upon receipt of his first written demand, without **Registrar, Dr. B R Ambedkar National institute of Technology JALANDHAR** having to substantiates his demand, provided that in his demand the **Director, Dr. B R Ambedkar National institute of Technology JALANDHAR** will note that the amount claimed by him is due to him owing to the occurrence of one or any of the above conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date*..... after the deadline for submission of tender as such deadline is stated in the Instructions to contractor or as it may be extended by the **Director, Dr. B R Ambedkar National institute of Technology JALANDHAR** notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE .....  SIGNATURE OF THE BANK

WITNESS .....  SEAL

(SIGNATURE, NAME AND ADDRESS)

**Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY**
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## FORM OF PERFORMANCE SECURITY

### BANK GUARANTEE BOND

In consideration of the President of India (hereinafter called "The Government") having offered to accept the terms and conditions of the proposed agreement between _____ and _____ (hereinafter called "the said contractor(s)" for the work _____ (hereinafter called "The said agreement") having agreed to production of a irrevocable Bank Guarantee for Rs. _____ (Rupees _____ only) as security/guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement.

1. We _____ (hereinafter referred to as "the Bank) hereby undertake to pay to the Government an amount not exceeding Rs. _____ (Rupees _____ only) on demand by the Government.
   (Indicate the name of the bank)

2. We _____ do hereby undertake to pay the amounts due and payable under this Guarantee without any demure, merely on a demand from the Government stating that theamount claimed is required to meet the recoveries due or likely to be due from the said contractor(s). 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).
   (indicate the name of the bank)

3. We, the said bank further undertake to pay to the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal.

   The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.

4. We _____ further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Registrar on behalf of the Government certified that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor (s) and accordingly discharges this guarantee.
   (Indicate the name of the Bank)

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

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

7. We _____ lastly undertake not to revoke this guarantee except (indicate the name of Bank)

   with the previous consent of the Government in writing.

8. This guarantee shall be valid upto_____unless extended on demand by Government. 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 six months of the date of expiry or the extended date of expiry of this guarantee all our liabilities under thisguarantee shall stand discharged.

Dated the_____day of_____for_____.
(indicate the name of Bank)

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**GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER-PROOFING WORKS (All Water - Proofing Items).**

The agreement made this..... day of ..... (Two Thousand_____only) .....between .....S/o ..... (hereinafter called the GUARANTOR of the one part) and the Registrar NIT Jalandhar (hereinafter called the Government of the other part)

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated ..... and made between the GUARANTOR OF THE ONE PART AND the Government of the other part whereby the contractor inter alia undertook to render the building and structures in the said contract recited completely water and leak-proof.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said work will remain water and leak proof, for ten years from the date of completion of work.

NOW THE GUARANTOR hereby guarantee that work executed by him will render the structures completely leak proof and the minimum life of such water proofing treatment shall be ten years to be reckoned from the date of the completion of work.

The decision of the Registrar with regard to nature and cause of defect shall be final and binding on Guarantor.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect being found render the building water proof to the satisfaction of the Registrar calling upon him to rectify the defects failingwhich the work shall be got done by the Department by some other contractor at the Guarantor's cost and risk. The decision of the Registrar as to the cost payable by the Guarantor shall be final and binding.

That if the guarantor fails to execute the water proofing or commits breach thereunder, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and / or cost incurred by the Government, the decision of the Registrar will be final and binding on both the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator ..... and ..... by ..... for and on behalf of Registrar NIT Jalandhar on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of :-

1. ..... 2. .....

SIGNED FOR AND BEHALF OF THE Registrar NIT Jalandhar BY ..... in the presence of :-

1. ..... 2. .....

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**GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTORFOR**
**REMOVAL OF DEFECTS AFTER COMPLETION**
**IN RESPECT OF SANITARY INSTALLATIONS/ WATER SUPPLY/ DRAINAGE WORK.**

The agreement made this..... day of ..... (Two Thousand ..... only) .....between .....S/o.....(hereinafter called the GUARANTOR of the one part) and the Registrar NIT Jalandhar (hereinafter called the Government of the other part)

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated ..... and made between the GUARANTOR OF THE ONE PART AND the Government of the other part, whereby the contractor inter alia, undertook to render the work in the said contract recited leak proof with sound material and workmanship.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said work will remain structurally stable, leak proof and guaranteed against faulty material and workmanship, and finishing for five years from the date of completion of work.

NOW THE GUARANTOR hereby guarantee that work executed by him will be free from any leakage, seepage, cracks in pipes and guaranteed against faulty material and workmanship improper slope, defective galvanizing etc. for Five years to be reckoned from the date of completion of the work.

The decision of the Registrar with regard to nature and cause of defect shall be final.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect to satisfaction of Registrar at his cost and shall commence the work for such rectification within seven days from the date of issue of the notice from the Registrar calling upon him to rectify the defects failing which the work shall begot done by the Department by some other contractor at the guarantor's cost and risk. The decision of the Registrar as to the cost payable by the Guarantor shall be final and binding.

That if the guarantor fails to make good all defects or commits breach thereunder, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and or cost incurred by the Government, the decision of the Registrar will be final and binding on both the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator ..... .....and ..... by ..... for and on behalf of the Registrarr NIT Jalandhar on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of :-

1. ..... 2. .....

SIGNED FOR AND ON BEHALF OF THE Registrar NIT Jalandhar BY .....in the presence of :-

1. ..... 2. .....

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**GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF STONE WORK/ TILE WORK.**

The agreement made this..... day of ..... (Two Thousand_____only).....between .....S/o.....(hereinafter called the GUARANTOR of the one part) and the Registrarr NIT Jalandhar (hereinafter called the Government of the other part)

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated ..... and made between the GUARANTOR OF THE ONE PART AND the Government of the other part whereby the contractor inter alia undertook to render the work in the said contract recited structurally stable workmanship, finishing and use of sound materials.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said work will remain structurally stable and guaranteed against faulty workmanship, improper slope, finishing and materials.

NOW THE GUARANTOR hereby guarantee that work executed by him will be free from any material defects, structural defects, cracks, hollow pockets, improper slope, faulty joints etc.

The decision of the Registrar with regard to nature and cause of defect shall be final.

During this period of guarantee, the guarantor shall make good all defects to the satisfaction of the Registrar calling upon him to rectify the defects failing which the work shall be got done by the Department by some other contractor at the Guarantor's cost and risk. The decision of the Registrar as to the cost payable by the Guarantor shallbe final and binding.

That if the guarantor fails to make good all the defects, commits breach thereunder, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and or cost incurred by the Government, the decision of the Registrar will be final and binding on both the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator ..... and ..... by ..... for and on behalf of the Registrar NIT Jalandhar on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of :-

1. ..... 2. .....

SIGNED FOR AND BEHALF OF THE Registrar NIT Jalandhar BY ..... in the presence of :-

1. ..... 2. .....

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**GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTORFOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF aluminum DOORS, WINDOWS VENTILATOR WORK.**

The agreement made this..... day of ..... (Two Thousand …… only) .....between .....S/o.....(hereinafter called the GUARANTOR of the one part) and the Registrarr NIT Jalandhar (hereinafter called the Government of the other part)

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated ..... and made between the GUARANTOR OF THE ONE PART AND the Government of the other part, whereby the contractor inter alia, undertook to render the work in the said contract recited structurally stable, workmanship, powder coating, anodizing, coloring and sealing etc.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said work will remain structurally stable and guaranteed against faulty material and workmanship, defective anodizing/ powder coating for five years from the date of completion of work.

NOW THE GUARANTOR hereby guarantee that work executed by him will remain structurally stable and guaranteed against faulty material and workmanship, defective anodizing/ powder coating for Two years to be reckoned from the date of completion of the work. for **two years** to be reckoned from the date of completion of the work.

The decision of the Registrar with regard to nature and cause of defect shall be final.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect to satisfaction of Registrar at his cost and shall commence the work for such rectification within seven days from the date of issue of the notice from the Registrar calling upon him to rectify the defects failing which the work shall begot done by the Department by some other contractor at the guarantor's cost and risk. The decision of the Registrar as to the cost payable by the Guarantor shall be final and binding.

That if the guarantor fails to make good all defects or commits breach there under, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and or cost incurred by the Government, the decision of the Registrar will be final and binding on both the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator..... .....and ..... by ..... for and on behalf of the Registrar NIT Jalandhar on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of:-

1. ..... 2. .....

SIGNED FOR AND ON BEHALF OF THE Registrar NIT Jalandhar BY ..... in the presence of:-

1. ..... 2. .....

**LIST OF FIELD TESTS**

v) Any other equipment for site tests as outline in BIS and as directed by the Registrar.

**B. Field Testing Instruments**

i) Steel tapes – 3 m
ii) Vernier Calipers
iii) Micrometer Screw 25 mm gauge
iv) A good quality plumb bob
v) Spirit level minimum 30 cms long with 3 bubbles for horizontal vertical
vi) Wire gauge (circular type) disc.
vii) Foot rule
viii) Long nylon thread
ix) Magnifying glass
x) Screw driver 30 cms long
xi) Plastic bags for taking samples
xii) Levelling machine

**C. Minimum required T&P**

| Sr. No. | Detail of T&P | Qty. | Remarks |
|---|---|---|---|
| 1 | Concrete mixer with hopper (Full bag) | 02 | |
| 2 | Steel Shuttering | 1000 Sq.m. | |
| 3 | Needle Vibrator | 02 | |
| 4 | Plate Vibrator | 02 | |
| 5 | Welding Machine | 02 | |

**PROFORMA FOR TESTS CARRIED OUT**

NAME OF THE WORK: DIVISION:
AGREEMENT NO. & DATE: SUB-DIVISION:

| Sl. No. | Item | Quantities as per agreement | Frequency as per specification | No. of tests required | R.A. bill No. | Uptodate quantity | No. of tests required | No. of tests actually done | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | | | | | | | | |

Signature of Contractor

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# CEMENT/PAINT REGISTER

NAME OF WORK: DIVISION
AGREEMENT NO. SUB-DIVISION

**Particulars of Receipt**

| Date of Receipt | Source of receipt with details if any | Batch No. | Date of manufacture | Date of expiry | Qty. received | Progressive Total | Date of Issue | Qty Issued | Items of work for which Issued | Qty. Returned at the end of day's work |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| | | | | | | | | | | |

**Particulars of Issue**

| Net Qty. Issued | Progressive Total | Daily Balance in Hand | Contractor's Initial | J.E.'s Initial | | Periodical Check | |
|---|---|---|---|---|---|---|---|
| | | | | | | By AE | By EE |
| 12 | 13 | 14 | 15 | 16 | | 17 | 18 |
| | | | | | | | |

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## LIST OF PREFERRED MAKES FOR CIVIL / SANITARY /ELECTRICAL WORKS

| S.No. | Material | | Preferred make |
|---|---|---|---|
| 1. (i) | Ordinary Portland/Portland Pozzolona Cement (Grey) (43 Grade) | : | ACC, Ultratech Cement Ltd., Gujarat Ambuja, Vikram, Birla, JK Cement, JP Associates, Shree Cement Ltd. |
| (ii) | White Cement | : | Birla White, J. K. White, Ultra Tech Cement |
| 2. | Reinforcement Steel | : | SAIL, Tata Steel Ltd., RINL, Jindal Steel & Power Ltd. or JSW Steel Ltd. |
| 3. | Veneered Particle Board | : | Kitply, Action TESA, Anchor, Century ply. |
| 4. | Laminated Particle Board/ Laminates | : | Kitply, Action TESA, Anchor, Century ply. |
| 5. | Flush door shutters | : | Kutty Flush door, Kitply Industries (Swastik), Shree Ram Panel Pvt. Ltd, M/S Jain Wood Industries, Pooja DecorativePlywoods. |
| 6. | Factory made Panelled & wire gauge door/ window shutters. | : | M/s Haryana Timber Store, M/S Jain Wood Industries, wooden M/s New Jagdamba Doors, Rajpura, SPC (Selected Products Co.). |
| 7. | Steel Windows/Pressed Steel frames | : | San Harvic, PD Industries Panchkula, Shree Krishna Asst., Panchkula, M/s SteelMan Industries (Jalandhar). |
| 8. | Water Proofing Compound | : | Fosroc, Cico, Pidilite. |
| 9. | M.S. Pipe | : | Tata, Jindal (Hisar), Parkash Steel Tubes, Bhushan Industries. |
| 10. | PVC Pipe & Fittings | : | Supreme, AKG, Finolex, Kisan, SFMC, Diplast. |
| 11. | Acrylic Distemper | : | Nerolac , Berger (Bison Acrylic) Asian Paints (Tractor) |
| 12. | Acrylic Emulsion | : | Nerolac , Berger (Bison Acrylic) Asian Paints (Tractor Acrylic), ICI |
| 13. | Synthetic Enamel Paints | : | ICI (Dulux Gloss), Nerolac, Berger, Asian Paints. |
| 14. | Steel Primer | : | ICI, Nerolac, Berger, Asian Paints. |
| 15. | Wood Primer | : | ICI, Nerolac, Berger, Asian Paints. |
| 16. | Mosaic tiles/ Chequered Tiles | : | Modern, NTC, A-1, Ultra Tiles |
| 17. | Ceramic Tiles | : | KAJARIA, NITCO, JOHNSON, Orientbell. |
| 18. | Dash / Anchoring Fasteners | : | HILTI / Fischer |
| 19. | Nuts / Bolts & Screws | : | GKW, Atul, Kundan. |
| 20. | Stainless Steel Sink (Out of Salem | : | DIAMOND, BLUE STAR,Neelkanth, Niralli, Jyna. |
| 21. | Float Valve | : | IVC, Leader, Prayag, Kalsi Pump Pvt. Ltd., Dhawan Sanitary Udyog (Prima) |
| 22. | Admixtures | : | Fosroc, MBT, Sika, CICO, Asian. |
| 23. | Vitreous China Sanitary Ware | : | JAQUAR, Parryware, CERA, Kerovit (KAJARIA), CIZAR, ‘ |
| 24. | Plastic seat cover of W.C. | : | JAQUAR, Parryware, CERA, Kerovit (KAJARIA), CIZAR. |
| 25. | PVC Flushing cistern | : | JAQUAR, Parryware, CERA, Kerovit (KAJARIA), CIZAR. |
| 26. | CP Fittings/Mixer Pillar taps Washers | : | JAQUAR,NOVA, MARC, Kerovit (KAJARIA), CIZAR. |
| 27. | CP Accessories | : | JAQUAR,NOVA, MARC., KEROVIT of KAJARIA |
| 28. | Centrifugally Cast (spun) Iron Pipes | : | NECO, SKF brand of M/s Singhal Iron Foundry Pvt. Ltd. Mathura, Bengal Iron Corporation, Kolkata (BIC). |
| 29. | Centrifugally Cast (spun) Iron Pipes (Class LA). | : | Electro Steel, Kesoram, Neco. |
| 30. | C.I. Sluice Valves & Reflex Valves | : | ANNAPURNA ,SANT, NMC, ZOLOTO |
| 31. | G.I. Pipes | : | Jindal (Hissar), Tata Steel Tubes Ltd., Prakash steel pipes. |
| 32. | G.I. Fittings | : | Unik, KS, AMCO, AVR, NMC. |
| 33. | Gun metal Valves, globes | : | Leader, Zoloto, Kilburn, CIM Valves, Sant, ANNAPURANA, NMC Valves. |
| 34. | Brass stop & Bib Cock | : | Zoloto, Sant, L&K, Leader, JAINKO, Kalsi Pump Pvt. Ltd. |
| 35. | Stoneware pipes & Gully traps | : | Prefect, Hind or ISI marked S.W. Pipes. |

| | | | |
|---|---|---|---|
| 36. | Mirror Glass | : | Atul, Modi Guard, Golden Fish |
| 37. | Glazed Fire Clay Kitchen Sink | : | PAMINI, SANFIRE, RKCP, Silver Shine. |
| 38. | Vitrified Tiles/ Ceramic Tiles | : | KAJARIA, NITCO, JOHNSON, Orientbell. |
| 39. | Water Meter | : | PRIMA (ISI), Kranti, DASHMESH. |
| 40. | Grouting Compound | : | Endura, Pidilite, Ferrous Crete |
| 41. | Aluminium Sections | : | Hindalco, Jindal Indian aluminum Co. |
| 42. | Glass Mosaic Tiles | : | NITCO, N.T.C, Ultra tiles. |
| 43 | Paver Blocks & kerb stones | : | NITCO, Unitile, N.T.C. |
| 44. | Non Return valve (Check valve) ½" to 1¼" | : | Kalsi Pumps Pvt. Ltd., Zoloto, Annapurna. |
| 45. | Line Filter Valve ½" to 2" | : | Kalsi Pumps Pvt. Ltd. |
| 46. | Ferrules 15mm, 20mm&25mm | : | Dhawan Sanitary Udyog (PRIMA), Kalsi, Annapurna, NMC Valves. |
| 47. | Stainless Steel Staircase railing | : | DORMA, D-line, Sialkot. |
| 48. | Locks/ Latch/ fittings | : | Godrej, HARRISON, PLAZA. |
| 49. | Hydraulic Door closer/ Floor Spring | : | Godrej, Grace, DORMA. |
| 50. | Fire Check Door | : | NAVAIR, ROMAT, KUTTY DOOR |
| 51. | Aluminum Grill | : | Hindalco, Jindal Indian aluminum Co. |
| 52. | GLASS | : | MODI FLOAT & SAINT GOBAIN, ASAHI, |
| 53. | Polyester Powder Coating Shades | : | NEROLAC, BERGER, J&N |
| 54. | Friction Stay Hinges | : | Earl-Bihari |
| 55. | Nuts, Bolts and Screws, Steel | : | Kundan, Priya, Atul. |
| 56. | EPDM Gasket | : | Hanu/ Anand, Raven. |
| 57. | Structural Silicon | : | Dow Corning/ Wacker. |
| 58. | Weather Silicon | : | Dow Corning/ Wacker |
| 59. | Tile Adhesive | : | Cico, Pidilite, Ferrous. |
| 60. | Copper Tubes/ Pipes | : | Rajco, Max Flow ABC. |
| 61. | Gypsum board | : | Saint Gobin or equivalent. |
| 62. | Aluminium Hardware | : | HARDIMA, EVERITE, DORMA.or ISI Marked |
| 63. | Factory made Polyvinyl Chloride (PVC) door shutter and Frames | : | Rajshri Plasti wood. |
| 64. | U-PVC Pipe | : | Flow Guard, Green Line, Supreme. |
| 65. | C-PVC Pipe (IS 15778:2007) | : | Prayag, Finolex, Supreme |
| 66. | **Deleted** | | |
| 67. | Wall putty | : | Birla wall care, JK White, Asian, Berger |
| 68. | Stainless steel hardware fittings | : | DORMA, Geze, Hafele, Ozone. |
| 69. | Hermitically sealed performance toughened glass | : | Saint Gobain, Asahi, Pilington, Viracon (processed by themselves or by their approved processors) |
| 70. | Poly-Sulphide sealant | : | Choksey Chemicals, Fosroc, Dr. Fixit, Sika |
| 71. | Fire sealant | : | BTMH, Promat, Alstom, Birla 3M |
| 72. | Roofing Sheets | | |
| | (i) Standing Slam Double Skin insulated Roofing System | | :Kalzip, CRIL, CorusCRIL, |
| | (ii) Galvanize | : | Lloyds, Interarch |
| 73. | Epoxy Paint | : | Aisan, ICI, Kansai Nerolac |
| 74. | C.I. Manhole covers & frames | : | NECO, RAJ Iron Foundary Agra, BIC |
| 75. | Cast Copper Alloy Screw down bib taps andStop valves (Interally& Externally) for water Services IS: 781:1984 | : | Jainko |
| 76. | C.P. Brass bottle trap | : | JAQUAR, Marc, Kerovit (Kajaria). |
| 77. | Autoclaved Aerated Blocks | : | Builtech, Magicrete, R.S. Green, Siprox, Aerocon |
| 78. | Gypsum lightweight plaster compound | : | Ferrous Crete, Gyproc, Saint Gobian, Boral |
| 79. | Polymer mortar/ Adhesive for AAC Blocks | | :Ferrous Crete, ArdexEndura, Ultratech. |
| 80. | C.P brass Jet Spray | : | JAQUAR, CZAR, NOVA, MARC, Kerovit (Kajaria). |

| | | | |
|---|---|---|---|
| 81. | Under counter white vitreous China Oval shape wash basin | : | Hindware, Jaquar, Cera, Kerovit (kajaria) |
| 82. | Float Glass | : | MODI FLOAT & SAINT GOBAIN, ASAHI, GLAVERBEL. |
| 83. | C.P. Brass toilet paper holder | : | Jaguar, CZAR, NOVA or Kerovit (Kajaria). |
| 84. | PTMT liquid soap container | : | Prayag. |
| 85. | Cast Copper Alloy fancy single taps, Combination tap assembly and stop valves for water services IS: 8931:1993 : | | Jainko |

NOTE:

(i) A List of Preferred Brand Names of Various Materials/ Products are shown above for usage in executionof Work. However, Approved equivalent material of any other Specialized Companies/ Firms may also be used, in case it is established that the Brands Specified below are not available in the market or in other unavoidable circumstances and subject to Approval of the alternate Brand by the Executive Engineer. However, in case, the equivalent model so approved, is cheaper than the model already mentioned in item/approved makes list, the price adjustment will be made based on the difference in market rate. In case, the rate of subsequently approved model is more, no extra payment will be made on this account.

(ii) It must be ensured, in general, that all materials to be used in the works shall bear BIS Certification mark. In cases where for a particular material/product, BIS Certification Mark is not available, then the material proposed to be procured can be used subject to the condition that it should conform to C.P.W.D. Specifications 2009 Vol. I & IIand relevant BIS codes. In such cases written approval of the Director shall be obtained before use of such material in their works.

(iii) The list given below does not absolve the Executing Agency from their responsibility for using these products. It is only after, they are satisfied about the quality and performance, the products shall be used. To achieve this, proper check on the quality of the product, actually to be used, should be exercised.

(iv) The Director, Dr. B R Ambedkar National Institute of Technology, Jalandharor his successors reserves the right to add or delete any materials and brands in the list of approved makes. However, in case, the equivalent model so approved, is cheaper than the model already mentioned in item/approved makeslist, the price adjustment will be made based on the difference in market rate. In case, the rate of subsequently approved model is more, no extra payment will be made on this account.

**Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY**
**G T Road By Pass, Jalandhar-144011, Punjab (India)**
**EPABX-0181-2690301 & 453 website: www.nitj.ac.in email: registrar@nitj.ac.in**

**GUIDELINES REGARDING SIGNING OF INTEGRITY PACT BY THE BIDDER AT THE TIME OF SUBMISSIONOF BID (Vide No. DG/CON/255A dated 10.08.2011)**

**Sub: Clarification regarding Introduction of Integrity Pact introduced vide OM No. CON 255 dated 23.05.2011**

A new provision of Integrity Pact (IP) was introduced in GCC-2010 vide OM No. CON/255 dt. 23.05.2011. In the OM it is mentioned that at the time of submission of bid, it shall be mandatory to sign the pact by the bidder failing which the bidder will stand disqualified from the tendering process and such bid would be summarily rejected.

Some field Units have raised their doubts regarding submission of duly signed Integrity Pact by the bidder at the time of submission of bid. In this regard it is clarified that:

1. Submission of duly signed Integrity Pact by the bidder is applicable in case of manual tendering where e- tendering is not followed.
2. In case of manual tendering Executive Engineer should sign the first page addressed to the intending bidder at the time of issue of tender form and before submission of the bid, each bidder shall sign IP at respective places and submit the bid. If duly signed IP is not submitted by the bidder, such bid shall not be considered.
3. In case of e-tendering, Integrity Pact shall be treated in the same manner as other components of the bid document. In e-tendering, the intending bidder does not sign any document physically and entire bid document is submitted through digital signature. Since IP is a part of bid document no separate physical submission is required with other documents to be submitted in the office of tender opening authority. In addition to other component of bid document, the Integrity Pact along shall also be signed between ExecutiveEngineer and successful bidder after acceptance of bid.

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## INTEGRITY PACT

To,

……..,
……..,
……..

**Sub: NIT No. ……. for the work ……..**

Dear Sir,

It is here by declared that NIT, Jalandhar is committed to follow the principle of transparency, equity and competitiveness in public procurement. The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the integrity Agreement, which is an integral part of tender/bid documents, failing which the tenderer/ bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected.

This declaration shall form part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of the Integrity Agreement on behalf of the NIT, Jalandhar.

Yours faithfully

Registrar

**Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY**
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**EPABX-0181-2690301 & 453 website: www.nitj.ac.in email: registrar@nitj.ac.in**

**INTEGRITY PACT**

To,

Registrar,

……..,

……..

**Sub: Submission of Tender for the work of ……..**

Dear Sir,

I/We acknowledge that NIT, Jalandhar is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We willsign the enclosed integrity Agreement, which is an integral part of tender documents, failing which I/We will stand disqualified from the tendering process. I/We acknowledge that THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT.

I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by NIT, JALANDHAR. I/We acknowledge and accept the duration ofthe Integrity Agreement, which shall be in the line with Article 1 of the enclosed Integrity Agreement.

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, NIT, Jalandharshall have unqualified, absolute and unfettered right to disqualify the tenderer/ bidder and reject the tender/bid is accordance with terms and conditions of the tender/bid.

Yours faithfully

(Duly authorized signatory of the Bidder)

**Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY**
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**To be signed by the bidder and same signatory competent / authorized to sign the relevant contract onbehalf of NIT, Jalandhar.**

**INTEGRITY AGREEMENT**

This Integrity Agreement is made at ..... on this..... day of ..... 20.....

**BETWEEN**

……. represented through Registrar, Dr. B R Ambedkar National institute of Technology, Jalandhar (Hereinafter referred as the' **Principal/ Owner**', which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

**AND**

.....
(Name and Address of the Individual/firm/Company)
through .....(Hereinafter referred to as the
(Details of duly authorized signatory)

"**Bidder/ Contractor**" and which expression shall unless repugnant to the meaning or context hereof include itssuccessors and permitted assigns)

**Preamble**

WHEREAS the Principal/ Owner has floated the Tender (NIT No .....)
(hereinafter referred to as "**Tender/ Bid**") and intends to award, under laid down organizational procedure, contract for.....
(Name of work) hereinafter
referred to as the "**Contract**".

AND WHEREAS the Principal/ Owner values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s). AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as "**Integrity Pact**" or "**Pact**"), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as followsand this Pact witnesses as under:

**Article 1: Commitment of the Principal/Owner**

1) The Principal/ Owner commits itself to take all measures necessary to prevent corruption and toobserve the following principles:

   i. No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

   ii. The Principal/ Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provideto all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.

   iii. The Principal/Owner shall endeavor to exclude from the Tender process any person, whose conduct in the past has been of biased nature.

2) If the Principal/ Owner obtains information on the conduct of any of its employees which is a criminaloffence under the Indian Penal code (IPC)/ Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

**Article 2: Commitment of the Bidder(s)/Contractor(s)**

1) It is required that each Bidder/ Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Government/ Department all suspected acts of **fraud or corruption or Coercion or Collusion** of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.
2) The Bidder(s)/ Contractor(s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:
   a) The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/ Owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.
   b) The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.
   c) The Bidder(s)/ Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/Contract(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/ Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
   d) The Bidder(s)/ Contractor(s) of foreign origin shall disclose the names and addresses of agents/ representatives in India, if any. Similarly Bidder(s)/ Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/ representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.
   e) The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.

3) The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
**4)** The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm indulge infraudulent practice **means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the Government interests.**
5) The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/ her reputation or property to influence their participation in the tendering process).

**Article 3: Consequences of Breach**

Without prejudice to any rights that may be available to the Principal/ Owner under law or the Contract or its established policies and laid down procedures, the Principal/ Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/ Contractor(s) and the Bidder/ Contractor accepts and undertakes to respect and uphold the Principal/ Owner's absolute right:

1) If the Bidder(s)/ Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/ Owner after giving 14 days notice to the contractor shall have

powers to disqualify the Bidder(s)/ Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/ Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/ Owner. **Such exclusion may be forever or for a limited period as decided by the Principal/Owner.**

**b.** **Forfeiture of EMD/Performance Guarantee/ Security Deposit**: If the Principal/ Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/ determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Principal/ Owner apart from exercising any legal rights that may have accrued to the Principal/ Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder/ Contractor.

**c.** **Criminal Liability:** If the Principal/ Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

**Article 4: Previous Transgression**

1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.
2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/ Owner.
3) If the Bidder/ Contractor can prove that he has resorted/ recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/ Owner may, at its own discretion, revoke the exclusion prematurely.

**Article 5: Equal Treatment of all Bidders/ Contractors/ Subcontractors**

1) The Bidder(s)/ Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/ Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Subcontractors/ sub-vendors.
2) The Principal/ Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.
3) The Principal/ Owner will disqualify Bidders, who do not submit, the duly signed Pact between the Principal/ Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

**Article 6- Duration of the Pact**

This Pact begins when both the parties have legally signed it. It expires for the Contractor/ Vendor 12 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded. If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority, NIT, Jalandhar.

**Article 7- Other Provisions**

1) This Pact is subject to Indian Law, place of performance and jurisdiction is the **Headquarters of the of** the Principal/ Owner, who has floated the Tender.
2) Changes and supplements need to be made in writing. Side agreements have not been made.
3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.
4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.
**5)** It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement/ Pact, any action taken by the Owner/ Principal in accordance with this **Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.**

**Article 8- LEGAL AND PRIOR RIGHTS**

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

.....
(For and on behalf of Principal/Owner)

.....
(For and on behalf of Bidder/Contractor)
WITNESSES:

1. .....
(signature, name and address)

2. .....
(signature, name and address)

Place:
Dated :

# Dr. B R Ambedkar National Institute of Technology,Jalandhar

**Name of work:** "Renovation work near student activity center building at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar"

## PART C

**(Electrical Work)**

## SCHEDULES

SCHEDULE 'A'
Schedule of quantities (Enclosed)

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.

| Sl. No. | Description | Hire charges per day | Place of Issue |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| NIL | | | |

SCHEDULE 'D'
Extra schedule for specific requirements/documents for the work, if any.

NIL

SCHEDULE 'E'

Reference to General Conditions of contract. General Conditions of Contract (GCC) for CPWD Works 2019 (Corrected up to last date of submission of tender).

**Name of work**: **"Renovation work near student activity center building at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar"**

Estimated cost of work: **Rs. 21,95170.37 /-**

Earnest money : as per schedule A

| | | |
|---|---|---|
| **Clause 6, 6A** | Clause applicable – (6 or 6A) | 6 A |
| **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. | As per corresponding figure of Schedule 'F' of Civil Work. |
| **Clause 7A** | No running account bill shall be paid for the worktill the applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are submitted by the contractor to the | Applicable |

Engineer- In-Charge.

**Clause 10CA**

| Materials covered under this clause | Nearest material for which All India Wholesale Price Index is to be followed | Base price of all material covered under Clause 10 CA |
|---|---|---|
| Nil | Nil | Nil |
| Nil | Nil | Nil |
| Nil | Nil | Nil |
| | | N.A |

| | | |
|---|---|---|
| **Clause 11** | Specifications to be followed | CPWD General specifications for electrical works Part-I Internal 2013, amended upto date. |
| **Clause 12** | Type of work:- | Maintenance work |
| 12.2 & 12.3 | Deviation limit beyond which clauses 12.2 & 12.3 shall applyfor electrical work. | 30 % |
| 12.5 | Deviation limit beyond which clauses 12.2 and 12.3 shall applyfor foundation work. | - |
| **Clause 16** | Competent Authority for deciding reduced rates. | Director NIT Jalandhar |
| **Clause 18** | List of mandatory machinery, tools & plants to be deployed by the contractor at site. | As required for timely execution of work |

**Clause 36 (i)** Requirement of Technical Representative (S) and Recovery Rate.

| Sr. No. | Requirement of Technical Staff | | Minimum Experience (Years) | Designation of Technical Staff | Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36(i) |
|---|---|---|---|---|---|
| | Qualification | Number (of Major + Minor Component) | | | |
| 1 | (i) Graduate Engineer<br><br>(ii) Graduate Engineer or Diploma Engineer | 1 of Major Component | 5 Years<br><br>2 Years or 5 Years Respectively | Principal Technical Representative<br><br>Project Planning /Site / Billing Engineer | Rs. 25000/- per month per person<br><br>Rs. 15000/- per month per person |

Assistant Engineers retired from Government services that are holding Diploma will be treated at par with GraduateEngineers. Diploma holders with minimum 10 years relevant experience with a reputed construction agency/firm can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holdershould not exceed 50 % of requirement of degree engineers

**Clause-42:-**

i) ~~a) Schedule / Statement for determining theoretical quantity of cement & bitumen — Delhi Schedule of Rates 2014 with upto date correction slips.~~

ii) ~~Variations permissible on theoretical quantities.~~

~~a) Cement for works with estimated cost put to tender for more than Rs. 5 Lacs. — 2% plus / minus.~~

~~b) Steel Reinforcement and structural steel sections for each diameter, section and category. — 2% plus / minus.~~

~~c) All other materials. — Nil.~~

~~d) Bitumen for all work. — 2.5% Plus only.~~

**~~RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION~~**

| ~~S.No.~~ | ~~Description of item~~ | ~~Rates in figures and words at which recovery shall bemade from the contractor~~ | |
|---|---|---|---|
| | | ~~Excess beyond Permissible Variation~~ | ~~Less use from the permissible variation~~ |
| ~~1.~~ | ~~Cement~~ | ~~NIL~~ | ~~a)Rs.4708/- per MT*~~<br>~~b)Rs.4334/- per MT*~~ |
| ~~2.~~ | ~~Reinforcement TMT bars (fe 500D)~~<br>~~a) Primary producers~~ | ~~NIL~~ | ~~a)Rs.36740/- per MT*~~ |

**~~Note:~~** ~~The rates are excluding VAT and Cartage from stock yard to site.~~

1 SAFETY MEASURES

1.1.1 The issue of construction safety & standards has gained utmost importance in recent times. Contractors must follow highest safety standards and "ZERO" tolerance towards any violation of safety norms at the construction site. All workers of contractor and associate agencies, invariably and at all the times, must

follow all safety norms, adopt safe construction practices and use all required safety gadgets in theirworking throughout the project duration.

Note : 1 The special conditions detailed above are in addition to general/ other/ additional conditions as specified elsewhere in tender document.

Note : 2 Nothing extra shall be paid on the account of these special conditions

**INTERNAL AND EXTERNAL EI WORKS**

**Name of work: - "Renovation work near student activity center building at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar"**

**Additional Conditions**

1. All repairs & patch work shall be neatly carried out to match with the original finish & all damages caused to the building installation during the execution of work shall have to be made good by the contractor immediately at his own cost to the entire satisfaction of Engineer-in-charge. In case contractor fails to comply with the instructions of the Engineer-in-charge, Engineer-in-charge shall be at liberty to get the work done by any other agency and recover such amount as paid to the other agency from the bill(s) of the contractor. Contractor shall have no claim, whatsoever, on the extent of such amount.

2. Wherever ceiling roses are not required to be provided in the light/fan/exhaust fan points, due to site conditions, the contractor shall use suitable three pin connectors for which nothing extra shall be paid. Wiring shall be carried out with **FRLS** wires.

3. Contractor shall provide polythene/PVC plastic cover for all MDB's/SDB's/DB's to protect them from rust/damages, during execution of work till the work is actually completed and handed over to the department.

4. The loose wire boxes/cable end boxes (adaptor boxes) shall be provided on the various electrical boards to facilitate the termination of the wiring in the various mountings. The boxes shall be of the same make as the DB's as far as possible. Wherever the company made cable end boxes are not available they shall be neatly fabricated with 16 SWG CRCA sheet steel, duly powder coated, dust & vermin proof and the front cover of MS sheet shall be with rubber gasket suitably screwed or with 3mm thick phenolic laminated sheet of Hylam/Formica instead of MS sheet, as desired by the Engineer-in-charge. The length of such boxes shall be same/or more as the width of the electrical switchboard. Such loose wireboxes are deemed included in the scope of the work and no extra payment shall be made for them.

5. All debris/malba resulting due to electrical work shall be removed on daily basis and completion of the work shall only be accepted after the site has been cleaned of all malba. In case, contractor fails to comply, the same shall be got removed by the other agency and the payment so made shall be recovered from the bill(s) of the contractor.

6. The contractor shall have to make arrangements, at his own risk and cost, for transportation of materials from the point of issue of stores to site of work, if any.

7. Makes of all items that are not covered in the schedule of work/additional specifications shall be got approved from the Engineer-in-charge and shall conform to relevant Indian Standard as applicable.

8. The contractor shall ensure that the staff employed by him for execution of the electrical work, possess the valid electrical license issued by competent authority. Consequences arising due to the default of the contractor in not complying with the above condition shall be the responsibility of the contractor.

9. Copper lugs shall be provided for terminating copper /aluminium /GI earth wires to all switchboards for which nothing extra shall be paid. All multistranded /stranded wires shall be terminated through copper lugs.

10. All concealed work and earthing shall be done in the presence of the Engineer-in-charge or his authorized representative.

11. The schematic diagram/dimensional drawings of the various electrical cubical panels shall be got approved from the Engineer-in-charge before fabrication and shall comply with CPWD specifications and Indian

Electricity Rules. The panels shall conform to IS: 8623/1993 and CPRI certified. All panels shall be powdercoated inside out, in shade approved by the Engineer-in-charge.

12. All floor-mounted panels shall be mounted on 75mmX75mmX6mm thick M.S. channel on all the sides. It shall have a continuous earth bus of the same size and material as the main phase running continuously along the length of the panel extending on either side for earth connection.

13. The doors of all cubicle panels shall be hinged type including those of bus bar chambers and cable alleys. The locking shall be with chrome plated metal key locks. All doors shall be earthed with copper conductor wire as approved by the Engineer-in-charge.

14. The work shall be carried out according to drawing approved by the Engineer-in-charge. The layout once approved can only be changed by the Engineer-in-charge as per requirement at site. It shall be the responsibility of the contractor to plan the layout and get the approval from the Engineer-in-charge before laying the conduits etc.

15. The MCB should be of the same make as that of MCB DB's and having a minimum breaking capacity of 10 KA. Contractor shall obtain approval of the Engineer-in-charge before procurement of MCB DB's.

16. All model of modular accessories required for the work shall be got approved from the Engineer-in-charge from among the approved makes. The base plate shall be preferably in sheet steel or otherwise inunbreakable polycarbonate. The cover plates shall be screw less type in shade approved by the Engineer-in- charge.

17. Contractor shall have to check the Site Order Book for any instructions of the Engineer-in-charge or his authorized representative and sign the site order book. He shall be bound to ensure compliance with the instructions recorded therein.

18. The MCCB's shall be compatible for reliable protection and accurate measurement. The rated Service breaking capacity (k Arms) shall be 100% of Ultimate breaking capacity (k Arms).All MCCB's shall be current limiting type with features as per relevant IS codes and CPWD specification.

19. MCCB's shall be used with, with rotary handles, phase barriers, phase spreaders on both incoming & outgoing and all terminals shall be shrouded to avoid direct contact.

20. Mechanical Castle key interlock shall be provided among the incomer MCCB's, wherever, as applicable, two different incomer sources are provided in the panel as per the directions of the Engineer in charge. The sameis deemed included in the scope of work.

21. All measuring and indicating instruments shall be protected through fuses/ MCB's and isolating switches.

22. General arrangement drawing of the switchboard shall be got approved from the Engineer-in-Charge before commencement of manufacturing.

23. To facilitate drawing of wires 16/18 SWG G.I fish wire shall be provided alongwith laying of recessed conduit for which no extra payment shall be made to contractor.

24. Conduit and termination to SDB and main board adapter box i/c connection wires to MCB,s inter connection between SDB and main board etc shall be included in the tendered rates and nothing extra shall be paid for the same.

25. The contractor shall provide junction boxes / looping boxes of required sizes and such boxes shall be measured as part of conduit / batten wiring without any extra payment.

26. Only brass screws along with brass washers will be used for fixing Phenolic laminated sheet covers and at other places aluminum alloy/ brass / cadmium plated screws will be used.

27. M.S. dash fastner shall be used for installation of fittings and fixtures in ceiling and for providing suspenders for the angle support, conduiting, cable tray etc. for which nothing extra shall be paid

28. All CI/metal boxes & junction boxes should be cleaned properly and painted from inside before wiring & fixing the accessories.

29. The Contractor shall provide test reports and copy of challan/ bill for the material supplied by him. This office reserves right to conduct pre-dispatch inspection at manufacturer's works and accept the test certificate furnished by them. For this purpose suitable notice shall be given before dispatch of any item from its work.

**SPECIAL TERMS & CONDITIONS FOR INTERNAL /EXTERNAL ELECTRICAL INSTALLATIONS**

1. For execution of work the main contractor should have valid contractor license issued by appropriate authority under IE rules or should associate firm with such license for which approval of the associate firm should be taken from Engineer in charge.
No change in associate contractor will be allowed, without prior approval of the competent authority.
In case, the performance of such associate contractors is not found satisfactory, the Engineer-in-charge with the approval of Superintending Engineer (E) can ask for replacement by another suitable contractor as per eligibility criteria mentioned above. In such case the main tenderer will submit all the details of new contractor to be associated.

**2. CONFIRMATION TO SPECIFICATIONS**

The work shall be carried out as per CPWD Specification for Electrical Works Part-I Internal Works 2013, Part-II External Work 1995, as amended upto date and as per Additional specification and condition. The installation shall comply with the requirement of India Electricity Rules 1956 as amended upto date.

**3. WORK TO BE DONE BY THE CONTRACTOR**

a) The tenderer are advised to visit the site to access the requirement of the site and probable difficulties inexecution of the work, before tendering.
b) 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.
c) Cutting and making good all the damages caused during installation and restoring the same to their originalfinish.
d) Sealing of all floor opening provided by them for pipes and cable, from fire safety point of view, after layingof the same.
e) Painting at site of all exposed metal surface of the installation others than pre-painted items and erection, shall however be rectified to the satisfaction of the Engineer in-charge.
f) Temporary shed and storage space required for the storage with locking arrangement and their watch andward of the materials and complete installation till completion of the work.
g) Testing and commissioning of complete installation.
4. All the conduits drops on the wall shall be embedded, to the extent feasible.
5. All the dismantled materials shall be stored at a place by the contractor and then hand over to the JE(E) in-charge at his store.
6. No T&P shall be issued by the department.
7. No claim for the idle labour shall be entertained by the department.
8. The debris/malba due to electrical work shall be removed and sites shall be cleared by the contractor as soonas work is over for the day. Any damages to civil work due to execution of electrical work shall have to be made good by the electrical contractor without any extra cost

**9. ACCEPTABLE MAKES OF VARIOUS EQUIPMENTS:**

The acceptable makes of various equipments / components / accessories have been indicated in “Acceptable Makes” indicated in the list given in Annexure E1/1
The makes/models and Cat. No. etc mentioned above are indicative only. The firms shall be responsible for providing the item fulfilling the specifications, capacity and all other related requirement of system ensuring compatibility between different items of work.

**LIST OF ACCEPTABLE MAKES.**

| Sl. No. | Description | Make/Brand |
|---|---|---|
| 1 | WIRES/CABLES | Finolex /Polycab / Havells / RR Kabel |
| 2 | SWITCH/SOCKETS | Crabtree/Legrand/Havells/Anchor |
| 3 | GI Box | Crabtree/Legrand/Havells/Anchor |
| 4 | MCB DB | Legrand/Havells/ABB/Schneider |
| 5 | LED FITTING | Philips / Havells / Wipro/ Crompton / |
| 6 | VRF system | LG/carrier/blues |

## Dr. B R Ambedkar National Institute of Technology, Jalandhar

**Name of work: "Renovation work near student activity center building at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar"**

## PART D

## (Schedule of Quantities)

**Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY**
**G T Road By Pass, Jalandhar-144011, Punjab (India)**
**EPABX-0181-2690301 & 453 website: www.nitj.ac.in email: registrar@nitj.ac.in**

**Schedule of Quantities (Civil Work)**

**Name of work: "Renovation work near student activity center building at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar**

# Estimate for interlocking tiles near old SAC

| Sr. No. | Description | DSR 2021 | Unit | Quantity | Rate (Rs.) | Amount (Rs.) |
|---|---|---|---|---|---|---|
| 1 | Earth work in surface excavation not exceeding 30 cm in depth but exceeding 1.5 m in width as well as 10 sqm on plan including getting out and disposal of excavated earth upto 50 m and lift upto 1.5 m, as directed by Engineer-in-Charge: | | | | | |
| | All kinds of soil | 2.1.1 | sq m | 1209 | | |
| 2 | Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in: | | | | | |
| | Cement mortar 1:6 (1 cement : 6 coarse sand) | 6.1.2 | cum | 15 | | |
| 3 | 12 mm cement plaster of mix : | | | | | |
| | 1:6 (1 cement: 6 fine sand) | 13.1.2 | sq m | 42 | | |
| 4 | Providing and laying 60mm thick faciory made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50mm thick compacted bed of coarse sand, filling the joints with line sand etc. all complete as per the direction of Engineer-in-charge. | 16.68 | sq m | 1209 | | |
| 5 | Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 1:5:10 (1 cement : 5 coarse sand (zone-III) derived from natural sources : 10 graded stone aggregate 40 mm nominal size derived from natural sources) | 4.1.10 | cum | 95 | | |
| 6 | Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved. | 15.6 | cum | 200 | | |
| 7 | Providing and Fixing cement concrete (RCC) garden bench, capacity 3 seater with integrated seat and back,total height 1000 millimeter, length 1500 millimeter, width 400 millimeter with backrest, arm rest and back height 1.7 feet including paint etc complete as per direction of Engineer-in-charge. | MR | per piece | 4 | | |
| 8 | Providing and fixing cement concrete (RCC) modern concrete bench without back rest, square shape with integrated table attached cement concrete (RCC), seating capacity 4-8 seater including paint etc complete as per direction of Engineer-in-charge. | MR | per piece | 5 | | |

**(Registrar)**