VEER NARMAD SOUTH GUJARAT UNIVERSITY

UDHANA-MAGDALLA ROAD

SURAT

TENDER DOCUMENT

REPAIR, RENOVATION, UPGRADATION & STRUCTURAL REHABILITATION OF GIRNAR BOY'S HOSTEL (G+1)

AT

VEER NARMAD SOUTH GUJARAT UNIVERSITY

SURAT

LETTER OF ACCEPTANCE

Date :

To,
The Registrar,
Veer Narmad South Gujarat University,
SURAT-395 007.

Dear Sir,

With reference to the tender invited by you on behalf of The registrar, Veer Narmad South Gujarat University, the Owners of the premises at Udhana - Magdalla Road, Surat.

I/We do here offer to execute of work under contract at the respective rates mentioned in the Scheduled of Quantities.

I/We have examined the Drawings, seen the site and read the Articles of Agreements condition of Contract. Specifications & special clauses forming part of the schedule of quantities.

I/We agree to finish the whole of the works within_____months from the date of Handing over possession of the site and Work order being issued.

I/We have deposited as Earnest Money Rs. _____
Demand Draft of 'GOOD FOR PAYMENT' in favour of REGISTRAR, VEER NARMAD SOUTH GUJARAT UNIVERSITY which amount is not to bear any interest.

I/We do hereby agree that this sum shall be forfeited by you in the event our tender is accepted and I/We fail to execute the contract when called upon to do so, I/We Understand that you are not bound to accept the lowest or any tender that you receive.

yours faithfully,

Name of the Firm:

VEER NARMAD SOUTH GUJARAT UNIVERSITY,
UDHNA - MAGDALLA ROAD, SURAT.
E-TENDER NOTICE

Tenders for the works given below are invited from the Government / Semi Government and Municipal registered contractors. Tenders are invited for the following works through online process on **https:// tender.nprocure.com**

REPAIR, RENOVATION, UPGRADATION & STRUCTURAL REHABILITATION OF GIRNAR BOY'S HOSTEL (G+1) AT VEER NARMAD SOUTH GUJARAT UNIVERSITY SURAT.

1.)	Estimated Amount (Rs.)	:	78,95,694.10
2.)	Earnest Money Deposit	:	79,000.00
3.)	Tender Fee (Rs.)	:	2,832.00 (Incuding GST)
4.)	Time Limit	:	06 Months (Excluding Monsoon)
5.)	Registration Class	:	"D" Class & Above
6.)	Solvency Certificate (Current year)	:	12 Lacs

Tender documents are available on **https:// tender.nprocure.com**

1	Date & Time of Downloading of tender documents	From Dt. 24-08-2024 to Dt. 23-09-2024 up to 18.00 hrs.
2	Last Date & Time of online Submission of offer form / price bid	Dt. 23-09-2024 up to 18.00 hrs.
3	Physical submission of tender fee (Non refundable) EMD & Other required tender document etc. (In hard copy) by post only at V.N.South Gujarat University, Udhna - Magdalla Road, Surat-395007.	On or Before Dt. 01-10-2024 on working days.
4	Opening of offer form / price bid (on line)	Dt. 03-10-2024 up to 11.00 hrs. onwards if possible.

Note : Earnest Money Deposit & Tender Fee will be accepted in DD only. The Veer Narmad South Gujarat University reserves the right to reject any or all tenders or part of it which in the opinion of Veer Narmad South Gujarat University.

REGISTRAR
VEER NARMAD SOUTH GUJARAT UNIVERSITY

VEER NARMAD SOUTH GUJARAT UNIVERSITY

TENDER DOCUMENT:

REPAIR, RENOVATION, UPGRADATION & STRUCTURAL REHABILITATION OF GIRNAR BOY'S HOSTEL (G+1) AT VEER NARMAD SOUTH GUJARAT UNIVERSITY SURAT.

I N D E X

Signature of the Applicant :

Registrar
VEER NARMAD SOUTH GUJARAT UNIVERSITY

02. SCOPE OF TENDER :

Salient features and details of the Work, for which applications are invited, are as under (Please Read carefully & Consider for Quote the Rate) :

Sr. No.	Name of the Work	Total estimated cost including Steel & Cement Rs.	Period of completion
01.	**REPAIR, RENOVATION, UPGRADATION & STRUCTURAL REHABILITATION OF GIRNAR BOY'S HOSTEL (G+1) AT VEER NARMAD SOUTH GUJARAT UNIVERSITY SURAT.**	**78,95,694.10**	**06 Months** (Excluding Monsoon)

Work shall be executed according to General Conditions of Contract and detailed Technical Specification.

Signature of the Applicant :

Registrar
VEER NARMAD SOUTH GUJARAT UNIVERSITY.

03. SET OF DOCUMENTS TO QUALIFY THE APPLICANT / CONTRACTOR:

03. A. INSTRUCTIONS TO THE APPLICANT / CONTRACTOR:

A.	The qualification process shall lay high emphasis on the ability and competency of applicants / contractors to do high quality work within the given time schedule.
B.	The work certificate of sub-contract shall not be considered for evaluation.
C.	All the information shall have to be filled in the prescribed statement, wherever mentioned.
D.	All the details, required in the prescribed statement, shall have to be duly filled up. No information shall be left out. Relevant item without required information shall not be considered for evaluation.
E.	All the required attachments shall have to be invariably attached. Relevant item, without required attachment, shall not be considered for evaluation.
F.	**VEER NARMAD SOUTH GUJARAT UNIVERSITY** reserves the right to accept or reject any one or all of the offers / tenders without giving any reasons thereof.
G.	**VEER NARMAD SOUTH GUJARAT UNIVERSITY** reserves the right to restrict the list of qualified applicants to any number deemed suitable by it. Decision of the **VEER NARMAD SOUTH GUJARAT UNIVERSITY** for qualifying the applicants shall be final and binding to all.
H.	All information has to be typed in English language. All pages of the qualification documents have to be initialed by the applicant. All corrections, erasures or overwriting therein, have to be initialed by the applicant / contractor.

Note :

The tenderers are specifically informed that the "THIRD PARTY INSPECTION" & PMC shall be carried out by the agency appointed by the University. All the instructions given by the said agency shall have to be followed and carried out by the successful tenderer.

Signature of the Applicant with full address

03. B. INFORMATION REGARDING THE APPLICANT / CONTRACTOR:

A.	Name of the applicant / contractor	**:**
B.	Address of the applicant / contractor	:
C.	Phone nos. Mobile no. Fax no. E-mail	: : : :
D.	Registration no., date & authority	:
E.	Name & particulars of the authorized representative for the details furnished hereunder	:
F.	Type of organization, including particulars of Proprietor / Partners / Directors: (Sole Proprietorship, Partnership, Private Ltd., Co-Operative Body, etc.) (Attested copy of deeds of Memorandum of Association shall be enclosed.) 01. 02. 03.	
G.	P.F. Registration Certificates	:
H.	I. T. PAN no.	:
I.	GST Registration No.	:

J. Name and address of the bankers :

1.Bank Facilities available

- Overdraft :
- Guarantees :
- Letters of Credit :
- Solvency Certificate
- Others :

Signature of the Applicant with full address

03. C. DECLARATION:

I / We, hereby, certify that I / we am / are not partner(s) in any firm(s) or am / are not connected with any firm (s), which has / have been blacklisted in any State, C.P.W.D., M.E.S., or Railways or VNSGU. or Any Govt. & Semi Govt. Department or PSU.

We, the partners of this firm, give an undertaking, hereby, that we are jointly and severally responsible to meet all the liabilities over and above the business of this firm.

Signature of the Applicant :

Registrar
VEER NARMAD SOUTH GUJARAT UNIVERSITY

Place :

Date :

03. D. STATEMENT-A:

Statement showing Average Annual Financial Turnover during the last 05 years certify by CA

Year	Turnover Amount Rs.

Signature of the Applicant with full address

03. E. STATEMENT – B:

List of Main Technical Staff Employed by the firm on Date:

Sr. No.	Name	Designation	Educational Qualification	Experience in the field	Duration of Service in the firm

Signature of the Applicant with full address

03. F. STATEMENT – B:

Statement showing similar works completed in the last 03 years,

Sr. No	Name of Department/ Client with Address	Name of the work	Estimated cost of the work put to tender Rs.	Tendered Amount Rs.	Date of award of the contract	Actual amount of the work completed Rs.
1	2	3	4	5	6	7

Signature of the Applicant with full address

03. F. STATEMENT – C:

Statement showing details of Partners of the Firm:

Sr. No.	Name	Age	Qualification	Address	Telephone No.

Signature of the Applicant with full address

03. G. STATEMENT – C :

Statement showing no. of works on Hand

Sr. No	Name of Department/ Client with Address	Name of the work	Estimated cost of the work put to tender Rs.	Tendered Amount Rs.	Date of award of the contract	Target date of completion of the work as per the contract	Actual amount of the work completed Rs.	Time limit in years and months	Remarks
1	2	3	4	5	6	7	8	9	10

Signature of the Applicant with full address

03. G. STATEMENT – D :

LIST OF ARTICLES / MACHINERIES IN WORKING CONDITION, AVAILABLE WITH THE TENDERER :

Sr. No.	Name of Articles/ Machinaries	No. available in working condition (with make)	Location	Value of Articles/ Machinaries

Signature of the Applicant with full address

03. H. UNDERTAKING:

1. I / We agree, hereby, that the decision of the **VEER NARMAD SOUTH GUJARAT UNIVERSITY** in qualifying & / or selection of the applicant/s / contractor, phasing of the Work and in any other project related matter, shall be final and binding to me/ us.

2. All the information and data, furnished herewith, are correct to my/our best of knowledge.

3. I/We agree that I / we have no objection, if inquiries are made about my / our works, their related areas and any other inquiry regarding all the details, projects and works listed by me / us in the qualifying documents at any stage.

Signature of the Applicant with seal of the firm

03. I. FORM – V:

‘DECLARATION OF THE APPLICANT / CONTRACTOR’

I / We, hereby, declare that I / we have made myself / ourselves thoroughly conversant with the local conditions regarding all Materials: and labour, on which I / we have based my / our rates for this tender. The specifications and leads on this work have been carefully studied and understood before submitting this tender. I / We undertake to use only the best Materials: approved by the Engineer-in-Charge or his duly authorized representative during execution of the work and to abide by his decision.

Signature of the Applicant

04. MEMORANDUM:

(1)	General Description of the Work	:	**REPAIR, RENOVATION, UPGRADATION & STRUCTURAL REHABILITATION OF GIRNAR BOY'S HOSTEL (G+1) AT VEER NARMAD SOUTH GUJARAT UNIVERSITY SURAT.**
(2)	Estimated Cost	:	**Rs. 78,95,694.10**
(3)	Earnest Money Deposit	:	**Rs. 79,000.00**
(4)	**Security Deposit**		
	(i) Initial Security Deposit	:	**Rs. 5% of the Tender Value.**
	(ii) To be deducted from R. A. Bills	:	**Rs. 5% of each R. A. Bill amount.**
(5)	Time allowed for the completion of the Work from date fixed in Work Order Letter to commence	:	6 months, excluding monsoon, as per GC-17.
(6)	Compensation for delayed Work	:	0.1% OF CONTRACT VALUE PER DAY AFTER MENTION TIME LIMIT. OR MAX. 10% OF ESTIMATED AMOUNT PUT TO TENDER.
(7)	Defect Liability Period	:	3 (Three) Year
(8)	**Water Charges deducted from the billAmount**	**:**	**1% OF TOTAL BILL AMOUNT**
(9)	**Construction Cess will be deducted from the bill Amount**	**:-**	**1% Of TOTAL BILL AMOUNT**
(10)	**Testing of Material Charges**	**:-**	**It should be specifically noted that the material brought by the contractor at site of work and Cube Testing and other testing at the approved laboratory as per direction of the Engineer-in-charg. All the charges for the Trasport and Testing of Material and Sample shall have to be borneby the Contractor, The Frequency of the testing such material and sample shall be accourdance to directed by Engineer-in-charrg.**

Registrar
VEER NARMAD SOUTH GUJARAT UNIVERSI

04. A . MINIMUM ELIGIBILITY CRITERIA / QUALIFICATION CRITERIA

Minimum Eligibility Criteria of REPAIR, RENOVATION, UPGRADATION & STRUCTURAL REHABILITATION OF GIRNAR BOY'S HOSTEL (G+1) at VEER NARMAD SOUTH GUJARAT UNIVERSITY SURAT.

The Supplier must submit the following documents in Scane in E Format &Physical Copy for minimum eligibility criteria.

1. Registratation Cerrtificate – "D" Class & Above
2. Bank Solcency Certificate of Rs. 12 Lacs (Current Year)
3. PAN Number
4. GST Registration No.
5. Tender Fee – DD of Rs. 2,832=00 (Rs. 2,400=00 Tender Fee + Rs. 432=00 GST 18%)
6. EMD – DD of Rs. 79,000=00
7. Eeperience Certificate.

Experience of having successfully completed Similar work [As specified in It-04(a)] during last 7 years either of following**. (Estimated Cost of REPAIR, RENOVATION, UPGRADATION & STRUCTURAL REHABILITATION OF GIRNAR BOY'S HOSTEL (G+1) at Veer Narmad South Gujarat University, Surat Rs. 78,95,694=10)**

(a) Three Similar work [As specified in It-04(a)] completed, each costing not less than amount equal to 40% of the estimated cost. (Attached Form 3 (A) or Work Completion Certificate with Amount from the Competent Authority. in case of Private work sufficient authentic proof of work done along with evidence of financial transition shall haveto be furnished.) **OR**

(b) Two Similar work [As specified in It-04(a)] completed, each costing not less than amount equal to 50% of the estimated cost. (Attached Form 3 (A) or Work Completion Certificate with Amount from the Competent Authority. in case of Private work sufficient authentic proof of work done along with evidence of financial transition shall haveto be furnished.) **OR**

(c) One Similar work [As specified in It-04(a)] completed, each costing not less than amount equal to 80% of the estimated cost. (Attached Form 3 (A) or Work Completion Certificate with Amount from the Competent Authority. in case of Private work sufficient authenticproof of work done along with evidence of financial transition shall have to be furnished.)

8. Annual Turn Over:
    1. Annual Turn Over of any one of the last five financial years. i.e. from 2018-19 to 2023-24 updated to current financial year shall be more than **50% of the Estimated Cost.** (Please submit CA Certificate)
    2. For arriving at updated value, turnover of any financial year shall be multiplied by the enhancement factor corresponding to that year.

No.	Year	Financial Year	Multiplying Factor
1	Base (Year of inviting Tender)	2023-24	1.0
2	-1	2022-23	1.1
3	-2	2021-22	1.21
4	-3	2020-21	1.33
5	-4	2019-20	1.46
6	-5	2018-19	1.61

Date: **Seal & Signature of the Contractor**

05. INSTRUCTIONS TO THE TENDERER:

IT-01 GENERAL :

The Contract documents may be secured in accordance with the notice Inviting Tender for the work called. The work shall include supply of materials necessary for construction of the work.

IT-02 INVITATION TO TENDER:

The "The Registrar, Veer Narmad South Gujarat University, Surat", hereinafter referred to as the VNSGU will receive tenders for the **REPAIR, RENOVATION, UPGRADATION & STRUCTURAL REHABILITATION OF GIRNAR BOY'S HOSTEL (G+1) VEER NARMAD SOUTH GUJARAT UNIVERSITY SURAT.** as per the specifications in the tender documents. The tenders shall be opened in presence of opening authority in the presence of tenderers or their representatives who are present. the VNSGU reserves the right to reject the lowest or any other or all tenders or part of it which in the opinion of the VNSGU does not appear to be in its best interest, and the tenderer shall have no cause of action or claim against the VNSGU or its officers, employees, successors or assignees for rejection of his tender.

IT-03 LANGUAGE OF TENDER :

Tenders shall be submitted in English, and all information in the tender shall also be in English, Information in any other language shall be accompanies by its translation in English. Failure to comply with this may make the tender liable to reject.

IT-04 QUALIFICATIONS OF TENDERERS:-

(A) Tenderer shall be required to submit the enlisted documents along with Technical Bid, E.M.D. and tender fees. If documents are insufficient or it does not match the required criteria mentioned below, then the Price Bid of the tenderer shall not be opened.

Mainly tenderer shall fulfill following the pre-qualification.

(a) QUALIFYING CRITERIA OF BIDDER

Sr. No.	Criteria	Documents required for complete submission
1.0 Financial		
1.1	Average Annual financial turnover during the last 5 years, ending 31/03/2024, should be at least 50% of the estimated cost (i.e. **50% of Rs**.**78,95,694.10**)	Copy of certificate from Chartered Accountant along with copy of Balance sheets.
1.2	**Solvency Certificate** Recent/Fresh Solvency certificate from bankers of schedule bank / nationalized bank. Minimum value of solvency shall be **Rs**. **12 Lacs**)	from bankers of schedule bank / nationalized bank
2.0 Registration		
2.1	Minimum " **D" class & Above"** Registration Class with any government, semi government organization	Registration Certificate
2.2	power of attorney, partnership deed or registration deed.	Attested copy should be submitted

3.0 Relevant Experience		
3.1	Similar works during last 7 years.	attested copies of certificates from head of the office concerned for completion of the works
3.1.1	Three Similar work [As specified in It-04(a)], each costing not less than amount equal to 40% of the estimated cost put to the tender **(i.e. 40% of Rs. 78,95,694.10)**	
	Or	
3.1.2	Two Similar work [As specified in It-04(a)], each costing not less the amount equal to **50%** of the estimated cost put to the tender **(i.e. 50% of Rs. 78,95,694.10)**	
	Or	
3.1.3	One Similar work [As specified in It-04(a)], each costing not less the amount equal to 80% of the estimated cost put to the tender **(i.e. 80% of 78,95,694.10)**	
4.0 Other details		
4.1	AFFIDAVIT The Bidders shall note that in case the Bidder is blacklisted / stated as defaulter / barred participating in tenders by any of government agencies / semi government agencies or any other equivalent agencies during last 5 years then in that case, the Bidders will be disqualified and will not be allowed to participate in the bidding process, though bidder satisfies all the qualification conditions mentioned above. In this regard, the decision of the "The Registrar, Veer Narmad South Gujarat University, Surat", will be final and binding to Bidder.	AFFIDAVIT
4.2	**Works on hand & Litigation** The Bidder including any Member shall provide details of all their on-going projects along with stage of litigation, if so, against the Employer / Governments.	ANNEXURE-I & II

Similar work means construction of RCC framed structure with Rehabilitation work Experience only (In Form 3A Format) Only as per final rehab work certification check by authority / PMC.

(b) Turnover during last 5 years, ending 31st March of previous financial year should be atleast 50% of Estimated Cost. An attested copy of annual turnover **(CA certified**) for last 5 years should be enclosed.

(c) Recent/Fresh Solvency certificate from bankers of schedule bank/Nationalized bank for the Rs. 12 Lacs. Tenderer has to submit higher amount of bank solvency if so desired by The VNSGU Authority.

(d) An attested copy of registration with MES, Various department of State Govt. or PSU, "The Registrar, Veer Narmad South Gujarat University, Surat",, CPWD etc.

(e) The works carried out for Government or Semi-Government or ULB shall only be considered for qualification. The necessary work completion certificate from not below the rank of The Registrar, Veer Narmad South Gujarat University shall only be considered.

(h) Bidder sould indicate actual figures of cost and the amount for the work executed in Annexure-I without accounting for the above mentioned factors.

(i) Declaration regarding the work on hand with the tender should also be given in prescribed performa as per Annexture-II. Attested copies of work orders, interim certificates if any shall also be attach as supporting documents.

(j) Attested copy of partnership deed, power of attorney etc.

(k) Application Received from joint venture / consortium shall not be considered.

- attested copy of partnership deed, power of attoney etc.
- passport size photographs of partner / all partners on relevant page of technical bid.
- Tenderer shall submit only one tender for the work put to this tender.
- Tenderer shall submit the certificate of Employers code number under EPF Act.

(l) Even though the Bidder meets the above criteria, they are subject to be disqualified if they have

i) Made misleading or false presentations in the forms, statements and attachments submitted in proof of the qualification requirements; and / or

ii) During verification if it is found from client that of poor performance such as abandoning the works, litigation history, or financial failure and abnormal delay in work etc.

iii) Being debarred by R & B / PWD Dept. or any State / Central Government department as on the date of application - Even if the joint venture is debarred by R & B / PWD Dept. or any State / Central Government department as on the date of application each partner of joint venture is considered as debarred.

iv) Regarding Litigation in case where Bidder or JV partner or MOU Partner is involved in illegal practice like any activities of corruption, coercive practice or debarred/blacklisted in last 7 years by Any Govt / Organization in respect of performance of Bidder / MOU partner /JV partner, it is to state that "The Registrar, Veer Narmad South Gujarat University, Surat", authority requires that bidders under this contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this, VNSGU authority (1) Will reject a proposal for award if it determines that the bidder has engaged in any corrupt or fraudant practices in competing for this contract or in past history and (2) Will reject a proposal if it found debarred/black listed by any State Govt. /Govt. of India.

(m) The Bidder shall note that in case the Bidder/MOU partner is blacklisted/stated as defaulter/barred participating in Bids by any of government agencies/semi government agencies in India during last 07 years then in that case, the Bidder will be disqualified though the bidder satisfies all the pre-qualification conditions mentioned above.

IT-05 TENDER DOCUMENTS :

Printed and online documents and set of drawings shall comprehensively be referred to as Tender documents. The several sections forming the documents are the essential parts of the contract and a requirement occurring in one shall be binding as though occurring in all. They are to be taken as mutually explanatory and describe and provide for complete works.

IT-06 EXAMINATION BY TENDERERS :

A. At his own expenses and prior to submitting his tender, each tenderer shall (a) examine the contract Documents, (b) visit the site and determine local conditions which may effect the work including

the prevailing wages and other pertinent cost factors, (c) familiarize himself with all CENTRAL, State and local laws, ordinance, rules, regulations and codes affecting the material supply including the cost of permits and licenses required for the work and (d) correlate his observations, investigations, and determinations with the requirements of the Tender Documents.

B. The tender quantity is approximate and may increase or decrease. Any increase or decrease in quantity will not entitle tenderer to claim any extra over the quoted rate.

C. Tender Documents be completed by legible ink, checked in a responsible manner, signed,

stamped and returned together with the Tender Security Bond by the stipulated date, which shall form the Tender.

The Tenderer is required to complete :

(i) The form of tender, including the Appendices thereto Tender Security Bond and the Tender summary duly signed and stamped.

All the pages in which entries are required to be made by the tenderer are contained in the tender documents and the tenderer shall not take out or add to or amend the text of any of the documents except in so far as may be necessary to comply with any addenda issued pursuant to Clause IT-17 IT-17 hereof.

IT-07 EARNEST MONEY DEPOSIT:

A. The Tender shall be accompanied by of Earnest Money Deposit **Rs 79,000.00** The tenderer shall pay 100% EMD amount in form of crossed Demand Draft or Payorder of Nationalised Bank payable at Surat issued in favour of "VNSGU Authority, “The Registrar, Veer Narmad South Gujarat University, Surat”,, Surat" through Nationalised/Schedule Bank only. the tenderer can pay Tender Fees & EMD seperately through online by NEFT/RTGS/IMPS as mentioned in Clause 1 (D) on page Number 8 of Technical bid Vol. I (Part-I). **The Earnest Money Deposit in the form of FDR or cheque shall not be accepted.** The tenderer shall have to mention details of Earnest Money Deposit on the seal cover of Earnest Money Deposit. The tender received without Earnest Money Deposit shall be out rightly rejected

The instruments for Earnest Money Deposity shall be issued by or payable/encashable at Surat Branch of the said nationalized bank.

(1) All Nationalized Banks

(2) AXIS Bank

(3) Baroda Gujarat Gramin Bank

(4) DCB Bank

(5) HDFC Bank

(6) ICICI Bank

(7) IndusInd Bank

(8) Kotak Mahindra Bank

(9) Nutan Nagarik Sahakari Bank Ltd.

(10) Rajkot Nagarik Sahakari Bank Ltd.

(11) RBL Bank

(12) Saurashtra Gramin Bank

(13) The Ahmedabad Mercantile Co-Operative Bank Ltd.

(14) The Kalupur Commercial Co-Operative Bank Ltd.

(15) The Mehsana Urban Co-Operative Bank Ltd.

(16) The Surat District Co-Operative Bank Ltd.

B. The Earnest Money Deposit (Tender guarantee) will be forfeited in the event, the successful tenderer fails to accept the contract and fails to submit the Performance Guarantee Bond to the owner as stipulated in this tender documents within ten days after receipt of notice of award of contract. In such case owner may disqualify the tenderer from tendering for further works, under the jurisdictions of the VNSGU.

C. The Earnest Money Deposit of the successful tender shall be consider as initial security deposit & remaining amount for security deposit is to be paid by the Contractor.

D. No interest shall be paid by the owner on any tender guarantee.

IT-08 INCOME TAX CLEARANCE CERTIFICATE :

In view of the latest circular of IT Department IT clearance certificate is not required. However the contractor shall give attested photo copy of the PAN card and a copy of last three years income tax return. Also provide GST Number and necessary documents as per Govt resolution

IT-09 PREPARATION OF TENDER DOCUMENTS :

Tenderers are requested to note the following while preparing the Tender Documents:

A. Technical bid, EMD and Tender fees shall be submitted on the Tender Form bound herein in English. All tender items and statements shall be properly filled in. Numbers shall be stated both in words and in figures where so indicated, and signatures of all persons signing shall be in longhand.

B. Technical Bid shall be accompanied by the prescribed tender security bond and other required documents and drawings. All witnesses and sureties shall be persons of status and probity and their full names, occupations and address shall be stated below their signatures. All signatures in the Tender Documents shall be dated.

C. Variations to the Contract Documents requested by the tenderer may be affixed to the Tender Document in the space available and duly signed and stamped. Such variations may be approved or refused by the Engineer at the time of adjudications of Tenders, and in either case the Engineer is not obliged to give reasons for his decisions.

D. Delivery of Tenders shall comply with Notice inviting tenders as to place, date and time.

E. Price Bid shall be submitted online. Tenderers are requested to quote for all parts of the tender

IT 10 SUBMISSION OF TENDERER DOCUMENT :-

Tenderer is requested to submit the tender as per the following :

A. The Tenderer shall submit the Tender Document along with demand draft of E.M.D. to **"The Registrar, Veer Narmad South Gujarat University, Surat",** Veer Narmad South Gujarat University, U-M Road, Surat.

B. The full name & address of the Tenderer, and the name of the authorized agent delivering the tender, shall be written at the bottom left hand corner of the said sealed envelope. The name of the Work shall be clearly mentioned on the sealed envelope.

C. Tenders shall be opened by the **Competent Authority, Veer Narmad South Gujarat University,** Surat on the due day & time in the presence of representative of Tenderers, who choose to be present.

D. Telegraphic tenders shall not be entertained.

E.M.D .

penalatative action for not submitting D.D in original to Account Department (Main Office)by bidder shall be initiated and action shall be taken for abeyance of registration and cancellation of E – tendering code for one year.

Any documents in supporting of bid shall be in electronic format only through online (by Scanning) & hard copy will not be accepted separately.

All document must be colour scanned to be seen as original. scanning in black and white or grey shall not be acceptable.

All the documents must be notarised with clearly displaying stamp, number and name of the notary.

All necessary documents mentioned in Technical bid (if any). shall be submitted online.

"Following Documents shall only be submitted in HARD COPY to "The Registrar, Veer Narmad South Gujarat University, Surat", by all bidders."

- Earnest Money Deposit as mentioned in the tender.(i.e.D.D)
- Tender Fees as mentioned in the tender.
- Annexure-A (Affidavit)

All necessary documents mentioned in Technical bid (if any). shall be submitted online.

2. Tenderer shall be required to submit the enlisted documents as mentioned below in Cover-1. If necessary, document founds insufficient then the Price Bid of the tenderer shall not be opened.

(a) The tender shall be accompanied by Earnest Money Deposit of **Rs 79,000.00** The tenderer will pay **Earnest Money Deposit** by **Pay Order/Demand Draft** or Bank Guarrantee issued in favour of"The Registrar, Veer Narmad South Gujarat University, Surat" by Nationalized Bank the tenderer can pay EMD through online by NEFT/RTGS/IMPS as mentioned in Clause 1 (D) on page Number 8 of Technical bid Vol. I (Part-I).

(b) A covering letter detailing various considerations considered in tender shall invariably be given.

(c) Passport size photographs of all the partners (incase of partnership firm) to be fixed on relevant Page of the tender documents.

3. (a) List of tools, plants and equipments with tenderer in detail.

(b) Technical establishment/staff of the tenderer in required Performa with their names, qualifications and experience.

(c) Tenderer shall furnish along with the tender, information regarding Income tax circle of the district in which he is assessed for income tax with PAN No.

4. Submission of a tender by a tenderer shall mean that he has read this notice and contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and nature of required quantities of Materials stores, tools and plants etc. that may be required by him in carrying out the work and of local conditions and laws and bylaws of the Government, The "The Registrar, Veer Narmad South Gujarat University, Surat", and other factors bearing influence on the execution and cost of the works.

5. E.M.D., Tender Fee and other necessary document in hard copy shall be received by Registered Post A.D. or by Speed Post through Postal Authority only by the**, "The Registrar, Veer Narmad South Gujarat University" Udhana - Magdalla Road, Surat, Gujarat 395007** upto **Dt. 01/10/2024 on Working days.**

The same will be opened probably on **Dt. 03/10/2024, 11:00 hrs (Technical Bid- Soft Copy) (Probable) & Dt. 03/10/2024, 11:30 hrs. (Technical Bid-Hard copy) onwards (Probable)** in the presence of the tenderers, who shall remain present in the office of "Tender opening officer, "The Registrar, Veer Narmad

South Gujarat University, Surat". Late tenders (i.e. tenders received after the specified time of opening), delayed tender (i.e. tenders received before the time of opening but after due date and the time of receipt of tender) shall not be considered at all. Tenders received by Registered Post A.D./ Speed Post after the time and the date specified in the tender notice shall not be received by the client from the postman. Such tenders if received will not be opened and will stand rejected.

6. Tender shall stand rejected if:

1. Any eraser is made in the tender unauthenticated or any page or pages is/are removed or replaced.

2. The tenderer shall submit the tender which satisfied each and every conditions laid down in the notice tender documents, failing which the tender will be liable for rejection.

3. Tenderer's tender/quotation containing conditions shall be liable for rejection out rightly without assigning any reason for the same.

4. Stipulates the validity period less than what is stated in the form or tender.

5. Stipulates his own conditions.

6. Does not quote his rates inclusive of Octree duty and other terminal or CENTRAL taxes GST in his rates.

7. Does not disclose the full names and address of all his partners in the case of partnership firm.

8. Does not pay the Earnest Money Deposit by Demand Draft/Pay order or Bank Guarantee and Tender Fees with Technical Bid (Cover-1).

9. Does not submit the tender before the stipulated time and specified date in the Account Office as directed.

10. Does not attached the document mentioned.

11. The tenderer proposes any alteration in the work specified in the tender or in the time limit allowed for carrying out the work or any other condition.

7. All corrections, additions or posted slips to be initialed by the tenderer.

8.All page of tender documents including specifications should be initialed by the contractor.

9. The tenderer shall submit the tender which satisfies each and every conditions laid down in this notice and tender documents failing which the tender is liable for rejection.

10. Notice of inviting tenders shall be a part of the contract documents.

11. Acceptance of tenderer/quotation will rest with the competent authority of "The Registrar, Veer Narmad South Gujarat University, Surat", who does not bind himself to accept the lowest and reserves the right to accept or to reject any or all quotations/tenders and no reasons will be given for acceptance or rejection thereof.

12.The contractor shall also attach list of machineries, tools, plants, equipments which he propose to deploy for this work.

13. Tender once accepted shall be binding on the contractor even if the formal agreement is not signed.

14. Tender once offered can not be withdrawn except with the permission of head of the concerned department, "The Registrar, Veer Narmad South Gujarat University, Surat".

15.Item may vary with regards their quantities of necessities arise.

16.Every partner of the firm shall have to sign the tender documents otherwise the same will not be Considered.

17.If found necessary, the contractor may carry out the work in addition to the specified hour, with the written permission of The Registrar, Veer Narmad South Gujarat University, but in that case, overtime to be paid to the staff engaged on site shall be borne by the Contractor.

18. The successful tenderer shall be required to enter in to agreement with "The Registrar, Veer Narmad South Gujarat University, Surat", after placing the work order for the said work from "The Registrar, Veer Narmad South Gujarat University, Surat".

19. The successful tenderer may be required to furnish surety in accordance with IT-28 on stamp paper.

20. The tenderers are requested to give complete specification of work quoted.

21. Unless specifically mentioned by the tenderer for the extra payment of taxes on price quoted by them it will be presumed the prices quoted are inclusive of the all taxes including GST and no claim will be entertained for payment of extra taxes on the bills submitted by them.

22. The Price-bid will be opened only after technical clarifications are clarified.

23. "The Registrar, Veer Narmad South Gujarat University, Surat", reserves the right to open or not to open any or all Price-bid without assigning any reason thereof.

IT-11 TENDER VALIDITY PERIOD :

The validity period of the tender submitted for this work shall be of one hundred fifty (150) Calendar day from the date of opening of price bid and that the tenderer shall not be allowed to withdraw or modify the tender offer on his own during the validity period. The tenderer will not be allowed to withdraw the tender or make any modifications or additions in the terms and conditions of his own in his tender. If this is done then the owner shall, without prejudice to any right or remedy, be at liberty to reject the tender and forfeit the Earnest Money Deposit in full.

IT-12 SIGNING OF TENDER DOCUMENTS :

If the Tender is made by an individual it shall be signed with his full name above his current address. If he tender is made by a Proprietary firm it shall be signed by the proprietor above his name and the name of his firm with his current address.

If the tender is made by a firm in partnership it shall be signed by all the partners of the firm above their full names and current addresses, or by a partner holding the power of attorney for the firm signing the Tender in which case a certified copy of the power of attorney shall accompany the Tender. A certified copy of the partnership deed, current addresses of all the partners of the firm shall also accompany the tender.

If the tender is made by VNSGU, it shall be by a duly authorised person holding the power of attorney for signing the Tender in which case a certified copy of the power of attorney shall accompany the Tender. VNSGU may be required to furnished satisfactory evidence of its existence before the contract is award.

All witnesses and sureties shall be persons of status and probity and their full names, occupations and addresses shall be stated below their signatures. All signatures in the Tender document shall be dated.

IT-13 WITHDRAWAL OF TENDERS :

If, during the Tender validity period, the Tenderer withdraws his Tender, the Tender Security (Earnest Money) shall be forfeited and the Tenderer may be disqualified from tendering for further works under the jurisdiction of "THE REGISTRAR, VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT".

IT-14 INTERPRETATIONS OF TENDER DOCUMENT :

Tenderers shall carefully examine the tender documents and fully inform themselves as to all the conditions and matters which may in any way effect the work or the cost thereof. Should a tenderer find discrepancies or omission from the specifications or other documents, or should be in doubt as to their meaning, he should at once address querry to the Divisional Head provided for concerned authority as referred in the Tender Document in Clause GC-01 (Definitions and interpretations) of the (General Condition of Contract). Any resulting interpretation of the Tender documents will be issued to all Tenderers as an addenda corrigendum. Verbal clarification and / or information given by VNSGU/Consulting Engineer shall not be binding on the VNSGU.

IT-15 ERRORS AND DISCREPANCIES IN TENDERS :

In case of conflict between the figures and words in the rates, the rates expressed in words shall prevail and apply in such cases.

IT-16 MODIFICATION OF DOCUMENTS :

Modification of specifications and extension of the closing date of the tender, if required, will be made by an addendum. Copies of each addendum will be sent to all tenderers. These shall be Signed and shall form a part of tender. The tenderer shall not add to or amend the text of any of the documents except in so far as may be necessary to comply with any addenda.

IT-17 ADDENDA :

Addenda form part of the contract documents & full consideration shall be given to all addenda in the preparation of tenders. Tenderers shall verify the number of addenda issued, if, any and acknowledge the receipt of all Addenda in the Tender. Failure to acknowledge may cause the Tender to be rejected.

A. The Engineer of the owner may issue Addenda to advise Tenderers of changed requirements. Such addenda may modify previously issued Addenda.

B. No Addendum may be issued after the time stated in Notice Inviting Tenders.

IT-18 TAXES AND DUTIES ON MATERIAL:

The Contractor shall be liable to payment of all the Central/State/Local Bodie's Levies/GST/taxes or duties etc. “The Registrar, Veer Narmad South Gujarat University, Surat”, shall neither bear it nor reimburse at any time but will ensure deduction of Central/State/Local levies/GST and taxes at Source at the rate provided under the relevant statutes from time to time inforce.

1% Construction Cess will be deducted from respective R.A. Bill and Final bill in accordance with the prevailing norms of Govt. of Gujarat.

GST CLAUSE FOR CONSTRUCTION / ERECTION / COMMISSIONING / INSTALLATION / REPAIRS/ MAINTENANCE / RENOVATION / FABRICATION OF STRUCTURE INCLUDING BUILDING (MEANS ALL WORKS CONTACT / TURN KEY PROJECTS / SUPPLY OF MATERIAL / GOODS).

GST (Goods & Service Tax) has come in existence from 1st July 2017. Contract / Successful Bidder is bound to pay any amount of GST prescribed by the Govt. of India as per the Terms of Contract agreed upon during the course of execution of this Contract.

During the course of execution of contract. if there is any change in Rate of GST (Goods & Service Tax) by the Goverment the same shall be reimbursed / recovered separately by “The Registrar, Veer Narmad South Gujarat University, Surat”, subject to the submission of Original Receipt / proof for the amounts actually remitted by the successful Tenderer / Contractor to the competent authority along with a certificate from Chartered Accountant of Contractor / Successful Bidder certifying that the amount of GST paid to the Government and the same shall be intimated / submitted / claimed within 30 Days from the date of payment Remittance of GST within stipulated period shall be the sole responsibility of the Successful Bidder / Contractor failier which “The Registrar, Veer Narmad South Gujarat University, Surat”, shall be final and binding on the Contractor / Successful Bidder in this regard Further the nonpayment of GST to the Goverment may lead to the termination of contact and forfeiture of security Deposited / Performance Guarantee Amount.

If imposition of any other new Taxes / Duties / Levies / Cess or any other incidentals etc. or any increase in the existing Taxes / Duties / Levies / Cess or any other incidentals etc. (Excluding GST) are imposed during the course of the contract the same shall be borne by the Contracter / Successful Bidder only in no case “The Registrar, Veer Narmad South Gujarat University, Surat”, shall be liable for the same.

IT-19 EVALUATION OF TENDERS

As per IT (04), Experience of Rehabilitation works the Contractor shall be only considered for similar kind of works.

IT-20 EVALUATION OF TIME REQUIRED FOR COMPLETION

The time required for completion of work shall be considered as indicated by the tenderer in the completion schedule attached with the tender. The completion period mentioned in this schedule is to be reckoned from 15th day from the date of work order to proceed. Total completion period is calendar months from 15th day from date of issue of work order and tenderers should adhere to this delivery time.

IT-21 POLICY FOR TENDER UNDER CONSIDERATION :

Tenders shall be termed to be under consideration from the opening of the tender until such time an official announcement of award is made. While tenders are under consideration, tenderers and their representative or other interested parties are advised to refrain from connecting by any means "The Registrar, Veer Narmad South Gujarat University, Surat", or representatives on matters related to the tenders under study. The Engineer's representative if necessary will obtain clarification on tenders by requesting information from any or all the tenderers either in writing or through personal contact, as may be necessary. The tenderers will not be permitted to change the substance of his tender after price submission. Non-compliance with this provision shall make the tender liable for rejection.

IT-22 PRICES AND PAYMENTS :

The tenderer must understand clearly that the price quoted are for the total works or the part of the total works quoted for and include all costs due to materials labor, equipment, supervisions, other services, royalties and Octroi GST etc. and to include all extras to cover the cost. No claim for additional payment beyond the prices quoted will be entertained and the tenderer will not be entitled subsequently to make any claim on any ground excepting for the condition laid down in GC-35 (Price Adjustment).

IT-23 PAYMENT TERMS :

The terms of payment are defined in the General Conditions of Contract. "The Registrar, Veer Narmad South Gujarat University, Surat", shall not under any circumstances relax, their terms of payment and will not consider any alternative payment terms. Tenderers should therefore in their own interest note this provision to avoid rejection of their tenders.

IT-24 AWARD :

Award of the Contract or the rejection of tenders will be made during the Tender validity period stated in the Notice Inviting Tenders.

A. After all contract contingencies are satisfied and the Notice of Award is issued, the successful Tenderer shall execute the Contract Agreement within the time stated in the Notice Inviting Tenders and shall furnish the Bond as required herein. The Contract Agreement shall be executed in the form stipulated by the owner. A copy of the required form is included in the contract documents.

B. If the Tenderer receiving the Notice of Award fails or refuses to execute the Contract Agreement within the stated time limit or fails or refuses to furnish the Bond as required herein, "The Registrar, Veer Narmad South Gujarat University, Surat", may annul his award and declare the tender security forfeited.

C. A VNSGU, the Tenderer and receiving the Award shall furnish evidence of its existence and evidence that the officer signing the Contract Agreement & Bonds for the VNSGU, the Tenderer is duly authorised to do so.

IT-25 SIGNING OF CONTRACT :

The successful tender shall be required to pay the security deposit and to execute the contract within 10 days of receipt of intimation to execute the contract, failing which the "The Registrar, Veer Narmad South Gujarat University, Surat", will be entitled to annul the award and forfeit the Earnest Money Deposit. The person to sign the contract document shall be person detailed in Article IT-12.

IT-26 DISQUALIFICATION :

A tender shall be disqualified and will not be taken for consideration if :-

(a)The outer envelope does not show on the outside the reference of bid and thus get opened before the due date of opening (as per Article IT-10 i.e. Submission of Tender Document).

(b)The tender Security Deposit is not deposited in full and in the manner i.e. Earnest Money Deposit.

(c)The tender is in a language other than English or does not contain its English Translation in case of other language adopted for tender preparation.

(d)The tender documents are not signed by an authorised person.

(e)The general performance data for qualification not submitted fully.

(f)The tenderer does not agree to deposit security amount as specified (as per Article IT-25 i.e. Signing of Contract).

(g)The tenderer does not agree to payment terms defined as per Article IT-23 i.e. Payment Terms.)

(h)Conditional tender.

A. Tenderer may further be disqualified if :

(a) Price variation is proposed by the Tenderer on any principles other than provided in the Documents.

(b)Completion schedule offered is not consistent with the completion schedule defined and in tender documents.

(c) The validity of tender is less than that mentioned in Article IT-11 i.e. Tender Validity Period.

(d) Any of the page or pages of tender is/are removed or replaced.

(e) All corrections or pasted slips are not initialed by tenderer.

(f) Any erasure is made in the tender.

IT-27 PERFORMANCE GUARANTEE (SECURITY DEPOSIT) :

As a contract security the tenderer to whom the award is made shall furnish a performance guarantee (

t) for amount equal to Five percent **(5%)** of the contract price to guarantee the faithful performance completion and maintenance of the works of the contract in accordance with all the conditions and terms specified herein and to the satisfaction of the Engineer and ensuring the discharge of all obligations arising from the execution of contract, in one of the forms mentioned below.

(a) Initial Security Deposit of 5% (Shall be Released after completion of final bill as well as defect liability period & on completion of audit related procedure)
(b) 5% Retention money (5% SD + 5% Additional retention Money) deposit to be deducted from running bills (Shall be released with final bills)
Note: 5% Initial Security deposit shall be deposited in the form of Cash/DD/Pay order only.

Security deposit shall be paid in time and if it is paid after ten (10) days from the date of preliminary work order then the **penalty of 0.065 % per day** of the amount of security deposit shall be recovered from the contractor while receiving the security deposit. On due performance and completion of the contract in all respects, the performance guarantee (security deposit) will be returned to the contractor after the defect liability period and on completion of audit related procedure.It is clarified that the amount of security deposit shall be collected on the basis of Contract Price and not on the basis of estimated amountputto tender.As nitial Security Deposit Five percent (5%) of the tendered amount accepted by the competent authority shall have to be paid towards security deposit at the time of execution of agreement. This will be known as initial security deposit which will be released after the total completion of contract after completion of final bill as well as defect liability period & on completion of audit related procedure.

IT-28 STAMP DUTY:

If Security deposit (SD) is deposited in the form of D.D./cash/Pay order, draft the agreement shall be

executed on government stamp paper worth Rs. 300.00/- and if SD is deposited in the form of FDR, NSC, or any kind of saving certificates, the agreement shall be executed on government stamp paper worth

Rs. 300.00/- or 4.95% / prevelling rate of SD amount whichever is higher subject to the provision made in the tender for SD.

The Undertaking and Surety shall be executed on stamp paper worth Rs. 300.00/- + Rs.300.00/-.

IT-29 BRAND NAMES:

Specific references in the specifications to any materials by tender'sname, or catalogue number shall be construed as establishing a standard or quality and performance and not as limiting competition and the tenderer in such cases, may at their option freely use any other product, provided that it ensures and equal or higher quality than the standard mentioned and meets VNSGU approval.

IT-30 NON-TRANSFERABLE:

Tender documents are not transferable.

IT-31 COST OF TENDERING:

The owner will not defray expenses incurred by Tenderers in tendering.

IT-32 DEFECT OF TENDER:

The Tender for the work shall remain open for a period of 120 calendar days from the date of receipt of the tenders for this work and that the tenderer shall not be allowed to withdraw or modify the offer on his own during the period. If any tenderer withdraws or makes any modifications or additions in the terms and conditions on his own, then the VNSGU, shall without prejudice to any right or remedy, be at liberty to reject the tender and forfeit the earnest money in full.

IT-33 CHANGE IN A QUANTITY :

The "The Registrar, Veer Narmad South Gujarat University, Surat", reserves the right to waive any informality in any tender and to reject one or all tenders without assigning any reasons for such rejections and also to very to quantities of items or group as specified in the Schedule of price as may be necessary. Claim what so ever by the contractor on the basis of variation of quantities shall not be entertained.

IT-34 NEW EQUIPMENT AND MATERIAL :

All materials, equipment and spare parts thereof shall be new, unused and originally coming from manufacturer's plant to the Work site. The rebuilt or overhauled equipment/materials will not be allowed to be used on work.

IT-35 RIGHTS RESERVED :

The "The Registrar, Veer Narmad South Gujarat University, Surat", reserves the right to reject any or all tenders, to waive any informality or irregularity in any tender without assigning any reasons. The "The Registrar, Veer Narmad South Gujarat University, Surat", further reserves the right to withhold issuance of the notice to proceed, after execution of the contract agreement, for the period of time stated in the notice inviting tenders and no additional payment will be made to the successful tenderer on account of such withholding. The "The Registrar, Veer Narmad South Gujarat University, Surat", is not obliged to give reasons for any such action.

IT-36 VNSGU reserves the right to reduce the scope of work and split the tender in two or more parts without assigning any reason even after the award of contract.

IT-37 No mobilization advance or advance on machinery will be given.

IT-38 The scope of work is clearly mentioned in the tender documents. The contractor shall have to carry out the work in accordance with the details specifications. No conditions will be accepted. The conditional tender will be liable to be rejected.

IT-39 The surplus excavated earth, after backfilling the trenches shall have to be removed from the site as directed. After compaction and consolidation, if any short fall of earth is found then contractor has to bring the same to the required quantity in order to meet shortfall at his own cost. Moreover, if any settlement of road after reinstatement is observed during the defect liability period of the work. Contractor shall be fully

responsible for the defective work and patches / depression / settlement shall be repaired with quarry spoil or metal at contractor's own cost. If contractor fails to repair the patches / depression / settlement in time, "The Registrar, Veer Narmad South Gujarat University, Surat", will repair it at all risk and cost of contractor. Surplus earth shall not be disposed off in a way that leads to nuisance to the public or "The Registrar, Veer Narmad South Gujarat University, Surat",.

IT-40 TAXES

GST CLAUSE FOR CONSTRUCTION / ERECTION / COMMISSIONING / INSTALLATION / REPAIRS / MAINTENANCE / RENOVATION / FABRICATION OF STRUCTURE INCLUDING BUILDING (MEANS ALL WORKS CONTRACT / TURN KEY PROJECTS / SUPPLY OF MATERIAL / GOODS)

GST (Goods & Service Tax) has come in existence from 1st July, 2017. Contractor / Successful Bidder is bound to pay any amount of GST prescribed by the Govt. of India as per the Terms of Contract agreed upon during the course of execution of this Contract.

During the course of execution of Contract, if there is any change in Rate of GST (Goods & Service Tax) by the Government, the same shall be reimbursed / recovered separately by VNSGU, subject to the submission of Original Receipt / Proof for the amounts actually remitted by the Successful Tenderer / Contractor to the Competent Authority along with a Certificate from Chartered Accountant of Contractor / Successful Bidder certifying that the amount of GST paid to the Government and the same shall be intimated / submitted / claimed within 30 (Thirty) Days from the date of payment. Remittance of GST within stipulated Period shall be the sole responsibility of the Successful Bidder / Contractor, failing which, VNSGU may recover the amount due, from any other payable dues with VNSGU and decision of VNSGU Authority shall be final and binding on the Contractor / Successful Bidder in this regard. Further, the nonpayment of GST to the Government may lead to the termination of contract and forfeiture of Security Deposit / Performance Guarantee Amount.

If imposition of any other new Taxes / Duties / Levies / Cess or any other incidentals etc. or any increase in the existing Taxes / Duties / Levies / Cess or any other incidentals etc. (Excluding GST) are imposed during the course of the contract, the same shall be borne by the Contractor / Successful Bidder only, in no case SMC shall be liable for the same.

The Contractor will submit the invoice to the VNSGU having GSTIN of VNSGU mentioned therein and the taxes shall be shown separately on the face of the Invoice so as to claim as ITC by VNSGU.

IT-41 No escalation charge/rates shall be paid by "The Registrar, Veer Narmad South Gujarat University, Surat", in anycase.

IT-42 Contractor must be submitted the cement/steel (Zerox copy) bill wise.

IT-43 Contractor must be submitted royalty pass(zerox).

IT-44 All the taxes should be bear by agency & it should be applicable as per government resolution (of change periodically) & No compensation/Reimbersion should be given to the agency.

IT-45 TAX INVOICE FOR PAYMENT OF WORK (AS PER GST RULES)

The contractor shall submit all bills on the Prescribed format, include in Tender for purpose of payment of the work to the office of the Engineer-in-charge.

IT-46 TESTING OF CEMENT AND STEEL – As per Schedule-A

Signature of the Applicant :

Registrar
VEER NARMAD SOUTH GUJARAT UNIVERSITY.

Address :

06. GENERAL CONDITIONS OF CONTRACT :

SECTION-I

GC-01 DEFINITIONS AND INTERPRETATIONS

1.0 In the contract documents, as herein defined the following words and expression used shall, unless, repugnant to the subject or context thereof, have the following meanings assigned to them.

1.1 The "Owner VNSGU, Surat represented by , any officer authorized by the VNSGU.

1.2 The "Contractor" shall mean the person or the persons, firm or company whose tender has been accepted by the owner and includes his legal representative successors and permitted assignees.

1.3 The "Engineer-in-charge" shall mean the person designated as such by the owner from time to time and shall include those who are expressly authorized by the VNSGU to act for and on its behalf for the operation of this contract.

1.4 "Engineer-in-charge's Representative" shall mean any Engineer or Asstt. to the Engineer-in-charge designated from time to time by the Engineer-in-charge to perform duties set forth in the Tender documents whose authority shall be notified in writing to the Contractor by the Engineer-in-charge.

1.5 "Tender" The offer or proposal of the Tenderer submitted in the prescribed form setting forth the prices for the work to be performed, and the details thereof.

1.6 "Contract Price shall mean total money payable to the Contractor under the contract documents.

1.7 "Addenda" shall mean the written or graphic notices before submission of the tender which modify or interpret the contract documents.

1.8 "Contract Time" - The number of consecutive calendar months for the completion of work as stated in the executed contract agreement.

1.9 "Contract" shall mean agreements between the parties for the execution of works including therein all contract documents.

1.10 "Tender document" shall mean Designs, Drawings, specifications, agreed variations, if any, and such other documents constituting the tender and acceptance thereof.

1.11 "The Sub Contractor" means any person, firm or company (other than the contractor) to whom any part of the work has been entrusted by the Contractor with the written consent of the Engineer-in-charge and the legal personnel representative, successors and permitted assignees of such person, firm or company.

1.12 "The Specifications" shall mean all directions' the various technical specifications provisions and requirements attached to the contract which pertain to the method and manner or performing the work to the quality of the work and the Materials to be furnished under the contract for the work and any order(s) or instruction(a) thereunder. It shall also mean the latest Indian Standards Institution Specifications for or relative to the particular work or part thereof, so far as they are not contrary to the Tender specifications or I.S.I. specifications, and in absence of any tender specifications, the specifications of any other country applied in India as a matter of Standard Engineering practice and approved in writing by the Engineer-in-charge with or without modifications.

1.13 The "Drawing" shall include maps, plans, tracings, or prints thereof with any modifications approved in writing by the Engineer-in-charge and such other drawings, as may, from time to time, be furnished or approved in writing by the Engineer-in-charge in connection with the work.

1.14 The "Work" shall mean the works to be executed in accordance with the context or the part thereof as the case may be and shall include extra, additional altered or substituted works as required for the purpose of the Contract. It shall mean the total of the work by expression or implication envisaged in the contract and shall include all material, equipment, and labor required for or relative or incidental to or in connection with the commencement, performance, and completion of any work and/or for inVNSGU in the work.

1.15 The "Permanent work" means works which will be inVNSGU in and form part of the work to be

handed over to the owner by the contractor on completion of the contract.

1.16 The "Temporary Work" shall mean all temporary works of every kind required in or about the execution, completion, and maintenance of the work.

1.17 "Site shall mean the land and other places on, under, on or through which the work is to be carried out and any other lands or places provided by the VNSGU for the purpose of the Contract together with any other places designated in the Contract as forming part of the site.

1.18 "The Construction Equipment" means all appliances/equipments of whatever nature required in or for execution, completion or maintenance of work or temporary works (as hereinafter defined) but does not include Materials or other things intended to form or forming part of the permanent work.

1.19 "Notice in Writing or Written Notice" means a notice written, typed, or printed form delivered personally or sent by Registered post to the latest know private of business address at Registered Office of the Contractor.

1.20 The "Alteration/Variation order" means an order given in writing by the Engineer-in-charge to effect additions to or deletion from and alterations in the work.

1.21 "Final Test Certificate" shall mean the final test Certificate issued by the owner within the provisions of the Contract.

1.22 The "Completion Certificate" shall mean a certificate to be issued by the Engineer-in-charge when the work has been completed to his satisfaction.

1.23 The "Final Certificate" shall mean the final certificate issued by the Engineer-in-charge after the work is finally accepted by the owner.

1.24 "Defect Liability Period" shall mean the specified period between the issue of completion Certificate and the final certificate as specified in the tender.

1.25 "Approved" shall mean approved in writing including subsequent modification in writing of previous verbal approval and "Approval" means approved in writing including as aforesaid.

1.26 "Letter of Acceptance" shall mean an intimated by a letter to the tenderer that the tender has been accepted in accordance with provisions contained therein.

1.27 "Order" and "Instruction" shall respectively mean any written order or instruction given by the Engineer-in-charge within the scope of his powers in terms of the Contract.

1.28 "Running Account Bill" shall mean a Bill for the payment of "On Account" money to the contractor during the progress of work on the basis of work done and the non-perishable Materials to be incorporated in the work supplied by the Contractor.

1.29 "Security Deposit" shall mean the deposit to be held by the owner as security for the due performance of contractual obligations.

1.30 "The appointing authority" for the purpose of Arbitration shall be, “The Registrar, Veer Narmad South Gujarat University, Surat”.

1.31 Retention Money shall mean the money retained from R.A. Bill for due completion of "NET WORK'.

1.32 Unless otherwise specifically stated, the masculine gender shall include the feminine and natural genders and vice versa and the singular shall include the plural and vice-versa.

GC-02 LOCATION OF SITE AND ACCESSIBILITY

The site of works is within the limits of “The Registrar, Veer Narmad South Gujarat University, Surat”,. It is served by all weather roads and Western Railway Broad Guage line, Government Irrigation Canal Crossing.The intending Tenderer should inspect the site and make himself familier with site conditions and available communication facilities. Non availability of access/roads shall in no case be the cause to condon any delay in the execution of the work or be the cause for any claims or extra compensation.

GC-03 SCOPE OF WORK

The scope of work is defined broadly in the special conditions of Contract and specifications. The Contractor shall provide all necessary materials equipment and labour etc. for the execution and of the work till completion. All materials that go with the work shall be approved by the Engineer-in-charge prior to procurement and use.

Owner at his discretion may endeavour to provide water to the Contractor at the owner's source of supply at one point at the rate charged for such works.

The contractor shall make his own arrangement for the distribution pipe net works from the source of supply after getting prior permission for the same from the Engineer-in-charge. Supply of water shall not be free and the necessary charges as fixed by the Local Body shall have to be paid by the contractor.

However, owner does not guarantee the supply of water and this does not relieve the contractor of his responsibility in making his own arrangements and for the timely completion of the work as stipulated.

POWER SUPPLY

The Contractor shall have to make his own arrangement for power supply.

LAND FOR CONTRACTOR'S FIELD OFFICE, GODOWN & WORKSHOP

Owner will not be apposition to provide land required for Contractors shall have to make his own arrangement for the same. No land will be provided by VNSGU to the contractor for constructing his labour and supervisory comp and other service facilities.

GC-04 RULLING LANGUAGE

The language according to which the contractor shall be constructed and interpreted shall be English. All entries in the contract documents and all correspondence between the contractor and the VNSGU or the Engineer shall be in English. All dimensions for the materials shall be given in metric units only.

GC-05 INTERPRETATION OF CONTRACT DOCUMENT

1. The provisions of the General Conditions of Contract and special conditions of contract shall prevail over those of any other documents of the contract unless specifically provided otherwise. Should there be any discrepancy, inconsistency error, or omission in the several documents forming the contract, the matter may be referred to the Engineer-in-charge for his instructions and decision. The Engineer-in-charge's decision in such a case shall the final and binding to the contractor.

2. Works shown upon the drawings but not described in the specifications of described in the specific specifications without showing on the drawings shall be taken as described in the specifications and shown on the drawings.

3. The heading and the marginal notes to the clauses of those general conditions of the contract or the specifications or to any other part of tender documents are solely to give a concise indication and not a summary of contents thereof or be used in the interpretation or construction thereof of the contract.

4. Unless otherwise stated specifically, in this contract documents the singular shall include the plural and vice versa wherever the context so requires. Works implementing persons shall include relevant corporated companies/registered associations/body of individual/firm of partnership.

5. Notwithstanding the sub-divisions of the documents into separate sections and volumes every part of each shall be supplementary to and complementary of every other part and shall be read with and into the context so far as it may be practicable to do so.

6. Where any portion of the General Conditions of a contract is repugnant to or ar variance with any provisions of the special conditions of a contract, then, unless a different intension appears, the provisions of the special conditions of contract shall be deemed to override the provisions of General Conditions of Contract and shall to the extent of such repugnancy or variance prevail.

7. The Materials, Design and Workmanship shall satisfy the relevant I.S.S. and Codes referred to. If Additional requirements are shown in the specifications, the same shall be satisfied over and above I.S.S. and Codes.

8. If the specification mention that the contract shall perform certain work or provide certain facilities, it will mean that the contractor shall do so at his own cost.

9. The correctness of the details given in the tender documents is not guaranteed. The contractor shall independently obtain all necessary information for making the tender. The contractor shall be

deemed to have examined the Contract Documents, to have generally obtained his own information in all matters that might affect the carrying out of the work or the Tenderer rates. Any error in the description of quantity or commission therefrom shall not vitiate the contract or release the contractor from executing the work comprised in the contract according to the Drawings and specifications at the tendered rates. He is deemed to have known the scope, nature and magnitude of the work and the requirements of Materials and labor involved and as to what all works he has to complete in accordance with the contract whatsoever be the defects, omissions, or errors that may be found in the contract documents. The contractor shall be deemed to have visited the site and the surroundings, to have satisfied himself to the nature of all existing structures, if any, and also as to the nature and the conditions of railways, roads, bridges and culverts, means of transport and communications, whether by land, air or water and as to possible interceptions there to and the access and agrees from the site, to have made inquires, examined and satisfied himself as to the sites for obtaining sand, stones, bricks and other Materials, the sites for disposal of surplus materials, the available accommodation as to whatever required, the depicts and such other buildings as may be necessary for executing and completing the work, to have local independent inquiries as to the subsoil, subsoil water and variation thereof, storms, prevailing winds, climatic conditions and all other similar matters affecting the work. He is deemed to have acquitted himself as to his liability for payment of Government taxes, customs duty and other charges.

Any neglect or failure on the part of the contractor in obtaining necessary and reliable information upon the forgoing or any other matters affecting the contract shall not relieve him from any risks or liabilities or the entire responsibility from the completion of the work at the tendered rates and time in strict accordance with the contract documents.

No verbal agreement or inference from a conversation with any officer or employee of the more worn either before or after the execution of the Contract Agreement shall in any way affect or modify any of the terms or obligations herein contained.

GC-06 CONTRACTOR TO UNDERSTAND HIMSELF FULLY

The contractor by tendering shall be deemed to have satisfied himself, as to consideration and circumstances affecting the tender price, as to the possibility of executing the works as shown and described in the contract and to have fixed his prices according to his own view on these matters and to have understood that no additional allowances except as otherwise expressly provided, will afterward be made beyond the contract price. The contractor shall be responsible for any misunderstanding or incorrect information is given in writing by the Engineer.

GC-07 ERROR IN SUBMISSION

The contractor shall be responsible for any errors or omissions in the particulars supplied by him. Whether such particulars have been approved by the Engineer or not, provided that such discrepancies, errors or omissions be not due to inaccurate information or particular furnished in writing to the Contractor by the VNSGU or the Engineer.

GC-08 SUFFICIENCY OF TENDER

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness of the tender rates which rates shall, except as or otherwise provided for, cover all the Contractor's liabilities and obligation set further or implied in the contract for the proper execution of work for compliance with requirements of Article GC-19 thereof.

GC-09 DISCREPANCIES

The drawings and specifications are to be considered as mutually explanatory of each other, detailed drawings being followed in preference to small scale drawings and figures dimension in preference to scale and special conditions in preference to general conditions. Special direction or dimensions given in the specifications shall supersede all else. Should any discrepancies, however, appear or should any misunderstanding arise as to the meaning and intent of the said specifications or drawings, or as to the dimensions or the quality of the materials or the due and proper execution of the works, or as to the measurement or quality and valuation of the works executed under this contract or as extra there upon the same shall be explained by the Engineer-in-charge and his explanation shall subject to the final decision of the Engineer-in-charge, in case of reference be made to him, be binding upon the contractor shall execute the work according to such explanation (subject to aforesaid) and without addition to or deduction from the contract and shall also do all such works and things necessary for the proper completion of the works as implied by the Drawings and specifications, even though such works and things are not specially shown and described in said specifications. In cases where no particular specifications are given for any article to be used under the contract, relevant specifications of the Indian Standard Institution shall apply.

GC-10 PERFORMANCE GUARANTEE : (Security Deposit)

As a contract security the tenderer to whom the award is made shall furnish a performance guarantee (Security Deposit) for amount equal to Five percent (5%) of the contract price to guarantee the faithful performance completion and maintenance of the works of the contract in accordance with all the conditions and terms specified herein and to the satisfaction of the Engineer and ensuring the discharge of all obligations arising from the execution of contract, in one of the forms mentioned below.

(a) Initial Security Deposit of 5% (Shall be Released after completion of final bill as well as defect liability period & on completion of audit related procedure)
(b) 5% Retention money (5% SD + 5% Additional retention Money) deposit to be deducted from running bills (Shall be released with final bills)
Note: 5% Initial Security deposit shall be deposited in the form of Cash/DD/Pay order only.

GC-11 INSPECTION OF WORK

1. The Engineer in charge will have full power and authority to inspect the work at any time wherever in progress either on the site or at the contractor's any other manufacturers workshops or factories wherever situated and the contractor shall afford for Engineer-in-charge every facility and assistance to carry out such inspection. Contractor or his authorized representative shall, at all time during the usual working hours and all other times when so notified, remain present to receive orders and instructions, orders given to Contractor's representative shall considered to have the same force as if they had been given to the contractor himself. Contractor shall give not less than 7 days notice in writing to the Engineer-in- charge before covering up or otherwise placing beyond reach of inspection and measuring any work in order that the same may be inspected and measured. In the event of breach of the above, the same shall be recovered at Contractor's expenses for carrying out such inspection or measurement.

2. No material shall be dispatched from contract store on site of work before obtaining approval in writing of the Engineer-in-charge, Contractor shall provide at all time during the progress of work and maintenance period proper means of access with ladders, gangways, etc. and the necessary attendance to move and adopt as directed for inspection or measurement of work by Engineer in Charge of VNSGU/Consultant...

GC-12 DEFECT LIABILITY

1. Contractor shall guarantee the work for a period of **36** months from the date of issue of completion certificate. Any damage or defect that may arise or that may remain undiscovered at the time of issue of completion certificate connected in any way with the equipment or materials supplied by him or in the workmanship be rectified or replaced by contractor at his own expenses as desired by Engineer-in-charge or in default may cause the same to be made good by other agency and deduct expenses of which the

certificate of Engineer-in-charge shall be final from any sums that may then or any time thereafter become due to contractor of sale thereof or of a sufficient portion thereof.

2. From the commence cement to completion of work contractor shall take full responsibility for the case of the work including all temporary works and in case any damage, loss or injury shall happen to work or any part thereof or to any temporary works from any cause whatsoever and shall at his own cost repair and make good the same so that at completion work shall be in good order and in conformity in every respect with the requirements of contract and as per the instructions of the Engineer-in-charge.

3. If at any time before the work is taken over, the Engineer-in-charge shall -

(a) Decide that any work is done or materials used by the contractor are defective or not in accordance with the contract or that work of any portion thereof is defective or do not fulfill the requirements of the contract (all such Materials being hereinafter called defects in this clause and (b) as soon as reasonably practicable given to contractor notice in writing of the said defect specifying particulars of the defects alleged to exist or to have occurred, then the contractor shall at his own expenses and with all speed make good the defects so specified.

(b) In case the contractor fails to do so, the owner may take at the cost of the contractor, such steps as may in all circumstances, be reasonable to make good such defects. The expenditure so incurred by VNSGU will be recovered from the amount due to contractor. The decision of Engineer-in-charge with regard to the amount to be recovered from the contractor will be final and binding on the contractor.

GC-13 POWER OF ENGINEER TO GIVE FURTHER INSTRUCTIONS

The Engineer shall have the power and authority from time to time and at all times to give further instructions and directions as may appear to him necessary or proper for the guidance of contractor and the works and efficient execution of the works according to the terms of the specifications, and the contractor shall receive, execute, obey and be bound by the same, according to the true intent and meaning thereof, as fully and effectually as though the same had accompanied or had been mentioned or referred to in the specifications. No work which readically changes the original nature of the contract shall be ordered by the Engineer and in the event of any deviation being ordered, which in the opinion of the contractor changes the originalnature of the contract, the shall nevertheless carry it out and any disagreement as to the nature of the work & the rate to be paid thereof shall be resolved.The time of completion of works, in the event of any deviations, resulting in additional cost over the contract sum being ordered, then be extended or reduced reasonable by the Engineer. The Engineer's decision in the case shall be final and binding.

GC-14 PROGRAMME

The time allowed for the execution of works shall be the essence of the contract. The contract period shall commence from the date of Notice of intimation to proceed. The tenderer at the time of submitting his tender shall indicate the construction or pipeline schedule, the month-wise program required for the execution of the works, and shall confirm the same within forteen (14) days of the acceptance of his Tender. The contractor shall provide to the Engineer-in-charge a detailed program of the time schedule for execution of the works in accordance with the specifications & the completion date. The entire program to be finalized by the Contractor has to confirm to the execution period mentioned along with the Bill of Quantities in the Tender Documents. The Engineer upon scrutiny of such a submitted program by contractor, shall examine the suitability of it to the requirement of the contract and suggest modifications if found necessary.

GC-15 SUBLETTING OF WORKS

No part of the contract nor any share or interest thereon shall in any manner or degree be transferred, assigned or sublet by the contractor directly or indirectly to any firm or VNSGU whatsoever except as provided for in the succeeding sub clause without the consent in writing of the owner.

GC-16 SUB-CONTRACTORS FOR TEMPORARY WORKS ETC.

The owner may give written consent to sub-contractors for the execution of any part of the work at the site being entered upon by the contractors provided each individuals contractor is submitted to the

Engineer-in-charge before being entered into and in approved by him. A list of Sub-Contractors is to be supplied. Notwithstanding any subletting with such approval as aforesaid and notwithstanding the Engineer-in-charge shall have received copies of any sub-contractors, the contractors shall be and shall remain solely responsible for the quality and proper expeditions and execution of the works and the performance of all the conditions of contract in all respects as if such submitting or sub-contracting had not taken place and as if such work had done directly by the Contractor.

GC-17 TIME FOR COMPLETION

1. The work covered under this contract shall be commenced from the date of the contract is served with a notice to proceed with the work and shall be completed before the date as mentioned in the time schedule of work. The time is the essence of the contract and unless the same is extended as mentioned in clause No. GC-18 (Extension of time) the contractor will be penalized for the delay.

2. The general time schedule for work is given in the tender document. The contractor shall prepare a detailed weekly or monthly program of work in consultation with Engineer-in-charge soon after the agreement and the work shall be strictly executed accordingly. The time for as construction of road given includes the time required for testing, rectification if any, retesting and completion in all respects to the entire satisfaction of the Engineer-in-charge.

GC-18 EXTENSION OF TIME

Time shall be considered as the essence of the contract. If however, the failure of the Contractor to complete the work as per the stipulated dates referred to above arises from delays on the part of VNSGU in supplying the materials of equipment it has undertaken to supply under the contract or from delays in handing over sites or from an increase in the quantity of work to be done under the contract, or force Majeure an appropriate extension of time will be given. The Contractor shall request such extension within one month of the cause of such delay and in any case before the expiry of the contract period.

GC-19 CONTRACT AGREEMENT

The successful tenderer shall when have called upon to do so, enter into and execute the Contract Agreement within (15) fifteen days of the Notice of Award, in the form shown in tender documents with such modifications as may be necessary in the opinion of the VNSGU Authority. It should be incumbent on the contract to pay the stamp duty and the legal charges for the completion of the contract agreement.

GC-20

A. PENALTY FOR DELAY

If the contractor fails to complete the work within the stipulated completion date for the work or he shall pay liquidated damages at one-tenth of Two percent (0.2%) of contract value per day of delay in completion and handing over the work or part thereof as the case may to the VNSGU Authority. The amount of liquidated damages shall, however, be subjected to a maximum of ten (10%) percent of the contract value. Delays above one hundred days will be a cause for termination of the contract and forfeiture of all security for performance.

B. BAR CHART

The successful tenderer shall have to submit the progress bar-chart within fifteen days after the contract, and the contractor should work as per the approved bar chart, failing the contractor shall have to pay the compensation for the delay as per the decision of the VNSGU Authority.

GC-21 FORFEITURE OF SECURITY DEPOSIT

Whenever any claim arises against the contractor for the payment of a sum of money out of or under the contract, the owner shall be entitled to recover such sum by appropriating in part of the whole, the security deposit of the contractor. In case the Security deposit is insufficient the balance recoverable shall be deducted from any sum then due or which at any time thereafter may become due to the contractor shall pay to the owner on demand may balance remaining due.

GC-22 ACTION OF FORFEITURE OF SECURITY DEPOSIT

In any case, in which under any clause or clauses of the contract, the contractor shall have forfeited the whole of his Security deposit or have committed a breach of any of the terms contained in this contract, the owner shall have the power to adopt any of the following courses as he may deem best suited to his interest–

(a) To rescind the contract (of which rescission notice in writing to the contractor under the hand of the Owner shall be conclusive evidence) in which case, the security deposit of the contractor shall stand forfeited and be absolutely at the disposal of the owner.

(b) To employ labour and to supply Materials to carry out the balance work debiting contractor with the cost of labour employed and the cost of Materials supplied for which a certificate of the Engineer-in-charge shall be final and conclusive against the contractor and 10% costs on above to cover all departmental charges and crediting him with the value of work done at the same rates as if it has been carried out by the contractor under the terms of his contract. The certificate of Engineer in Charge of VNSGU/Consultant. as to the value of the work done shall be final and conclusive against the contractor.

(c) To measure up the work of the contractor and to take such part thereof as shall be unexecuted out of his hand to give it to another contractor to complete. In this case, the excess expenditure incurred than what whole has been paid to the original contractor if the would work had been executed by him, shall be earnest and paid by the original contractor and shall be deducted from any money due to him by the owner under the contract or otherwise and for the excess expenditure, the certificate of the Engineer in Charge of VNSGU/Consultant. shall be final and conclusive.

In the event any of the above course being adopted by the owner, the contractor shall have no claim to compensation for any less sustained by him because of his having purchased or procured any Materials or entered into any agreement so or made by advance on account of or with a view to the execution of the work of the performance of the contract. In such case the contractor shall not be entitled to recover or be paid by sum for any actual work performed under this contract unless the Engineer-in-charge will certify in writing the performance of such work and the value payable in respect thereof and the shall only be entitled to be paid the value so certified. In the event of the owner putting in force the powers as stated in a, b, c, above vested in him under the preceeding clause, he may, if he so desire, take possession of all or any tools and plant, Materials and stores in or upon the work or the site thereof belonging to the contractor, or procured by him and intended to be used for the execution of the work or any part thereof paying or allowing for the same in account at the contract rates to be certified by the Engineer-in-charge whose certificate thereof shall be final otherwise the Engineer-in-charge may give notice in writing to the contractor or his representative requiring him to remove such tools plant Materials or stores from the premises within the time specified in the notice and in if the contractor fails to comply with any such notice, the Engineer in Charge of VNSGU/Consultant. may remove them at the Contractor's expenses or sell them by auction or private sale on account of the contractor and his risks in all respects without any further notice as to the date, time to place of the sale and the certificate of Engineer in Charge of VNSGU/Consultant. as to the expenses of any such removal and the amount of the proceeds and the expenses of any such sale shall be final and conclusive against the contractor.

GC-23 NO COMPENSATION FOR ALTERATION IN OR RESTRICTION OF WORK

If at any time from the commencement of work, the owner shall for any reasons whatsoever not require the whole or part thereof a specified in the tender to be carried out, the Engineer-in-charge shall give notice in writing of the contractor, who shall have no claim to any payment or compensation whatsoever on account of any profit or advantage which he might have derived from execution of work in full, but which he did not derive in consequence of the full amount of the work not having been carried neither shall be have any claim for compensation by reason if any alternations having been made in original specifications, drawings, designs and instructions which shall involve any curtailment of the work as originally contemplated.

When the contractor is a partnership firm, the prior approval in writing of the VNSGU shall be obtained before any change is made in the constitution of the firm, where the contractor is an individual or a Hindu Undivided Family business concern, such approval as aforesaid shall, likewise be obtained before subcontractor enters into any agreement with other parties where under the reconstituted firm would have

the right to carry out the work hereby undertaken by the contractor. In either case if prior approval as aforesaid is not obtained, the contract shall be deemed to have been allotted in contravention of subletting clause hereof and the same action may be taken and the same consequence shall ensure as provided in the sub-letting clause.

GC-24 IN EVENT OF DEATH OF CONTRACTOR :

Without prejudice to any of the right or remdies under the contract, if the contractor dies, the owner shall have the option of terminating the contract without compensation to the contractor.

GC-25 MEMBER OF THE OWNER NOT INDIVIDUALLY LIABLE :

No official or employee of the owner shall in any way be personally bound or liable for the acts or obligations of the owner under the contract or answerable for any default or omission in the observance or performance of the acts, matters, or things which are herein contained.

GC-26 OWNER NOT BOUND BY PERSONAL REPRESENTATIONS :

The contractor shall not be entitled to any incresse on the Schedule of rates or any other rights or claims whatsoever by reason of representation, explanation or statement or alleged representation, promise or guarantees given or alleged to have been given to him by any person.

GC-27 CONTRACTOR'S OFFICE AT SITE :

The Contractor shall provide and maintain an office at the site for the accommodation of his agent and staff and such office shall be opened at all reasonable hours to receive instructions, notice or other communications.

GC-28 CONTRACTOR'S SUBORDINATE STAFF AND THEIR CONDUCT :

1. The contractor on the award of the work shall name and depute a qualified Engineer **(Min B.E./B.Tech Civil),** having experience of carrying out work of similar nature, to whom equipment, materials, if, any, shall be issued and instructions for work given. The contractor shall also provide to the satisfaction of Engineer-in-charge sufficient and qualified staff to superintend the execution of the work, competent sub-agents, foremen and leading hands including those specially qualified by previous expeditions to a supervise the type of works comprised in the contract in such manner as will ensure work of the best quality and expeditions working, it, in the opinion of the Engineer-in-charge, additional properly qualified supervision staff is considered necessary, it shall be employed by the contractor without additional charge on account thereof. The contractor shall ensure to the satisfaction of the Engineer in Charge of VNSGU/Consultant that sub-contractors, it any shall provide competent and efficient supervision over the work entrusted to them.

2. If and whenever any of the contractor 's or sub-contractor agents, sub-agents, assistance, foremen or other employees shall, in the opinion of Engineer in Charge of VNSGU/Consultant, be guilty of any misconduct or be incompetent or insufficiently qualified or intelligent in the performance of their duties or that in the opinion of the owner or Engineer in Charge of VNSGU/Consultant, it is undesirable for administrative or any other reason for person or persons to be employed in the works, the contractor, if so directed by the Engineer in Charge of VNSGU/Consultant, shall at once remove person or persons from employment thereon. Any person or persons so removed shall not again be re-employed in connection with the works without the written permission of the Engineer in Charge of VNSGU/Consultant. Any person so removed from the works shall be immediately replaced at the expense of the contractor by a qualified and competent substitute. Should the contractor be required to repatriate any person removed from the works he shall do so and shall bear all costs in connection therewith.

3. The contractor shall be responsible for the proper behavior of all the staff, foremen, workmen, and others shall exercise proper control over them and in particular, and without prejudice to the same. Generally, the contractor shall be bound to prohibit, and prevent any employee from trespassing or acting in any way detrimental or prejudicial to the interest of the community or of the properties or occupiers of land and properties in the neighborhood and in the event of such employees so trespassing, the contractor shall be responsible therefore and relieve the owner of all consequent claims, actions for damages or injury

or any other grounds whatsoever. The decision of the Engineer-in- charge upon any matter arising under this clause shall be final.

4. If and required by the owner, the contractor's personnel entering upon the owner's premises shall be properly identified by badges of a type acceptable to the VNSGU which must be worn at all times on the owner's premises.

GC-29 TERMINATION OF SUB-CONTRACTOR BY OWNER:

If any sub-contractor engaged upon the works at the site executes any work which in the opinion of Engineer in Charge of VNSGU/Consultant. is not in accordance with the contract documents, the VNSGU maybe give written notice to the contractor request his to terminate such sub-contract and the contractor upon the receipt of such notice shall terminate such sub-contract and the letter shall forthwith leave the works failing which the owner shall have the right to remove such sub-contractors from the site.

No action taken by the owner under the above clause shall relieve the contractor of his liabilities under the contract or give rise to any right to compensation, an extension of time, or otherwise.

GC-30 POWER OF ENTRY

If the contractor shall not commence the work in the manner previously described in the contract documents or if he shall, at any time, in the opinion of Engineer in Charge of VNSGU/Consultant..

(i) Fail to carry out works in conformity with the documents or

a. Fail to carry out the works in accordance with the time schedule.

b. Substantially suspend work or the works for a period of fourteen days without authority from Engineer in Charge of VNSGU/Consultant.

c. Fail to carry out and execute the work to the satisfaction of the Engineer in Charge of VNSGU/Consultant.

d. Fail to supply sufficient or suitable construction plant temporary works, labour Materials or things or

e. Breach of any other provisions of the contract on his part to be performed or observed or persist in any of the above mentioned breached of the contract for fourteen days after notice in writing shall have been given to the contractor by the Engineer in Charge of VNSGU/Consultant. requiring such breach to be remedied or

f. Abandon the work or

g. During the continuance of the contract becomes bankrupt, make any arrangement or compromise with his creditors, or permit any execution to be levied or go into liquidation whether compulsory or voluntary not being merly a voluntary liquidation for the purpose of amalgamation or reconstruction then in any such case.

The owner shall have the power to enter upon the works and take possession thereof and of the Materials, temporary works, constructional plant and stock therein, and to revoke the contractor's license to use the same and to complete the works by his agents, other contractor or workman or to relate the same upon any terms and to such other person, firm or VNSGU as the owner in his absolute discretion may think proper to employ, and for the purpose aforesaid to use or authorize the use of any Materials, temporary works, constructional plant, and stock as aforesaid, without making payment or allowance to the Contractor for the said Materials other than such as may be certified in written by the Engineer in Charge of VNSGU/Consultant. to be reasonable and without making any payment or allowance to the contractor for the use of said temporary works, constructional plant and stock or being liable for any less or damage thereto. If the owner shall be reason of his taking possession of the works or of the work being got completed by other contractor incur excess certified by the Engineer in Charge of VNSGU/Consultant. shall be deducted from any money which may be due for the work done by the contractor under the contract and not paid for. Any deficiency shall forthwith be made good and paid to the owner by the contractor and the owner shall have power to sell in such manner and for such price as he may think fit all

or any of the constructional plant, Materials etc. constructed by or belonging to and recoup and retain the said deficiency or any part thereof out of the proceeds of the sale.

GC-31 CONTRACTOR'S RESPONSIBLITY WITH THE OTHER CONTRACTOR & AGENCIES

Without repugnance to any other condition, it shall be the responsibility of the contractor executing the work of civil construction to work in close co-operation and co-ordinate the work with other contractors or their authorised represaentative and the contractor will put a joint scheme with the concurrence of other contractors showing the arrange-ments for carrying his portion of the work to the Engineer in Charge of VNSGU/Consultant. and get the approval. The Engineer in Charge of VNSGU/Consultant. before approving the joint scheme will call the parties concerned and modify the scheme if required. No claim will be entertained on account of the above. The contractor shall conform in all respects with the provisions of any statutory regulations, ordinances or by laws of any local or locally consitituted authorities or public bodies which may be applicable from time to time to works or any temporary works. The contractor shall keep the owner indemnified against all penalties and liabilities of every kind arising out of non-adherence to such statutes, ordinanace, laws, rules, regulations, etc.

GC-32 OTHER AGENCIES AT SITE

The Contractor shall have to execute the work in such place and condition where other agencies will also be engaged for other works, such as site grading, filling and levelling, electrical and mechanical engineering works, etc. No claim shall be entertained for works being executed in the above circumstances.

GC-33 NOTICES

Any notice under this contract may be served on the contractor or his duly authorised representative at the job site or may be served by registered post direct to the official address of the contractor proof of issue of any such notice could be conclusive of the contractor having been duly informed of all contents therein.

GC-34 RIGHT OF VARIOUS INTERESTS

The owner reserves the right to distribute the work between more than one contractor. Contractor shall co-operate and afford reasonable opportunity to other contractors for access to the works for the carriage and storage of materials and execution of their works.

Wherever the work being done by any department of the owner or by other contractor employed by the owner is contingent upon work covered by this contract, the respective rights of the various interests shall be determined by Engineer in Charge of VNSGU/Consultant. to secure the completion of various portions of the work in general harmoney.

GC-35 PRICE ADJUSTMENT :

No adjustment in price shall be allowed as the time limit for completion of the project is less than One year.

GC-36 TERMS OF PAYMENT

The payment of Bills shall be made progressively according to the rules and practice followed by the VNSGU. The progressive payment unless otherwise provided in the Contract Agreement or sub-sequently agreed to by the parties, shall be made generally monthly on submission of a bill by the Contractor in prescribed form in an amount according to the value of the work performed less the aggregate of previous progressive payments and as required by clause GC-37 (Retention money) herein. All such progressive payment shall be regarded as payment by way of advance against final payment.

Payment for the work done by the contractor will be based on the measurement at various stages of the work, in accordance with the conditions at Clause GC-77 (Measurement of Work in Progress)

GC-37 RETENTION MONEY: AS PER IT-27.

GC-38 PAYMENT DUE FROM THE CONTRACTOR

All costs, damages or expenses, for which under the Contract the Contractor is liable to the VNSGU deducted by the VNSGU from any money due or becoming due to the Contractor under the contract or from any other contract with the VNSGU or may be recovered by action at law or otherwise from the Contractor.

GC-39 CONTINGENT FEE

1. The Contractor warrants that he has not employed any person to solicit or secure the contract upon any agreement for a commission, percentage, brokerage or contingent fee. Breach of this warranty shall give VNSGU Authority the right to cancel the contract or to take any other measure as the VNSGU Authority may deem fit. The warranty does not apply to commissions payable by the contractor to establish commercial or selling agent for the purpose of securing business.

2. No officer, employer of the VNSGU Authority be admitted to any share or part of this contract or to any benefit that may rise therefrom.

GC-40 BREACH OF CONTRACT BY CONTRACTOR

If the contractor fails to perform the work under the contract with due diligence or shall refuse or neglect to comply with instruction given to him in by the Engineer in Charge of VNSGU/Consultant. accordance with the contract, or shall contravence the provisions of the contract, the VNSGU may give notice in writing to the contractor to make good such failure, neglect or contravention. Should the Contractor fail to comply with such written notice within twenty eight (28) days or receipt, if the VNSGU Authority shall think fit, it shall be lawful for the VNSGU, without prejudice to any other rights, the contractor may have under the contract, to terminate the contract for all or part of the works, and to make any other arrangements it shall deem necessary to complete the work outstanding under the contract at the time of termination. In this event Article GC-15 (Subletting of work)and GC-16 (Sub-Contracts for Temporary Works etc.) hereof shall be invoked and the performance Bond shall immediately become due and payable to the VNSGU Authority the value of the work done on the date of termination and not paid for shall stand forfeited to the VNSGU and the VNSGU shall have free use of any works which the contractor may have at the site at the time of termination of the contract.

GC-41 DEFAULT OF CONTRACTOR

1. The VNSGU may upon written notice of default to the contractor terminate the contract in circumstance detailed hereunder :

(a) If in the judgement of the VNSGU the contractor fails to make completion works within the time specified in the completion schedule or within the period for which extension has been granted by the VNSGU /Engineer to the Contractor.

(b) If in the judgement of the VNSGU the contractor fails to comply with any of the provisions of this contract.

2. In the event the VNSGU Authority terminates the contract inwhole or in part as provided in Article GC-48 (Termination of Contract), the VNSGU reserves the right to purchase upon such terms and in such manner as it may deem appropriate, plant similar to that terminated and the contractor will be liable to the VNSGU for any additional costs for such similar and / or for liquidated damaged for delay until such resonable time as may be required for the final completion of works.

3. If this contract is terminated as provided in this paragraph GC - 30 (Power of entry) (1) the VNSGU in addition to any other rights provided in this clause, may require the Contractor to transfer title and deliver to the VNSGU under any of the following cases in the manual and as directed by the VNSGU.(a) Any partially completed information and contract rights as the contractor has specifically produced or acquired for the performance of the contract so terminated.

4. In the event the VNSGU does not terminate the contract as provided in the paragraph

GC-48 (Termination of Contract) the Contractor shall continue performance of the contract, in which case the shall be liable to the VNSGU for liquidated damages for delay untill the works are accepted.

GC-42 BANKRUPTCY

If the Contractor shall become bankrupt or insolvent or have a receiving order made against him, or compound with the creditors, or being the VNSGU commences to be wound up, not being a member's Voluntary winding up for the purpose of amalgamation or reconstruction, or carry on its business under a receiver for the benefit of his creditors or any of them, the owner shall be at liberty to either (a) terminate the Contract forthwith by giving notice in writing to the contractor or to the receiver or liquidator or to any person or organization in whom the contract may become vested and to act in the manner provided in Article GC-41 (Default of Contractor) as though the last-mentioned notice had been the notice referred to in such Article of (b) to give such receiver liquidator or another person in work the contract may become vested the option of carrying out the contract subject to his providing a satisfaction guarantee for the due and faithfully performance of the contract subject to his providing a satisfaction guarantee for the due and faithful performance of the contract up to an amount to be agreed. In the event that the VNSGU terminates the Contract in accordance with this article, the performance Bond shall immediately become due and payable on demand to VNSGU.

GC-43 OWNERSHIP

Works supplied pursuant to the Contract shall become the property of the VNSGU from whichever is the earlier of the following times, namely,

(a) When the works are completed pursuant to the Contract.

(b) When the Contractor has been paid any sum to which he may become entitled in respect thereof pursuant to clause GC-36 (Terms of Payment).

GC-44 DECLARATION AGAINST WAIVER

The condonation by the VNSGU of any breach of brenches by the stipulations and conditions contained in the contract shall in no way prejudice or effect to the constructed as a waiver of the VNSGU rights, powers and remidies under the contract in respect of any breach or breaches.

GC-45 LAWS GOVERNING THE CONTRACT

The contract shall be constitued according to and Subject to the laws of India and the State of Gujarat and under the jurisdiction of the courts of Gujarat at Surat.

GC-46 OVERPAYMENT AND UNDERPAYMENT

Whenever any claim forths payment of a sum to the VNSGU arises out of or under this Contract against the contractor the same may be deducted by the VNSGU from any sum then due or which at any time thereafter may become due to the contractor under this contract and failing that under any other contract with the VNSGU or from any sum due to the contractor with the VNSGU (which may be available with VNSGU), or from his retention money, or he shall pay the claim on demand. The VNSGU reserves the right to carry out post payment audit and technical examination of the final bill including all supporting vouchers, abstracts, etc.

The VNSGU further reserves the right to enforce recovery of any over payment when detected no withstanding the fact that the amount of the final bill may be included by the Contractor.

It as a result of such audit and technical examination any over payment is discovered in respect of any work done by the Contractor or alleged to have been done by him under the contract, it shall be recovered by the VNSGU from the contractor by way of all the means prescribed above or if any under payment is discovered by the VNSGU, any amount due to the contractor under this contract or under payment may be adjusted against any amount then due or which may at any time thereafter become due before payment is made to the contractor from him to the VNSGU on any other contract account whatsoever.

GC-47 SETTLEMENT OF DISPUTES

Except or otherwise specifically provided in the contract, all disputes concerning question of fact arising under the contract shall be decided by the Engineer in Charge of VNSGU/Consultant, subjected to a written appeal by the Contractor to the Engineer in Charge of VNSGU/Consultant and these decisions

shall be final and binding on the parties hereto. Any disputes or difference including those considered as such by only one of the parties arising out of or in connection with this contract shall be to the extent possible settled amicably between the parties. If amicable settlement cannot be reached then all disputed issues shall be settled as provided in (a).

(a)DISPUTES OR DIFFERENCE TO BE REFERRED TO:

If at any time, any question, disputes or differences of any kind whatsoever shall arises between the Engineer in Charge of VNSGU/Consultant and the Contractor upon or in relation to or in connection with this contract, either party may forthwith give to the other, notice in writing of the existence of such question, dispute of difference as to any decision, opinion, instruction, direction certificate or evaluation of the Engineer in Charge of VNSGU/Consultant.

The question or difference shall be settled by the Registrar, VNSGU (or Building Committee of VNSGU), who shall state his decision in writing and give notice of same to the Engineer in Charge of VNSGU/Consultant and to the Contractor such decision shall be final and binding upon both parties to the contract and work on contract if not already breached or abandoned shall proceed normally unless and until the same shall be revised (or upheld) due to any judicial proceeding.

Should the Registrar, VNSGU (or Building Committee of VNSGU) fail to give a decision within three (3) calendar months after issuance of notice of a question, dispute or difference or if the Contractor is dissatisfied with any such decision of the Registrar, VNSGU, and then the matter may be referred to court of law subject to SURAT JURISDICTION.

GC-48 TERMINATION OF THE CONTRACT

1. If the Contractor finds it impracticable to continue operation owing to Force Manure reasons or for any reason beyond his and/or the Registrar, VNSGU (or Building Committee of VNSGU) find site impossible to continue operation when prompt notification in writing shall be given by the party affected to the other.

2. If the delay or difficulties so caused cannot be expected to cease or become unavoidable or if operations cannot be resumed within six (6) months the party shall have the right to terminate the contract upon Ten (10) days written notice to the other. In the event of such termination of the contract, payment to the Contractor will be made as follows:

a) The Contractor shall be paid for all works approved by the Engineer in Charge of VNSGU/Consultant and found to be as per specification/detail given and can be verified by VNSGU if required through applicable and rational NDT and other tests from NABL accredited agency. Also any other legitimate expenses due to him shall be paid.

b) If the Registrar, VNSGU terminates the contract owing to Force Manure or due to any cause beyond its control, the contractor shall additionally be paid for any work done (approved by the Engineer in Charge of VNSGU/Consultant and found to be as per specification/detail given and can be verified by VNSGU if required through applicable and rational NDT and other tests from NABL accredited agency) during the said Six (6) months period including any financial commitment made for the proper performance of the Contract and which are not reasonable defrayed by payment under (a) above;

c) The Registrar, VNSGU also release all bonds and guarantees at its disposal except is cause where the total amount of payments made to the contractor exceeds the final amount due to him in which case the contractor shall refund the excess amount within Sixty (60) days after termination and the Registrar, VNSGU thereafter shall release all bonds and guarantees, should the contractor fail to refund the amount received in excess within the said period such amounts shall be deducted from the bonds or guarantees provided.

3. On the termination of the contract for any cause the contractor shall see the orderly suspension and termination of operations, with due consideration to the interests of the Veer Narmad South Gujarat

University with respect to completion, safeguarding or storing of materials procured for the performance of the contract and the salvage and resale thereof.

GC-49 CHANGES IN CONSTITUTION

Where the contractor is a partnership firm, the prior approval in writing of the VNSGU Authority shall be obtained any change is made in the constitution of the firm. Where the contractor is an individual or an undivided family business concern such approval as aforesaid shall like wise be obtained before the contractor enters into any partnership agreement whereunder the partnership firm would have the right to carry out the works hereby undertaken by the contractor. If prior approval as aforesaid is not obtained the contract shall be deemed to have been assigned in contravention of Article thereof.

GC-50 SUB-CONTRACTUAL RELATIONS

All work performed for the contract by sub-contractor shall be pursuant to an appropriate agreement

between the contractor and sub-contractor which shall contain provisions to :

a) Protect and preserve the rights of the VNSGU and the Engineer with respect to the work to be performed under the sub-contract so that the sub-contractor thereof will not prejudice such rights.

b) Require that such work be performed in accordance with requirements of the Contract documents.

c) Require under such contract of which the contractor is a party, the submission to the contractor of application for payment and claims for additional costs, extension of time, damages for delay or otherwise with respect to the sub-contracted portions of the work in sufficient time, that the contractor may apply for payment and comply in accordance with the contract Documents for like claim by the Contractor upon the VNSGU.

d) Waive all rights the contracting parties may have against one another for damages caused by fire or other perils covered by the property insurance except such rights as they may have to the proceeds so such insurance held by the VNSGU as trustee and,

e) Obligate each sub-contractor specifically to consent to the provisions of this Article.

GC-51 LIEN

If, at any time, there should be evidence of any lien or claim for which owner might have become liable and which is chargeable to the contractor, the owner shall have the right to retain out of any payment then due or thereafter to become due an amount sufficient to completely indemnify the owner against such lien or claim or if such lien or claim be valid the owner may be or become due and payable to the contractor. If any lien or claims remaining, unsettled after all payments are made, the contractor shall refund or pay to the owner all money that the latter may be compelled to pay in discharging such lien or claim including all cost and reasonable expenses.

GC-52 EXECUTION OF WORK

The whole work shall be carried out in strict conformity with the provisions of the Contract Documents, detailed drawings, specifications and the instructions of the Engineer in Charge of VNSGU/Consultant. from time to time. The Contractor shall ensure that the whole work is executed in the most substantial, proper and best workmanship using materials of best quality in strict accordance with the specifications to the entire satisfaction of the Engineer-in- charge.

GC-53 WORK IN MONSOON

When the work continues in monsoon, the contractor shall maintain minimum labour force required, for the work and plan and execute the construction and erection work according to the prescribed schedule. No extra rate will be considered for such work in monsoon. During monsoon and entire constructing period the contractor shall keep the site free from water at his own cost.

GC-54 WORK CLOSED ON SUNDAYS & HOLIDAYS & BETWEEN SUNSET AND SUNRISE

No work shall be carried out on Sundays and VNSGU Holidays and no work shall be carried out between sunset and sunrise. Except with the special permission of Engineer in Charge of

VNSGU/Consultant. in writing previously obtained and with holding such permissions shall be no ground of complaint on the part of contractor or cause for compensation to them. Working period shall be maximum eight (8) hours per days.

GC-55 EXTRA SUPERVISION CHARGES TO BE BORNE BY CONTRACTOR

Further to clause No. GC-54 when Engineer in Charge of VNSGU/Consultant. feels necessary to give permission to contractor for carrying out work for period of more than Eight hours working period in a day and/or to continue work on sunday and on holidays. Extra Supervision charges arising due to overtime working of VNSGU's staff shall be borne by the contractor at prevailing rates from time to time. Such extra supervision charges shall be deducted by The VNSGU from the running bill/s of the contractor at VNSGU's description.

GC-56 DRAWING TO BE SUPPLIED BY THE OWNER :

The drawings attached with the tender documents shall be for general guidance of the contractor to enable him to visualize the type of work contemplated and scope of work involved. Detailed working drawings according to which the work is to be done shall be furnished from time to time as the work progresses. The contractor shall study the drawings thoroughly in connection with other connected details and discrepancy if any bring to the notice of the Engineer in Charge of VNSGU/Consultant. before actually carrying out the work.

GC-57 DRAWINGS TO BE SUPPLIED BY THE CONTRACTOR :

Where drawings, date are to be furnished by the contractor they shall be as enumerated in special condition of contract and shall be furnished within the specified time. Where approval of drawings has been specified it shall be the Contractor's responsibility to have these drawings got approved before any work is taken up with regard to the same. Any changes becoming necessary in these drawings during the execution of the work shall have to be carried out by the contractor at no extra cost. All final drawings shall bear the certification stamp as indicated below duly signed by both the contractor and Engineer- in-charge.

"Certified true for _____project Agreement
No._____ Signed_____ _____
Contractor Engineer in Charge of VNSGU/Consultant. Drawings will be approved within three (3) weeks of the receipt of the same by the Engineer in Charge of VNSGU/Consultant..

GC-58 SETTING OUT WORK :

The contractor shall set out the work on the site handed by the Engineer in Charge of VNSGU/Consultant. and shall be responsible for the correctness of the same. The work shall be carried out to the entire satisfaction of Engineer in Charge of VNSGU/Consultant.. The approval thereof or partaking by Engineer in Charge of VNSGU/Consultant. in setting out work shall not relieve contractor of any of his responsibilities.

The contractor shall provide at his own cost all necessary level posts, pegs, bamboos, flage, ranging,rods, strings and other materials and labourers required for proper setting out of the work. The Contractor shall provide,fix and be responsible for the maintenance of all stakes, temples level marks profiles and similar other things and shall take and necessary precautions to prevent their removal or disturbance and shall be responsible for the consequence for such removal or disturbance. The contractor shall also be responsible for the maintenance of all existing Survey Marks, Boundary Marks, Distance Marks and Centre line marks either existing or fixed by the Contractor. The Centre, longitudinal or face lines and cross lines shall be marked by small masonary pillars. Each pillar shall have distance mark at the centre for setting up the theodolite.The work shall not be started unless the setting out is checked by Engineer in Charge of VNSGU/Consultant. in writing but such approval shall not relive the contractor of his responsibilities. The contractor shall provide all materials, labour and other facilities necessary for checking at his own cost.

Pillars bearing geodetic marks on site shall be protected by the Contractor. On completion of the work the contractor shall submit the Geodetic documents according to which the work has been carried out.

GC-59 RESPONSIBILITIES OF CONTRACTOR FOR CORRECTTNESS OF WORK

The contractor shall be entirely and exclusively responsible for the correctness of every part of the work and shall rectify completely and errors thereon at his own cost when so instructed by Engineer in Charge of VNSGU/Consultant..

1. Materials to be supplied by Contractor

Contractor shall procure and provide all the Materials required for the execution and maintenance of work including M.S. rods, all tools, tackle, construction plant and equipment except the Materials to be supplied by the owner detailed in the contract documents and for the transport thereof, owner, shall made recommendations to the respective authorities if designed by the contractor but assumes no responsibility or any nature. Owner shall insist for procurement of Materials with ISI Marks supplied by reputed firms on the DGS & D List.

2. If however the Engineer in Charge of VNSGU/Consultant. feels that work is likely to be delayed due to contractor's inability to procure the Materials, the Engineer in Charge of VNSGU/Consultant. shall have the right to procure Materials from the market and the contractor will accept these Materials at the rates decided by Engineer in Charge of VNSGU/Consultant.

GC-60 MATERIALS TO BE SUPPLIED BY THE OWNER

1. If the contract provides certain Materials or stores to be supplied by the VNSGU. such Materials and stores shall be transported by the contractor at his cost from VNSGU's stores or Railway Station. The sum due from contractor for the value of Materials supplied by the owner will be recovered from the R.A. Bill on the basis of actual consumption of Materials in the work covered and for which R.A. Bill has been prepared. After completion of the work contract has to account for the full quantity of Materials supplied to him.

2. The value of store Materials supplied by the VNSGU to the contract shall be charged at rates shown in the contract document and in case any other material not listed in the schedule of Materials is supplied by the VNSGU, the same shall be charged at cost price including carting and other expenses inclurred in procuring the smae. All Materials so supplied shall remain the property of the owner and shall not be removed from the site on any account. Any material remaining un-used at the time of completion of work or termination of contract shall be returned to VNSGU's store or any other place as directed by the Engineer in Charge of VNSGU/Consultant. in perfectly good condition at contractor's cost. When Materials are supplied free of cost for us in work and surplus and unaccounted balances thereof are not returned to the VNSGU, recovery in respect of such balance will be effected at double the applicable issue rate of the Materials or the market rate whichever is higher.

GC-61 CONDITIONS OF ISSUE OF MATERIALS BY THE VNSGU

a) The Materials specified to be issued by the VNSGU to the contractor shall be issued by the VNSGU's store or at Railway Station and all expenses for its shifting to site shall be borne by the contractor. The Materials will be issued during working hours and as per rules of VNSGU from time to time.

b) Contractor shall bear all expenses for storage and safe custody at site of Materials issued to him before use in work.

c) Material shall be issued by the VNSGU in Standard/non-standard sizes as obatined from manufacturer.

d) Contractor shall construct suitable godowns at site for storing the Materials to proect the same from damage due to rain, dampness, fires, theft etc.

e) The contractor should take the delivery of the Materials issued by the VNSGU after satisfying himself that they are in good conditions. Once the Materials are issued, it will be the responsibility of the Contractor to keep them in good condition and in safe custody. If the Materials get damaged or if they are stolen, it shall be the responsibility of the contractor to replace them at his according to the instructions of the Engineer-in-charge.

f) For delay in supply or for non-supply of Materials to be supplied by the VNSGU, on account of calamities, act of enemies, other difficulties beyond the control of the VNSGU, the VNSGU carries non-responsibilities. In no case the contractor shall be entitled to claim any compensation for loss suffered by him on this account.

g) None of the Materials issued to the contractor, shall be used by the Contractor for manufacturing items which can be obtained from manufacturer. The Materials issued by the owner shall be used for the work only and no other purpose.

h) Contractor shall be required to execute indemnity bond in the prescribed form for the same custody and account of Materials issued by the owner.

i) Contractor shall furnish sufficiently in advance a Statement of his requirements of quantities of Materials to be supplied by the VNSGU and the time when the same will be required for the work, so as to enable Engineer-in-charge to make arrangements to procure and supply the Materials.

j) A daily account of Materials issued by the owner shall be maintained by the Contractor showing receipt, consumption and balance in head in the form laid down by Engineer in Charge of VNSGU/Consultant. with all connected paper and shall be always available for inspection in the site office.

k) Contractor shall see that only the required quantities of Materials are got issued and no more. The contractor shall be responsible to return the surplus Materials in good condition at VNSGU's store at his own cost.

GC-62 MATERIALS PROCURED WITH ASSISTANCE OF THE OWNER

Notwithstanding anything contained to the contrary in any of the clauses of this contract, where any Materials for the execution of the contract are procured with the assistance of the VNSGU either by issue from VNSGU stock or purchase made under orders or permits or licences issued by the Government, the contractor shall hold the same Materials as trustees for owner and use such Materials economically and solely for the purpose of contract and not dispose them off without the permission of VNSGU and return, if required by Engineer in Charge of VNSGU/Consultant., all surplus or unserviceable Materials that may be left with him after the completion of the contract or at its termination for any reason whatsoever on his being paid or credited such prices as Engineer in Charge of VNSGU/Consultant. shall determine having due regard to the conditions of the Materials. The price allowed to contractor shall not exceed the amount charged to him excluding the storage charges if any. The decision of Engineer in Charge of VNSGU/Consultant. shall be final and conclusive in such matters. In the event of breach of the aforesaid condition, the contractor shall in terms of licence of permits and/or for criminal breach of trust be liable to compensate VNSGU at double rate or any higher rates. In the event of these Materials at that time having higher rate or not being available in the market then any other rate to be determined by the Engineer in Charge of VNSGU/Consultant. and his decision shall be final and conclusive.

GC-63 MATERIALS OBTAINED FROM DISMANTLING

If the contractor, in the course of execution of work is called upon to dismantle any part for reasons other than on account of bad or imperfect work, the Materials obtained from dismantling will be the property of the VNSGU and will be disposed of as per instruction of Engineer in Charge of VNSGU/Consultant. in the best interest of the VNSGU

GC-64 ARTICLE OF VALUE OR TREASURE FOUND DURING CONSTRUCTION

All gold, silver and other minerals of any description and all previous stones, coins, treasures, relics, antiquities and other similar things which shall be found in under or upon site shall be the property of the owner and the contractor shall property preserve the same to the satisfaction of Engineer in Charge of VNSGU/Consultant. and shall hand over the same to the owner.

GC-65 DISCREPANCIES BETWEEN INSTRUCTIONS

If there is any discrepancy between the various stipulations of the contract documents of instructions to the contractor or his authorised representative or if any doubt arises as in the meaning of such stipulation

or instructions, the contractor shall immediately refer in writing to the Engineer in Charge of VNSGU/Consultant. whose decision shall be final and conclusive and no claim for losses caused by such discrepancy, shall in any event be admissible.

Incase there is any descripancy in measurements shownin drawinge and specifications, the same shown in drawing shall be considered as final and will be binding upon the contractor.

GC-66 SCHEDULE OF QUANTITIES AND EXTRA ITEMS

A. Schedule of Quantities

Variations in the quantities of work in schedule of quantities shall not vitiate the contract. The rates quoted for the individual items shall apply for the quantities of work increased or decreased by not more than twenty percent for each of the items, should the quantities of work actually involved under any item very by more than twenty (20%) percent, the rate for such item of work shall be revised in accordance with the procedures indicated under clause "Extra Items". The payment for the items will, however, continue to be at the original rate till the revised rate decided.

B. Extra Items

Extra Items of work shall not vitiate the contract. The contractor shall be bound to execute extra items of work as directed by the Engineer in Charge of VNSGU/Consultant.. The rates for extra items shall be derived from the S.O.R. (R&B Division) **Year 2023-2024** of R&B for Civil and **Year 2023-2024 Electrical** of R&B and quoted premium of tender. If the rate of extra item is not available in S.O.R. it will be derived on prevailing market rate only as per approved by consultant/VNSGU.

GC-67 ACTION WHEN NO SPECIFICATION IS ISSUED

In case of any class of work for which no specification is supplied by the VNSGU in the tender documents, such work shall be carried out in accordance with I.S.S. do not cover the same, the work should be carried out as per standard Engineering practice subject to the approval of Engineer in Charge of VNSGU/Consultant..

GC-68 ABNORMAL RATES

Contractor is expected to quote rate for each item after careful analysis of cost involved for the performance of the completed item considering all specifications and conditions of contract. This will avoid loss of profit or gain in case of curtailment or change or specification for any item. In case it is notice that the rates quoted by a tenderer for any item is usually high or unusually low, it will be sufficient cause for rejection of tender unless the VNSGU is convinced about the reasonableness of the rates on scrutiny of the analysis for such rate to the furnishing by the tenderer or demand.

GC-69 ASSISTANCE TO ENGINEER IN CHARGE OF VNSGU/CONSULTANT.

Contractor shall make available to Engineer in Charge of VNSGU/Consultant. free of cost all necessary instruments and assistance in checking of any work made by the contractor for taking measurement of work.

GC-70 TEST OF QUALITY OF WORK

1. All Workmanship shall be of the best kind described in the contract document and in accordance with the instructions of Engineer in Charge of VNSGU/Consultant. and shall be subjected from time to time to such test at contractor's cost as the Engineer in Charge of VNSGU/Consultant. may directed at the place of manufacture of fabrication or on site or at any such place. Contractor shall provide assistance, instruments labour and Materials as are normally required for examining measuring and testing any work Workmanship as may be selected and required by Engineer in Charge of VNSGU/Consultant..

2. All tests will be necessary in connection with the execution of work as decided by Engineer in Charge of VNSGU/Consultant. be carried out at an approved laboratory at contractor's cost.

3. The contractor shall furnish to Engineer in Charge of VNSGU/Consultant. for approval when requested or if required by the specification adequate samples of all Materials and finished goods to be

used in work and sufficiently in advance to permit test and examination thereof. All Materials furnished and finished goods applied in work shall be exactly as per the approved samples.

4. All the testing charges shall be borne by the Contractor.

GC-71 ACTION AND COMPENSATION IN CASE OF BAD WORKMANSHIP

If it shall appear to the Engineer in Charge of VNSGU/Consultant. that any work has been executed with Materials of inferior description, or quality or are unsound or with unsound imperfect or unskilled Workmanship or otherwise not in accordance with the contractor shall, no demand in writing from Engineer in Charge of VNSGU/Consultant. or his authorised representative specifying the work, Materials or articles compained of, notwithstanding that the same may have been inadvertantly passed, certified and paid for forthwith rectify or remove and reconstruct the work, specified and in the event of failure to do so within a period to be specified by Engineer in Charge of VNSGU/Consultant. in his aforesaid demand, contractor shall be liable to pay compensation at the rate of one (1%) percent of the tendered cost of work for every Ten (10) days limited to a maximum of Ten (10%) Percent of the value of work while his failure to do so continue and in the case of any such failure the Engineer in Charge of VNSGU/Consultant. may on expiry of the notice period rectify and remove and re-execut the work or remove and replace with other at the risk and cost of the Contractor. The decision of the Engineer-in- charge as to any question arising under this clause shall be final and conclusive.

GC-72 SUSPENSION OF WORK

Contractor shall, if ordered in writing by Engineer in Charge of VNSGU/Consultant. or his representative temporarily suspended the work or any part thereof for such time (not exceeding two months) as ordered and shall not after receiving such written order proceed with the work until he shall have received a written order to proceed therewith the contractor shall not be entitled to claim compensation for any loss or damage sustained by him by reason of temporary suspension of work as aforesaid. An extention of time for completion of work will be granted to the contractor corresponding to the delay caused by such suspension of work if the applied for the same provided the suspension was not consequent upon any default or failure on the part of the contractor.

GC-73 OWNER MAY DO PART OF THE WORK:

When the contractor fails to comply with any instructions given in accordance with the provisions of this contract, the VNSGU has the right to carry out such parts of work as the VNSGU may designate whether by purchasing materials and engaging labour or by the agency of another contractor. In such case the VNSGU shall deduct from the amount which otherwise might become due to contractor the cost of such work and materials with Ten (10%) percent added to cover all departmental charges and should the total amount thereof exceed the amount due to contractor, contractor shall pay the difference to VNSGU

GC-74 POSSESSION PRIOR TO COMPLETION

The Engineer in Charge of VNSGU/Consultant. shall have the right to take possession of or to use any completed or partly completed work or part of work, such possession or use shall not be deemed to be an acceptance of any work completed in accordance with the contractor. If such prior possession or use by Engineer in Charge of VNSGU/Consultant. delays the progress of work, equitable adjustment in the time of completion will be made and the contract shall be deemed to be modified accordingly.

GC-75 COMPLETION CERTIFICATE

1. When the contractor fulfil his obligation as per terms of contract he shall be eligible to apply for certificate. Contractor may apply for separate completion certificate in respecf of each such portion of work by submitting the completion documents alongwith such application for completion certificate. The Engineer in Charge of VNSGU/Consultant. shall normally issue to contractor the completion certificate within 2 (Two) Month after receiving an application thereof from contractor after verifying from the complete documents and satisfying himself that work has been completed in accordance with and as set out in the construction and erection drawings and the contract document. Contractor after obatining the completion certificate is eligible to present the final bill for work executed by him under the terms of contract.

2. Within 2 (Two) month of completion of work in all respect contractor shall be furnished with a certificate by the Engineer in Charge of VNSGU/Consultant. of such completion but no certificate shall be given nor shall work be deemed to have been executed, until all (1) scaffolding, surplus Materials and rubbish is clearing off site completely (2) until work shall have been measured by the Engineer in Charge of VNSGU/Consultant. whose measurement shall be binding and conclusive and (3) until all the temporary works, labour and staff colonies etc. constructed are removed and the work site cleaned to the satisfaction of the Engineer-in-charge. If contractors shall fail to comply with the requirements as aforesaid or before date fixed for the completion of work, the Engineer-in-charge may at the expenses of contractor remove such scaffolding, surplus Materials and rubbish and dispose of the same he thinks fit.

3. The following documents will form the completion documents :

(a) Technical documents according to which work was carried out.

(b) Construction drawings showing therein the modifications and corrections made during the course of execution signed by Engineer-in-charge.

(c) Completion certificate for "Embedded" or "Covered" up work.

(d) Certificate of final levels as set out for various works.

(e)Material appropriation statement for the Materials issued by owner for work and list of surplus Materials returned to VNSGU store duly supported by necessary documents.

4. Upon expiry of the period of defects liability and subject to Engineer in Charge of VNSGU/Consultant. being satisfied that work has been duly maintained by contractor during the defects liability period as fixed originally, or as external subsequently and the contractor has in all respects made up by subsidence and performed all his obligations under contract, the Engineer in Charge of VNSGU/Consultant. shall (without prejudice to the rights of owner in any way) give final certificate to that effect. The Contractor shall not be considered to have fulfilled the whole of his obligation until final certificate shall have been given by the Engineer in Charge of VNSGU/Consultant. notwithstanding previous entry upon and taking possession, working or using of the same or any part thereof by owner.

5. Final Certificate only Evidence of Completion

Except the final certificate no other certificate or payments against a certificate or an general account shall be taken to be an admission by owner of the due performance of contract or any part thereof or of occupancy validity of any claim by the contractor.

GC-76 SCHEDULE OF RATES

1. The price/rates quoted by the contractor shall be remain firm till the issue of final certificate and shall be subject to price ADJUSTMENT CLAUSE GC-35. Schedule of rates shall be deemed to include and cover all costs expenses and liabilities of every description and all risks of every kind to be taken in executing, completing and handling overwork to owner by contractor. Contractor shall be deemed to have known the nature, scope, magnitude and the extent of work and Materials required through contract documents may not fully and precisely furnish them. He shall make such provision in the schedule of rates as he may consider necessary to cover the cost of such items of work and Materials as may be reasonable and necessary to completion work. The opinion of Engineer in Charge of VNSGU/Consultant. as to the item of work shall be final and binding on Contractor although the same may be not shown on or described specifically in contract documents.

2. The Schedule of rates shall be deemed to include and cover the cost of all constructional plant, temporary work, pumps, Materials, labour and all other Materials in connection with each item in schedule of rates and the execution of work or any portion thereof furnished complete in every respect and maintained as shown or described in the contract document or as may be ordered in writing during the continuance of the contract.

3. The Schedule of rates shall be deemed to include and cover the cost of all royalties and free for the articles and processes, protected by letters patent or otherwise incorporated in or used in connection with work, also all royalities, and other payments in connection with Materials of whatsoever kind for

work and shall include an indemnity to-owner which contractor hereby gives against all action, proceeding, claims, damages, costs and expenses arising from the in VNSGU in use of work of any such articles, processes or Materials. Octroi of other or Local Board charges if levied on Materials equipment of machineries to be brought to site for use on work shall be borne by the contractor.

4. No exemption or reduction of custom duties excise duties, gst or any other taxes or charges of the Central or State Government any local body whatsoever will be granted to obtained. All of such expenses shall be deemed to have been included in and covered by schedule of rates. Contractor will also obtained and pay for all permits or other privileges necessary to complete work.

5. The schedule of rates shall be deemed to include and cover risk on account of delay or intereference with contractor's conduct of work which may occure from any cause including orders of VNSGU in the exercise of his power and no account of extension of time granted due to various reasons.

6. For work under unit rate basis no alteration will be allowed in the schedule of rates by reason of work or any part of them being field, altered extended, diminished or ommitted.

GC-77 PROCEDURE FOR MEASUREMENT OF WORK IN PROGRESS

1. All measurements shall be in metric system. All the work in progress will be jointly measured by the representative of Engineer in Charge of VNSGU/Consultant. and contractor's authorised agent. Such measurements will be got recorded in the measurement book by the Engineer or his authorised representative and signed by contractor or his authorised agent in token of acceptance. If the contract or his authorised agent fails to be present when even required by the Engineer in Charge of VNSGU/Consultant. for taking measurements for any reasons whatsoever, the measurement will be taken by the Engineer in Charge of VNSGU/Consultant. or his authorised representative not withstanding the absence of contract and these measurement will be deemed to be correct and binding on contractor.

2. Contractor will submit a bill in approved proforma in duplicate to the Engineer in Charge of VNSGU/Consultant. of the work giving abstract and detailed measurements of various items executed during a month as mutually agreed. The Engineer in Charge of VNSGU/Consultant. shall verify the bill and the claim, far as admissible, adjusted if possible, within 10 days of presentation of the bills.

3. In case of Tenders for completed items of work, contractor may be allowed 'Secured Advance' on the Security of Materials brought to site for execution of the constructed items of work the extent of 75% of the value of Materials of unperishable nature and an agreement be drawn up with contractor under which the owner secured a lien on these Materials and is safe guarded against losses due to any reasons whatsoever. Recoveries of advance paid would not be post-poned till the whole work is completed but shall be adjusted from his work done or the Materials used, the necessary deductions being made when the items of work in which they are used and are billed for. When the mode of measurement is not covered by contract for any item of work it shall be as per latest I.S.I.

GC-78 RUNNING ACCOUNT PAYMENT TO BE RECOVERDED AS ADVANCES

All running account payments shall be regarded as payments by way of advance against the final payment only and not as payment for work actually done and completed and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or to be considered as an admission of the due performance of contract or any part thereof.

GC-79 NOTICE FOR CLAIM FOR ADDITIONAL PAYMENT

If the contractor considers that he is entitled to extra payment or compensation or any claim whatsoever in

respect of work, he shall forthwith give notice in writing to the Engineer in Charge of VNSGU/Consultant. about his extra payment and/or compensation. Such notice shall be given to the Engineer in Charge of VNSGU/Consultant. within Ten (10) days from the happening of any event upon which contractor basis such claims and such notice shall contain full particular of the nature of such claim with full details and amount claimed. Failure on the part of the contractor to put forward any claim with the necessary particulars as above within the time above specifed shall be an absolute waiver thereof. No commission

by VNSGU to reject any such claim and no delay in dealing therewith shall be waiver by VNSGU of any rights in respect thereof.

GC-80 PAYMENT OF CONTRACTOR'S BILL

1. The price to be paid by the VNSGU to contractor for the work to be done and for the performance of all the obligations under taken by the contractor under contract shall be based on the contract price and payment to be made accordingly for the work actually executed and approved by the Engineer in Charge of VNSGU/Consultant..

2. No payment shall be made for work costing less than Rs. 5,000/- till the work is completed and a certificate of completion given. But in case of work estimated to cost more than Rs. 5,000/- contractor on submitting the bill thereof will be entitled to receive a monthly payment, proportionate to the part thereof, approved and passed by Engineer in Charge of VNSGU/Consultant. whose certificate of such approval and passing of the sum so payable shall be final and conclusive against contractor. This payment will be made after making necessary deductions as stipulated elsewhere in the contract documents for Materials, security deposit, etc. The payment shall be released to the contractor within Thirty (30) days of submission of the bill in case of running bill and within two (02) months in case of final bill, contractor shall present the bill duly pre-receipted on proper revenue stamp.

3. Payment due to Contractor shall be made by the by crossed Accounts payee cheque in Indian currency forwarding the same to the registered office of the contractor. Owner shall not be responsible if the cheque is mislaid or misappropriated by unauthorised person.

GC-81 FINAL BILL

The final bill shall be submitted by Contractor within two (02) month of the date of physical completion of work, Otherwise the Engineer in Charge of VNSGU/Consultant. certificate of the measurement and of total amount payable for work shall be finalised binding on all parties.

GC-82 RECEIPT FOR PAYMENT

Receipt for payment made on account of work when executed by a firm must be signed by a person holding power of attorney in this respect on behalf of contractor except when described in the tender as a limited company in which case the receipt must be signed in the name of the company by one of its principal officers or by some other person having authority to give effectual receipt for the Company.

GC-83 TAXES, DUTIES, OCTROI, ETC.:

The Contractor shall be liable to payment of all the Central/ State/Local Bodie's Levies/ taxes or duties etc. The VNSGU shall neither bear it nor reimburse at any time but will ensure deduction of Central/State/Local levies/GST and taxes at Source at the rate provided under the relevant statutes from time to time inforce.

1% Construction Cess will be deducted from respective R.A. Bill and Final bill in accordance with the prevailing norms of Govt. of Gujarat.

GC-84 INSURANCE

Contractor shall at his own expenses carry and maintain with reputable Insurance Companies to the satisfaction of owner as follows :

1. Employees State Insurance Act

Contractor agrees to and does hereby accept full and exclusive liability for compliance with all obligations imposed by the Employees' State Insurance Act 1948, and Contractor further agree to defend, indemnify and hold owner harmless from any liability or penalty which may be imposed by the Central or State Government of Local authority by reasons of any asserted violation by contractor or Sub-Contractor of the Employees' State Insurance Act, 1948 and also from all claims, suits or proceedings that may be brought against owner arising tender, growing out of or by reasons of the work provided for by this contract whether brought by employees of Contractor, by third parties or by Central or State Government authority or any administrative Sub-division thereof. Contractor agrees to fill in with the Employees State

Insurance VNSGU, the declaration from and all forms which may be required in respect Contractor's or Sub-contractor's employees these aggregate remuneration is Rs. 400/- p.m.or less and who are employed in work provided for or those covered by E.S.I from time to time under the agreement. The Contractor shall deduct and secure the agreement of the Sub-contractor to deduct the employees' contribution as per the first Schedule of the Employees' State Insurance Act from wages. Contractor shall remit and secure the agreement of Sub-contractor to remit to the State Bank of India Employees' State Insurance VNSGU Accounts, the employees contribution as required by the Act Contractor agrees to maintain all cares and record as required under the Act in respect of employees and payments and contractor shall secure the agreements of the sub-contractors to maintain such records, any expenses incurred for the contributions or maintaining records shall be to contractor's or sub- contractor' account. Owner shall retain such sum as may be necessary from the contract value until contractor shall furnish satisfactory proof that all contribution as required by the Employees' State Insurance Act 1948 have been paid.

2. Workman's Compensation And Employees Liability Insurance

Insurance shall be effected for all contractors employees engaged in the performance of this . If any part of work is sublet, contractor shall require the sub-contractor to provide workmans' compensation and employer's liability insurance which may be required by owner.

3. Other Insurance required under law or regulation by owner

Contractor shall also carry and maintain any and all other insurance which may be required under any law or regulation from time to time. He shall also carry and maintain any other insurance which may be required by owner.

GC-85 DAMAGE TO PROPERTY

1. Contractor shall be responsible for making good to the satisfaction of owner any loss of and any damage to all structures and properties belonging to owner or being executed or Procured by owner or of other Agencies within the premises of all work of owner, if such loss or damage is due to fault and/or the negligence or will full act or ommission of contractor, his employees, agent representatives or Sub-contractors.

2. Contractors shall indemnify and keep owner harmless of all claims for damage to properties other than VNSGU's property arising under or by reasons of this agreement if such claims result from the fault and/or negliance or wilful act of ommission of contractor, his employees, agents, representatives or sub-contractors.

GC-86 LABOUR LAWS AND REGULATIONS

1. The contractor shall be reponsible for the strict compliance of and shall ensure strict compliance by his sub-contractor employees and agents of all labours and others laws, rules or regulations having the force of law affecting the relationship of employer and employee between the contractor/sub-contractor and their respective employees.

2. No labour below the age of eighteen (18) year be employed on work.

3. Contractor shall pay to the labours engaged on work according the law.

4. The Contractor and sub-contractors of the contractor shall obtain proper authority disignated in this behalf under any application law, rules or regulations (including but not restricted to the factories Act and Contract Labour Abolition and Regulation Act 1970,) in so far as applicable) any and all such licences, consents, Registration and/or other authorisation as shall from time to time be or become necessary for relatint to the execution of work or any part of portion thereof or the storage or supply of any Materials or otherwise in connection with the performance of the contract and shall at all times observance by the sub-contractors, employees and agents of all terms and conditions of the said licences,consents, regulation and other authorisation and laws, rules and regulations applicable thereto.

GC-87 CONTRACTOR TO INDEMNIFY OWNER

1. The Contractor shall indemnify and keep indemnified the owner and every member, officer and employee of owner from and against all action, claims, demands and liabilities whatsoever and in

respect of the breach of any of the above clauses and/or against any claim, action or demand by any workman/employee of the contractor or any sub-contractor and or from any liability and way to any workman/employee of the contractor or any sub-contractor under any law, rule or regulations having the force of law, including but not limited to claims against the owner under the workman compensation Act 1923. The employees' Provident Funds Act 1952 and/or the Contract Labour (Abolition and Regulations) Act, 1970.

2. Payment of claims and damages

If owner has to pay any money in respect of such claims or demands as aforesaid, the amount so paid and the cost incurred by the owner shall be charged to and paid by contractor without any dispute notwithstanding the same may have been paid without the consent or authority of the Contractor.

3. In every case in which by virtue of any provision applicable in the workman's Compensation Act 1923 or any other Act, be obliged to pay compensation to workman employed by Contractor the amount of compensation so paid, and without prejudice to the rights of "The Registrar, Veer Narmad South Gujarat University, Surat", under sec. (12) Sub-section (2) of the said Act, VNSGU shall be at liberty to recover such amount from any surplus due to the contractor or the security deposit. VNSGU will not be bound to contest any claim made under section (12) Sub-section (2) of the said Act except or written request of Contractor and upon the contesting of such claim.

4. The Contractor shall protect adjourning sites against structural decorative and other damages that could be caused to adjourning premises by the execution of these works and made good at his cost, any such damage, so caused.

GC-88 IMPLEMENTATION OF APPRENTICE ACT 1964

Contractor shall comply with the provisions of the Apprentice Act 1964 and the orders issued thereunder from time to time. If the fails to do so, it will be a breach of contract. Contractor shall also be liable for any particular liability arising on account of any violation of the provisions of the Act by him.

GC-89 HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS

Contractor shall comply with all the rules and regulations of the local sanitary authorities or as framed by owner from time to time for the protection of health and sanitary arrangements of all labour directly or indirectly employed on the work of this contract.

GC-90 SAFETY CODE

GENERAL

Contractor shall adhere to safe construction practice and gurard against hazardous and unsafe working conditions and shall comply with owner's safety rules and set fourth herein.

1. First Aid and Industrial Injuries

1.1 Contractor shall maintain first aid facilities for its employees and chose of his sub-contractor.

1.2 Contractor shall make outside arrangements for ambulance service and for the treatment of industrial injuries. Name of those providing these services shall be furnished to Engineer in Charge of VNSGU/Consultant. prior to start of construction, and their telephone numbers shall be prominently posted in contractor's field office.

1.3 All injuries shall be reported promptly to Engineer in Charge of VNSGU/Consultant., and a copy of Contractor's report covering each personal injury requiring the attention of a physician shall be furnished to owner.

2. General Rules

2.1 Carrying, striking, matches, lighters inside the project area & smoking within the job site is strictly probibited Violators of smoking rules shall be discharged immediately. Within the operation area, not hot work shall be permitted without valid gas safety, fire permits. The Contractor shall also be held liable and responsible for all lapses of his sub-contractors/ employees in this regards.

3. Scaffolding

3.1 Suitable scaffolding shall be provided for workmen for all works that can not safely be done from the ground or from solid construction except such short period work as can be done safely from ladders. When a ladder is used, an extra mazdoor shall be engaged for holding the ladder and if the latter is used for carrying Materials as well, suitable foothold sand handholds shall be provided on the ladder and the same shall be given inclination not steeper than 1 to 4 (1 horizontal and 4 vertical).

3.2 Scaffolding or stagging more than 3.6 M (12') above the ground or floor, swing or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise fixed at least 1.0 M (3') high above the floor or platform of scaffolding or staging and extending along the entire length of the outside ends thereof with only such openings as may be necessary for the delivery of Materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

4. Maintenance of Safety Devices

4.1 All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in some conditions and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near place or work.

5. Display or Safety Instructions

5.1 These safety provisions should be brought to the notice of all concerned by display on a notice board a prominent place at the work-spot. The person responsible for compliance of the safety code shall be named therein by the Contractor.

6. Enforcement of Safety Regulations

6.1 To ensure effective enforcement of the rules and regula-tions relating safety precautions, the arrangements made by the contractor shall be open to inspection by the welfare Officer, Engineer in Charge of VNSGU/Consultant. of safety Engineer of the owner or their representatives.

7. No Exemption

7.1 Notwithstanding the above clause 1.0 to 6.0 there is nothing to exempt the contractor from the operations of any other Act or rules in force in the Republic of India.

7.2 In addition to the above, the Contractor shall abide by the safety code provision as per C.P.W.D. Safety Code framed from time to time.

GC-91 ACCIDENTS

It shall be the contractor's responsibility to protect against accidents on the work. He shall indemnify the VNSGU against any claim for damage or for injury to persons or property resulting from, and in the course of work and also under the provision of the Workman's Compensation Act. On the occurance of an accident arising out of the works which results in death or which is so serious as to be likely to result in death, the contractor shall within twenty four hours of such accident, report in writing to the Engineer in Charge of VNSGU/Consultant., the facts stating clearly and is sufficient details the circumstances of such accident and the subsequent action. All other accidents on the works involving injuries to persons or damage to property other than that of the contractors shall be promptly reported to the Engineer in Charge of VNSGU/Consultant. stating clarly and in sufficient details and facts and circumstances of the accidents and the action taken. In all cases the contractor shall indemnify the VNSGU against all loss of damage resulting directly or indirectly from the Contractor's failure to report in the manner aforesaid. This includes panalties or fine consequency of failure to give notice under the workman's compensation Act or failure to confirm to the provisions of the said. Act in regard to such accidents.

In the event of an accident in respect of which compensation may become payable under the workmens compensation Act VIII of 1923 including all modification thereof whether such compensation may become payable by the contractor or by the VNSGU as principal employer, the Engineer in Charge of VNSGU/Consultant. may retain out of money due and payable to the contractor such sum or sums of money as may, in the opinion of the Engineer in Charge of VNSGU/Consultant. be sufficient to meet such

liability. On receipt of award from the labour commission in regard to quantum of compensation, the difference in amount will be adjusted.

GC-92 PRICE VARIATION CLAUSE:

No Price Variation difference will be paid to the contractor for Labour, Materials, P.O.L. (Fuel) or any other material for the work

GC-93 STAR RATE & DIFFERENCE FOR REINFORCEMENT STEEL & CEMENT: (Not Applicable)

GC-94 GOODS AND SERVICE TAX (GST)

GST CLAUSE FOR CONSTRUCTION / ERECTION / COMMISSIONING / INSTALLATION / REPAIRS / MAINTENANCE / RENOVATION / FABRICATION OF STRUCTURE INCLUDING BUILDING (MEANS ALL WORKS CONTACT / TURN KEY PROJECTS / SUPLY OF MATERIAL / GOODS)

GST (Goods & Service Tax) has come in existence from 1st July 2017. Contract / Successful Bidder is boundto pay any amount of GST prescribed by the Govt. of India as per the Terms of Contract agreed upon during the course of execution of this Contract.

During the course of execution of contract. if there is any change in Rate of GST (Goods & Service Tax) by the Government the same shall be reimbursed / recovered separately by VNSGU subject to the submission of Original Receipt / proof for the amounts actually remitted by the successful Tenderer / Contractor to the competent authority along with a certificate from Chartered Accountant of Contractor / Successful Bidder certifying that the amount of GST paid to the Government and the same shall be intimated / submitted / claimed within 30 Days form the date of payment Remittance of GST within stipulated period shall be the sole responsibility of the Successful Bidder / Contractor, failing which VNSGU and decision of the VNSGU Authority shall be final and binding on the Contractor / Successful Bidder in this regard Further the non-payment of GST to the Government may lead to the termination of contact and forfeiture of security Deposit / Performance Guarantee Amount.

If imposition of any other new Taxes / Duties / Levies / Cess or any other incidentals etc. or any increase in the existing Taxes / Duties / Levies / Cess or any other incidentals etc. (Excluding GST) are imposed during the course of the contract the same shall be borne by the Contractor / Successful Bidder only in no case VNSGU shall be liable for the same.

The Contractor will submit the invoice to the VNSGU having GSTIN of VNSGU mentioned therein and the taxes shall be shown separately on the face of the invoice so as to claim as ITC by VNSGU.

GC-95 SECURED ADVANCES:

No Secured advances shall be paid.

GC-96 SUBMISSION / COMPULSION BY CONTRACTOR

The contractor registered with VNSGU or any other Govt. organisation is required to employ minimal technical staff as detailed in the certificate issued to him. If contractor does not employ same technical staff over works entrusted to him, should submit photoidentity and education qualification of technical staff appointed at site.

"The contractor shall have to keep the record of the labourers employed for the concerned work. The contractor should provide attendance card, identification card, pay slip etc to the labourers employed. Further, the amount of E.S.I. & Provident Fund should be deducted from the salary of the labourers employed and such amount should invariably be deposited to the concerned Government Departments. In addition, the amount of social security under E.P.F. & M.P. act 1952 shall be recovered every month & such amount should invariably be deposited directly to the concern Government Departments. In the same context, the details regarding such amount deposited to the concern Govt. Dep. and labourers employed shall be furnished to the office VNSGU every month. In case of failure, such amount shall be deducted/recovered from the running bill directly in accordance with the details given by contractor regarding labourers employed and as per the prevailing rules of Government. In absence of detail, an

adhoc suitable amount of the total amount of work done shall be recovered directly from the running bills. On submission of evidence of recovery of such amount, the amount recovered/deducted shall be released in the next bill after due sanction of Competent Authority of VNSGU."

GC-97 SPECIAL RISK

If during the contract, there shall be outbreak of war (whether war is declared or not), major epidemic**,** earthquake, or similar occurrence in any part of the world beyond the control of either party to the contract which whether financially or otherwise materially affects the execution of the contract, the contractor shall unless and until, the contract is terminated under the provisions of this article, use his best endeavors to complete the execution of the contract, provided always that the VNSGU shall be entitled at any time after the onset of such special risks, to terminate the contract by giving written notice to the contractor and upon such notice being given this contract shall terminate but without prejudice to the rights of either party in respect of any antecedent breach thereof. If any of the works, or materials to be deli subjected to damage or distribution by reasons for the special risks, the contractor shall be entitled to payment for such damage or destroyed materials and to any costs involved in making good damages or destroyed materials as may be required by the VNSGU.

The contractor shall not be liable for payment of compensation for delay or for failure to perform the contract for reasons of Force Majeure such as acts of public enemy, acts of Government fires, floods, cyclone, epidemics, quarantine restrictions, lockouts, strikes, freight embargoes and provided that the contractor shall within Ten (10) days from the beginning of such delay notify the Engineer in Charge of VNSGU/Consultant. in writing the cause of delay. VNSGU Authority shall verify the facts and grant such extension as the facts justify.

GC-98

The Engineer-in- charge shall have power to take any alteration in, or addition to the original specifications, drawings, designs and instruction that may appear to him to be necessary or advisable during the progress of the work, and the contractor shall be bound to carry out the work in accordance with any instructions in this connection which may be given to him in writing signed by the Engineer- in-charge and such alteration shall not invalidate the contract and any additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respect on which he agreed to do the main work and at the same rates as are specified in the tender for the main work. And if the additional and altered work includes any class of work for which on rates is specified in this contract than such class of work shall be carried out at the rates entered in the schedule of rates of VNSGU or at the rates mutually agreed upon between the Engineer in Charge of VNSGU/Consultant. and the contractor whichever are lower if the additional or altered work for which no rate is entered in the schedule of Rates of VNSGU is ordered to be carried out before the rates are agreed upon then the contractor shall, within seven days of the date of receipt by him of the order to carry out the work, inform the Engineer in Charge of VNSGU/Consultant. of the rate which it is his intention to charge for such class of work and if the Engineer in Charge of VNSGU/Consultant. does not agree to this rate he shall by notice in writing be at liberty to cancel his order to carry out such class of work, and arrange to carry it out in such manner as he may consider advisable provided always that if the contractor shall commence the work or incur any expenditure in regards thereto before the rates shall have been determined as lastly herein before mentioned, then in such case he shall only be entitled to be paid in such case he shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of the determination of the rate as aforesaid according to such rate or rates as shall be fixed by the Engineer in Charge of VNSGU/Consultant.. In the event of a dispute, the decision of the VNSGU Authority will be final.

Where, however, the work shall have to be executed according to the designs; drawings and specifications recommended by the contractor and accepted by the competent authority the alteration above referred to shall within the scope of such designs drawings and specification appended to the tender.

GC-99

The contractor shall not be entitled to claim any compensation from VNSGU for the loss suffered by him on account of delay by VNSGU in the supply of materials entered in Schedule `A' where such delay is

caused by:

(1) Difficulties relating to the supply of Railway wagons & availability of Government controlled materials-

(2) Force Majeure.

(3) Act of God.

(4) Act of the Nation's enemies or any other reasonable cause beyond the control of VNSGU.

In the case of such delay in the supply of material the VNSGU shall grant such extension of time for the completion of the work as shall appear to the VNSGU Authority to be reasonable in accordance with the circumstances of the case.

The decision of the VNSGU Authority as to the extension of time shall be accepted as final by the contractor.

GC-100 FORCE MAJEURE

1. party shall be to liable to the other for any loss or damage occasioned by or arising out of acts of god, and in particular, unprecedented Floods, volcanic eruption, earthquake or other convulsion of nature, and other acts such as but not restricted to general strike, invasion, the act of foreign countries, hostilities or war like operations before or after declaration of war, rebellion, military or usurp power, strikes or boycotts (other than those involving the Contractor or their respective employees/representatives or attributable to any act or omission of any of them), An act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion, or politically motivated sabotage, Expropriation or compulsory acquisition by any Government Agency of any Project Assets or rights of the Contractor, which prevent performance of the contract and which could not have been for seen or avoided by a contractor or Employer (the "Force Majeure").

2. On occurrence of Force Majeure Event, Parties are excused from the Performance of their Obligations.

3. In the Event of occurrence of Force Majeure Event both the party shall try to continue to perform their obligation stipulated in this contract. If Force Majeure Event subsists for 120 days then either party may by notice to other party terminate the Contract.

4. In the event that Parties are unable to agree in good faith about the occurrence of or existence of a Force Majeure event, such dispute shall be finally settled in accordance with the Dispute Resolution Procedure; provided that the burden of the proof as to the occurrence of Force Majeure Event shall be upon the Party claiming relief and/or excuse on account of such Force Majeure Event.

5. Termination of the Contract (a) shall not relieve the Contractor or Employer of any obligations hereunder which expressly or by implication survives Termination hereof, and (b) except as otherwise provided in any provision of the Tender expressly limiting the liability of either Party, shall not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of or caused by acts or omissions of such Party prior to the effectiveness of such Termination or arising out of such Termination.

Signature of the Applicant :

Registrar
VEER NARMAD SOUTH GUJARAT UNIVERSITY.

07. SPECIAL CONDITIONS OF CONTRACT :

1.1 GENERAL :

Any clause/s, given under these Special Conditions, shall be read in conjunction with the Conditions of the Contract, and in case of any conflict, the provisions of Special Conditions shall override the provisions of General Conditions of Contract.

The Tenderer shall acquaint himself with the access to site, availability of local facilities such as transport, Materials :, labour and shall price his tender accordingly.

1.2 ROAD INFRASTRUCTURE :

The tenderer shall acqaint himself with the access to site. The successful Tenderer shall have to make road and / or any other infrastructure facility for the easy access to the site at his own cost.

1.3 SAFETY :

All the safety and entry rules shall be strictly followed. The Contractor is fully responsible for the safety of his staff and Workmen and must equip them with safety appliances and tools.

1.4 TIME SCHEDULE :

The Work shall be executed strictly as per the Time Schedule / Bar Chart, submitted along with price tender offer.

1.5 PENALTY FOR DELAY :

If the Contractor fails to complete the whole project by the stipulated completion date, he shall pay liquidated damages

1.6 CONSTRUCTION OF STORES AND SITE OFFICE :

Suitable areas shall be allocated by the VNSGU to the Contractor to build stores for storing his equipment, plant, Materials :, etc., and also to build his site office. He shall be solely responsible for watching and guarding of his stores, office, etc.

Contractor shall have to make storage facilities by making godown for the material specified in Schedule-"B" Part-"A".

The Contractor shall cover all his equipment and Materials : at site with requisite insurance against theft, larceny, decoity, fire, tempest, flood, earthequake, etc.

On completion of the Work undertaken by the Contractor, he shall removed all temporary Work erected by him and have the site cleaned as directed by the Engineer in Charge of VNSGU/Consultant.. The VNSGU reserves theright to ask the Contractor any time during the pendency of the Contract to vacate the land by giving 7 days notice on security reasons or in national interest or otherwise.

1.7 LABOUR AND SUPERVISORY CAMPS :

No land shall be provided by the VNSGU to the Contractor for constructing his labour and supervisory camps and other service facility, for which the Contractor shall make his own arrangement outside the site boundary.

1.8 CONSTRUCTION EQUIPMENT :

The Contractor shall make his own arrangement to procure all constructional plant and equipment. He shall also state the type and number of different equipment with their capacities, which are in good Working condition for usage on the site to ensure completion of the Work in the specified time.

All Materials :, construction plant and equipment, once brought by the Contractor to the site, shall not be removed from there without the written authority of the Engineer in Charge of VNSGU/Consultant.. Also, the Contractor shall have adequate stock of spare parts for the equipment on the site and Work shall not be delayed on this account. Similarly, all temporary Workbuilt by the Contractor for the main construction undertaken by him, are not be dismantled and removed without the written authority of the Engineer-in-charge.

1.9 CO-OPERATION WITH OTHER CONTRACTORS :

The Contractor shall execute his Work in phased manner as directed by the Engineer from time to timeso as not to obstruct or retard the Work being executed simultaneously by other agencies, if any.

1.10 SAFETY :

The Contractor shall be responsible for provision of safety arrangement and protective clothing for all operators on the site, whether or not engaged in actual operation of supervision. The Contractor shall also be responsible for safety arrangement of all equipment used for construction, and shall employ trained Workmen conversant with safety regulations. The Contractor shall use only tested equipment and tools, and shall periodically redo tests to the satisfaction of the Engineer in Charge of VNSGU/Consultant.. All the tests certificates shall be made available to the Engineer in Charge of VNSGU/Consultant. at the site of the Work. If at any time, in the opinion of the Engineer in Charge of VNSGU/Consultant., this provision is not completion with, the Contractor shall forthwith replace such equipment and tools.

The Contractor shall display notices and arrange proper fencing at such places, where hazardous Work is being carried out. The Contractor shall provide at his own expense on the Works to the satisfaction of the Engineer in Charge of VNSGU/Consultant., proper and sufficient fire fighting equipment, first aid, etc., which shall, at all times be available for use.

1.11 The Contractor shall have to take photographs during various stages of construction activity for each of the Work at no extra cost. The photographs shall be of size 4" x 6" on matt paper. The number ofphotographs shall be not be less than 200.

1.12 No mobilisation advance shall be paid.

1.13 No compensation of any item shall be paid in case any of the item is omitted, i.e., not executed at all.

1.14 It is clarified once again that the serviceable Materials:, obtained during dismentaling / clearing of the site or the extra excavated stuff, shall have to be carted by the Contractor at the places shown by the Engineer in Charge of VNSGU/Consultant. anywhere within city limit.

1.15 Out of the amount payable / creditable to the Contractor's account, the Central Government/StateGovernment tax/taxes shall be deducted at source in accordance with the relevant laws / rules prevailling from time to time.

1.16 Surat Veer Narmad South Gujarat University shall not provide `C' form for tax purpose.

1.17 DISPUTES :

A. In case of any dispute, Vice Chancellor of the Veer Narmad South Gujarat University shall be the competent authority and his decision shall be final and binding upon all concerned.

B. For dispute issues arising from tender, the jurisdiction will be Surat only.

C. The dispute settlement mechanism to be applied shall be follows.

1. In case of Dispute or difference arising between the Purchaser and a supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shell be settled in accordance with the Arbitration and Conciliation act, 1996 by a Sole Arbitrator. The Sole Arbitrator should be appointed by agreement between the parties; failing such agreement, by the appointing authority namely the Indian Council of Arbitration / President of the Institution of Engineers (India)/The International Center for Alternative Dispute Resolution (India). A certified copy of the appointment Order Shall be supplied to each of the parties.

2. Arbitration proceedings shell be held to be Surat. Gujarat India, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English.

3. The decision of the Arbitrator shall be final and binding upon both parties. The cost and expenses of Arbitration proceedings will be paid as determined by the Arbitrator. However, the expenses incurred by each party in connection with the preparation, presentation etc. of its proceedings shall be borne by each party itself.

D. The Purchaser (VNSGU) and the supplier shell make every effort to resolve amicably by direct informal negotiation any dispute arising between them under or in connection with the contract.

E. If, after Sixty (60) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.

F. Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Services/Software/Goods under the Contract.

G. Arbitration Proceedings shall be conducted in accordance with the rules of procedure specified in the SCC.

H. Notwithstanding any reference to arbitration herein,

a. The parties shell continue to perform their respective obligations under the Contract unless they otherwise agree.

Any dispute arising out of this Contract shall be subject to SURAT JURISDICTION only.

Signature of the Applicant :

Registrar
VEER NARMAD SOUTH GUJARAT UNIVERSITY.

08. MAKE OF MATERIALS

It is compulsory to used by the Contractor / Bidder from the following list of the make of Material / Brand / Company

No.	ITEM	STANDARD MAKE
1	43, 53 grade Portland cement	Ultratech/Ambuja/Binani/ACC/Siddhi/Wonder/J.K.Laxmi/Hathi
2	43-53 grade Portland puzzolana cement	Ultratech/Ambuja/Binani/ACC/Siddhi/Wonder/J.K.Laxmi/Hathi
3	Reiforcing steel	Asian/Kamdhenu/Tata/Sail/Vizag/Electro therm/National
4	Structural Steel	Sail / Tata / Vizag
5	Vitrified Tiles	Asian/City/Nitco/Vermora/Johnson
6	Ceramic Tiles	Asian/City/Nitco/Vermora/Johnson/Somani
7	Glazed Tiles	Somani / Johnson / Kajaria
8	PVC Plumbing & Sanitary fittings	Astral / Supreme / Prince / Jain
9	Plumbing Fixture	Ess-Ess / Essco / Plumber
10	Sanitarywares	Hindustan / Cera / Parryware
11	Paints	Asian / Nerolac / Burger / Dulux
12	Cement based Putty	Birala / J K / Asian
13	White Cement	Birla / J K
14	Addmixture & Water proofing Compounds	Sika / Fosroc / MC / Dr. Fixit/ Mapai
No.	**ITEM**	**STANDARD MAKE**
1	LT ACB	SIEMENS / SCHNEIDER ELECTRIC / L&T / C&S / ABB
2	L T MCCB	SIEMENS / SCHNEIDER ELECTRIC / GE / L&T / C&S / ABB / CROMPTON
3	L T MCB, ELCB	SIEMENS / SCHNEIDER ELECTRIC / HAGER / MDS / C&S / MDS / S&S / INDOKOPP / HHELCON / L&T / HAVELLS
4	CHANG OVER SWITCH	HHELCON / HPL 8000 MEC
5	L T CABLE	UNIVERSAL/CCI/PRIMCAB/POLYCAB/FINOLEX / GLOSTER/RRKABLE/DICAB/HAVELLS/ RPG ASIAN
6	PVC CONDUITS AND ACCESSORIES	PRECISION (PREFERABLE) / DIMOND / VIMCO / BEC / STEELCRAFT / CIRCLEARC
7	MODULAR SWITCHES, SOCKETS	MK/ ANCHOR ROMA / HAVELLS / NORTHWEST / LEGRAND / CRABTREE
8	SWITHCES & ASSESSORIES	ANCHOR / JAINEX
9	T.V./TELEPHONE SOCKETS	M.K./CPL/NORTHWEST/AVANTI KOPP
10	PLUG SOCKET	MK / SCHNEIDER / CG / HAVELLS / S&S
11	PVC JUNCTION BOX	SINTEX / S&S / CLIPSAL
12	WIRES FOR INTERNAL WIRING	FINOLEX / HAVELLS / RR CABLE
13	FINOLEX WIRE	FINOLEX / HAVELLS
14	TELEPHONE CABLE	DELTON / TCL / FINALEA / HAVELLS
15	COAXIAL TV CABLE	DELTON / HAVELLS
16	DATA SINGAL CABLE	ENERCON / LAPP INDIA
17	MULTICORE FLEXIBLE CABLE	FINOLEX / POLYCAB / RR CABLE / KEI
18	LIGHT FIXTURES	PHILIPS/CROMPTON/CLIPSAL/WIPRO/BAJAJ / GE / ASIAN / OSRAM
19	INDOOR DECORATIVE LIGHT	ARTLITE / DECON / GEMINI
20	OUTDOOR DECORATIVE LIGHT LUMINAIRE	ARTILITE / DECON / GEMINI / K-LITE
21	FLOOD LIGHT	CROMPTON/PHILIPS/BAJAJ/OSRAM/ASIAN
22	FLOUROSCENT TUBE	OSRAM / GE / PHILIPS / BAJAJ / CG
23	CFL LAMP	OSRAM / GE / PHILIPS / BAJAJ / CG
24	SODIUM VAPOUR / MERCURY VAPOUR LAMP	OSRAM / CROMPTON / PHILIPS
25	LAMPS	PHILIPS / GE / WIPRO / OSRAM / CROMPTON
26	PAINT	NEROLAC / SHALIMAR / DULO
27	CEILING FAN / EXHAUST FAN	CROMPTON / BAJAJ / HAVELLS

Note : Client / Consultant reserved the Right to Select / Change the Make of material from the Above Mentioned Makes.

MAKE OF ELECTRICAL MATERIALS

It is compulsory to used by the Contractor / Bidder from the following list of the make of Material / Brand / Company

No.	ITEM	STANDARD MAKE
1	LT ACB	SIEMENS / L&T / C&S / HAVELLS/ INDOASIAN
2	L T MCCB	SIEMENS / GE / L&T / C&S GEWISS /INDOASIAN/ HAVELLS
3	L T MCB, ELCB	MDS / C&S / INDOAIAN / L&T / HAVELLS
4	CHANG OVER SWITCH	HAVELLS/C&S GEWISS /INDOASIAN/L&T/GE
5	ALLUMINIUM & COPPER CABLE	PRIMCAB/FINOLEX /RRKABLE/HAVELLS/L&T/KEI
6	U CONDUITS/OVEL/CASING & CAPAING AND ACCESSORIES	PRECISION/POLYCAB/ AMIT/
7	MODULAR SWITCHES, SOCKETS	HAVELLS-CRABTREE/ANCHOR ROMA,WOOD AVE / ABB/C&S GEWISS/PHILIPS
8	SWITHCES, PLUG SOCKET & ASSESSORIES	ANCHOR / JAINEX/ORPAT/TOYAMA
9	T.V./TELEPHONE SOCKETS	HAVELLS-CRABTREE/ANCHOR ROMA,WOOD AVE / ABB/C&S GEWISS/PHILIPS
10	PVC JUNCTION BOX	SINTEX / S&S / CLIPSAL
11	FLEXIBLE WIRES & CABLES/FRLS /INDUSTIRES/PVC/CO-AXIAL WIRES/SUBMERSIBLE CABLE	FINOLEX / HAVELLS / RR CABLE
12	TELEPHONE CABLE	DELTON / FINOLEX/ HAVELLS
13	DATA SINGAL CABLE	ENERCON / LAPP INDIA
14	FLOURESCENT TUBE FITTINGS (ELECTRONICS BALLAST) BOX/INDUSTRIAL/MIRROR OPTIC/MIRROR LIGHT/STREET LIGHT FIXTURES	PHILIPS/CROMPTON/WIPRO/HAVELL'S
15	ENERGY SAVING T-5 TUBE FITTING/ CFL (INDOOR TYPE)	HAVELL'S/ WIPRO/SURYA/PHILIPS/BAJAJ
16	INDOOR DECORATIVE LIGHT	ARTLITE / DECON / GEMINI
17	OUTDOOR DECORATIVE LIGHT LUMINAIRE	ARTILITE / DECON / GEMINI / K-LITE
18	FLOOD LIGHTS WITH BC/ES/SV/MH/LAMPS(POST TOP LANTERN/STREET LIGHT)	CROMPTON/PHILIPS/BAJAJ/HAVELL'S SURYA
19	FLOUROSCENT TUBES	PHILIPS/CROMPTON/WIPRO/SURYA
20	COMPACT FLOURESCENT LAMP	PHILIPS/CROMPTON/WIPRO/HALONIX
21	SODIUM VAPOUR / MERCURY VAPOUR LAMP	HAVELLS / SURYA/ PHILIPS/WIPRO/HALONIX
22	FILAMENT LAMPS	SURYA/PHILIPS / WIPRO / CROMPTON/HALONIX
23	PAINT	NEROLAC / SHALIMAR / DULO/DURELEX
24	CEILING FAN / EXHAUST FAN/PEDESTAL FAN/ TABLE FAN/BRACKET FAN	CROMPTON / BAJAJ / HAVELLS
25	ENERGY SAVING 50 WATT CEILING FAN	HAVELL'S CROMPTON/BAJAJ
26	LED LUMINARIES INDOOR/OUTDOOR FITTING	CREE / OSRAM / PHILIPS LUMILEDS/ NICHIA

Note : Client / Consultant reserved the Right to Select / Change the Make of material from the Above Mentioned Makes.

08. A. STANDARD SPECIFICATIONS OF MATERIALS :

INDEX

M. 21. **Mild steel binding wires.**

M. 22. **Structural steel.**

M. 23. **Galvanised iron sheets.**

M. 23.A. **G. I. valleys, gutters, ridges.**

M. 24. **Asbestos cement sheets.**

M. 25. **Mangalore pattern roof tiles.**

M. 26. **Shuttering.**

M. 27. **Expansion joints, pre-moulded filler.**

M. 28. **Expansion joints, copper strips & hold fasts.**

M. 29. **Teak wood.**

M. 29.A. **Non-teak wood.**

M. 30. **Wooden flush door shutters. (solid core).**

M. 31. **Aluminium doors, windows, ventilators.**

M. 32. **Rolling steel gates.**

M. 33. **Collapsible steel gates.**

M. 34. **Welded steel wire fabric.**

M. 35. **Expanded metal sheets.**

M. 36. **Mild steel wires (wire gauze jali).**

M. 37. **Plywood.**

M. 38. **Glass.**

M. 39. **Acrylic sheets.**

M. 40. **Particle boards.**

M. 41. **Expanded polystyrene or framed styropor slabs.**

M. 42. **Resin bonded fbre glass.**

M. 43. **Fixtures & fasteners.**

M. 44. **Paints.**

M. 45. **French polish.**

M. 46. **Marble pipes for marble mosaic terrazzo.**

M. 47. **Flooring tiles.**

M. 48. **Rough kotah stone.**

M. 49. **Polished kotah stone.**

M. 50. **Dholpur stone slab.**

M. 51. **Marble slab.**

M. 52. **Granite stone slab.**

M. 53. **P. V. C. flooring.**

M. 54. **Facing tiles.**

M. 55. **White glazed tiles.**

M. 56. **Galvanised iron pipes & fittings.**

M. 57. **Bib cocks & stop cocks.**

M. 58. **Gun metal wheel valves.**

M. 59. **White glazed porcelain wash basins.**

M. 60. **European type water closets.**

M. 61. **Orissa type water closets.**

M. 62. **Indian type water closets.**

M. 62.A. **Foot rests.**

M. 63. **Glazed earthenware sinks.**

M. 64. **Glazed earthenware lipped type flat back urinals / corner type urinal.**

M. 65. **Low level enamel flushing tanks.**

M. 66. **Cast iron flushing cisterns.**

M. 67. **Flush cocks.**

M. 68. **Cast iron pipes & fittings.**

M. 68.A. **PVC pipes and fittings.**

M. 69. **Nahni traps.**

M. 70. **Gully traps.**

M. 71. **Glazed stoneware pipes & fittings.**

M. 72. **Wall peg rails.**

M. 73. **G. I. water spouts.**

M. 74. **Asbestos cement (A.C.) pipes.**

M. 75. **Crydon ball valves.**

M. 76. **Bitumen felt for waterproofing & damp proofing.**

M. 77. **Selected earth.**

M. 78. **Crack seal.**

M. 79. **Cast iron steps.**

M. 80. **Medium duty polyurethane sheets.**

M. 81. **AAC block building element.**

M. 82. **Molded panel door shutters.**

M. 83. **Pebbles.**

M. 84. **Ceramic tiles.**

M. 85. **Vitrified floor tiles.**

M. 86. **Concrete tiles.**

M. 87. **Assam pine wood.**

M. 88. **Stainless steel sink.**

M. 89. **Polycarbonate sheets.**

M. 90. **Stainless steel pipes & plates.**

M. 91. **PVC / Vinyl flooring.**

M. 92. Aluminium composite panels.

M. 93. Acrylic emulsion paints.

M. 94. Exterior paints.

M. 95. Floor springs.

M. 96. Glass mosaic tiles.

M. 97. 10 mm. thick granite tiles.

Note : Consider latest revision of the said I.S. wherever its applicable.

M-1 WATER :

1.1 Water shall not be salty or brackish and shall be clean, reasonably clear and free from objectionable quantities of silt and traces of oil and injurious alkalies, salts, organic matter and other deleterious material which shall either weaken the mortar or concrete or cause effloresence or attack the steel in
R.C.C. Container for transport, storage and handling of water shall be clean. Water shall conform tothe standards specified in I.S. 456-1978.

1.2 If required by the Engineer in Charge of VNSGU/Consultant. it shall be tested by comparision with distilled water. Comparision shall be made by means of standard cement tests for soundness, time of setting and mortar strength as specified in I.S. 269-1976. Any indication of unsoundness, change in time of setting by
30 minutes or more or decrease of more than 10 percent in strength of mortar prepared with water sample when compared with the results obtained with mortar prepared with distilled water shall be sufficeint cause for rejecttion of water under test.

1.3 Water for curing mortar, concrete or masonary shall not be too acidic or too alkaline. It shall be free of elements which significantly affect the hydration reaction or otherwise interfere with the hardening of mortar or concrete during curing or those which produce objectionable stains or other unsightly deposits on concrete or mortar surfaces.

1.4 Hard and bitter water shall not be used for curing.

1.5 Portable water shall generally be found suitable for curing mortar or concrete.

M-2 LIME :

2.1 Lime shall be hydraulic lime as per I.S. 712-1973. Necessary tests shall be carried out as per I.S. 6932 (Parts I to X) 1973.

2.2 The following field tests for limes are to carried out ---

a] A very rough idea can be formed about the type of lime by its visual examination i.e. fat lime bears pure white colour, lime in form of porous lumps of dirty white colour, indicates quick lime, and solid lumps the unbrunt lime stone.

b] Acid tests for determining the carbonate content in lime. Excessive amount of impurities and rough determination of class of lime.

2.3 Storage shall comply with I.S. 712-1973. The slaked lime, if stored, shall be kept in a weather proof and damp proof shed with impervious floor and sides to protect it against rain, moisture, weather and

extraneous Materials : mixing with it. All lime that has been damaged in any way shall be rejected and all rejected Materials : shall be removed from site of Work.

2.4 Field testing shall be done according to I.S. 162-1974 to show the acceptaibility of Materials :

M-3 CEMENT :

3.1 Cement shall be ordinary portland slag cement as per I.S. 269-1976 or Portland slag cement as per I.S. 455-1976.

M-4 WHITE CEMENT :

4.1 The white cement shall conform to I.S. 8042-1978.

M-5 COLOURED CEMENT :

5.1 Coloured cement shall be with white or grey portland cement as specified in the item of the Work.

5.2 The pigments used for coloured cement shall be of approved quality and shall not exceed 10% of cement used in the mix. The mixture of pigment and cement shall be properly ground to have a uniform colour and shade. The pigments shall have such properties as to provide for durability under exposure to sun-light and weather.

5.3 The pigment shall have the properly such that it is neigher affected by the cement not detrimental to it.

M-6 SAND :

6.1 Sand shall be natural sand, clean, well graded, strong, durable and gritty particles free from injurious amounts of dust, clay, kankar nodules, soft or flaky particles, shale, alkaly, salts, organic mater, loam,mica or other deleterious substances and shall be got approved from the Engineer in Charge of VNSGU/Consultant.. The sand shall not contain more than 8% of silt as determined by field tests. If necessary the sand shall be washed to make it clean.

6.2 Coarse Sand : The fineness modulus of coarse sand shall not be less than 2.5 and shall not exceed 3.0. The sieve analysis of coarse shall be as under ---

I.S.Sieve Designation	% by weight passing sieve	I.S.Sieve Designation	% by weight passing sieve
4.75 mm	100	600 Micron	30-100
2.36 mm	90-100	300 Micron	5-70
1.18 mm	70-100	150 Micron	0-60

6.3 Fine Sand : The finess modulus shall not exceed 1.0. The sieve analysis of fine sand shall be as under ---

I.S.Sieve Designation	% by weight passing thru'	I.S.Sieve Designation	% by weight passing thru'
4.75 mm	100	600 Micron	40-85
2.36 mm	100	300 Micron	5-50
1.18 mm	70-100	150 Micron	0-10

M-7 STONE DUST :

7.1 This shall be obtained from crushing hard black tray or equivalent, it shall not contain more than 8% of silt as determined by field test with measuring cylinder. The method of determining silt contentsby field test is given as under.

7.2 A sample of stone dust to be tested shall be placed without drying in 200 mm measuring cylinder. The quantity of the sample shall be such that it files the cylinder up to 100 mm mark. The clean water shall

be added up to 150 mm mark. The mixture shall be stirred vigorously and the content allowen to settle for 3 hours.

7.4 The height of silt visible as settled layer above the stone dust shall be expressed as percentage of the height of the stone dust below. The stone dust containing more than 8% silt shall be washed so as to bring the silt content within the allowable limit.

7.5 The fineness modulus of stone dust shall not be less than 1.80.

M-8 STONE GRIT :

8.1 Grit shall consist of crushed or broken stone and be hard, strong, dense, durable, clean, of proper gradation and free from skin or coating likely to prevent proper adhesion of mortar. Grit shall generally be cubical in shape and as far as possible flaky elongated pieces shall be avoided. It shall generally comply with the provisions of I.S. 383-1970. Unless a special stone of a particularly quarry is metnioned, grit shall be obtained from the best black trap or equivalent hard stone as approved bythe Engineer in Charge of VNSGU/Consultant.. The grit shall have no deleterious reaction with cement.

8.2 The grit shall conform to the following gradation as per sieve analysis :

I.S.Sieve Designation	% passing thru' sieve	I.S.Sieve Designation	% passing thru' sieve
12.50 mm	100%	4.75 mm	0.20%
10.00 mm	85-100%	2.36 mm	0.25%

8.3 The crushing strength of grit shall be such as to allow the concrete in which it is used to build-up the specified strenght of concerte.

8.4 The necessary tests for grit shall be carried out as per the requirements of I.S. 2338 (Parts I to VIII)1963, as per instruction of the Engineer in Charge of VNSGU/Consultant.. The necessity of test shall be decided by the Engineering-in-charge.

M-9 CINDER :

9.1 Cinder is well brunt furnace residue which has been fused or ssintered into lumps of varying sizes.

9.2 Cinder aggregates shall be well burnt furnace residue obtained from furnace using coal fuel only. It shall be sound clead and free from clay, dirt, ash or other deleterious matter.

9.3 The average grading for cindar aggregates shall be as mentioned below :-

20 mm	100
10 mm	86
5.75 mm	70
2.36 mm	52

M-10 LIME MORTAR :

10.1 LIME : Shall conform to Specification M-2. WATER : Water shall conform to Specification M-1. SAND : Sand shall conform to Specification M-6.

10.2 PROPORTION OF MIX Mortar shall consist of such proportions of slaked lime and sand as may bespecified in the item. The slaked lime and shall shall be measured by volume.

10.3 PREPARATION OF MORTAR Lime mortar shall be prepared by wet process as per I.S. 1625- 1971. Power driven mill shall be used for preparation of lime mortar. The slaked lime shall be placed in the mill in an even layer and ground for 180 revolutions with sufficient water. Water shall be added as required during grinding (care being taken not to add more water) that shall bring the mixed

material to a consistency of stiff paste. Thoroughly wetted sand shall then be added evenly and the mixture ground for another 180 revolutions.

10.4 STORAGE : Mortar shall always be kept damp, protected from sun and rain till used up, covering it by trapaulin or open sheds.

10.5 USE : All mortar shall be used as soon as possible after grinding. It shall be used on the day on which it is prepared. But in no case mortar made earlier than 36 hours shall be permitted for use.

M-11 CEMENT MORTAR :

11.1 Water shall conform to Specification M-1. Cement shall conform to Specification M-3. Sand shall conform to M-5.

11.2 PROPORTION OF MIX : 11.2.1 Cement and sand shall be mixed to specified proportions, sand being measured by measuring boxes. The proportion of cement shall be by volume on the basis of 50 Kg./Bag of cement being equal to 0.0342 cu.m. The mortar may be hand mixed or machine mixed as directed.

11.3 PREPARATION OF MORTAR : 11.3.1 In hand mixed mortar, cement and sand in the specified proportions shall be thoroughly mixed dry on a clean impervious platform by turning over atleast 3 times or more till a homogeneous mixture of uniform colour is obtained. Mixing platform shall be so arranged that no deleterious extraneous material shall get mixed with mortar or mortar shall flow out. While mixing, the water shall be gradually added and thoroughly mixed to form a stiff plastic mass of uniform colour so that each particle of sand shall be completely covered with a film of wet cement. The water cement ratio shall be adopted as directed.

11.4 The mortar so prepared shall be used within 30 minutes of adding water. Only such quantity of mortar shall be prepared as can be used within 30 minutes.

M-12 STONE COARSE AGGREGATE FOR NOMINAL MIX CONCRETE :

12.1 Coarse agrregate shall be of machine crushed stone of black trap or equivalent and be hard, strong, dense, durable, clean and free from skin and coating likely to prevent proper adhesion of mortar.

12.2 The aggregate shall generally be cubical in shape. Unless special stones of particular quarries are mentioned aggregates shall be machine crushed from the best black trap or equivalent hard stone asapproved. Aggregrate shall have no deleterious reaction with cement. The size of the coarse aggregate for plain cement concrete and ordinary reinforced cement concrete shall generally be as per the table given below. However, in case of reinforced cement concrete the maximum limit may be restricted to 6 mm. less than the minimum lateral clear distance between bars or 6mm. less than thecover whichever is smaller.

TABLE

I.S. Sieve Designation	Percentage passing for single sized aggregates of nominal size			I.S. Sieve Designation	Percentage passing for single sized aggregates of nominal size		
	40 mm	20 mm	16 mm		40 mm	20 mm	16 mm
80 MM	--	--	--	12.5 MM	---	--	---
63 MM	100	--	--	10 MM	0.5	0.20	0.30
40 MM	85-100	100	--	4.75 MM	--	0.50	0.50
20 MM	0-20	85-100	100	2.35 MM	--	--	--
16 MM	--	--	85-100				

NOTE:- This percentage may be varied somewhat by the Engineer in Charge of VNSGU/Consultant. when considerednecessary for obtaining better density and strength of concrete.

12.3 The grading test shall be taken in the beginning and at the change of source of Materials : The necessary tests indicated in I.S. 383-1970 and I.S. 456-1978 shall have to be carried out to ensure the

acceptability. The aggregates shall be stored separately and handled in such a manner as to prevent the intermixng of different aggregates. If the aggregates are covered with dust, they shall be washed with water to make, them clean.

M-13 BLACK TRAP OR EQUIVALENT HARD STONE COARSE :

13.1 Aggregrate for Design Mix Concrete : Coarse aggregate shall be of machine crushed stone of black trap or equivalent hard stone and be hard, strong, dense, durable,clean and free from skin and coating likely to prevent proper adhesion of mortar.

13.2 The aggregates shall generally be cubical in shape, unless special stones of particular quarries are mentioned, aggregrates shall be machine crushed from the best, black trap or equivalent hard stones as approved. Aggregate shall have no deleterious reaction with cement.

13.3 The necessary tests indicated in I.S. 383-1970 and I.S. 456-1978 shall have to be carried out to ensure the acceptability of the material.

13.4 If aggregate is covered with dust it shall be washed with water to make it clean.

M-14 BRICK BATS AGGREGATES :

14.1 Brick bat aggregate shall be broken from well burnt or slightly over burnt and dense bricks. It shall be homogeneous in texture, roughly cubical in shape, clean and free from dirt of any other foreign material. The brick bats shall be of 40 mm to 50 mm size unless otherwise specified in the item. Theunderburnt or overburnt brick bats shall not be allowed.

14.2 The brick bats shall be measured by volume by suitable boxes as directed.

M-15 BRICKS :

15.1 The bricks shall be hand or machine moulded and made from suitable soils and kiln burnt. They shall be firee from cracks and flaws not nodules of free lime. They shall have smooth rectangular faces with sharp corners and shall be of uniform colour. The bricks shall be moulded with a frog of 100mm x 40 mm and 10mm to 20mm deep on one of its flat sides. The bricks shall not break when dropped on the ground from a height of 600 mm.

15.2 The size of modular bricks shall be 190mm x 90mm x 90mm.

15.3 The sie of conventional bricks shall be as under ---
225 x 110 x 75mm.

15.4 Only bricks of one standard size shall be used on one Work. The following tolerances shall be permitted in the conventional size adopted in a particular Work.

- Length : 3.00 mm
- Width : 1.50 mm
- Height : 1.50 mm

15.5 The crushing strength of the bricks shall not be less then 35 Kg./Sq.Cm. The average water absorption shall not be more than 20% by weight. Necessary tests for crushing strength and water absorption etc. shall be carried out as per I.S. 3495 (Part I to IV)-1976.

M-15A FLYASH BUILDING BRICKS :

The Flyash building bricks shall conform to Grade-5 of IS-13757. The frog of the 80 to 100 mm x 40 mm x 10 to 20 mm size.
The size of modular bricks shall be 190 mm x 90 mm x 90 mm.

The size of conventional brick shall be 230 mm x 110 mm x 70 mm. Only bricks of one standard size shall used on one Work. The following tolerances shall permitted in the conventional size adopted in a particular Work:

- Length : ± 4 mm
- Width : ± 2 mm
- Height : ± 2 mm

The physical characteristic of bricks shall be as follows.

The minimum compressive strength of Flyash building bricks shall not be less than 70 Kg/Sq.Cm. and the test shall be conform to IS-3495 (Part-I).

The averages water absorption not more than 20 percentage by weight and the test shall conform to IS-3495(Part-3). Sampling of Flyash building bricks and criteria for conformity shall be as per I.S.:5454.

M-16 STONE :

16.1 The stone shall be of the Specificied variety such as Granite/Trap stone/Quarzite or any other type of good hard stones. The stones shall be obtained only from the approved quarry and shall be hard,sound, durable and free from defects like cavities, cracks, sand holes, flaws, injurious viens, patches of loose or soft Materials : etc. and weathered portions and other structural defects or imperfections tending to affect their soundness and strength. The stone with round surface shall not be more than 5% of dry weight. When tested in accordance with I.S. 1134-1974. The minimum crushing of the strength of the stone shall be 200 Kg./Sq.Cm. unless otherwise specified.

16.2 The samples of the stone to be used shall be got approved before the Work is started.

16.3 The khanki facing stone shall be dressed by chisel as specified in the item for khanki facing in required shape and size. The face of the stone shall be so dressed that the bushing on the exposed face shall not project by more than 40 mm. from the general wall surface and on face to be plastered it shall not project by more than 19 mm nor shall it have depressions more than 10 mm from the average wall surface.

M-17 LATERITE STONE :

17.1 Laterite stone shall be obtained from the approved quarry. It shall compacted in texture, sound, durable and free from soft patches. It shall have a minimum crushing strength of 100 Kg/Sq.Cm. in its dry condition. It shall not absorb water more 20% of its own weight, when immersed for 25 hours in water.After quarrying, the stone shall be allowed to weather for some time before using in Work.

17.2 The stone shall be dressed into rectangular blocks so that all faces are from waviness and unevenness and the edges true and square.

17.3 Those type of stone in which white clay occurs shall not be used.

17.4 Special corner stones shall be provided where so directed.

M-18 MILD STEEL BARS/TMT/CRS BARS :

18.1 Mild steel bars reinforcement TMT/CRS Bars for R.C.C. Work shall conform to I.S. 432 (Part-II)-1982 and shall be of tested quality. It shall also comply with the relevant part of I.S. 456-1978 and revised latest I.S. Code.

18.2 All the reinforcement shall be clean and free form dirt, paint, grease, mill scale or loose or thick rust at the time of placing.

18.3 For the purpose of payment the bar shall be measured correct up to 10 mm length and weight payable Worked out as per the rate specified below :

i] 6mm	0.22 Kg/Rmt.	viii] 20mm	2.47 Kg/Rmt.
ii] 8mm	0.39 kg/Rmt.	ix] 22mm	2.98 kg/Rmt.
iii] 10mm	0.62 kg/Rmt.	x] 25mm	3.85 kg/Rmt.

iv] 12mm	0.89 kg/Rmt.	xi] 28mm	4.83 kg/Rmt.
v] 14mm	1.21 kg/Rmt.	xii] 32mm	6.31 kg/Rmt.
vi] 16mm	1.58 kg/Rmt.	xiii] 36mm	7.31 Kg/Rmt.
vii] 18mm	2.00 Kg/Rmt.	xiv] 40mm	9.86 Kg/Rmt.

M-19 HIGH YIELD STRENGTH STEEL DEFORMED BARS :

19.1 High yield strength steel deformed bars shall be either cold twisted or hot rolled and shall conform to I.S. 1739-1978 and I.S. 1139-1966 respectively.

19.2 Other provision and requirements shall conform to Specification No. M-18 for Mild Steel Bars.

M-20 HIGH TENSILE STEEL WIRES :

20.1 The high tensile wires for use in prestressed concrete shall conform to I.S. 2090-1983.

20.2 The tensile strength of the high tensile steel bars shall be as specified in the item. In absence of the given strength and minimum strength shall be taken as per para 6-1 of the I.S. 1785-1962. Testing shallbe done as per I.S. requirements.

20.3 The high tensile steel shall be free from loose mill scale, rust, oil, grease or any other harmful matter. Cleaning of steel bars may be carried out by immersion in solvent solution, wire brushing or passing through a pressure box containing carborundum.

20.4 The high tensile wire shall be obtained from manufactures in coils having diameter not less than 350 times the diameter of wire itself so that wire springs back straight on being uncoiled.

M-21 MILD STEEL BINDING WIRE :

21.1 The mild steel wire shall be of 1.63mm or 1.22mm (16 or 18 guage) diameter and shall conform to I.S. 280-1978.

21.2 The use of black wire shall be permitted for binding reinforcement bars. It shall be free from rust, oil, paint, grease, loose mill scale or any other undesirable coating which may prevent adhesion of cement mortar.

M-22 STRUCTURAL STEEL :

22.1 All structural steel shall conform to I.S. 226-1965. The steel shall be free from the defects mentioned in I.S. 226- 1975 and shall hae a smooth finish. The material shall be free from loose mill scale, rust pits or other defects affecting the strength and durability. Rivet bars shall conform to I.S. 1148-1973.

22.2 When the steel is supplied by the Contractor test certificates of the manufacturers shall be obtained according to I.S. 226-1975 and other relevant Indiand Standards.

M-23 GALVANISED IRON SHEETS :

23.1 The galvanised iron sheets shall be plain or corrugated sheets of gauge as specified in item. The G.I. Sheets shall conform to I.S. 277-1977. The sheets shall be undamaged in carriage and handling either by rubbing off of zinc coating or otherwise. They shall have clean and bright surface and shall be free from dents, bends, holes, rust or white powdery deposit.

23.2 The length and width of G.I. sheets shall be as directed as per site condition.

M-23-A G.I.VALLEYS GUTTER, RIDGES :

23-A.1 The G.I. ridges and hips shall be of plain galvanised sheets class-3 of the thickness as specified in item. These shall be 600 mm width and properly bent up to shape without damage to the sheets in process of bending.

23-A.2 Valleys gutters and flashinges shall be also of galvanised sheet of thickness as specified in item. Valleys shall be 900 mm. wide over all and flashing shall be 380 mm wide over all. They shall be bent to the required shape without damage to the sheet in the process of bending.

M-24 ASBESTOS CEMENT SHEETS :

24.1 Asbests cement sheets plain, corrugated or semi-corrugated shall conform to I.S. 459-1970. The thicknessof the sheets shall be as specified in the item. The sheet shall be free from all defects such as cracks, holes, deformities, chipped edges or otherwise damaged.

24.2 Ridges and Hips :

24.2.1 Ridges and hips shall be of same thickness as that of A. C. sheets. The types of ridges shall be suitable for the type of sheets and locations.

24.2.2 Other accessories to be used in roof such as flashing pieces, eaves filler pieces, valley gutters, north light and ventilator curves, barge boards etc. shall be of standard manufacture and shall be suitable for the type of sheets and location.

M-25 MANGALORE PATTERN ROOF TILES :

25.1 The Mangalore pattern tiles shall conform to I.S. 654-1972 for Class `AA' or `A' type as specified in item. Samples of the tiles to be provided shall got approved from the Engineer in Charge of VNSGU/Consultant.. Necessary tests shall be carried out as directed.

M-26 SHUTTERING :

26.1 The shuttering shall be either of wooden planking of 30mm minimum thickness with or without steel lining or of steel plates stiffened by steel angles. The shuttering shall be supported on battens and beams and props of vertical ballies properly cross bracked together so as to make the centering rigid. In places of ballie props, bricks pillar of adequate section built in mud mortar may be used.

26.2 The form Work shall be sufficiently strong and shall have camber, so that it assumes correct shape after deposition of the concrete and shall be able to resist forces caused by vibration of concrete, live load ofmen Working with it and other incidental loads associated with it. The shuttering shall have smooth and even surface and its joints shall not permit leakage of cement grout.

26.3 If at any stage of Work during or after placing concrete in the structure, the form Work sags or bulges out beyond the required shape of the structure, the concrete shall be removed and Work redone with fresh concrete and adequately rigid form Work. The complete form Work shall be got inspected by and approved from the Engineer in Charge of VNSGU/Consultant., before the reinforcement bars are placed in position.

26.4 The props shall consists of bullies having 100mm minimum diameter measured at mid length and 80mmat thin end and shall be placed as per design requirement. These shall rest squarely on wooden sole plates 40 mm. thick and minimum bearing area of 0-10 sq.m. laid on sufficiently hard base.

26.5 Double wedges shall further be provided between the sole plate and wooden props so as to facilitate tightening and easing of shuttering without jerking the concrete.

26.6 The timber used in shuttering shall not be so dry so as to absorb water from concrete and swell or bulge nor so green or wet so as to shrink after erection. The timber shall be properly sawn and planed on the sides and the surface coming in contact with concrete. Wooden form Work with metal sheet lining or steel plates stiffened by steel angles shall be permitted.

26.7 As far as practicable, clamps shall be used to hold the forms together and use of nails and spikes avoided.

26.8 The surface of timber shuttering that would come in contact with concrete shall be well wetted and coated with soap solution before the concreting is done. Alternatively coat of raw linseed oil or oil of approved manufacture may be applied in place of soap solution. In case of steel shutteirng either soap solution or raw linseed oil shall be applied after thoroughly cleaning the surface. Under no circumstances black or burnt oil shall be permitted.

26.9 The shuttering for beams and slabs shall have camber of 4mm per metre (1 in 250) or as directed by the Engineer in Charge of VNSGU/Consultant. so as to offset the subsequent deflection. For cantilevers, the camber at free end shall be 1/50 of the projected length or as directed by the Engineer in Charge of VNSGU/Consultant..

M-27 EXPANSION JOINTS - PREMOULDED FILLER :

27.1 The item provideds for expansion joints in R.C.C. frame structures for internal joints, as well as exposed joints, with the use of premoulded bituminous joint filler.

27.2 Premoulded bituminous joint filler, i.e. performed stirp of expansion joint filler shall not get deformed or broken by twisting, bending or other handing when exposed to atmospheric condition. Pieces of joint filler that have been damaged shall be rejected.

27.3 Thickness of the pre moulded joint filler shall be 25 mm unless otherwise specified.

27.4 Premoulded bituminous joint filler shall conform to 1.5 1838-1961.

M-28 EXPANSION JOINTS - COPPER STRIPS AND HOLD FASTS :

28.1 The item provides for expansion joints in R.C.C. frame structure for internal joints as well as for exposed joints with the use of necessary copper strip and holdfasts.

28.2 Copper sheet shall be 1.25 mm thick and of 1.25 mm with `U' shape in the middle, copper strip shall have holdfast of 3 mm diameter copper rod fixed to the plate soldered on strip at intervals of about 30 cm. or as shown in the drawing or as directed. The width of each flange (horizontal side) of the copper plate to be embedded in the concrete Work shall be 25 mm Depth of `U' to be provided in the expansion joint, in the copper plate shall be of 25 mm.

M-29 TEAK WOOD :

29.1 The teak wood shall be of good quality as required for the item to be executed. When the kind of wood is not Specifically mentioned, good Indian teak wood as approved shall be used.

29.2 Teak wood shall generally be free from large, loose, dead or cluster knots, flaws, warps, twists, shakes, bends or any other defects. It shall generally be uniform in substance and of straight fibres as far as possible. It shall be free from rot, decay, harmful fungi and other defects of harmful nature, which shall affect the strength, durability or its usefullness for the purpose for which it is required. The colourshall be uniform as far as possible. Any effort like painting, using any adhesive or resinous Materials : made to hide the defects shall render the pieces liable to rejection by the Engineer in Charge of VNSGU/Consultant..

29.3 All scantlings, planks etc. shall be sawn in straight lines and planes in the direction of grains and of uniform thickness.

29.4 The tolerances in the dimensions shall be allowed at the rate of 1.5 mm per face to be planed.

29.5 First Class Teak Wood :

First clas teak wood shall have no individual hard and sound knots, more than 6 sq.cm. in size and the aggregate area of such knots shall not be more than 1% of area of piece. The timber shall be closed grained.

29.6 Second Class Teak Wood :

No individual hard and sound knots shall be more than 15 sq.cm. in size and aggregate area of such knots shall not exceed 2% of the area of piece.

M-29-A NON-TEAK WOOD :

The non teak wood shall be chemically treated, seasoned as per I.S. Specifications and of good quality. The

type of wood shall be got approved before collecting the same on site. Fabrication of wooden members shall be started only after approval. For this purpose wood of Bio, Kalai, Sires, Saded, Behda,Jamun, Sisoo shall be used for door frames whereas only Kalai, Siras, ,Halda, Kalam etc. shall be permitted for shutters after proper seasoning and chemical treatment.

The non teak wood shall be free from large, loose dead of cluster knots, flows, shakes, warps, bends, orany other defect. It shall be uniform in substance and of straight fibres as far as possible. It shall be free from rots, decay, harmful fungi and other defects of similar nature which shall affect the strength, durability or its usefullness for the purpose for which it is required. The colour of the wood shall be uniform as far as possible. The scantalings, planks etc. shall be sawn in straight lines and planes in the direction of grain and of uniform thickness.

The department shall use the Agency to produce a certificate from the Forest Department in the event of a dispute and the decision of the Department shall be final and binding to the Contractor.

The tolerance in the dimension shall be allowed at 1.5 mm. per face to be planed.

M-30 WOODEN FLUSH DOOR SHUTTERS (SOLID CORE) :

30.1 The solid core type flush door shutters shall be of decorative or non-decorative type as specified inthe drawing. The size and thickness of the shutter shall be as specified in drawings or as directed. The timber species for core shall be used as per I.S. 2202-(Part-I)-1980. The timber shall be free from decay and insect attack. Knots and knot holes less than half the width of cross-section of the members, pitch streaks and harmless pin holes shall be permissible except in the exposed edges of the core members. The commercial plywood, cross bands shall conform to I.S. 303-1275.

30.2 The face panel of the shutters shall be formed by gluing by the hot press process on both faces of the core with either plywood or corss bands, and face veneers. The lipping, rebating, opening of glazing, venetion etc. shall be provided if specified in the drawing.

30.3 All edges of the door shutters shall be square. The shutters shall be free form twist or warp in its plane. Both faces of the shutters shall be sand papered to smoot even texture.

30.4 The shutters shall be tested for ---

i] End Immersion Test : The test shall be carried out as per I.S. 2202 (Part-I) 1980. There shall be nodelamination at the end of the test.

ii] Glue Adhesion Test : The flush door shall be tested for glue adhesive test in accordance with I.S.2202(Part-I)-1980. The shutters shall be considered to have passed the test if no delamination occurs in the glue lines in the plywood and if no single delamination more than 80 mm. in length and more than3 mm. in depth has occured in the assembly glue lines between the plywood face and the style and rail. Delamination at the corner shall be measured continously around the corner. Delaminationat the knots knot, hole and other permissible wood defects shall not be considered in assessing the sample.

30.5 The tolerance in size of solid core type flush door as under:-

In nominal thickness # 1.2 mm. In nominal height # 3 mm. The thickness of the shutters shall be uniform throughout with a permissible variation of not more than 0.8 mm. when measured at any two points.

M-31 ALUMINIUM DOORS, WINDOWS, VENTILATORS :

31.1 Aluminium alloy used in the manufacture of extruded window sections shall conform to I.S. desgnation HEA-WP of I.S. : 733-1975 and also to I.S. Designation WVG - WP OF I.S. : 1285-1975. The sections shall be as specified the drawing and design. The fabrication shall be done as directed.

31.2 The hinges shall be cast or excluded aluminium hinges of same type as in window but or large size.

31.3 The hinges shall normally be of 50 mm projecting type non projecting type of hinges may also be used if directed. The handles of door shall be of specified design. A suitable lock for the door operable either from outside shall be provided. In double shutter door, the first closing shall have aconcealed aluminium alloy bolt at top and bottom.

M-32 ROLLING SHUTTERS :

32.1 The rolling shutters shall conform to I.S. 6248-1979. Rolling shutters shall be supplied of specified type with accessories. The size of the rolling shutters shall be specified in the drawings. The shutters shall be constructed with interlocking lath sections formed from cold rolledsteel strips not less than 0.9 mm. thick and 80 mm. wide for shutters up to 3.5 m. Width not less than
1.25 mm. thick and 80 mm. wide for shutters 3.5 m. in width and above unless otherwise specified.

32.2 Guide channels shall be of mild steel deep channel section and of rolled pressed or built up (fabricated) jointless construction. The thickness of sheet used shall not be less than 3.15 mm.

32.3 Hood covers shall be made of M.S. sheets not less than 0.92 mm. thick. For shutters having width 3.5 mts. and above, the thickness of M.S. sheet for the hood covers shall be not less than 1.25 mm.

32.4 The spring shall be of best quality and shall be manufactured from tested high tensile spring steel wire or strip of adequate strength to balance the shutters in position. The spring pipe shaft etc. shall be supported on strong M.S. or malleable C.I. brackets. The brackets shall be fixed on the or under the lintel as specified with rawl plugs and screws bolts etc.

32.5 The rolling shutters shall be of self rolling type up to 8 sq.m. clear area without ball bearing and up to 12 sq.m. clear area with ball bearing. If the rolling shutters are of larger then gear operated type shutters shall be used.

32.6 The locking arrangement shall be provided at the bottom of shutter at both ends. The shutters shall be opened from outside.

32.7 The shutters shall be completed with door suspension, shafts, locking arrangements, pulling hooks, handles and other accessories.

M-33 COLLAPSIBLE STEEL GATE :

33.1 The collapsible steel gate shall be in one or two leaves and size as per approved drawings or as specified. The gate shall be fabricated from best quality mild steel channels, flates etc. Either steel pulleys or ball bearings shall be provided in every double channel. Unless otherwise specified the particulars of collapsible gate shall be as under ---

i] Pickets : These shall be of 20 mm. M.S. channels of heavy sections unless otherwise shown on drawings. The distance centre to centre of pickets shall be 12 cms. with an opening of 10 cms.

ii] Pivoted M.S. flats shall be 20 mm. x 6 mm.

iii] Top and bottom guides shall be from tee or flat iron of approved size.

iv] The fittings like stoppers, fixing hold fasts, locking cleats, brass handles and cast iron rollers shall be of approved design and size.

M-34 WELDED STEEL WIRE FABRIC :

34.1 Welded steel wire fabric for general purpose shall be manufactured from cold drawn steel `as drawn' or galvanised steel conforming to I.S. 226-1975 With longitudinal and transverse wire seurely connected at every intersection by a process of electrical resistance welding and conforming to I.S. 4948-1974. It shall be fabricated and finished in a Workman like manner and shall be free from injuriousdefects and shall be ruest proof. The type of mesh shall be oblong or square as directed. The mesh sizes and sizes of wire for square as well as oblong welded steel wire fabric shall be as directed. The steel wire fabric in panels shall be in one whole piece in each panel as far as stock sizes permit.

M-35 EXPANDED METAL SHEETS :

35.1 The expanded metal sheets shall be free from flaws, joints, welds, broken, stands, laminations and other harmful surface defects Expanded metal steel sheet shall conform to I.S. 412 -1975 except that blank sheets need not be with guaranteed mecanical properties. The size of the diamond mesh of expanded metal and dimensions of strands (width and thickness) shall be as specified. The tolerance on nominal weight of expanded metal sheets shall be of + 10 per cent.

35.2 Expanded metal in panels shall be in one whole piece in each panel as far as stock sizes permit. The expanded metal sheets shall be coated with suitable protective coating to prevent corrosion.

M-36 MILD STEEL WIRE (Wire Gauze Jali) :

36.1 Mild steel wire may be galvanised, as indicated. All finished steel wire shall be well cleanly drawn to the dimensions and size of wire as specified in item. The wire shall be sound, free from slits, surface flaws, rough jagged and imperfect edges and other harmful surface defects and shall conformto I.S. 280-1978.

M-37 PLYWOOD :

37.1 The Plywood for general purpose shall conform I.S. 303-1975. Plywood is made by cementing together thin boards or sheets of wood into panels. There are always an old number of layers 3, 5, 7,9 ply etc. The plies are placed so that the grain of each layer is at right angles to the grain in the adjacent layers.

37.2 The chief advantage of plywood over a single board of the same thickness is the more uniform strength of the plywood along the length and width of the plywood and greater resistance to cracking and slitting with change in moisture content.

37.3 Usually synthetic resins are used for gluieg. Phenolic resins are usually cured in a hot press which compresses and simultaneously heats the plies between hot plates which maintain a temperature of 90 degree C. to 140 degree C. and a pressure of 11 to 14 Kg./Sq.cm. on the wood. The time of heating may be any thing from 2 to 60 minutes depending upon thickness.

37.4 When water glue are used the wood absorbs so much Water that the finished plywood must be dried carefully, When synthetic resins are used as adhesive the finished plywood must be exposed to atmosphere of controlled humidity until the proper amount of moisture has been absorbed.

37.5 According to I.S. : 303-1975 the plywood for general purpose shall be of three grades namely BWR.WWR and CWR depending upon the adhesives used for bonding the veneers and it shall be further classified into six types namely AA, AB, AC, BB, BC and CC based on the quality of the two faces, each face being of three kinds namely A, B and C. After pressing, the finished plywood shall be reconditioned to a moisture content not less than 8 percent and not more than 16 percent.

TABLE

37.6 THICKNESS OF PLYWOOD BOARDS

Board	Thickness
3 Ply	3 mm
	4 mm
	5 mm
	6 mm
5 Ply	5 mm
	6 mm
	8 mm
	9 mm
7 Ply	9 mm
	13 mm
	16 mm

9 Ply	13 mm
	16 mm
	19 mm
11 Ply	19 mm
	22 mm
	25 mm

M-38 GLASS :

38.1 All glass shall be of the best quality, free from specks, bubbles, smokes, veins, air holes blisters and other defects. The kind of glass to be used shall be as mentioned in the item or Specification or in the special provisions or as shown in detailed drawings. Thickness of glass panes shall be uniform.The Specifications for different kinds of glass shall be as under ----

38.2 Sheet Glass :

38.2.1 In the absence of any specified thickness or weight in the item or detailed Specifications of the item ofWork, sheet glass shall be weighing 7.5 Kg./Sq.m. for panes up to 600 mm. x 600 mm.

38.2.2 For panes larger than 600 mm. x 600 mm. and up to 800 mm. x 800 mm. glass weighing not less than 8.75 Kg./Sq.m. shall be used. For bigger panes up to 900 mm. x 900 mm. glass weighing not less than 11.25 Kg./Sq.m. shall be used.

38.2.3 Sheet glass shall be patent flattened glass of best quality and for glasing and framing purposes shall conform to I.S. 761-1960. Sheet glass of the specified colours shall be used, if so shown on detailed drawings or so specified. For important buildings and for panes with any dimensions over 900 mm. plate glass of specified thickness shall be used.

38.3.0 Plate Glass :

38.3.1 When plate glass is specified it shall be "Polished Patent Plate Glass" of best quality. It shall have both the surface ground flate and parallel and polished to obtain clear undistured vision and reflection. The plate glass shall be of the thickness mentioned in the item or as shown in the detailed drawing or as specified. In the absence of any specified thickness, the thickness of plate glass to be supplied shall be 6 mm. and a tolerance of 0.20 mm. shall be admissible.

38.4.0 Obscured Glass :

38.4.1 This type of glass transmits light so that vision is partially or almost completely obscured. Glass shall be plain rolled, figured, ribbed or fluted, or frosted glass as may be specified as required. The thickness and type of glass shall be as per details on drawings or as specified or as directed.

38.5.0 Wired Glass :

Glass shall be with wire netting embedded in a sheet of plane glass. Electrically welded 13 mm. Georgain square mesh shall be used. Thickness of glass shall not be less than 6 mm. wired glass shall be of type and thickness as specified.

M-39 ACRYLIC SHEETS :

39.1 Acrylic sheets shall be of thickness as specified in the item and of a specified shape and size as the case may be Penels may be flat or curved. It shall be light in weight. It shall be colourless or coloured or opaaue as specified in the item. Colourless sheet shall be as transparent as the finest optical glass. Its light transmission rate shall be about 95%. Transparancy shall not be affected for the sheets of larger thickness. It shall be extremely resistant to sunlight, weather and low temperatures. It shall not show any significant yellowing or change in physical properties or loss of light transmission over a longer period of use.
The sheet shall be impact resistant also. Sheets shall be available in complete range of standard transparent, translucemtn and opaque colours. Sheets shall be available in complete range of standard

transparent, translucent and opaque colours. Sheets shall be of such quality that they can be cut, bent and jointed as desired. Solution for the joints shall be used as per the requirement of manufacture.

M-40 PARTICLE BOARD :

40.1 The particle boards used for face panels shall of best quality free from any defects. The particle boards shall be made with phenolmaldehyde adhesive. The particle boards shall conform to I.S. 3087-1965. "Specification for wood particle board for general purpose." The size and the thickness of the particle board shall be as specified.

M-41 EXPANDED POLYSTYRENE OR FRAMES STYROPER SLEBS :

41.1 The expanded polystyrene ceiling boards and tiles shall be of approved make and shall be of size thickness, finish and colour and indicated. It shall be of high density and suitable for use as insulting material. The insulting material shall be like slab of thermocole etc.

M-42 RESIN BONDED FIBRE GLASS :

42.1 The resin bonded fibre glass tiles or rools shall be of approved make and shall be sizes, thickness and finish as indicated.

42.2 For test of Mineral wood thermal insulation Blanket I.S. 3144-1965 followed.

42.3 Insulation wool blanket shall be with the following coverings on one or both sides as indicated.

(1) Bituminised bessian kraft paper suitable for use in position where moisture has to be excluded.

(2) Hessain cloth or Kraft paper for keeping out dust.

(3) G. I. wire netting, suitable or surfaces to be plastered over.

M-43 FIXTURES & FASTENINGS :

General ---

i] The fixtures and fastenings, that is, butt, hingers, tee and strap hinges, sliding door bolts, tower bolts, door latch, bath-room latch, handles, door stoppers, casement window fasteners, casement stays and ventilator catch shall be made of the metal as specified in the item or its Specifications.

ii] They shall be of iron, brass, aluminium, chromium plated iron, chromium plated brass, copper oxidised iron, copper oxidised brass or anodised aluminium as specified.

iii] The fixtures shall be heavy, medium or light type. The fixtures and fastenings shall be smooth finished and shall be such as shall ensure ease of operation.

iv] The samples of fixtures and fastenings shall be got approved as regards quality and shape before providing them in position.

v] Brass and anodised aluminium fixtures and fastenings shall be bright finished.

Holdfasts :

i] Holdfasts shall be made from mild steel flat 30 cm. length and one of the holdfasts shall be bent at right angle and two nos. of 6 mm. dia. hooles shall be made in it for fixing it to the frame with screws.At the other end, the holdfast shall be forked and bent at right angles in opposite directions.

Butt Hinges :

i] Railway standard heavy type butt hinges shall be used when so specified.

ii] Tee and strap hinges shall be manufactured from M.S. sheet.

Sliding Door Bolts (Aldrops) :

i] The aldrops as specified in the item shall be used and shall be got approved.

Tower Bolts (Barrel Type) :

i] Tower bolts as specified in the item shall be used and shall be got approved.

Door Latch :

i] The size of door latch shall be taken as the length of latch.

Bathroom Latch :

i] Bathroom latch shall be similar to tower bolt.

Handle :

i] The size of the handles shall be determined by the inside grip length of the handles. Handles shall have a base plate of length 50 mm. more than the size of the handle.

Door Stoppers :

i] Door stoppers shall be either floor door stopper type or door catch type. Floor stopper shall be of overallsize as specified and shall have a rubber cushion.

Door Catch :

i] Door catch shall be fixed at a height of about 900 mm. from the floor level such that one part of the catch is fitted on the inside of the shutter and other part is fixed in the wall with necessary wooden plugarrangements for appropriate fixity. The catch shall be fixed 20 mm. inside the face of the door for easy operation of catch.

Wooden Door Stop With Hinge :

i] Wooden door stop of size 100 mm. x 60 mm. x 40 mm. shall be fixed on the door frame with a hinge of 75 mm. size and at a height of 900 mm. from the floor level. The wooden door stop shall be provided with3 coats of approved oil paint.

Casement Window Fastner :

i] Casement window fastener for single lead window shutter shall be left or right handed as directed.

Casement Stays (Straigot Peg.Stay) :

i] The stays shall be made from a channel section having three holes at appropriate position so that the window can be opened either fully or partially as directed.

Size of the stay shall be 250 mm. to 300 mm. as directed.

Ventilator Catch :

i] The pattern and shape of the catch shall be as approved.

Pivot :

i] The base and socket plate shall be made from minimum 3 mm. thick plate, and projected pivot shall not be less than 12 mm. dia. and 12 mm. length and shall be firmly riveted to the base plate case of iron pivot and in single piece base in the case of brass pivot.

M-44 PAINTS :

44.1 Oil Paints :

Oil paints shall be of the specified colour and shade, and as approved. The ready mixed paints shall only be used. However, if ready mixed paint or specified shade or tint is not available white ready mixed paint with approved stainer shall be allowed. In such a case, the Contractor shall ensure that the shade of the paint so allowed shall be uniform. All the paints shall meed with the following general requirements ---

i] Paint shall not show excessive setting in a freshly opened full can and shall easily be redispressed with paddle to a smooth homogeneous state. The paint shall show no curdling, livering, caking or colour separation and shall be free from lumps and skins.

ii] The paint as received shall brush easily, possess good levelling properties and show no running or sagging tendencies.

iii] The paint shall not skin within 48 hours in a three quarters filled closed container.

iv] The paint shall dry to a smooth uniform finish free from roughness, grit uneveness and other imperfections.

Ready mixed paid shall be used exactly as received from the manufacturers and generally according to their instructions and without any admixtures whatsoever.

44.2 Enamel Paints :

The enamel paint shall satisfy in general requirements as mentioned in Specification of oil paints. Enamel paints shall conform to I.S. 2933-1975.

M-45 FRENCH POLISH :

The french polish of required tint and shade shall be prepared with the below mentioned ingredients and other necessary Materials :

i] Denatured spirit of approved quality.
ii] Shellac.
iii] Chandras.
iv] Pigment.

The french polish so prepared shall conform to I.S. 348- 1968.

M-46 MARBLE CHIPS FOR MARBLE MOSAIC TERRAZZO :

46.1 The marble chips shall be of approved quality and shades. It shall be hard, sound, dense and homogeneous in texture with crystalline and coarse grains. It shall be uniform in colour and free from stains, cracks, decay and weathering.

46.2 The size of various colours of marble chips ranging from the smallest up to 20 mm. shall be used where the thickness of top wearing layers is 6 mm. in size. The marble chips of approved quality and colours only as per grading as decided by the Engineer in Charge of VNSGU/Consultant. shall be used for marble mosaic tiles or Works.

46.3 The marble chips shall be machine crushed. They shall be free from foreign matter, dust etc. Except as above the chips shall conform to I.S. 2114-1962.

M-47 FLOORING TILES :

A] Plain Cement Tiles –

47.1.1 The plain cement tiles shall be of general purpose type. These are the tiles in the manufacture of which no pigments are used. Cement used in the manufacture of tiles shall be as per Indian Standards.

47.1.2 The tiles shall be manufactured from a mixture of cement and natural aggregates by pressure process. During manufacture, the tiles shall be subjected to a pressure of not less than 140 Kg./Sq.cm. The proportion of cement to aggregate in the backing of the tiles shall be not leaner than 1:3 by weight. Thewearing face, though the tiles are of plain cement,shall be rpovided with stone chips of 1 to 2 mm size. The proportion of cement to the marble chips aggregate in the wearing layer of the tiles shall be three parts of cement to one part of chips by weight. The minimum thickness of wearing layer shall be 3 mm. The colour and texture of wearing layer shall be uniform throughout its face and thickness. On removal from mould, the tiles shall be kept in moist condition continuously atleast for seven days and subsequently, if necessary, for such long period as would ensure their conformity to requirements of I.S. 1237- 1980 requiring resistance to wear and water absorption.

47.1.3 The wearing face of the tiles shall be plain, free from projections, depressions and cracks and shall be reasonably parallel to the back face of the tile. All angles shall be right angle and all edges shall be sharp and true.

47.1.4 The tile sizes shall generally be square shape 24.85cm. x 24.85cm. or 25cm. x 25cm. The thickness of the tiles shall be 20 mm.

47.1.5 The tolerance of length and breadth shall be plus or minus 1 mm. The tolerance on thickness shall be plus 5 mm.

47.1.6 The tiles shall satisfy the tests as regards transverse strength, resistance to wear and water absorption as per I.S. 1237-1980.

47.2 B] Plain Coloured Tiles :

47.2.1 These tiles shall have the same Specifications as for plain cement tiles as per (A) above except that they shall have a plain wearing surface wherein pigments are used. They shall conform to I.S. 1237-1980.

47.2.2 The pigment used for colouring cement shall not exceed 10% by weight of cement used in the mix. The pigments, synthetic or otherwise, used for colouring tiles shall have permanent colour and shall not contain Materials : deterimental to concrete.

47.2.3 The colour of the tiles shall be specified in the item or as directed.

47.3 C] Marble Mosaic Tiles :

47.3.1 These tiles have the same Specifications as per plain cement tiles except the requirements as stated below ---

47.3.2 The marble mosaic tiles shall conform to I.S. 1237-1980. The wearing face of the tiles shall be mechanically ground and filled. The wearing face of tiles shall be free of projections, depresssions and cracks andshall be reasonably parallel to the back face of the tiles. All angles shall be right angles and all edges shall be sharp and true.

47.3.3 Chips used in the tiles be from smallest up to 20 mm. size. The minimum thickness of wearing layer of tiles shall be 6 mm. For pattern of chips to be bad on the wearing face, a few samples with or without their full size photographs as directed shall be presented to the Engineer in Charge of VNSGU/Consultant. for approval.

47.3.4 Any particular samples, if found suitable shall be approved by the Engineer in Charge of VNSGU/Consultant., of he may ask for particular sized chips to be more or less in the sample presented. The samples shall have to be made by the Contractor till a suitable sample finally approved for use in the Work. The Contractor shall ensure that the tiles supplied for the Work shall be in conformity with the approved sample only,

in terms of its dimensions, thickness of backing layer and wearing surface, Materials :, ingredients, colour shade, chips, distribution etc. required.

47.3.5 The tiles shall be prepared from cement conforming to Indian Standards or coloured portland cement generally depending upon the colour of tiles to be used or as directed.

47.4 D] Chequered Tiles :

47.4.1 Chequered tiles shall be plain cement tiles or marble mosaic tiles. The former shall have the same Specification as per (A) above and the latter as per marble mosaic tiles as per (C) except as mentioned below.

47.4.2 The tiles shall be of nominal size of 250mm. x 250mm. or as specified. The centre to centre distance of the chequer shall not less than 25mm. and not more than 50mm. The overall thickness of the tile shall be 22mm.

47.4.3 The grooves in the chequers shall be uniform and straight. The depth of the grooves shall not be less than 3mm. The chequered tiles shall be plain, coloured or mosaic as specified. The thickness of the upper layer measured from the top of the chequers shall not be less than 6mm. The tiles shall be given the first grinding with machine before delivery to site.

47.4.4 Tiles shall conform to relevant I.S. 1237-1980.

47.5 E] Chequered Tiles for Staircases :

47.5.1 The requirements of these tiles shall be the same as chequered tiles as per (D) above except in following respects :

i] The length of a tile including nose shall be 330 mm.
ii] The minimum thickness shall be 28 mm.
iii] The nosing shall have also the same wearing layer atthe top.iv]
The nosing edge shall be rounded.
v] The front portion of the tile for a minimum length of 75mm. from and including the nosing shall have grooves running parallel to nosing and at centres not exceeding 25mm.

Beyond that the tiles shall have normal chequer pattern.

M-48 ROUGH KOTAH STONE :

48.1 The kotah stones shall be hard, even, sound and regular in shape and generally uniform in colour. The colour of the stone shall generally be green. Brown coloured stones shall not be allowed for use. They shall be without any soft veins, cracks or flaws.

48.2 The size of the stones to be used for flooring shall be size 600mm. x 60mm. and/or size 600mm. x 450mm. as directed. However, smaller sizes shall be allowed to be used to the extent of maintaining the required pattern. Thickness shall be as specified.

48.3 Tolerance of minus 30 mm on account of chisel dressing of edges sahll be permitted for length as well as breadth. Tolerance in thickness shall be plus 3mm.

48.4 The edges of stones shall be truly chiselled and table rubbed with coarse sand before paving. All angles and edges of the stone shall be true, square and free from chipping and the surface shall be true and plain.

48.5 When machine cut edges are specified, the exposed edges and the edges at joints shall be machine cut. The thickness of the exposed machine cut edges shall be uniform.

M-49 POLISHED KOTAH STONES :

49.1 Polish kotah stone shall have the same Specifications as per rough kotah stone except as mentioned below.

49.2 The stone shall have machine polished smooth surface. When brought on site, the stones shall be single polished or double polished depending upon its use. The stones for paving shall generally be single polished. the stones to be used for dedo, skirting, platforms sink, veneering, sills, steps etc. where machine polishing after the stones are fixed in situ is not possible shall be double polished.

M-50 DHOLPUR STONE SLAB :

50.1 Dholpur stone slab shall be of best quality as approved by the Engineer in Charge of VNSGU/Consultant.. The stone slab shall be without any veins, cracks,and flaws. The stone slab shall be even, sound and durable, regular in shape and uniform colour.

50.2 The size of the stone shall be as specified in the item or detailed drawing or as approved by the Engineer- in-Charge. The thickness of the stone shall be as specified in the item of Work with the permissible tolerance of plus of minus 2 mm. The provisions in respect of polishing as for polished kotah stone shall apply to plished Dholpur stone also. All angles and edges of the face of stone slab shall be fine chiselled or polished as specified in the item of Work and all the four edges shall be machine cut. All engles and edges of the stone slab shall be true and plane.

50.3 The sample of stone shall be got approved from the Engineer- in-charge for shade and tint for a particular Work. It shall be ensured the stones to be used in a particular Work shall not differ much in shade or tint from the approved sample.

M-51 MARBLE SLAB :

Marble slabs shall be white or of other colour and of best quality as approved by the Engineer-in- Charge. Slab shall be bard, close, uniform and in texture. They shall also be free defects and cracks. The surface shall be machine polished to an even and perfectly plane surface and the edges, machine cut true and square. The rear face shall be rough enough to provide key for the mortar.

Marble slabs with natural veins, if selected shall have to be laid as per the pattern given by the Engineer in Charge of VNSGU/Consultant.. Size of the slabs shall be minimum 450mm. x 450mm. and preferably 600mm. x 600mm. However, smaller sizes shall be allowed to be used to the extent of maintaining required pattern.

The slab shall not be thinner than the specified thickness at its thinest part. A few specimen of finished slab to be used shall be deposited by the Contractor in the office for reference.

Except as above, the marble slabs shall conform to I.S. 1130-1969 or as revised from time to time.

M-52 GRANITE STONE SLAB :

52.1 Granite shall be of approved colour and quality, The stone shall be hard even, sound and regular in shape and generally uniform in colour. It shall be without and soft veins, cracks or flaws.

52.2 The thickness of the stone shall be specified in the item.

52.3 All exposed faces shall be double polished to tender truly smooth and even relecting surface. The exposed edges and corners shall be rounded off as directed. The exposed edges shall be machine cut and shall have uniform thickness.

M-53 P.V.C. FLOORING :

53.1 P.V.C. sheets for P.V.C. floor covering shall be homogenous flexible type, conformint to I.S. 3462 -1966. The P.V.C. covering shall neither develop any toxic effect while put to use not shall give off any disagreeable odour.

53.2 Thickness of flexible type covering or tiles shall be as specified in the description of the item.

53.3 The flexible type shall be backed with hessain or other woven fabric. The following tolerance shall be applicable on the nominal dimensions of the sheet rolls or tiles :

(a)	Thickness	+/- 0.15 mm
(b)	Length or width	
	1. 300 mm Square tiles	+/- 0.20 mm
	2. 600 mm Square tiles.	+/- 0.40 mm
	3. 900 mm Square tiles.	+/- 0.60 mm
	4. Sheets and rolls.	+/- 0.10 percent.

53.4 Adhesive :

53.4.1 The adhesive for PVC flooring shall be of the type and make recomended by the manufacturers of PVC sheets tiles.

M-54 FACING TILES :

54.1 The facing tiles (burnt clay facing bricks) shall be free from cracks, flaws, and nodules of free lime. They shall be thoroughly burnt and shall have plane rectangular faces with parallel sides and sharp stright rightangled faces. The texture of the finished surface that shall be exposed when in place, shall conform to an approved sample consisting not less than four stretcher bricks each representing resistance to penetration by rain and greater durability than common bricks. The tiles shall conform to I.S. 2691-1972.

54.2 The standard size of facing brick tiles shall be 19 x 9 x 4 cms. The facing brick tiles shall be provided with frog which shall conform to I.S. 1077-1976.

54.3 The permissible tolerance in dimensions specified above shall be as follows.

Size	**Tolerance for**	
	1st class Brick	**2nd Class Brick**
19 cm	+/- 6 mm	+/- 10 mm
9 cm	+/- 2 mm	+/- 7 mm
4 cm	+/- 1.5 mm	+/- 3 mm

The tolerance for distortion or warpage of face or edges of individual brick from a plane surface and from a straight line respectively shall be as follows :

Facing dimensions.	**Permissible tolerance.**
Max. below 19 cms.	Max. 2.5 mm.
Max. above 19 cms.	Max. 3.0 mm

54.5 The average compressive strength obtained as a sample of five tiles when tested in accordances with the produre aid as per I.S. 1077-1976 shall be not less than 175 Kg/Sq.cm. The average compressive strengthof any individual brick shall not less than 160 Kg/Sq.cm.

54.6 The average water absorption for five brick tiles shall not be exceed 12 percent of average weight of brickbefore testing. The absorption for each individual brick shall not exceed 25 percent.

54.7 The brick tiles when tested in accordance with I.S. 1077-1976 the rate of effloresence shall not be morethan "Slightly effloresced".

M-55 White Glazed Tiles :

55.1 The tiles shall be of best quality as approved by the Engineer in Charge of VNSGU/Consultant.. They shall be flat and true to shape. They shall be free from cracks, crazing, spots, chipped edges and corners. The glasing shall be of uniform shade.

55.2 The tiles shall be of nominal size of 150mm. x 150mm. unless otherwise specified. The maximum variation from the stated sizes, other than the thickness of tile, shall be plus or minus 1.5mm. The thickness of the tile shall be 6mm. except as above the tiles shall conform to I.S. 777-1970.

M-56 GALVANISED IRON PIPES AND FITTINGS :

Galvanized iron pipe shall be of the medium type and of required diameter and shall comply with I.S. 1239-1979. The specified diameter of the pipes shall refer to the inside diameter of the bore. Clamps,screw and all glavanised iron fittings shall be of the standard `R' or equivalent make.

M-57 BIB COCK AND STOP COCK :

57.1 A bib cock is a draw off tap with a horizontal inlet and a free outlet. A stop cock is a valve with a suitable means of connection for insertion in a pipe line for controlling or stopping the flow.

57.2 They shall be of screw down type and or brass chromium plated and of diameter as specified in the description of the item. They shall conform to I.S. 781-1977 and they shall be of best Indian make. They shall be polished bright.

57.3 The minimum finished weight of bib cock and stop shall be as given below ---

Dia.	Bib Cock	Stop Cock	Dia.	Bib Cock	Stop Cock
8 mm.	0.25 Kg.	0.25 Kg.	15 mm.	0.40 Kg.	0.40 Kg.
10 mm.	0.30 Kg.	0.35 Kg.	20 mm.	0.75 Kg.	0.75 Kg.

M-58 GUN METAL WHEEL VALVE :

58-1 The gun metal wheel valve shall be of approved quality. These shall be of gun metal fitted with wheel and shall be of gate valve opening full way and of the size as specified. These shall conform to I.S. 778-1971.

M-59 WHITE GLAZED PORCELAIN WASH BASIN :

59.1 Wash basin shall be of white porcelain first quality best Indian make and it shall conform to I.S. 2556-(Part- IV)-1972 and I.S. 771-1979. The size of the wash basin shall be as specified in the item. The wash basin shall be of one piece construction with continued over-flow arrangements. All internal angles shall be designed so as to facilitate cleaning. Wash basin shall have single tap hole or two holes as specified. Each basin shall have a circular waste hole which is either rebated or bevelled internally with 65 mm. dia. at top and 10 mm. depth to suit the waste fitting. The necessary stud slot to receive the bracket on theunder side of the basin shall be provided. Basin shall have an internal soap holder recess which shall fullydrain into the bowl.

59.2 White glazed pedestal of the quality and colour as that of
59.2 White glazed pedestal; pf the quantity and colour as that of the basin shall be provided where specified in the item. It shall be completely recessed at the back for reception of supply and water pipe.It shall be capable of supporting the basin rigidly and adequately and shall be so designed as to make the height form the floor to top of the rim of basin 750 mm. to 800 mm. as directed.

M-60 EUROPEAN TYPE WATER COLSET / WITH LOW LEVEL FLUSHING :

60.1 The European type water closet shall be white glazed conforming to I.S. 2556-1973 and I.S. 771-1679.

60.2 `S' trap shall be provided as required with water seal not leal not less than 50 mm.The solid plastic seat and cover shall be of the best Indian make conforming to I.S. 2548-1980. They shall be made of moulded synthetic Materials : which shall be tough and hard with high resistance to solvents and shall be free from blisters and other surface defects and shall have chromium plated brass hinges and rubber butter of suitable size.

M-61 ORISSA TYPE WATER CLOSED :

The Specification of Orissa type white glazed water closet of first quality shall conform to I.S. 2556 (Part- III) 1981 and relevant Specification of Indian type water closet except that pan shall be with the integral squarring pan of size 580 mm x 440 mm. with raised footrest.

M-62 INDIAN TYPE WATER CLOSET :

The Indian type white glazed water closet of first class quality, size as specified in the item and conforming to I.S. 771-1979 and I.S. 2556-(Part-II)-1981. Each pan shall have integral flushing ring of suitable type with adequate number of holes all around as directed to have satisfactory flushing. It shall also have an inlet at back of front for connecting flush pipe as directed. The inside of the bottom of the pan shall have sufficient slope from the front towards the outlet and the surface shall be uniform and smooth. Pan shall be provided with 100 mm. diameter `P' or `S' trap with approximately 50 mm. water seal and 50 mm. diameter vent horn.

FOOT RESTS :

A pair of white glazed earthen ware rectangular foot rests of minimum size 250 mm. x 130 mm. x 20 mm. shall be provided with the water closet.

M-63 GLAZED EARTHEN WARE SINK :

The glazed earthenware sink shall be of specified size, colour and quality. The sink shall conform to I.S. 771- Part-II-1979. The brackets for sinks shall conform to I.S. 775-1970.

The pipes shall conform to I.S. 1239-Part-I-1973 and I.S. 404-1962 for steel and lead pipes respectively. 32 mm. brass waste coupling of standard pattern with brass chain and rubber plug shall be provided with sink.

M-64 GLAZED EARTHEN WARE LIPPED TYPE FLAT BACK URINAL/CORNER TYPE URINAL :

The lipped type urinal shall be flat back or corner type as specified in the item and shall conform to I.S. 771-1979. It shall be of best Indian make and size as specified and approved by the Engineer in Charge of VNSGU/Consultant.. The flat back or corner type urinal must be of first class quality, free from any defects, cracks etc.

M-65 LOW LEVEL ENAMEL FLUSHING TANK :

65.1 The low level enamal flushing tank shall be of 15 litres capacity. It shall conform to I.S. 774-1971. The flushing cistern shall be of best quality and free from any defects. The flushing tank shall have outlet 32 mm diameter. The outlet shall be connected with W.C. Pan by lead pipe of P.V.C. pipe as specified. The flushing tank shall be provided with inlet and outlet for fixing G.I. inlet pipes and over flow pipes. The flushing cistern shall be provided with chromium plated handle for flushing. The flushing tank shall be provided with bracket of cast iron so that it can be fixed on wall at specified height. The brackets shallconform to I.S. 775-1970.

M-66 CAST IRON FLUSHING CISTERN :

66.1 The cast iron flushing cistern shall be of 15 litres capacity. It shall conform to I.S. 774-1971. The flushing cistern shall be of best quality free from any defects.

66.2 The flushing cistern shall have outlet of 32 mm diameter. The outlet shall be connected to lead pipe of 32 mm diameter. The lead pipe shall conform to I.S. 404 (Part-I) 1962. For fixing G.I. inlet pipes and overflow pipe 20 mm dia. inlet and outlet shall be provided. The flushing cistern shall be provided with galvanised iron chain and pull of sufficient length and shall be got approved from the Engineer-in- Charge. The cast iron flushing cistern shall be painted with one coat of anticorrosive paint and two coats of paints. The flushing cistern shall be fixed on to C.I. brackets. The brackets shall conform to I.S. 775- 1970.

M-67 FLUSH COCK :

Half turn flush cock (heavy weight) shall be of gun metal chromium plated of diameter as specified in the description of the item. The flush cock shall conform to relevant Indian Standards.

M-68 CAST IRON PIPES AND FITTINGS :

68.1 All soil, waste, vent and antisyphonage pipes and fittings shall conform to I.S. 1729-1964. The pipes shall have spigot and socket ends with head on spigot end. The pipes and fittings shall be true to shape,smooth, cylindrical their inner and outer surfaces being as nearly as practicable concentric. They shall be sound and nicely cast and shall be free from cracks, laps, pin holes or other imperfections and shall be neatly dressed and carefully fettled.

68.2 The end of pipes and fittings shall be reasonably square to their axis.

68.3 The sand cast iron pipes shall be of the diameter as specified in the description and shall be in length of 1.5 M., 1.8 M. & 2.0 M. including socket ends of the pipe unless shorter length are either specified or required at junction etc. The pipes and fittings shall be supplied without ears unless specified or directed otherwise.

68.4 Tolerances : The standard weights and thickness of pipes shall be as shown in the table below. A tolerance up to minus 10% may however be allowed against these standard weights.

Sr.No.	Nominal Dia. Of bore	Overall thickness	Weight of pipes excluding Ears		
			1.5 M.long	1.8 M.long	2 M.long
1.	75 mm	5.0 mm.	12.83 Kg.	16.52 Kg.	16.37 Kg.
2	100 mm	5.0 mm	19.14 Kg.	21.67 Kg.	24.15 Kg.
3	150 mm				
4	250 mm				

A tolerance up to minus 15% in thickness and 20 mm. in length shall be allowed. For fittings tolerance in lengths shall be plus 25 mm. and minus 10 mm. The thickness of fittings and their socket and spigot dimensions shall conform to the thickness and dimensions specified for the corresponding sizes of straight pipes. The tolerance in weights and thickness shall be the same as for straight pipes.

M-68-A P.V.C. Pipes & Fittings :

1. All soil, waste and vent pipes & fittings shall conform to I.S. 4985-1988 & I.S. 13592:1992. The pipes are provided with an integral rubber ring type socket at one end while the other end in kept plain, smooth & free from burrs. The pipes and fittings shall be true to shape,smooth & cylidical. They shall be free from crackes,laps,pinholes or other imporfection and shall be nearly dressed and carefully fettled.

2. The P.V.C. Pipes shall be of the diameter as specified in the description and shall be in length of 6.0,3.0 & 1.8 m including socket ends of the pipe unless shorter lenght are either specified or required at junction etc. Tolerances on specified length shall be + 10 mm and- 0 mm.

3. Rubber real rings for joints and Access Doors shall be manufactured in accordance with IS: 5382. There are made out or natural rubber with a shore 'A' hardness of 40+5.

4. 1 The mean outside diameter, outside diameter at any point and wall thickness manufactured plain or with socket shall be as shown in the following table:-

- All dimensions in millimeters.

Sr.No.	Nominal / Outside dia.	Mean Outside Diameter		Out side Diameter at any point		Wall thickness	
		Min.	Max.	Min.	Max.	Min.	Max.
1.	75	75.0	75.3	74.1	75.9	3.2	3.8
2.	110	110.0	110.4	108.6	111.4	3.2	3.8

4.2 Minimum Wall thickness of sockets on pipes & Dimensions of sliding socket of pipes shall be as shown in following table.

- All dimensions in millimeters.

Sr.No.	Nominal / Outside dia.	Minimum wall thickness of sockets on pipes		Socet Depth Min.	Mean inside Diam. Of socket at Mid point	
		S2, Min.	S3, Min.		Min.	Max.
1.	75	2.9	2.4	40.0	75.1	75.3
2.	110	2.9	2.4	48.0	110.1	110.4

* The outside diameter of pipe shall be obtained by the method given in IS: 12235(Part-1)-1986, wall thickness shall be measured by the method given in IS:12235(Part-2)1986.

4.3 The permissible variation between the mean outside diameter & the nominal outside diameter of a pipe shall be positive in the form + x, where is less than or equal to greater of the following two values.
a) 0.03 mm, and
b) 0.003 x nominal outside diameter- rounded off to the next higher 0.1 mm.

4.4 The permissible variation between the outside diameter at any point (d1) & the nominal outside diameter (de)of a pipe shall not exceed the greater of the following two values.

a) 0.5mm, and
b) 0.012 de rounde off to the next higher 0.1

4.5 The thickness of fittings and their socket & spigot dimensions shall conform to the thickness and dimensions specified for the corresponding sizes of straight pipes.

M-69 NAHNI TRAP :

Nahni trap shall be of cast iron and shall be sound and free from porosity or other defects which affect servicability. The thickness of the base metal shall not be less than 6.5 mm. The surface shall be smooth and free form crack, chips and other flaws or any other kind of defects which affect serviceability. The size of nahni trap shall be as specified and shall be of self cleansing design.

The nahni trap shall be of quality approved by the Engineer- in-charge and shall generally conform to the relevant Indian Standards.

The nahni trap provided shall be with deep seal, minimum 50 mm. except at places where trap with deep seal can not be accommdated. The cover shall be cast iron. Perforated cover shall be provided on thetrap of appropriate size.

M-70 GULLY TRAP :

Gully trap shall conform to I.S. 651-1960. It shall be sound, free from defects such as fire cracks or hair cracks. The glaze of the traps shall be free from crazing. They shall give a sharp clear note when struck with light hammer. There shall be no broken blisters.The size of the gully trap shall be as specified in the item.

Each gully trap shall have one C.I. grating of square size corresponding to the dimensions, of inlet of gully trap. It shall also have a water tight C.I. cover with frame inside dimensions 300mm. x 300mm. the cover weighing not less than 4,53 Kg. and the frame not less than 2.72 Kg. The grating cover and frame shall be of sound and good casting and shall have truly square machined seating faces.

M-71 GLAZED STONE WARE PIPE AND FITTINGS :

The pipes and fittings shall be of best quality as approved by the Engineer in Charge of VNSGU/Consultant.. The pipe shall be of best quality manufactured from stone-ware of fire clay, salt glazed thoroughly burnt throught the whole thickness, of a close even texture, free from air blows, fire blisters, cracks and other imperfections, which affect the serviceability. The inner and outer surfaces shall be smooth and perfectly glazed. The pipe shall be capable to withstand pressure of 1.5 m. lead without showing signs of leakage. The thickness of the wall shall not be less than (1/12)th of the internal dia. The depth of socket

shall not be less than 38 mm. The socket shall be sufficiently large to allow a joint of 6 mm. around the pipe. The pipes shall generally conform to revelant I.S. 651-1980.

M-72 WALL PEG RAIL :

72.1 The aluminium wall peg rail shall have three aluminium pegs of approved quality and size. It shall be fixed on teakwood plank of size 450 mm x 75 mm x 20 mm. The teak wood shall be french polished or oil painted as specified.

M-73 G.I. WATER SPOUT :

73.1 The G.I. pipes of 40 mm dia shall be of medium quality and specials shall be of `R' brand or equivalent brand of best quality.

73.2 The pipe shall have length as required for the thickness of well in which it is fixed, and at the outside end tee and bend cut at half the length shall be provided and at either end coupling shall be provided and the have better fixing. The water spout shall be provided as per detailed drawings or as directed.

M-74 ASBESTOS CEMENT PIPE (A.C. PIPE) :

74.1 The asbestos cement pipe of diameter as specified in the description of the item shall conform to I.S. 1926-1980. Special like bends, shoes cowls, etc. shall conform to relevant Indian Standards. The interior of pipe shall have a smooth finish, regular, surface and regular internal diameter. The tolerance in all dimensions shall be as per I.S. 1926-Part-I-1980.

M-75 CRYDON BALL VALVE :

Ball valve of screwed type including polythene float and necessary lever etc. shall be of the size as mentioned in the description of item and shall conform to I.S. 1703-1977.

M-76 BITUMEN FELT FOR WATER PROOFING AND DAMP PROOFING :

76.1 Bitumen felt shall be on the fibre bases and shall be of type 2, self finished felt grade-2 and shall confor to I.S. 1322-1970.

M-77 SELECTED EARTH :

77.1 The selected earth shall be that obtained from excavated material or shall have to be brought from outside as indicated in the item. If item does not indicate anything, the selected earth shall have to be brought from outside.

77.2 The selected earth shall be good yellow soil and shall be got approved from the Engineer in Charge of VNSGU/Consultant.. In no case black cotton soil or similar expansive and shrinkable soil shall be used. It shall be clean and free from all rubbish and perishable Materials :, stones or brick bats. The clods shall be broken to a size of 50 mm. or less. Contractor shall make his own arrangements at his own costs for land for borrowing selected earth. The stacking of Materials : shall be done as directed by the Engineer in Charge of VNSGU/Consultant. in such a way as not to interfere with any constructional activities and in proper stacks.

77.3 When excavated material is to be used, only selected stuff got approved from the Engineer in Charge of VNSGU/Consultant. shall be used. It shall be stacked separately and shall comply with all the requirements of selected earth mentioned above.

M-78 CRACK SEAL :

Crack seal manufactured by Chemistik / Chemisol Indian Ltd., is an acrylic base ready application compound.

M-79 CAST IRON STEPS :

The cast iron steps shall be clean, well-cast and they shall be free from air and sand holes, cold shuts and warping which are likely to impair the utility of the castings. The portion of the step which projects from walls of the manhole shall have a raised required designed above the general plane of the top surface of the step along the edges of the tread to provide adequate non-slip grip. The steps shall be of dimensions 375 mm x 150 mm x 25 mm with necessary holding arrangement and carting minimum weight of 4.5 Kg. confirming to I.S. 5455-1969 or its latest version..

The cast iron steps shall be coated with a material having tar base or a place bituminous composition of cashew-nut shall liquid. The coating shall be smooth and tenacious. It shall not flow when exposed to a temprature of 63 degree C and shall not be brittle as to chip of at temperature of 0 degree C.

M. 80. Medium duty black Polyethylene sheet :

80.1. The medium duty black polyethylene sheet shall be from "Om Agor Industrial Plastics Pvt. Ltd.", or "Profeel", "Ramplast" or as approved by the Architect or Engineer in Charge of VNSGU/Consultant..

It shall be produced by using a continuous, smooth chemical process, at constant pressure and temperature. The polyethylene sheets should be light weight, soft, smooth and flexible, which can be easily handled and laid. It shall be 100 % waterproof, acid proof, alkali proof, resistant and fully opaque.

It shall be fully impervious to provide a complete water barrier system. The tensile strength of the film shall not be less than 450 kg./cm2. The tear resistance of the film shall not be less than 3,200 gm/100/micron having 650 % ultimate elongation. The impact tensile strength & temperature resistance shall not be less than 2,000 kg./cm2 and 90 degree C respectively.

The film shall be flexible having uniform thickness as specified in the respective item. It shall have long life in buried condition. Saline or mineral water and alkali content in soil or cement of most of the chemicals shall have no effect on the film. The shall discourage weed growth under the lining.

It shall be resistant to fungus, moth, toxic gases and agents having affinity to water. It shall have excellent bonding strength and thermal conductivity shall be 0.023 Kcal/m hr C. It shall conform to IS : 5913 and IS : 3792, wherever applicable. It shall prevent corrosion, chemical action, leakage,

M. 81. AAC Block Building Element :

81.1 The Aerated Autoclaved Blocks - building elements shall be machine molded, made in a factory. It shall be made from fine fly ash, together with lime, gypsum and cement binding agents, water and aluminum powder acting as a foaming agent.

The AAC cakes shall be steam cured for about 10-12 hours in auto claves at a temperature of 190 degrees C and a saturated steam pressure of 12 bars.

The blocks shall be machine cut into rectangular shape. They shall have smooth rectangular faces with sharp corners and shall be uniform in color. They shall be free from cracks, flaws and nodulesof free lime.

81.2 The dimensions of AAC blocks shall be 625 mm. lengths with +_ 5 mm. tolerances, 250 mm height and 100 mm. & 200 mm. thicknesses as specified. The AAC blocks shall be consistent and constant in dimensions, having minimum variations.

The only AAC blocks of one standard size shall be used on one work.

81.3 The AAC blocks shall have a density of 550 to 650 Kgs./Cmt. (dry density). The design density shall be 800 Kgs./Cmt. They shall be lightweight, having density which is $1/3^{rd}$ the density of bricks and $1/4^{th}$ the density of RCC, resulting in the reduction of dead loads on the structure, and consequently in the reduction in the size of the RCC structural elements, when compared to conventional Materials :

81.4 The AAC blocks shall have compressive strength as per IS 2185 part (III), (1984), and its masonry is carried out as per IS 6041 (1985) and IS 1905 (1987).

81.5 The AAC blocks shall have Thermal Conductivity of 0.142 Kcal/ (hr.) (deg C) (M) and Sound Reduction Index of 37-49 dB depending upon thickness. The cellular structure, having millions of tiny air cells created during their manufacturing process, shall precise good thermal resistance and sound insulation, reducing the load on the air-conditioning systems, if provided, and making the living environment inside the building more comfortable both during summer and winter. The thermal resistance combined with the benefits of thermal mass inertia, low air in filtration shall reduce the need for additional insulation.

81.6 The AAC blocks shall be inorganic and totally incombustible providing 6 hours of fire rating for 200 mm. thick walls.

81.7 The AAC blocks shall be impervious to rot, insects and other pests.

81.8 The AAC blocks shall be inert, non-toxic and recyclable, causing no air pollution and illnesses indoors because of not being a source off gassing.

81.9 The AAC blocks shall have very easy workability, and they shall be easily cut, drill and nail by using normal hand tools or power tools. They can be cut into virtually any shape or angle, making them extremely adoptable.

M. 82. MOLDED PANEL DOOR SHUTTERS :

82.1 The molded panel door shutter shall be of the best quality from manufacturers such as Gujcon Molded Panel Doors or Masonite or .

The paneled door shutters shall be as per IS 2202 and IS 1003 The door shutters shall be of 32 mm. thickness, having two panels, the top panel being having an arch at the top, manufactured from Green Teak (Non-teak) wood duly processed under various treatments. The wood shall be seasoned in a modern seasoning plant as per IS 1141 and treated in high tech vacuum pressure chemical treatment plant, as per IS 401 and manufactured using latest wood working machinery, having strict quality control with latest electronic equipment, resulting in high level craftsmanship.

82.2 The door shutters shall be equivalent to teak wood doors in strength and durability.

82.3 The door shutters shall be 100 % termite & water resistant and absolutely free from fungal effects.

82.4 The molded panel door facing shall be of densified wood fiber plate, having 3.0 mm. thickness 3.33 Kgs./ S.Mt. base weight, 1.05 Gms/CC. density 20.7 Mpa modulus of structure matching the ASTM standard, D1037 Sec. 150-153, modulus of elasticity 3,800 Mpa, Cleavage (Minimum load value) 27 Kg., Minimum fiber/wood failure 75 %, 24 hour water soak absorption (Maximum) 45 % matching the ASTM standard 1037 Sec. 158-159, thickness swell (Maximum) 35 % modulus of structure matching the ASTM standard 1037 Sec. 158-159, tensile strength parallel to surface (Minimum Value) 10.3 Mpa modulus of structure matching the ASTM standard, D1037 Sec. 154-155 and Perpendicular to surface (Minimum value) 0.34 Mpa modulus of structure matching the ASTM standard, D1037 Sec. 156-157, immersion in boiling water no disintegration @ 100 + / - 3 degree C for 4 hours.

M. 83. PEBBLES :

83.1 The pebbles shall be brought in from riverbank, well rounded, without sharp edges, nearly white in color and having diameter of approximately 20 mm. to 50 mm.

83.2 The pebbles shall be free of pinholes and other impurity, and shall be approved by the architect.

M. 84. CERAMIC TILES :

84.1 Ceramic tiles shall be of 1st quality from manufacturers such as Siddharth, Spartek, Regency, Romano, Nitco or equivalent, as approved by the Architect.

84.2 Ceramic tiles shall be lightweight, with 8 mm. thickness with +- 5.0 % deviation. Therefore, they require thinner floor bedding compare to mosaic/stone flooring. On laying, they require no further polishing making the floor ready to live and use.

84.3 Ceramic tiles shall be of dimensions of 300 mm. x 300 mm. with +- 0.50 % deviation. All the sides shall be straight & square and the deviation allowed shall be maximum + - 0.40 %.

84.4 Ceramic tiles shall have plain and smooth surface quality, free of visual defects to the extent of minimum 95 % of tiles.

84.5 Ceramic tiles shall have no warping; their surface shall be flat, with maximum +- 0.5% deviation allowed.

84.6 Ceramic tiles shall have water absorption of no more than 4.0 %.

84.7 The bending strength of the ceramic tiles above 300 Kgs./Cm2.

84.8 The scratch resistant as per Moh's scale shall be minimum 5. The tiles shall be of group III quality abrasion resistant.

84.9 The crazing resistance of the ceramic tiles shall be in conformity with norms.

84.10 The resistance to staining of the ceramic tiles shall be minimum class II.

84.11 Ceramic tiles shall be resistant to all acids and alkalis except hydrofluoric acid and its compounds.

84.12 The thermal shock resistance shall be up to 10 cycles.

M. 85. VITRIFIED FLOOR TILES :

85.1 Vitrified floor tiles shall be of the best quality from manufacturers such as "Endura" by H. & R. JOHNSON (INDIA) LTD., Granamite or equivalent, as approved by the Architect and Engineer-in-Charge. They shall conform to the IS 4457.

85.2 They shall be monolithic and available in anti-skid finish, having the size of 300 mm. x 300 mm. x 10 mm. thick.

85.3 They shall be rectified, which is the process of sizing & squaring, leading to almost perfect edges and enabling tile installation with very minor joints, giving the installed tiles a joint-free look. They shall be pre-sized and pre-polished.

85.4 Maximum deviation in length +- 0.3 %, maximum deviation in thickness +- 2.0 %, maximum wedging allowed +- 0.2%, maximum surface flatness shall be +- 0.2 %, water absorption capacity < 0.5 %, maximum Mhos hardness 8.0, flexural strength shall be of > 45 N/mm2, maximum Abrasion resistance < 144 mm3, maximum thermal expansion < 6×10^{-6}, maximum thermal shock resistance shall be of no damage, resistance to acid (wt. loss) < 0.4 %, Skid resistance (friction coefficient) > 0.6, breaking strength shall be 2600 N, density of (g/cm3) shall be 2.4 & no moisture expansion.

M. 86. CONCRETE TILES :

86.1 The plain cement concrete tiles shall be manufactured using the basic raw material of white cement with the addition of special chemical & quartz chips, which give the tiles extra strength. The concrete tiles shall be highly durable having very superior structure properties such as high transverse and compressive strength, very low water absorption and very low surface abrasion, supplied by manufacturer such as Roughwalk series, "Mozzaterra" by "Vyara Tiles", or Terrarock Tiles by Super Tiles & Marble Pvt. Ltd. or equivalent, as approved by the Architect and Engineer-in-Charge.

The tiles shall be manufactured using a vibration system and rubber moulds, under pressure. The tiles shall be subjected to a pressure of not less than 140 Kg./Cm2. The proportion of cement to aggregate, in the backing of the tiles shall be not less than 1 : 3, by weight.

The tiles shall be shot blasted to give it a special texture. The top shall be treated the two coats of acrylic coating, and factory polished and honed, ready to be fix in the exterior.

86.2 The concrete tiles shall be generally square in shape having all angles at perfect right angles and all the edges being sharp & true, having a size of 400 mm. x 400 mm. x 34 mm. thick. The tolerance allowed in length & breadth shall be +- 1.0 mm. & tolerance allowed in thickness shall be + 5 mm..

86.3 The tiles shall satisfy the test as regards transverse strength, resistance to wear absorption as per IS : 1237.

Water Absorption :

Sampling : 6 tiles out of every 3,000 tiles are taken for testing.

Result : Absorption permissible, shall be at the most 10 %.

Transverse strength test :

Sampling : 12 tiles out of every 3,000 tiles are taken for testing.

Result : When wet : 80 Kg./Cm2.

: When dry : 120 Kg./Cm2.

Abrasion test :

Sampling : 6 tiles out of every 3,000 tiles are taken for testing.

Result : Average abrasion shall not be more than 3.5 mm.

These tiles shall have plain wearing surface, wherein pigments are used. They shall conform to IS : 1237. The pigments used for coloring cement shall not exceed 10 % by weight of cement used in the mix. The pigments, synthetic or otherwise, used for coloring tiles shall have permanent color and shall not contain Materials : detrimental to concrete.

M. 87. ASSAM PINE WOOD :

87.1 Assam Pine wood shall be of first quality as required for the item to be executed, and shall be as approved by the Architect or Engineer in Charge of VNSGU/Consultant.. It shall be used only after kiln seasoning.

87.2 Assam Pine wood shall generally be free from large, loose, dead or cluster knots, flaws, shakes, warps, twists, bends, or any other defects.

It shall generally be uniform in substance and of straight fibers, as far as possible. It shall be free from decay, harmful fungi and other defects of harmful nature, which will affect the strength, durability and its usefulness for the purpose for which it is required. The color shall be uniform, as far as possible, with no white grains. Any efforts like painting, using any adhesive or resins Materials :, made to hide the defects, shall render the pieces liable to be rejected by the Engineer-in-Charge and the Architect.

All scantling, planks, etc. shall be sawn in straight lines and planes, in the direction of grains and shall be of uniform thickness.

Assam pine wood shall have no individual hard and sound knots, more than 6 cm2. in size and the aggregate area of such knots shall not be more than 1 % of the area of the piece. The timber shall be closed grained.

The Assam pine wood shall be applied with linseed oil without any color pigment or powder.

M. 88. STAINLESS STEEL SINKS :

88.1 The stainless steel shall be of the premium quality, genuine, “SALEM STAINLESS STEEL”, AISI 304-18/8 stainless steel, by manufacturers such as “Nirali” or “Franke” or as approved by the Architect or Engineer in Charge of VNSGU/Consultant..

It shall conform to IS : 13983 : 1994.

88.2 It shall be supplied with Plasti-Guard so as to protect it from begin scratched in transit or during installation.

88.3 The S. S. sink have single bowl, having overall size 585 mm. x 485 mm., the bowl size 535 mm. x 432 mm., the depth of 178 mm. The thickness of the stainless steel shall be 1.60 mm.

88.4 The sink shall have choke-stop strainer, made from a combination of stainless steel & plastic in order to retain its sparkle to the years.

M. 89. POLYCARBONATE SHEETS :

89.1 Polycarbonate sheets for versatile glazing shall of the best quality such as “Lexan” from “GE Plastic India” or as approved by the Architect or Engineer in Charge of VNSGU/Consultant..

It shall be meet all the requirements of BS : 6262. For impact performance, it shall meet the BS : 6206 requirements and for anti-bandit requirements, it shall conform to BS : 5544.

89.2 It shall be as transparent as glass, but shall have half its weight. It shall be tough and yet flexible. It shall have strong impact strength and shall offer thermal and sound insulation. It shall resist the effects of weather, shall be unbreakable and shall provide protection against forced intrusion. It shall be used for roof glazing, door and window glazing as well as privacy glazing, on many different types of buildings. As light weight, it shall be feasible to use it on wider spans. It promotes natural light and shall impart an impression of spaciousness.

89.3 It shall have tensile strength greater than 70 N/m2. Its flexural modulus shall be 2,500 N/m2 and flexural yield strength shall be 100 N/mm2. It shall have an impact strength (falling dart) greater than 200 Nm. It shall have an indentation hardness – H358 10 of 98 N/mm2 and H358 60 to 93 N/mm2. Its coefficient of linear expansion shall be 0.00067 per degree C and thermal conductivity shall, be 0.21 W/m.K. It shall have a specific gravity of 1.2 gm/cc. and water absorption @ 24 hrs. 23 degree C shall be 10 mg. Its elongation at break shall be greater than 100 %. It shall have a higher coefficient of thermal expansion. It shall allow light transmission of between 82 % and 90 %,

depending on the thickness of the sheet. It shall not transmit UV radiation up to 385 Nm. It shall resist the effect of chemicals. It shall have self-extinguishing, low flame spread characteristics and low fire propagation indices.

M. 90. STAINLESS STEEL PIPES & PLATES :

90.1. The stainless steel pipe shall be of 316 grade, best quality stainless steel.

90.2. The handrail shall be of 63 mm. diameter stainless steel pipe.

90.3. The pipes used for balustrade shall be of 20 mm. diameter stainless steel pipes.

90.4. The vertical support shall be of 25 mm. wide x 10 mm. thick stainless steel plates.

M. 91. PVC / VINYL FLOORING :

91.1. PVC sheets / tiles for PVC / Vinyl floor covering shall be of the best quality like 'LG Floors', 'Wonderfloor' or equivalent, as approved by the Architect and the Engineer in Charge of VNSGU/Consultant.. It shall be ofhomogeneous flexible type, conforming to IS : 3462. The PVC covering shall neither develop any toxic effect while put to use nor shall give off any disagreeable odour.

91.2. Thickness of flexible type covering tiles shall be as specified in the description of the item. The flexible type shall be backed with Hessian or other woven fabric. It shall be available in form of tiles of sizes up to 600 mm. x 600 mm. or rolls of 1.50 mts. width and of continuous length of 20 mts. The thickness shall be approximately 1.50 mm. to 2.0 mm. The dimensional stability shall be 0.30 %. The following tolerance shall be applicable on the nominal dimensions of the rolls or tiles :

Thickness : + 0.15 mm.

Length or Width :

1.30 mm. square tiles, + 0.20 mm.

3.90 mm. square tiles, + 0.60 mm.

2.60 mm. square tiles, + 0.40 mm.

4 sheets and roll, + 0.10 %.

91.3. It shall offer color fastness to daylight as per the relevant IS : 3462. Allowance for curling shall be 0.60 mm. It shall be flexible and shall not break, crack or show any signs of failure.

91.4. It shall offer above average resistance to mild and diluted acids, alkalies, soaps and detergents. It shall have high abrasion resistance. At normal temperature, it shall develop an indent of 0.15 mm., after one minute and 0.20 mm., after ten minutes. It shall offer insulation resistance as per the IS : 2259. It shall have a sound reduction factor of 3 db for 2.00 mm. thickness and 2 db for 1.50 mm. thickness. It shall have self extinguishing property and water absorption at room temperature for 24 hours shall be 0.10 %.

91.5. It shall be available in various designs and shall be recommended for floors and walls, in homes, institutions, commercial establishments, clinics and hospitals.

91.6. The adhesive for PVC flooring shall be of the type and make recommended by the manufacture of PVC sheets / tiles.

M. 92. ALUMINIUM COMPOSITE PANELS :

92.1. The aluminium composite panels (ACP) shall be of the premium quality, by manufacturers such as 'Eurobond' or 'Durabuild' or 'Aluma' or 'Alstrong' or 'Alex' or of equivalent quality as approved by the Architect or Engineer in Charge of VNSGU/Consultant..

92.2. They shall be manufactured using the procedures of chromating, surface coating, processed LDPE Panel – sheet compound, petlamilating, etc., which are fully controlled by computers. The company must have passed ISO 9002 certification.

92.3. The ACPs shall be either 4 mm. or 3 mm. thick as specified in the detailed design drawings.

98.4. The ACPs, to be used for exterior purpose, shall have a surface treatment of Kynar 500 (minimum 70 %) PVDF coating, consisting of a thermoplastic resin core, laminated between two sheets of high

strength, 0.5 mm. thick aluminium boards-panels. The thermoplastic resin core shall be without toxicity. The aluminium boards shall be covered on one side with PVDF primer, PVDF face coating, PVDF light coating and finally a protecting film, and they shall be covered on the other side with anti-corrosive protecting film and anti-corrosive primer.

92.5. The minimum unit weight of 4 mm. thick ACPs shall be 5.50 Kgs./S.Mt. as per ASTM D792.

The resistant to outdoor temperature shall be as per ASTM D1654. The thermal expansion shall be 24-28 as per ASTM D648. Thermal conduction shall be 0.102 kcal/m.hr degree C. as per ASTM 976.

The flexural rigidity shall be 14.0×10^5 as per ASTM C393.

The impact resistant shall be 1.650 kgf as per ASTM D372.

The adhesive strength shall be 0.78 kgs./mm. as per ASTM D903.

The sound insulating rate shall be 25 db as per ASTM E413.

The flexural elasticity shall be 4055 Kgs./mm^2 as per ASTM D790.

The shear resistant shall be 2.60 kgf/mm^2 as per ASTM D732.

The minimum bending radius shall be 70 mm. as per ASTM D790.

The fire propagation shall be as per ASTM E84.

The smoke developed shall be less than 45 as per ASTM E84.

The wind pressure resistant shall be as per ASTM E330.

The properties against water shall be as per ASTM E331.

The properties against air shall be as per ASTM E283.

92.6. The colors and the surface texture shall be as specified in the detailed design drawings.

92.7. The ACPs shall be easily processed using the normal wood working machines and tools. They shall be easily grooved on conventional grooving machines and CNC machining centers. Grooved ACPs shall be bent with jig, press brake or plate punch, using a top die having the desired radius, or with a three-roller bender.

92.8. The tolerances in width shall be +- 0.2 mm, in length shall be +- 4 mm, in thickness shall be +- 0.2 mm. in bow maximum 0.5 % of the length, and in square ness shall be maximum 5.0 mm.

M. 93. ACRYLIC EMULSION PAINTS :

93.1. It shall be from ICI, Nerolac, Asian Paints, Berger or equivalent, as approved by the Architect and Engineer in Charge of VNSGU/Consultant.. It shall conform to the relevant IS codes.

93.2. It shall be used on both interiors and exteriors, on all different types of plaster, wooden surfaces, stone, brickwork, asbestos cement sheets, hard and soft boards, etc. It shall render rich smooth finish and shall provide a tough film that forms a suitable protection against all elements.

93.3. It shall be water thinnable. It shall require no primer. On a well prepared surface, it shall be applied, after one coat of cement primer, in case it is an interior surface and waterproof cement coating, in case it is an exterior surface. On a new but highly absorbent surface, a thin coat of the same shall be applied by adding two parts of water by volume to two parts of acrylic emulsion by volume. On previously painted surfaces, one coat of the same shall be applied by thinning four parts of the emulsion with one or two parts of water. It shall be applied by brush, roller or spray. It shall have a covering capacity of 25 – 30 S.Mts./Liter, depending on the surface and shade used. It can be washed to remove the day-to-day dirt, after the surface has been painted, minimum for a month.

M. 94. EXTERIOR PAINTS :

94.1. It shall be from “Weathershield – Dulux from ICI”, “Jenson & Nicholson” or equivalent, as approved by the Architect and Engineer in Charge of VNSGU/Consultant..

94.2. It is used for exterior surfaces and shall give a thick rich opaque matt finish. It shall be easily applicable using a flat brush, well moistened before use. No special tools or training shall be required for application. A single coat application is enough to render a smooth, well prepared surface, in the

color & texture, approved by the Architect & Engineer in Charge of VNSGU/Consultant.. It shall be weather and fade resistant, water and damp resistant and durable. It shall resist fungi and algae. It can be applied on wide variety of surfaces such as cement mortar, plywood, plaster board, AC sheet, Asbestos board,gypsum plaster or any other absorbent material to get homogeneous layer. It shall touch dry within20 minutes.

94.3. It shall be thinned with 5 to 10 % of water by volume. It shall require no primer. On a well prepared surface, it shall be applied, in single coat, after one coat of cement paint. On a previously painted surface, painted with oil paints, a base coat of exterior paint, diluted 1 : 1 with water, is applied before the final coat of exterior paint, thinned with 5 to 10 % of water by volume. It shall be formulated to last for at least 10 years.

M. 95. FLOOR SPRINGS :

95.1. The floor spring shall be of the premium quality, by manufacturer such as 'Ozone Overseas Ltd.' or 'Everite' or as approved by the Architect or the Engineer in Charge of VNSGU/Consultant..

95.2. The floor spring shall have the dimensions of 306 mm. length x 108 mm. width x 40 mm. depth, and weight of approximately 5.00 kgs.

95.3. It shall have a closing force of 25Nm, and shall have variable valve adjustment to control its closing speed.

95.4. The floor spring shall have a hold open point at 105 degrees, and shall be able to carry 150 kg. Of door weight.

95.5. A single unit shall have both single and double action door.

95.6. The high grade cast iron mechanism body shall be housed within a galvanized steel loose box, which shall be zinc protected and painted for corrosion resistant.

95.7. The internal mechanism components shall be of heat treated high alloy steels and ball bearing for optimum efficiency.

95.8. The stable hydraulic fluid shall be provided for operation in any climatic condition and also for constant lubrication.

95.9. The floor spring shall have a built-in relief valve to protect the unit from rough use. The closer mechanism shall be totally immersed in hydraulic fluid.

95.10. The floor spring shall have two valves to control two different closing ranges, namely, valve 1 : 130^0 - 0^0 sweep, and valve 2 : to increase the closing speed between 130^0 - 20^0.

M. 96. GLASS MOSAIC TILES :

96.1. The glass mosaic tiles shall be of premium quality, by manufacturers such as 'Bisazza, India' or as approved by the Architect or Engineer in Charge of VNSGU/Consultant..

96.2. The dimensions of the tiles shall be 20 mm. x 20 mm. x 3.5 mm to 4.0 mm. thick, fixed on sheets of size 327 mm. x 327 mm., mounted uniformly, having joints of 1.8 mm width and weight of approximately 7.00 kgs./mq.

96.3. The water absorption shall be none to meet the standards EN 99-IS 13630 Part.2.

96.4. The resistant to thermal shock shall match the standards EN 104-IS 13630 Part.5.

96.5. The resistant to frost shall match the standards EN 202-IS 13630 Part.10.

96.6. The resistance to fading of the colors shall match the standard DIN 51094.

96.7. The resistant to chemical attack shall match the standards EN 122-IS 13630 Part.8.

96.8. The warpage shall not exceed more than 0.02 % along any edge and either diagonal, and it shall meet the standards of The Council of America inc. specification TCA 137.1-1976.

96.9. The rear side of the tiles shall have raised design.

96.10. The wedging shall not exceed 0.02 %.

M. 97. 10 mm. THICK GRANITE TILES :

97.1. The light gray colored, 10 mm. thick granite tiles shall be manufacture from natural granite stone slabs. The quality and the color shall be approved by the Architect and the Engineer in Charge of VNSGU/Consultant.. Thestone shall be hard, having even sound and regular in shape and thickness, and generally uniform incolor. It shall be without any soft veins, cracks or flaws.

97.2. One face of the tiles shall be double polished to render it truly smooth and even reflecting surface. The exposed edges shall be machine cut to have uniform shape and thickness.

Signature of the Contractor :

Registrar
VEER NARMAD SOUTH GUJARAT UNIVERSITY.

09. GENERAL TECHNICAL SPECIFICATIONS FOR BUILDING WORKS :

SECTION – 4

ITEM : Excavation for foundation up to 1.5 M. depth including sorting out and stacking of useful Materials and disposing of the excavated stuff up to 50 meter lead in loose or soft soil. (A) Loose or soft soil (With Manual Labour) (I) 0 to 1.5mt. Depth

General

1.1. Any soil which generally yields to the application of pickaxes and shovels, phawaras rakes or any such ordinary excavating implement or organic soil, gravel silt, sand turf loam, clay, peat etc., fail under this category

2.0. Clearing the site

2.1. The site on which the structure is to be built shall be cleared, and all obstructions loose stone, materials and rubbish of all kind bush wood and trees shall be remove! as directed The materials so obtained shall be property of the Government and shall be conveyed und stacked as directed within 50 m lead. The roots of the trees coming in the sides shall be cut and coated with a hot asphalt

2.2. The rate of side clearance is deemed to be included in the rate of earth work for which no extra will be paid.

3.0. Setting out

After clearing the site the centre lines will be given, by the Engineer-in-charge. The contractor shall assume full responsibility for alignment, elevation and dimension of each and all 'parts of the work. Contractor shall supply labours materials, etc. required for setting out the reference marks and bench 'marks and shall maintain them as long as required and directed.

4.0. Excavation

The excavation in foundation shall be carried out in true line and level and shall have the width and depth as shown in the drawings or as directed. The contractor shall do the necessary shoring and shutting or providing necessary slopes to a safe angle, at his own cost. The payment for such precautionary measures shall be paid separately it not specified. The bottom of the excavated area shall be leveled both longitudinally and transversely as directed by removing and watering as required No. earth filling will be allowed for brining it to level If by mistake or any excavation is made deeper or wider than, that shown on the plan or directed. The extra depth or width shall be made up with concrete of same proportion as specified for the foundation concrete at the cost of the contractor. The excavation up to 1.5 m depth shall be measured under this item.

5.0. Disposal of the excavated stuff

5.1. The excavated stuff of the selected type shall be used in filling the trenches and plinth or leveling the ground in layers including ramming and watering etc.

5.2. The balance of the excavated quantity shall be removed by the contractor from the site of work to a place as directed with lead up to 50 M. and all lift.

6.0. Mode of measurements & payment

6.1. The measurement of excavation in trenches for foundation shall be made according to the sections of trenches shown on the drawing or as per sections given by the Engineer-m-charge. No payment shall be made for surplus excavation made in excess of above requirements or due to stopping and sloping back as found necessary on account of conditions of soil and requirements of safety.

6.2. The rate shall be for a unit of one Cubic Meter

ITEM : Excavation for foundation for depth from 1.5 m to 3.0 m including sorting out and stacking of useful materials and disposing off the excavated stuff up to 50 Meter lead.(A) Loose or soft soil (II) 1.5 to 3.0 mt. depth

1.0. Workmanship

1.1. The relevant specifications or item No. 1 0.0. (A) Shall be followed except that the excavation work shall be Carried out to loose or soft soil with lift 1.5 M. to 3.0 M.

2.0. Mode of Measurement & Payment

2.1. The relevant specifications of item No. 1.0 O.(A) shall be followed.

2.2. The excavation work of from 1.5 M. to 3.0 M. shall be measured under this item

2.3. The rate shall be for a unit of one Cubic Meter

ITEM : Providing and laying cement concrete 1.3.6. (1 cement: 3 coarse sand: 6 graded stone Aggregate 40 mm. nominal size) and curing complete excluding the cost of form work in Foundations and plinth.

1.0. Materials

1.1. Water shall conform to M-1. Cement shall conform to M-3 Sand shall conform to M-6. Stones aggregate 40 mm. nominal size shall conform to M-12.

2.0. Workmanship

2.1. General

2.1.1. Before stating concrete the bed of foundation trenches shall be cleared of all loose materials, leveled, watered and rammed as directed

2.2. Proportion of Mix:

2.2.1. The proportion of cement, sand and coarse aggregate shall be one part of cement. 3 parts of sand and 6 parts of stone aggregates and shall be measured by volume.

2.3. Mixing:

2.3.1. The concrete shall be mixed in a mechanical mixer at the site of work. Hand mixing may however be allowed for smaller quantity of work if approved by the Engineer-in-charge. When hand mixing is permitted by the Engineer-incharge in case "of break-down of machineries and in the interest of the work, it shall be carried out on a water tight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency, However in such case 10% more cement than otherwise period 1 1/2 to 2 minutes. The quantity of water shall be just sufficient to produce a dense concrete of required workability for the purpose.

2.4. Transporting & Placing the Concrete:

2.4.1. The concrete shall be handed from the place, of mixing to the final position in not more than 15 minutes by the method as directed and shall be placed into its final-position, compacted and finished within 30 minutes of mixing with water i.e. before the setting commences.

2.4.2. The concrete shall be laid in layers of 15 cms. to 20 cms.

2.5.1. The concrete shall be rammed with heavy iron rammers and rapidly to get the required compaction and to allow ail the interstices to be filled with mortar.

2.6. Curing:

2.6.1. After the final set, the concrete-shall be kept continuously wet if required by pounding for a period of not less then 7 days form the date of placement.

2.7. Mode of Measurement & Payment:

2.7.1. The concrete shall be measured for its length, breadth and depth, limiting dimensions to those specified on plan or as directed.

2.7.2. The rate shall be for a unit of one Cubic Meter

ITEM : Providing and laying controlled cement concrete M.250 and curing complete excluding the cost of formwork and reinforcement for reinforced concrete work in (A) Foundations, footings, Base of columns and Mass concrete

1.1. Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Grit shall conform to M-8 Course aggregate shall conform M-12.

2.0. General

2.1. The relevant specification of item No. 5.4.1. of ordinary concrete shall be followed except that the concrete mix shall be designed form preliminary tests. The proportioning of cement and aggregates shall be done by weight and necessary precautions shall be taken in the production to ensure that the required work cube strength is attained and maintained. The controlled concrete shall be in grades of M-100, M-150, M-200, M-250, M-300, M-350 & M-400 with prefix controlled added to it. The letter M refers to mix and the numbers specify 28 days works cube compressive strength of 150 mm. cubes of the mix expressed in Kg./Crnt.

2.2. The proportion of cement, sand and coarse aggregate shall be determined of weight. The weight batch machine shall be used for maintaining proper control over the proportion of aggregates as per mix design. The strength requirements of different grades of concrete shall be as under:

Grade Concrete	Compressive strength of 15 cms. cubes in Kg./Cmt. At 28 days, conducted in accordance with I.S. 516-1959. Preliminary test Min.	Work test Min.
M-1 50	200	150
M-200	260	200
M-250	320	250
M-300	380	300
M-350	440	350
M-400	500	400

In all cases, the 28 days compressive strength specified in above be the criteria for acceptance or rejection of the concrete. Where the strength of a concrete mix as indicated by tests, lies in between the strength of any two grades specified in the above table, such concrete shall be classified in for purpose as concrete belonging to the lower of the grades between which its strength lies.

3.0. Workmanship

3.1. The proportions for ingredients chosen shall be such that concrete has adequate workability for conditions prevailing on the work question and can be property compacted with means available except where ft can be shown to the satisfaction of the Engineer-in-charge, that supply of properly graded aggregate of uniform quality can be maintained till the completion of work, grading of aggregate shall be controlled by obtaining the coarse aggregates in different sizes and bending them in the right proportions as required. Aggregates of different sizes shall be stocked in separate stock piles. The required quantity of material shall be stock piled several hours, preferably a day before use. The grading of coarse and fine aggregate shall be checked as frequently as possible, the frequency for a given job being determined by Engineer-in-charge to ensure that the suppliers are maintaining the uniform grading as approved for samples used in the preliminary tests..

3.2. I n proportioning concrete, the quantity of both cement and aggregate shall be determined by weight. Where the weight of cement is determined by accepting the maker's weight per bag, a reasonable number of bags shall be weighted separately to check the net weight. Where cement is weighted form bulk stocks at site and not by bags, it shall be weighed separately from the aggregate. Water, shall either be measured by volume in calibrated tanks or weighed. All measuring equipment shall be maintained in clean, and serviceable condition. Their accuracy shall be periodically checked.

3.3. It is most important to keep the specified water cement ratio constant and at its correct value. To this end, moisture content in both fine and coarse aggregates shall be determined by the Engineer-in-charge according to the weather conditions. The amount of mixing water shall then be adjusted to compensate for variations in the moisture content. For the determination of moisture content in the aggregates. I.S. 2386 (Part-Ill) shall be referred to. Suitable adjustments shah also be made in the weights of aggregates due to variation in their moisture content. Minimum quantity of cement to be used in controlled concrete shall not be less than 220 kg./M-3 in plain concrete and not less than 250 kg/M-3 in reinforced concrete.

4.0. Mode of measurement & payment

4.1. The consolidated cubical contents of concrete work as specified in item shall be measured. No deduction shall be made for (a) Ends of dissimilar materials such as joints, beams, posts, girders, falters, purling trusses, corbels and steps etc., up to 500 Sq, Cm. in section.

4.2. The rate includes cost of all materials labour, tools and plant required for mixing, placing in position, vibrating and compacting, finishing, as directed, curing and all other incidental expenses for producing centre of specifiedstrength. The rate excludes the cost of form work.

4.3. The rate shall be for a unit of one Cubic Meter.

ITEM : Providing and laying controlled cement concrete M250exposed work with curing etc. complete including the cost of formwork but excluding the cost of reinforcement for R.C.C. work(A)Columns (B)Beams (C)Slabs (D)Lintels (E)Chhjja (F)Coping (G)Staircase Excluding Landing Up To Floor Two Level (H)Vertical And Horizontial Its Upto Floor Two Level (I) Coping

1.1**.** Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Grit shall conform to M-8 Course aggregate shall conform M-12.

2.0. General

2.1. The relevant specification of item No. 5.4.1. of ordinary concrete shall be followed except that the concrete mix shall be designed form preliminary tests. The proportioning of cement and aggregates shall be done by weight and necessary precautions shall be taken in the production to ensure that the required work cube strength is attained and maintained. The controlled concrete shall be in grades of M-100, M-150, M-200, M-250, M-300, M-350 & M-400 with prefix controlled added to it. The letter M refers to mix and the numbers specify 28 days works cube compressive strength of 150 mm. cubes of the mix expressed in Kg./Crnt.

2.2. The proportion of cement, sand and coarse aggregate shall be determined of weight. The weight batch machine shall be used for maintaining proper control over the proportion of aggregates as per mix design. The strength requirements of different grades of concrete shall be as under:

Grade Concrete	Compressive strength of 15 cms. cubes in Kg./Cmt. At 28 days, conducted in accordance with I.S. 516-1959. Preliminary test Min.	Work test Min.
M-1 50	200	150
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M-250	320	250
M-300	380	300
M-350	440	350
M-400	500	400

In all cases, the 28 days compressive strength specified in above be the criteria for acceptance or rejection of the concrete. Where the strength of a concrete mix as indicated by tests, lies in between the strength of any two grades specified in the above table, such concrete shall be classified in for purpose as concrete belonging to the lower of the grades between which its strength lies.

3.0. Workmanship

3.1. The proportions for ingredients chosen shall be such that concrete has adequate workability for conditions prevailing on the work question and can be property compacted with means available except where ft can be shown to the satisfaction of the Engineer-in-charge, that supply of properly graded aggregate of uniform quality can be maintained till the completion of work, grading of aggregate shall be controlled by obtaining the coarse aggregates in different sizes and bending them in the right proportions as required. Aggregates of different sizes shall be stocked in separate stock piles. The required quantity of material shall be stock piled several hours, preferably a day before use. The grading of coarse and fine aggregate shall be checked as frequently as possible, the frequency for a given job being determined by Engineer-in-charge to ensure that the suppliers are maintaining the uniform grading as approved for samples used in the preliminary tests..

3.2. In proportioning concrete, the quantity of both cement and aggregate shall be determined by weight. Where the weight of cement is determined by accepting the maker's weight per bag, a reasonable number of bags shall be weighted separately to check the net weight. Where cement is weighted form bulk stocks at site and not by bags, it shall be weighed separately from the aggregate. Water, shall either be measured by volume in calibrated tanks or weighed. All measuring equipment shall be maintained in clean, and serviceable condition. Their accuracy shall be periodically checked.

3.3. It is most important to keep the specified water cement ratio constant and at its correct value. To this end, moisture content in both fine and coarse aggregates shall be determined by the Engineer-in-charge according to the weather conditions. The amount of mixing water shall then be adjusted to compensate for variations in the moisture content. For the determination of moisture content in the aggregates. I.S. 2386 (Part-Ill) shall be referred to. Suitable adjustments shah also be made in the weights of aggregates due to variation in their moisture content. Minimum quantity of cement to be used in controlled concrete shall not be less than 220 kg./M-3 in plain concrete and not less than 250 kg/M-3 in reinforced concrete.

4.0. Mode of measurement & payment

4.1. The consolidated cubical contents of concrete work as specified in item shall be measured. No deduction shall be made for (a) Ends of dissimilar materials such as joints, beams, posts, girders, falters, purling trusses, corbels and steps etc., up to 500 Sq, Cm. in section.

4.2. The rate includes cost of all materials labour, tools and plant required for mixing, placing in position, vibrating and compacting, finishing, as directed, curing and all other incidental expenses for producing centre of specifiedstrength. The rate excludes the cost of form work.

4.3. The rate shall be for a unit of one Cubic Meter.

ITEM : Providing TMT Bar FE 500D reinforcement for R.C.C. work including bending, binding and placing in position complete up to floor two level.

1.0 Materials

1.1 Mild Steel bars shall conform to M-18. Mild steel binding wires shall conform to M-21.

2.0 Workmanship

2.1 The work shall consist of furnishing and-placing reinforcement to the shape and dimensions shown as on the drawings or as directed

2.2 Steel shall be clean and free from rust and loose mill scale at the lime of fixing in position and subsequent concreting.

2.3 Reinforcing steel shall conform accurate to the dimensions given in the bar bending schedules shown on relevant drawings. Bars shall be bent cold to specified shape and dimensions or as directed, using a proper bar bender, operated by hand of power to attain proper radius of bends. Bass shall not be bent or straightened in a manner that will injure the material. Bars bent during transport-or handling shall be straightened before being used on the work. They shall not be heated to facilitate bending Unless otherwise specified a "U" type hook at the end of each bar shall invariably be provided to main reinforcement. The radius of the bend shall not be less then twice the diameter of the round bar and the length of the straight part of the bar beyond the end of the curve shall be at least four times the diameter of the round bar. In case of bars which are not round and in case of deformed bars, the diameter shall be taken as the diameter of circle having an equivalent effective area. The hooks shall be suitably encased to prevent any splitting of the concrete.

2.4 All the reinforcement bars shall lie accurately placed m exact position shown on the drawings, and shall be securely held in position miring placing of concrete by annealed binding wire not less than 1 mm in size, and by using stay blocks or metal chair spacers, metal hangers supporting wires or other approved devices at sufficiently close intervals, Bars shall not be allowed to sag between supports nor displaced during concreting or any other operations of the work. All devices used for positioning shall be of non-corrodible material. Wooden and metal supports shall not extend to the surface of concrete, except where shown on drawings. Placing bars on layers of freshly laid concrete as the work progresses for adjusting bar spacing shall not be allowed Pieces of broken stone of brick and wooden blocks shall not be used Layers of bars shalll be separated by spacer bars, precast mortar blocks or other approved devices Reinforcement after being placed in position shall be maintained in a clean condition until completely embedded in concrete. Special care shall be exercised to prevent any displacement of reinforcement in concrete already placed. To prevent reinforcement form corrosion, concrete cover shall be provided as indicated on drawings. All the bars protruding from concrete and to which other bars are to be sliced and which are likely to be exposed for a period exceeding 10 days shall be protected by a thick coat of neat cement grout.

2.5 Bars crossing each other where required shall be secured by binding wire (annealed) of size not less than 1 mm. in such a manner that they do not slip over each other at the time of fixing and concreting.

2.6 As far possible, bars of full length shall be used. In case this is not possible. Over lapping of bars shall be done as directed When practicable, overlapping bars shall not touch each other, but be kept apart by 25 them. Where not feasible, overlapping bars shall be bound with annealed wires not less than 1 mm. thick twisted tight. The overlaps shall be staggered for different bars and located at points, along the span where neither shear non bending moment is maximum.

2.7 Whenever indicated on the drawings or desired by the Engineer-in-charge, bars shall be jointed by couplings which shall have a cross-section sufficient to transmit the full stresses of bars. The ends of the bars that are joined by coupling shall be upset for sufficient length so that the effective cross section at the base of threads is not less than the normal cross-section of the bar. Threads shall be standard threads Steel for coupling shall conform to I.S. 226.

2.8 When permitted or specified on the drawings, joints of reinforcement bars shall be welded so as to transmit their full stresses. Welded joints shall preferably be located at points when steel will not be subject to more

than 75 percent of the maximum permissible stresses and welds so staggered that at any one section not more than 20 percent of the rods are welded. Only electric are welding using a pieces which excludes air from the molten metal and conforms to any or all other special provisions for the work shall be accepted. Suitable means shall be provided for holding bars securely in position during welding. It shall be ensured that no voids are left in welding and when welding is done in tow or three stages, previous surface shall be cleaned properly. Ends of the bars shall be cleaned of ell loose scale, rust, stages, paint and other foreign matter before welding. Only competent welders shall be employed on the work. The M.S. electrodes used for welding shall conform to I.S.814. Welded pieces of reinforcement shall be tested. Specimen shall be taken from the actual site and their number and frequency of test shall be as directed.

3.0 Mode of Measurements & Payment

3.1 For the purpose of calculating consumption, wastage shall not be permitted beyond 5 percent Excess consumption over 5% will be charged at penal rate.

3.2 Reinforcement shall be measured in length including overlaps, separately for different diameters as actually used in the work. Where welding or coupling is resorted to in place lap joints, such joints shall be measured for payment as equivalent length of overlap as per design requirement. From the length so measured, the weight of reinforcement shall be calculated in tones on the same basis of as per M-18 even though steel is supplied to the contractor by the department on actual weight. Length shall include hooks at the ends Wastage and annealed steel wire for binding shall not be measured and the cost of these items shall be deemed to be included in the rate for reinforcement.

3.3 The rate for reinforcement includes cost of steel binding wires. its carting from Department store to work site, cutting, bending, placing, binding and fixing in position as shown on the drawings and as directed It shall also include all devices for keeping reinforcement in approved position, cost of joining as per approved method and all wastage and spacer bars.

3.4 The rate shall be for a unit of One Kg.

ITEM : Filling in foundation arid plinth with murrum or selected soil in layers of 20 cm. thickness including watering, ramming and consolidating etc., complete.

1.0. Materials

1.1. Murrum shall be clean, of good binding quality and of approved quality obtained from approved pots/ quarries Of disintegrated rocks which contain silicon material and natural mixture of clay of clarions origin. The size of murrum shall not be more than 20 mm.

2.0Workmanship

2.1. The earth to be used for filling shall be free from salts, organic or other foreign matter. All clods of earth shall be broken.

2.2. As soon as the work in foundation has been completed and measured the site of foundation shall be cleared of all debris, brick bats: mortar dropping etc., and filled with earth in layers not exceeding 20 cms. Each layer shall be adequately watered, rammed and consolidated before the succeeding layer is laid The earth shall be rammed with iron rammers where feasible and with the but ends of crow-bars, where rammer cannot be used.

2.3. The plinth shall be similarly filled with earth in layers not exceeding 20 cms. adequately watered and Consolidated by ramming with iron or wooden rammers. When filling reaches finished level the surface shall be flooded with water for at least 24 hours and allowed to dry and then rammed and consolidated.

2.4. The finished level of filling shall be kept to shape intended to be given to floor.

2.5. In case off large heavy duty flooring like factory flooring, the consolidation may be done by power rollers, where so specified. The extent of consolidation required, shall also be as specified.

2.6. The excavated stuff of the selected type shall be allowed to be used in filling the trenches and plinth. Under no circumstances black cotton soil be used for filling the plinth.

3.0. Mode of Measurements & Payment

3.1. The payment shall be made for filling in plinth and trenches. No deduction shall be made for shrinkage or voids, if consolidated as instructed above

3.2. The rate includes cost of collecting and carting murrum / or selected earth of approved quality with all lead and labour required for filling in trenches and plinth.

3.3. Rate shall be for a unit of one Cubic Meter.

ITEM : Brick work using common burnt clay building bricks having crushing strength not less than 35 kg./Sq.Cm. in foundation and plinth in Cement Mortar 1:6. (1- Cement : 6-fine sand)

1.0. **Materials**

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Brick shall conform to M-15. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. Proportion:

2.1.1. The proportion of the cement mortar shall be 1:5 (1 cement: 5 fine sand) by volume.

2.2. **Wetting of bricks:**

2.2.1. The bricks required for masonry shall be thoroughly wetted with clean water for about two hours before use or as directed. The cessation of bubbles, when the bricks are wetted with water is as indication of through wetting of bricks.

2.3. **Laying:**

2.3.1. Bricks shall be laid in English bond unless directed otherwise. Half or cut bricks shall not be used except when necessary to complete to bond; closures in such case shall be cut to required size and used near the ends of walls.

2.3.2. A layer of mortar shall be spread on full width for suitable length of the lower course. Each brick shall first be property bedded and set home by gently tapping with handle of trowel or wooden mallet. Its inside face shall be flushed with mortar before the next brick is laid and pressed against it. On completion of course, the vertical joints shall be fully filled from the top with mortar.

2.3.3. The walls shall be taken up truly in plumb. All courses shall be laid truly horizontal and all vertical joint shall be truly vertical. Vertical joints in alternate course shall generally be directly one over the other. The thickness of brick course shall be kept uniform.

2.3.4. The brick shall be laid with frog up wards. A set of tools comprising of wooden straight edges, man son's spirit level, square half meter rub, and pins, string and plumb shall be kept on the site of work for frequent checking during the progress of work.

2.3.5. Both the faces of walls of thickness greater than 23 cms. shall be kept in proper place. All the connected brick work shall be kept not more than one meter over the rest of the work. Where this is not possible, the work shall be raked back according to bond (and not left toothed) at an angle not steeper than 45 degrees.

2.3.6. All futures, pipes, outlets of water, hold fasts of doors and windows etc. which are required to be built in wall shall be embedded in cement mortar

2.4. **Joints:**

2.4.1. Bricks shall be so laid that all joints are quite flush with mortar. Thickness of joints shall not exposed 12 mm. The face joints shall be raked out as directed by raking tools daily during the progress of work, when the mortar is still green so as to provide key for plaster or pointing to done.

2.4.2. The face of brick shall be cleaned the very day on which the work is laid and all mortar dropping removed.

2.5. **Curing:**

2.5.1. Green work shall be protected from rain suitably. Masonry work shall be kept moist on all the faces for a period of seven days. The top of masonry work shall be kept well wetted at the close of the day.

2.6. **Preparation of foundation bed:**

2.6.1. If the foundation is to be laid directly on the excavated bed, the shall be leveled, cleared of all loose materials, cleaned and wetted before stating masonry, If masonry is to be laid on concrete footing, the top of concrete shall be cleaned and moistened. The contractor shall obtain the engineer's approval for the foundation bed before foundation masonry is started. When pucca flooring is to be provided flush with the top to plinth, the inside plinth offset shall be kept lower than the outside plinth top by the thickness of the flooring.

3.0. Mode measurements & payment

3.1. The measurements of this item shall be taken for the brick masonry fully completed in foundation up to plinth. The limiting dimensions not exceeding those shown on the plinths or as directed shall be final. Battered tapered and curved portions shall be measured net.

3.2. No deduction shall be made from the quantity of brick work, for any extra payment made for embedding in masonry or making holes in respect of following items:

(1) Ends of joists, beams, posts, girders, purlins, trusses, corbel, steps etc. where cross sectional area does not exceed 500 Sq.Cm. 51

(2) Openings not exceeding 1000 Sq.Cm.

(3) Wall plates and bed plates, bearing of slabs, chajjas and the like whose thickness does not exceed 10 Cms. and the bearing does not extend to the full thickness of wall.

(4) Drainage holes, and recesses for cement concrete blocks to embed hold fasts for doors, windows etc.

(5) Iron fixtures, pipes up to 300 mm. dia hold fasts, and doors and windows built into masonry and pipes etc. for concealed wiring.

(6) Forming chases of section not exceeding 350 -Sq. Cm. in masonry.

3.3. Apertures for fire places shall not be deducted nor shall be paid for separately.

3.4. The rate shall be for a unit of one Cubic Meter.

ITEM : Providing & Applying 20mm.Th. Heavy Roller plaster on walls or similar surfaces at all floor levels consisting of 12 mm av. Th. Backing coat of C.M. 1:3 (1 cement:3 sand : racron 3s (0.5 nos per bag)) also plaster master waterproofing chemical 100 ml /bags as per company manual or 75ml/ bag as per mandatories mandatory & approved by E.I.C or consultant & 8 mm. th. Finishing coat of C.M. 1:1 (1 cement: 1 sand) apply thick cement slurry and apply roller horizontal as well as vertical (two times) up to good quality and size of grain in elevation as per directed by engineer in charge.

1.1.0 **Materials**

Water shall conform to M-1. The cement mortar of proportion 1:3 shall conform to M-11.

2.2.0 **Workmanship**

2.2.1 Scaffolding - Wooden ballies, bamboos, planks, treatles and other scaffolding shall be sound. These shall be properly examined before erection and use. Stage scaffolding shall be provided for ceiling plaster which shall be independent of the walls.

2.2.2 Preparation of Background - The surface shall be cleaned of all dust, loose mortar droppings, traces of algae, afflorsence and other foreign matter by water or by brushing. Smooth surface be roughened by wire brushing if it is not hard and hacking if it is hard. In case of con¬crete surface, if a chemical retarder has been applied to the form work, the surface shall be roughened by wire brush¬ing and all the resulting dust and loose particles cleaned off and care shall be taken that none of the retarders is left on the surface. Trimming of projections on brick/concrete surfaces where necessary shall be carried out to get an even surface.

Raking of joints in case of masonary work where necessary, shall be allowed to dry out for sufficient period before carrying out the plaster work.

The work shall not be soaked but only damped evenly before applying the plaster. If the surface becomes dry, such areas shall be moistened again.

For external plaster, the plastering operation shall be started from top floor and carried downwards. For internal plaster, the plastering operations may be started wherever the building frame and cladding work are ready and the temporary supports of the ceiling resting on the wall of the floor have been removed. Ceiling plaster shall be completed before starting plaster to walls.

2.2.3 **Application Of Plaster**

The plaster about 15 x 15 Cms. shall be first applied horizontally and vertically at not more than 2 metres intervals over the entire surface to serve as gauge. The surface gauges shall be truly in place of the finished plastered surface. The mortar shall then be applied in uniform surface slightly more than the specified thickness then brought to a true surface by working a wooden straight edge reaching across the gauges with small upward and sideways movements at a time. Finally, the surface shall be finished off true with a trowel of wooden flat according as a smooth or a sandy granular texture is required. Excessive trowelling or overworking the float shall be avoided. All corners, arises, angles and junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Rounding or chamfering, corners, junctions etc.shall be carried out with proper templates to the size required.

Cement plaster shall be used within half an hour after addition of water. Any mortar or plaster which is partially set shall be rejected and removed forthwith from the site. In suspending the work at the end of the day, the plaster shall be left out clean to the line both horizontally and vertical¬ly. When recommending the plaster,

the edges of the old work shall be scrapped clean and wetted with cement putty before plaster is applied to the adjacent areas to enable the two to properly join together. Plastering work shall be closed at the end of the day on the body of the wall and nearer that 15 cms. to any corners or arises. It shall not be closed on the body of features such as plaster bands and cornices not at the corners or arrises. Horizontal points in plaster work shall not also occur on parapet tops and copings as those invariably lead to leakage. No portion of the surface shall be left out initially to be packed up later on.

Each coat shall be kept damp continuously till the next coat is applied for a minimum period of 7 days. Moistening shall commence as soon as plaster is hardened sufficiently. Soaking or walls shall be avoided and only as much water as can be readily absorbed shall be used, excessive evaporation on the sunny or windward side of building in hot air to dry weather shall be prevented by hanging mattings or gunny bags on the outside of the plaster and keeping them wet.

3.3.0 **Mode Of Measurements & Payment**

3.3.1 The rate shall include the cost of all materials, labour and scaffolding etc. involved in the operations described under workmanship.

3.3.2 All plastering shall be measured in square metres unless otherwise specified. Length, breadth or height shall be measured correct to a cenimetre.

3.3.3 Thickness of the plaster shall be exclusive of the thickness of the key i.e. grooves or open joints in brick work, stone work etc. or space between laths. Thickness of plaster shall be average thickness with minimum 10 mm. at any point on this surface.

3.3.4 This item includes plastering upto floor two level.

3.3.5 The measurement of wall plastering shall be taken between the walls or partition (dimensions before plastering being taken) for length and from the top of floor or skirting to ceiling for height. Depth of cover of conrnices if any, shall be deducted.

3.3.6 Soffits of stairs shall be measured as plastering on ceilings. Blowing soffits shall be measured separately.

3.3.7 For jambs, soffits, sills etc. for openings not exceeding 0.5 Sq.Mts. each in area for ends of joints, beams, posts, girders, step etc. not exceeding 0.5 Sq.Mts. each in area for and for openings exceeding 0.5 Sq.Mts. and not exceeding 3 Sq.Mts. in each area deductions and additions shall be made in the following manner ---

a]No deductions shall be made for ends of joints, beams, posts etc. and openings not exceeding 0.5 Sq.Mts. each and no addition shall be made for reveals, jambs, soffits, sills etc. of these openings for finish to plaster around ends of joints, beams, posts etc.

b]Deduction for openings exceeding 0.5 Sq.Mts. but not exceeding 3 Sq.Mts. each shall be made as follows and no additions shall be made for reveals, jambs, soffits sills etc. of these openings --

i]When both faces of all wall are plastered with same plaster, deduction shall be made for one face only.

ii]When two faces of wall are plastered with different types of plaster or if one face is plastered and the other pointed, deductions shall be made from the plaster or pointing on the side of frame for doors, windows etc. on which width of reveals is less than that on the other side but no deduction shall be made on the other side. Where width of reveals on both faces of all are equal, deductions of 50% of area of opening on each face shall be made from areas of plaster and/or pointing as the case may be.

3.3.8 For openings having door frames equal to projecting beyond the thickness of wall, full deductions for opening shall be made from each plastered face of the wall.

3.3.9 In case of opening of area above 3 Sq.Mts. each deductions shall be made for opening but jambs, soffits and sills shall be measured.

3.3.10 The rate shall be for a unit of one Sq. Meter.

ITEM : Providing and laying cement concrete 1:4:8 (1- Cement : 4- coarse sand : 8- hand broken stone aggregates 40mm nominal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth.

1.0. Materials

1.1. Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6 stone aggregate 40 mm. nominal size shall conform to M-12.

2.0. Workmanship

2.1. General

2.1.1. Before stating concrete the bed of foundation trenches shall be cleared of all loose materials, leveled, watered

and rammed as directed

2.2. Proportion of Mix:

2.2.1. The proportion of cement, sand and coarse aggregate shall be one part of cement. 3 parts of sand and 6 parts of stone aggregates and shall be measured by volume.

2.3. Mixing:

2.3.1. The concrete shall be mixed in a mechanical mixer at the site of work. Hand mixing may however be allowed for smaller quantity of work if approved by the Engineer-in-charge. When hand mixing is permitted by the Engineer-in-charge in case "of break-down of machineries and in the interest of the work, it shall be carried out on a water tight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency, However in such case 10% more cement than otherwise period 1 1/2 to 2 minutes. The quantity of water shall be just sufficient to produce a dense concrete of required workability for the purpose.

2.4. Transporting & Placing the Concrete:

2.4.1. The concrete shall be handed from the place, of mixing to the final position in not more than 15 minutes by the method as directed and shall be placed into its final-position, compacted and finished within 30 minutes of mixing with water i.e. before the setting commences.

2.4.2. The concrete shall be laid in layers of 15 cms. to 20 cms.

2.5.1. The concrete shall be rammed with heavy iron rammers and rapidly to get the required compaction and to allow ail the interstices to be filled with mortar.

2.6. Curing:

2.6.1. After the final set, the concrete-shall be kept continuously wet if required by pounding for a period of not less then 7 days form the date of placement.

3.0. Mode of measurement and payment

3.1. The concrete shall be measured for its length, breadth and depth, limiting dimensions to those specified on plans or as directed

3.2. The rate shall be for a unit of one Cubic Meter

ITEM : Providing and laying controlled cement concrete M-200 and curing complete, excluding the cost of form work and reinforcement for reinforced concrete work in : (A) Stair cases up to floor two level (B) Vertical and horizontal fins up to floor two level

1.0. Materials & Workmanship

The relevant specifications of item No. 4. Shall be followed except that the grading of concrete shall be controlled concrete M-200 grades for works 35 specified in item.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No, 4.0 shall be followed.

2.2. The rate shall be for one Cubic Meter.

ITEM : Demolition of brick work and stone masonry including stacking of serviceable materials and disposal of unserviceable materials with all leads and lift : in cement mortar.

1.0. Workmanship

1.1. The demolition shall consist of demolition of one or more parts of the building as specified or shown in the drawings. Demolition implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown in the drawings.

1.2. The demolition shall always be planned beforehand shall be done in reverse order to the one in which the structure was constructed. This scheme shall be got approved form the Engineer-in-charge before starting the work. This however will not absolve the contractor from the responsibility of proper and safe demolition.

1.3. Necessary propping, shoring and under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining property.

1.4. Wherever required, temporary enclosures or partitions shall also be provided. Necessary precautions shall be taken to keep the dust nuisance down as and where necessary.

1.5. Dismantling shall be commenced in a systematic manner. All materials which are likely to be damaged by

dropping from a height or demolishing roof, masonry etc. shall be carefully dismantled first. The dismantled articles shall be properly stacked as directed.

1.6. All materials obtained from demolition shall be the property of Government unless otherwise specified and shall bee kept in safe custody until handed over to the Engineer-in-charge.

1.7. Any serviceable materials, obtained during dismantling or demolition shall be separated out and stacked properly as directed with all lead and lift. All unserviceable materials, rubbish etc., shall be stacked as directed' by the Engineer-m-charge.

1.8. On completion of work, the site shall be cleared of all debris rubbish and cleaned as directed.

2.0. Mode measurements and payment

2.1. Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as that employed for construction of work,

2.2. All work shall be measured in decimal system as fixed in its place subject to the following limits; unless otherwise stated hereinafter : (a) Dimensions shall be measured to the nearest 0.01 mt. (b) Area shall be worked out to the nearest 0.01 sq. mt.(c) Cubical contents shall be worked out to the nearest 0.01 Cu.m.

2.3. The rate shall include cost of all labour involved and tools used in demolishing and dismantling including scaffolding. The rate shall also include the charges for separating out and stacking the serviceable materials properly and disposing the unserviceable materials with all lead and lift. The rate also includes for temporary shoring for the safety of the portion not required to be pulled down or of adjoining property arid providing temporary enclosures or portions where considered necessary.

2.6. The rate shall be for a unit of one Cubic Meter.

ITEM : Removing and scraping of old deteriorated plaster of any thickness from wall / R.C.C member including stacking of serviceable material and disposal of unserviceable from site of work with all lead and lift

1.0 Workmanship

1.1 The demolition shall consist of demolition of one or more parts of the building as specified or shown in the drawings. Demolition implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown in the drawings.

1.2 The demolition shall always be planned before hand shall be done in reverse order to the one in which the structure was constructed. This scheme shall be got approved form the Engineer-in-charge before starting the work.This however will not absolve the contractor from the responsibility of proper and safe demolition.

1.3 Necessary propping, shoring and under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining property.

1.4 Wherever required, temporary enclosures or partitions shall also be provided. Necessary precautions shall be taken to keep the dust nuisance down as and where necessary.

1.5 Dismantling shall be commenced in a systematic manner. All materials which are likely to be damaged by dropping from a height or demolishing roof, masonry etc. shall be carefully dismantled first. The dismantled articles shall be properly stacked as directed.

1.6 All materials obtained from demolition shall be the property of Government unless otherwise specified and shall bee kept in safe custody until handed over to the Engineer-in-charge.

1.7 Any serviceable materials, obtained during dismantling or demolition shall be separated out and stackedproperly as directed with all lead and lift. All unserviceable materials, rubbish etc., shall be stacked as directed by the Engineer-in-charge.

1.8 On completion of work, the site shall be cleared of all debris rubbish and cleaned as directed.

2.0 Mode of measurements and payment

2.1 Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as that employed for construction of

work,

2.2 All work shall be measured in decimal system as fixed in its place subject to the following limits; unlessotherwise stated hereinafter : (a) Dimensions shall be measured to the nearest 0.01 mt. (b) Area shall be worked outto the nearest 0.01 sq. mt.(c) Cubical contents shall be worked out to the nearest 0.01 Cu.m.

2.3 The rate shall include cost of all labour involved and tools used in demolishing and dismantling including scaffolding. The rate shall also include the charges for separating out and stacking the serviceable materials properly and disposing the unserviceable materials with all lead and lift. The rate also includes for temporary shoring for the safety of the portion not required to be pulled down or of adjoining property arid providing temporary enclosures or portions where considered necessary.

2.4 The rate shall be for a unit of one Cubic Meter.

ITEM : Demolition including stacking of serviceable materilasand disposal of unserviceable materials with all lead and lift. (i) R.C.C. work

In general the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D/ GWSSB. , relevant drawings and as per the instructions of Engineer in Charge. Work shall be carried out as per item description.

1.0 Workmanship

1.1 The demolition shall consist of demolition of one or more parts of the building as specified or shown in the drawings. Demolition implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown in the drawings.

1.2 The demolition shall always be planned before hand shall be done in reverse order to the one in which the structure was constructed. This scheme shall be got approved form the Engineer-in-charge before starting the work.This however will not absolve the contractor from the responsibility of proper and safe demolition.

1.3 Necessary propping, shoring and under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining property.

1.4 Wherever required, temporary enclosures or partitions shall also be provided. Necessary precautions shall betaken to keep the dust nuisance down as and where necessary.

1.5 Dismantling shall be commenced in a systematic manner. All materials which are likely to be damaged by dropping from a height or demolishing roof, masonry etc. shall be carefully dismantled first. The dismantled articles shall be properly stacked as directed.

1.6 All materials obtained from demolition shall be the property of Government unless otherwise specified and shall bee kept in safe custody until handed over to the Engineer-in-charge.

1.7 Any serviceable materials, obtained during dismantling or demolition shall be separated out and stackedproperly as directed with all lead and lift. All unserviceable materials, rubbish etc., shall be stacked as directed by the Engineer-in-charge.

1.8 On completion of work, the site shall be cleared of all debris rubbish and cleaned as directed.

2.0 Mode of measurements and payment

2.1 Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as that employed for construction of work,

2.2 All work shall be measured in decimal system as fixed in its place subject to the following limits; unless otherwise stated hereinafter : (a) Dimensions shall be measured to the nearest 0.01 mt. (b) Area shall be worked outto the nearest 0.01 sq. mt.(c) Cubical contents shall be worked out to the nearest 0.01 Cu.m.

2.3 The rate shall include cost of all labour involved and tools used in demolishing and dismantling including scaffolding. The rate shall also include the charges for separating out and stacking the serviceable materials properly and disposing the unserviceable materials with all lead and lift. The rate also includes for temporary shoring for the safety of the portion not required to be pulled down or of adjoining property arid providing temporary enclosures or portions where considered necessary.

2.4 The rate shall be for a unit of one Cubic Meter.

ITEM : Demolition of terrace including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift.'

1.0 Workmanship

1.1 The demolition shall consist of demolition of one or more parts of the building as specified or shown in the drawings. Demolition implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown in the drawings.

1.2 The demolition shall always be planned before hand shall be done in reverse order to the one in which the structure was constructed. This scheme shall be got approved form the Engineer-in-charge before starting the work.This however will not absolve the contractor from the responsibility of proper and safe demolition.

1.3 Necessary propping, shoring and under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining property.

1.4 Wherever required, temporary enclosures or partitions shall also be provided. Necessary precautions shall betaken to keep the dust nuisance down as and where necessary.

1.5 Dismantling shall be commenced in a systematic manner. All materials which are likely to be damaged by dropping from a height or demolishing roof, masonry etc. shall be carefully dismantled first. The dismantled articles shall be properly stacked as directed.

1.6 All materials obtained from demolition shall be the property of Government unless otherwise specified and shall bee kept in safe custody until handed over to the Engineer-in-charge.

1.7 Any serviceable materials, obtained during dismantling or demolition shall be separated out and stackedproperly as directed with all lead and lift. All unserviceable materials, rubbish etc., shall be stacked as directed by the Engineer-in-charge.

1.8 On completion of work, the site shall be cleared of all debris rubbish and cleaned as directed.

2.0 Mode of measurements and payment

2.1 Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as that employed for construction of work,

2.2 All work shall be measured in decimal system as fixed in its place subject to the following limits; unlessotherwise stated hereinafter : (a) Dimensions shall be measured to the nearest 0.01 mt. (b) Area shall be worked outto the nearest 0.01 sq. mt.(c) Cubical contents shall be worked out to the nearest 0.01 Cu.m.

2.3 The rate shall include cost of all labour involved and tools used in demolishing and dismantling including scaffolding. The rate shall also include the charges for separating out and stacking the serviceable materials properly and disposing the unserviceable materials with all lead and lift. The rate also includes for temporary shoring for the safety of the portion not required to be pulled down or of adjoining property arid providing temporary enclosures or portions where considered necessary.

2.4 The rate shall be for a unit of one Cubic Meter.

ITEM : Dismantling C.I. Pipes, G.S.W. Pipes and A.C. rain water pipes with fittings and clamps, including stacking the materials with all lead and lift, (for any dia. of pipe).

In general the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D / GWSSB / R&B / MoRT&H, relevant drawings and as per the instructions of Engineer-in-Charge. Work shall be carried out as per item description.

1.0 Workmanship

1.1. The demolition shall consist of demolition of one or more parts of the building as specified or shown in the drawings. Demolition implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown in the drawings.

1.2. The demolition shall always be planned before hand shall be done in reverse order to the one in which the

structure was constructed. This scheme shall be got approved form the Engineer-in-charge before starting the work.This however will not absolve the contractor from the responsibility of proper and safe demolition.

1.3. Necessary propping, shoring and under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining property.

1.4. Wherever required, temporary enclosures or partitions shall also be provided. Necessary precautions shall be taken to keep the dust nuisance down as and where necessary.

1.5. Dismantling shall be commenced in a systematic manner. All materials which are likely to be damaged by dropping from a height or demolishing roof, masonry etc. shall be carefully dismantled first. The dismantled articles shall be properly stacked as directed.

1.6. All materials obtained from demolition shall be the property of Government unless otherwise specified and shall bee kept in safe custody until handed over to the Engineer-in-charge.

1.7. Any serviceable materials, obtained during dismantling or demolition shall be separated out and stacked properly as directed with all lead and lift. All unserviceable materials, rubbish etc., shall be stacked as directed' by the Engineer-m-charge.

1.8. On completion of work, the site shall be cleared of all debris rubbish and cleaned as directed

2.0. Mode of measurements and payment

2.1. Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as that employed for construction of work.

2.2. Water pipe lines, including rain water pipes, with clamps and specials, swear pipe lines, (Salt glazed ware or concrete) etc. shall be measured in running meter inclusive of joints. (The measurements shall be taken along the centre line of pipe and fittings).

2.3. The rate shall be for a unit of One running meter.

ITEM : Dismantling of sheet roofing including ridges, hips, valleys, gutters etc. staking of serviceable materials and disposal of unserviceable materials with all lead and lift. (i) G.I sheet roofing

Workmanship

1.1. The demolition shall consist of demolition of one or more parts of the building as specified or shown in the drawings. Demolition implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown in the drawings.

1.2. The demolition shall always be planned before hand shall be done in reverse order to the one in which the structure was constructed. This scheme shall be got approved form the Engineer-in-charge before starting the work. This however will not absolve the contractor from the responsibility of proper and safe demolition.

1.3. Necessary propping, shoring and under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining property.

1.4. Wherever required, temporary enclosures or partitions shall also be provided. Necessary precautions shall be taken to keep the dust nuisance down as and where necessary.

1.5. Dismantling shall be commenced in a systematic manner. All materials which are likely to be damaged by dropping from a height or demolishing roof, masonry etc. shall be carefully dismantled first. The dismantled articles shall be properly stacked as directed.

1.6. All materials obtained from demolition shall be the property of Government unless otherwise specified and shall bee kept in safe custody until handed over to the Engineer-in-charge.

1.7. Any serviceable materials, obtained during dismantling or demolition shall be separated out and stacked properly as directed with all lead and lift. All unserviceable materials, rubbish etc., shall be stacked as directed' by the Engineer-m-charge.

1.8. On completion of work, the site shall be cleared of all debris rubbish and cleaned as directed.

2.0. Mode of measurements and payment

2.1. Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as that employed for construction of

work,

2.2. All work shall be measured in decimal system as fixed in its place subject to the following limits; unless otherwise stated hereinafter : (a) Dimensions shall be measured to the nearest 0.01 mt. (b) Area shall be worked out to the nearest 0.01 sq. mt.(c) Cubical contents shall be worked out to the nearest 0.01 Cu.m.

2.3. The rate shall include cost of all labour involved and tools used in demolishing and dismantling including scaffolding. The rate shall also include the charges for separating out and stacking the serviceable materials properly and disposing the unserviceable materials with all lead and lift. The rate also includes for temporary shoring for the safety of the portion not required to be pulled down or of adjoining property arid providing temporary enclosures or portions where considered necessary.

2.4. The rate shall be for a unit of one Sq. Meter

ITEM : Dismantling doors, windows, ventilators etc. (wood or steel) shutters including chowkhats, Architraves, hold fasts and other attachments etc. complete and stacking them within all leads & lift. (ii) Not exceeding 3 Sq.M in area

In general the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D / GWSSB / R&B / MoRT&H, relevant drawings and as per the instructions of Engineer-in-Charge. Work shall be carried out as per item description.

Workmanship

1.1. The demolition shall consist of demolition of one or more parts of the building as specified or shown in the drawings. Demolition implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown in the drawings.

1.2. The demolition shall always be planned before hand shall be done in reverse order to the one in which the structure was constructed. This scheme shall be got approved form the Engineer-in-charge before starting the work. This however will not absolve the contractor from the responsibility of proper and safe demolition.

1.3. Necessary propping, shoring and under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining property.

1.4. Wherever required, temporary enclosures or partitions shall also be provided. Necessary precautions shall be taken to keep the dust nuisance down as and where necessary.

1.5. Dismantling shall be commenced in a systematic manner. All materials which are likely to be damaged by dropping from a height or demolishing roof, masonry etc. shall be carefully dismantled first. The dismantled articles shall be properly stacked as directed.

1.6. All materials obtained from demolition shall be the property of Government unless otherwise specified and shall bee kept in safe custody until handed over to the Engineer-in-charge.

1.7. Any serviceable materials, obtained during dismantling or demolition shall be separated out and stacked properly as directed with all lead and lift. All unserviceable materials, rubbish etc., shall be stacked as directed' by the Engineer-m-charge.

1.8. On completion of work, the site shall be cleared of all debris rubbish and cleaned as directed.

2.0. Mode of measurements and payment

2.1. Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as that employed for construction of work,

2.2. All work shall be measured in decimal system as fixed in its place subject to the following limits; unless otherwise stated hereinafter : (a) Dimensions shall be measured to the nearest 0.01 mt. (b) Area shall be worked out to the nearest 0.01 sq. mt.(c) Cubical contents shall be worked out to the nearest 0.01 Cu.m.

2.3. The rate shall include cost of all labour involved and tools used in demolishing and dismantling including scaffolding. The rate shall also include the charges for separating out and stacking the serviceable materials properly and disposing the unserviceable materials with all lead and lift. The rate also includes for temporary shoring for the safety of the portion not required to be pulled down or of adjoining property arid providing temporary enclosures or portions where considered necessary.

2.4. The rate shall be for a unit of one Cubic Meter.

ITEM : Dismantling of Tiles floors laid in mortar including stacking of serviceable material and disposal of unserviceable material with all lead and lift

1.0. Workmanship

1.1. The demolition shall consist of demolition of one or more parts of the building as specified or shown in the drawings. Demolition implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown in the drawings.

1.2. The demolition shall always be planned before hand shall be done in reverse order to the one in which the structure was constructed. This scheme shall be got approved form the Engineer-in-charge before starting the work. This however will not absolve the contractor from the responsibility of proper and safe demolition.

1.3. Necessary propping, shoring and under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining property.

1.4. Wherever required, temporary enclosures or partitions shall also be provided. Necessary precautions shall be taken to keep the dust nuisance down as and where necessary.

1.5. Dismantling shall be commenced in a systematic manner. All materials which are likely to be damaged by dropping from a height or demolishing roof, masonry etc. shall be carefully dismantled first. The dismantled articles shall be properly stacked as directed.

1.6. All materials obtained from demolition shall be the property of Government unless otherwise specified and shall bee kept in safe custody until handed over to the Engineer-in-charge.

1.7. Any serviceable materials, obtained during dismantling or demolition shall be separated out and stacked properly as directed with all lead and lift. All unserviceable materials, rubbish etc., shall be stacked as directed' by the Engineer-m-charge.

1.8. On completion of work, the site shall be cleared of all debris rubbish and cleaned as directed.

2.0. Mode of measurements and payment

2.1. Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as that employed for construction of work,

2.2. All work shall be measured in decimal system as fixed in its place subject to the following limits; unless otherwise stated hereinafter : (a) Dimensions shall be measured to the nearest 0.01 mt. (b) Area shall be worked out to the nearest 0.01 sq. mt.(c) Cubical contents shall be worked out to the nearest 0.01 Cu.m.

2.3. The rate shall include cost of all labour involved and tools used in demolishing and dismantling including scaffolding. The rate shall also include the charges for separating out and stacking the serviceable materials properly and disposing the unserviceable materials with all lead and lift. The rate also includes for temporary shoring for the safety of the portion not required to be pulled down or of adjoining property arid providing temporary enclosures or portions where considered necessary.

2.4. The rate shall be for a unit of one Sq. Meter.

ITEM : Providing Cement Concrete work 50% - M30-(design mix) and 50% micro concrete plus recron - 3s (12mm long polyester fiber) plus appropriate dose of super plasticizer with curing, finishing smooth, etc. complete for jacketing of structural members at all floor levels, lead, lift, including breaking, chipping, dismentling existing loose cover concrete and exposing respective existing reinforcement as directed by the engineer-in-charge, applying wirebrush or mechnical clean with brush for making surfaces of steel and concrete free from rust and other loose materials, applying rust removing chemical on existing reinforcement, applying after 6 hours anti-corrosive coating on existing reinforcement, applying epoxy binding treatment and bonding agent on existing concrete surfaces as directed by the Engineer-in-charge, etc. complete. The make and quality of rust removing chemical, anti-corrossive coating, polymer / epoxy bonding agent shall be approved by engineer-in-charge. The procedure for application shall be strictly in accordance with manufacturer's detail specification, which shall be submitted before start of work and shall be approved by the Engineer-in-charge. The rates shall include the cost of providing, erecting and maintaining leakproof shuttering /formwork /scaffolding, etc. to be used for concreting, providing and erecting props, temporary frame work and maintain them in position for required time, to existing load bearing elemnts for reliving loads coming on to structural members being

repaired/strengthened but excludes the cost of reinforcement. The rate shall also include required breaking of adjoining RCC structural elements like slab, beam, etc. and reinstating the same in original shape and size by using above mentioned procedure and material, If required all loose cover concrete shall be removed as directed by the engineer-in-charge. Any other work which may get disturbed due to above mentioned procedure shall be repaired and reinstated to original condition to the complete satisfaction of the Engineer-in-charge and NO claim for extra payment for the same shall be entertained.

1.0. Mode of measurements and payment

1.2. The rate shall be for a unit of one Cubic Meter.

ITEM : Providing Cement Concrete work 75% - M30-(1:1:2) by weight mix and 25% micro concrete by weight plus recron - 3s or equivalent (12mm long polyester fiber) plus appropriate dose of super plasticizer (as per manufacturers spacification and approved by consultant) with curing, finishing smooth, etc. complete for jacketing of structural members at all floor levels, lead, lift, including breaking, chipping, dismentling existing loose cover concrete and exposing respective existing reinforcement as directed by the engineer-in-charge, applying wirebrush or mechnical clean with brush for making surfaces of steel and concrete free from rust and other loose materials, Providing and Applying a rust removing, chloride and sulphate free non-alkaline, inorganic nano film forming surface passivating solution conforming to IS 9077 Rust remover & passivater of approved brand by brush or cotton swab to the existing reinforcement bars. Chemical should react with corrosion products to convert them to a stable passivating nanos-film on the surface of the steel and return the steel back to its original greyish white colour and special surface acting chemicals help in promoting the adhesion of consequent coatings to the steel surface. Further the coating should be nosn-alkaline so as to remove any water soluble salts especially corrosion inducing chlorides and the formation of the passivating film prevents flash rusting between the rust removal and the primer application. Cleaning the surface after 24 hrs of chemical application, to remove detached rust deposits. Ensure that the steel surface is rust free., Providing and applying Rust preventing anticorrosive coating (As per manufacturer specification) over steel free from rust. Apply this slurry over steel and allow it to cure for at least 6 hours. Similarly Applying second coat of Rust preventing anticorrosive coating over steel and allow it to cure, Applying bonding coat of approved make to the entire damaged surface on existing concrete surfaces as directed by the Engineer-in-charge, etc. complete. The procedure for application shall be strictly in accordance with manufacturer's detail specification, which shall be submitted before start of work and shall be approved by the Engineer-in-charge.

The rates shall include the cost of providing, erecting and maintaining leakproof shuttering /formwork /scaffolding, etc. to be used for concreting, providing and erecting props, temporary frame work and maintain them in position for required time, to existing load bearing elemnts for reliving loads coming on to structural members being repaired/strengthened but excludes the cost of reinforcement, Shear connector and plaster as directed by the Engineer-in-charge, etc. complete.

If required all loose cover concrete shall be removed as directed by the engineer-in-charge. Any other work which may get disturbed due to above mentioned procedure shall be repaired and reinstated to original condition to the complete satisfaction of the Engineer-in-charge and NO claim for extra payment for the same shall be entertained. FOR 1 C.M.t.

1.0. Mode of measurements and payment

1.2. The rate shall be for a unit of one Cubic Meter.

ITEM : Fixing clerestory window chowkhats in existing openings including cutting masonry for hold fasts, embedding hold fasts in cement concrete blocks with cement concrete 1 : 3 : 6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm single size), painting two coats of coal tar to sides of chowkhats and making good the damge to walls complete including disposal of rubbish to the dumping ground within 50 m lead.

1.0. Mode of measurements and payment

1.2. The rate shall be for a unit of one NOS.

ITEM : Providing and applying cement mortar (1:3) modified by using polymer and expanding grout additives at various thickness for repair/strengthening of various RCC elements at all floor levels, lead, lift, including breaking, chipping, dismentling existing cover concrete and exposing existing reinforcement, applying wirebrush for making surfaces of steel and concrete free from rust and other loose materials, applying rust removing chemical on existing reinforcement, applying anti-corrosive coating on existing reinforcement, applying polymer bonding agent on existing concrete surfaces before applying polymer modified mortar in specified thickness as directed by the Engineer-in-charge. The rates shall also include providing and applying 12 mm thick cement mortar (1:4) modified with plasticizer for finishing smooth the repaired surfaces, providing and applying curing agent on the repaired surfaces, etc. complete as directed by the Engineer-in-charge. The make and quality of rust removing chemical, anti-corrossive coating, polymer bonding agent, polymer and expanding grout additives, plasticizer, curing agent, etc. shall be approved by engineer-in-charge. The procedure for application shall be strictly in accordance with manufacturer's detail specification, which shall be submitted before start of work and shall be approved by the Engineer-in-charge. The rates shall include the cost of providing, erecting and maintaining leakproof shuttering /formwork /scaffolding, etc. to be used for the purpose, providing and erecting props, temporary frame work and maintain them in position for required time, to existing load bearing elemnts for reliving loads coming on to structural members being repaired/strengthened but excludes the cost of reinforcement. The rates shall include the cost of providing, erecting formwork with drainage outlet for presocking and air venting. The formwork shall be such that it provides suitable excess points to pour or pump the mixed micro fluid concrete in place. The cost shall also include providing and erecting props, temporary frame work and maintain them in position for required time, to existing load bearing elements for relieving loads coming on to structural members being repaired/strengthened but excludes the cost of reinforcement. chemical use BASF, Sunanda, Fosroc, Pidilite etc as per Approved by engineer incharge

Notes-: Ready made chemical used only as per approved brand & confrimed with consultant only

1.0. Mode of measurements and payment

1.2. The rate shall be for a unit of one Sq. Meter

ITEM : Providing and fixing rebar of following diameter using chemical grout of Swanchore/Hilti/Fischer or equivalent make including cost of all equipments, tools, material, labour, etc. Standard procedure as mentioned in manufacturer's specifications shall be strictly followed, which shall be submitted and got approved from the authority prior to start of work. The rate shall also include cost of drilling of hole of required diameter and depth as mentioned in manufacturer's specification, cleaning the hole with required air blower and other necessary tools and tackles, positioning, providing and grouting chemical, allied fixtures and fasteners, etc. but excluding the cost of reinforcing bar etc. complete. Item includes necessary scaffolding, staging, labour, tools and equipments, etc. complete as directed by the engineer-in-charge. (A) 8 mm

dia (B) 10 mm dia (c) 12 mm dia (D) 16 mm dia

In general the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D./ GWSSB relevant drawings and as per the instructions of Engineer in Charge. Work shall be carried out as per item description.

Details specification as per item description, manufacturer's technical details, latest amendment and as per Engineer-in charge.

1.0. Mode of measurements and payment

1.2. The rate shall include the cost of all materials, tools, and labour involved in all the operation described in item as above.

1.3 The rate shall be for a unit of one number.

ITEM : Providing form work of ordinary timber planking so as to give a rough finish including centering, shuttering strutting and propping etc. Height of propping and centering below supporting floor to ceilling and removal of the same for in site reinforced concrete and plain concrete work. for all levels.

In general the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D / GWSSB / R&B / MoRT&H, relevant drawings and as per the instructions of Engineer-in-Charge. Work shall be carried out as per item description.

1.0. Materials

1.1. The shuttering to be provided shall be of ordinary timber plank and shall conform to M-26.

1.2. The dimensions of scantlings and battens shall conform to the design. The strength of the wood shall not be less than that assumed in the design.

2.0. Workmanship

2.1. The form work shall conform to the shape lines and dimensions as shown on the plans and be constructed as to remain sufficiently rigid during the placing and compacting of the concrete. Adequate arrangements shall be made by the contractor toe safe-guard against any settlement of the form-work during the course of concreting and after concreting. The form work of shuttering, centering, scaffolding, bracing etc. shall be as per design.

2.2. Clearing and Treatment of forms:

2.2.1. All rubbish, particularly chipping shaving and saw dust shall be removed from the interior of the form before the concrete work is placed and the-form in contact with concrete shall be cleaned and thoroughly wetted or treated. The surface shall be then coated with soap solution applied before concreting is done. Soap solution for the purpose shaft prepared by dissolving yellow soap in water to get consistency of paint. Alternatively a coat of raw linseed oil shall be applied after thoroughly cleaning the surface. Care shall be taken that the coating does not get on construction joint surface and reinforced bars.

2.3. Stripping time:

2.3.1. In normal circumstances and where ordinary cement is used forms may be struck after expire of following periods.

(a) Sides of walls columns and vertical faces of beams……. 24 to 48 hours.
(b) Beam soffits, (props, left under)……. 7 days.
(c) Removal of props slabs:
(i) Slabs spanning up to 4.5.mm…… 7 days.
(ii) Spanning over 4.5 mm……..…..14 days.
(d) Removal of props t beams and Arches:
(i) Spanning up to 6 mm…….14 days.
(ii) Spanning over 6 m…….21 days.

2.4. Procedure when removing the form work:

2.4.1. All form work shall be removed without such shock or vibrations as would damage the reinforced concrete surface. Before the soffits form work and struts are removed, the soffits and the concrete surface shall be exposed where necessary in order to ascertain that the concrete has sufficiently hardened

2.5. Centering:

2.5.1. The centering to be provided shall be got approved. It shall be sufficiently strong to ensure absolute safety of

the form work and concrete work before, during and after pouring concrete. Watch should be kept to see that behavior or centering and form work is satisfactory during concreting. Erection should also he such that it would allow removal of forms in proper sequence without damaging either the concrete or the forms to be removed.

2.5.2. The props of centering shall be provided on firm foundation or base of sufficient strength to carry the loads without any settlement.

2.5.3. The centering and form work shall, be inspected and approved by the Engineer-in-charge before concreting. But this will not relieve the contractor of his responsibility for strength,-adequacy and safety of form work and centering. If there is a failure of form work or centering, contractor shall be responsible for the damages to property.

2.6. Scaffolding:

2.6.1. All scaffolding, hoisting arrangements and ladders etc., required for the facilitating of conceding shall be provided and removed on completion of work by contractor at his own expense. The scaffolding, hoisting arrangements and ladders etc. shall be strong enough to with sand all live, dead and impact loads expected to act and shall be subject to the approval of the Engineer-in-charge. However contractor shall be solely responsible for the safety of the scaffolding, hoisting arrangement, ladders, work and workman etc. 2.6.2. The scaffolding, hoisting arrangements and ladder shall allow easy approach to the work spot and afford easy inspection.

2.6.3. The rate is applicable to all condition of working and height up to 4 mts. The rate shall include the cost of materials and labour for various operations involved such as:

(a) Splayed edges, notching, allowance for overlaps and passing at angles, battens centering, shuttering propping, bolting, wedging easing, striking and removal.

(b) Filleting to form stop chamfered edges or splayed external angles not exceeding 20 mm: width to beams, columns and the like.

(c) Temporary openings in the forms for pouring concrete, if required removing rubbish etc.

(d) Dressing with oil to prevent adhesion of concrete with shuttering and.

(e) Raking or circular cutting.

2.7. Re-Use:

2.7.1. Before re-use, all from shall be inspected by Engineer-in-charge and their suitability ascertained. The forms shall be scarred, cleaned and joints are gone over, repaired where required. Inside surface shall be retreated to prevent adhesion of concrete.

3.0. Mode of Measurements & Payment

3.1. From work shall be measured as the area in square meters to shuttering in contract with concrete except in the case of inclined member and portion of curved profile and upper side in which case on area of underside shall be measured for payment.

3.4. From work to secondary beams shall be measured up to the sides of main beams but no deduction shall be made form the form work of the main beam at the inter section point. No deduction shall be made form the form work of a column at inter section of beams.

3.5. The rate is for the completed item

3.6. The rate shall be for a unit of one Sq. Meter.

ITEM : Providing and applying cement mortar 1:4 enriched with expanding grout additive in required proportion in cement for repair of cracks in RCC and non-RCC members after making 25mm x 25mm groove, cleaning the surface and applying coat of bonding, finishing smooth the repaired surfaces, providing and applying curing agent on the repaired surfaces, etc. complete at all floor levels as directed by engineer-in-charge. The make and quality of expanding grout additives, bonding agent, curing agent, etc. shall be approved by the engineer-in-charge. The procedure for application shall be strictly in accordance with manufacturer's detail specification, which shall be submitted before start of work and shall be approved by the Engineer-in-charge.

1.0. Mode of measurements and payment.

1.2. The rate shall be for a unit of one Running meter.

ITEM : Injection Grouthing :-Carrying out Injection grouting for cracks in RCC structural members by drilling holes of 15 mm diameter upto minimum depth of 75 mm, fixing aluminium nozzle / rubber pipe

using cementitious compound, injecting polymer modified slurry (SBR+cement+water) 1:1:1 material at specified pressure with grouting pump till it the material refuses to impregnate inside the hole. If required or suggested by the Engineer-in-charge, injection grouting shall be carried out more than once for a hole to assure proper spreading of grout material and filling of capillaries / voids within the element. After satisfactory injection grouting, the nozzle/pipe shall be cut and sealed by non-shrink epoxy putty. The surface shall be finished smooth with C:M (1:4) and reinstated to the original condition as directed by the Engineer-in-charge.

The rate shall include the cost of providing and supplying all tools, materials, labour, scaffolding, props, formwork, etc. complete. The make and quality of epoxy grout, epoxy putty, etc. shall be approved by the Engineer-in-charge. The procedure for application shall be strictly in accordance with manufacturer's detail specification, which shall be submitted before start of work and shall be approved by the Engineer-in-charge. (Actual no of holes and their locations shall be as decided by the Engineer-in-charge)

1.0. Mode of measurements and payment.

1.2. The rate shall be for a unit of one NOS.

ITEM : Carrying out Injection grouting for cracks in RCC structural members by drilling holes of 15 mm diameter upto minimum depth of 75 mm, fixing aluminium nozzle / rubber pipe using non-shrink epoxy putty, injecting epoxy grout material at specified pressure with grouting pump till it the material refuses to impregnate inside the hole. If required or suggested by the Engineer-in-charge, injection grouting shall be carried out more than once for a hole to assure proper spreading of grout material and filling of capillaries / voids within the element. After satisfactory injection grouting, the nozzle/pipe shall be cut and sealed by non-shrink epoxy putty. The surface shall be finished smooth with C:M (1:4) and reinstated to the original condition as directed by the Engineer-in-charge.

The rate shall include the cost of providing and supplying all tools, materials, labour, scaffolding, props, formwork, etc. complete. The make and quality of epoxy grout, epoxy putty, etc. shall be approved by the Engineer-in-charge. The procedure for application shall be strictly in accordance with manufacturer's detail specification, which shall be submitted before start of work and shall be approved by the Engineer-in-charge. (Actual no of holes and their locations shall be as decided by the Engineer-in-charge)

1.0. Mode of measurements and payment.

1.2. The rate shall be for a unit of one NOS.

ITEM : Providing and appliying thixotropic Making up lost section of concrete / mortor with thixotropic repair mortor of one-component, normal-setting, shrinkage-compensating, thixotropic mortar for layers up to 20 mm thick. Supply and application of one-component, normal-setting, shrinkage-compensating thixotropic mortar made from cementitious binders, selected aggregates, special additives and synthetic polyacrylonitrile fibres, for reconstructing deteriorated concrete structures. Apply the mortar after adequate preparation of the substrate by removing all deteriorated concrete to form a sufficiently-rough, solid substrate with no detached portions. Clean the steel reinforcement down to bare metal and apply a passivating treatment by brush-applying two coats of one-component, anti-corrosion cementitious mortar. Apply the product by trowel or spray with a continuous-feed rendering machine on a clean substrate saturated with water in layers up to 20 mm thick.

To improve expansion in the open air during the first few days of curing, add a special curing additive when mixing the mortar to reduce both plastic and hydraulic shrinkage at a dose of 0.25% in weight on the weight of the mortar. The product must comply with the minimum requirements of EN 1504-3 for structural mortars and have the following performance characteristics:

Compressive strength (EN 12190) (MPa):> 40 (after 28 days), Flexural strength (EN 196/1) (MPa): 7 (after 28 days), Compressive modulus of elasticity (EN 13412) (GPa): 25 (after 28 days) Adhesion to substrate (EN 1542) (MPa):> 2 (after 28 days), Capillary absorption (EN 13057) (kg/m²•h0.5): < 0.20, Thermal compatibility measured as adhesion according to EN 1542 (MPa): – freeze-thaw cycles with de-icing salts (EN 13687/1): > 1.5 (after 50 cycles), Storm cycles (EN 13687/2):> 1.5 (after 30 cycles), dry thermal cycles (EN 13687/4):> 1.5 (after 30 cycles), Reaction to fire (EN 13501-1) (Euroclass):1

Consumption (per cm of thickness) (kg/m²): approximately 18.5 Kg included and calculated in the price for work carried out according to specification: (1) hydro-cleaning of adhesion surfaces and saturation of substrate with water immediately before applying the mortar; (2) application of the mortar by trowel or spray around steel reinforcement; (3) levelling off surfaces with a straight edge and final tamping; (4) careful curing of the mortar by spraying on water for at least 7 days (3times) after application.

1.0. Mode of measurements and payment.

1.2. The rate shall be for a unit of one Sq. Meter

ITEM : Pointing on brickwork with cement mortar 1:1 (1- cement : 3-coarse sand)

1.0. Mode of measurements and payment.

1.2. The rate shall be for a unit of one Sq. Meter

ITEM : (i) Half brick masonry in common brunt clay building bricks having crushing strength not less than 35 Kg/Sq.Cm. in Cement mortar 1:4 (1- Cement : 4 - coarse sand) in foundation and plinth (A) Modular

Bricks shall conform to M-15. Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6.

Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. Relevant specifications of bricks, wetting and laying of bricks, joints, curing etc shall conform to item no. 6.19.(A) except that the brick work of half shall be carried out.

2.2. Cement mortar used in masonry work shall be in proportion of 1 part of cement and 4 parts of sand by volume.

2.3. AH bricks shall be laid stretcher wise, breaking joints with those in the upper and lower courses. The Wall shall be taken truly plumb. All courses shall be said truly horizontal and all vertical joints shall be truly Vertical. The bricks shall be laid with frogs upwards. A set of masons tools shall be maintained on work as required for frequent checking.

3.0. Mode of measurement and payment

3.1. The half brick masonry work in foundation and plinth shall be measured under this item the limiting Dimensions shall not exceed those shown in the plan or as directed. Any work done extra over the specified Dimensions shall be ignored.

3.2. The rate shall be for a unit of one Sq. Meter

ITEM : Providing 15 mm thick cement plaster by using Ready Mix Mortar for plaster in single coat on rough (similar) side of single or half brick walls for interior plastering upto floor two level and finished even and smooth in Cement mortar 1:3 (1 Cement :3 sand)

1.0. Mode of measurements & payment

1.2. The rate shall be for a unit of one Sq. Meter.

ITEM : Providing & Applying 20mm to 35mm. Th.(Max. 35 mm Thickness Consider) Heavy Roller plaster on walls or similar surfaces at all floor levels consisting of 12 mm av. Th. Backing coat of C.M. 1:3 (1 cement:3 sand : racron 3s (0.5 nos per bag)) also plaster master wterproofing chemical 100 ml /bags as per companey manual or 75ml/ bag as per mandatorai mandatory & approved by E.I.C or consultant & 8 mm. th. Finishing coat of C.M. 1:1 (1 cement: 1 sand) apply thick cement slurry and apply roller horizontal as well as vartical (two times) up to good quality and size of grain in elevation as per directed by engineer incharge. (Including Scaffolding)

1.0 Mode of measurements & payment

1.2. The rate shall be for a unit of one Sq. Meter

ITEM : Providing & fixing G.i mesh (25X25X3mm) used for celling repair fixed with celling rebar column as per directed by enginner incharge rate excluding the rebar cost

1.0. Mode of measurements & payment

1.2. The rate shall be for a unit of one Running Meter.

ITEM : Providing throating or plaster drip and moulding it to R.C.C. chajja etc. comp.For all floor

1.0. Materials

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6 Cement mortar shall conform to M-11

2.0. Workmanship

2.1. The work shall be carried out as directed. The proportion of mix for finishing shall be in C.M. 1:2 by volume. Curing shall be done for not less than 7 days. The work shall be carried our in best workman like manner. The throating or plaster drip and mounding shall be one centimeter in thickness.

3.0 Mode of measurements and payment

3.1 The work shall be measured for finished item in running meter.
3.2 The rate shall be for one Running Meter

ITEM : Applying two coats of putty & two coats of primer of approved brand and manufacture on new wall surface to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth. (Acrylic or Cement base Putty as per only sanction by E.I.C)

In general the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D./ GWSSB relevant drawings and as per the instructions of Engineer in Charge. Work shall be carried out as per item description.

LAPPY (PUTTY)

Scope of Work

Wall care putty consists of white cement, high quality polymers and specialty chemicals and mineral fillers and is formulated to make it suitable to apply even on damp surfaces. Being cement based putty, it has better compatibility with the base plaster and forms a durable base for paints. It can be applied on both, Interior and exterior plastered surfaces. It is a water resistant base coating to the plastered surfaces to provide fine leveling and a protective base for the surfaces to be painted.

General

Wall care putty shall have superior water resisting properties to prevent paint from flaking even if the walls are damp. It should fill-up fine pores in walls and ceilings to get the smooth and dry surface for painting. Wall care

putty shall have better properties in terms of water-resistance, adhesive strength and durability as compared to the ordinary putties. The putty shall provide a breathable surface and allow any trapped moisture to move out keeping the wall dry and clean.

Material

Wall care Putty shall be in dry free flowing powder form. Required quantity of Wall care putty shall be procured from the reputed manufacturers like Birla / Asian or equivalent approved manufacturers, or from their authorised dealers.

Preparation of Surface

- Surface should be clean of loose particles, dirt, grease and traces of foreign material. Sand papering or chipping shall be done if so required.
- Loose plastered areas/defective materials shall be removed & surface re-plastered and cracks filled-up properly.
- Uneven ceiling/wall surfaces shall be made even by re-plastering.
- Surface should be pre-wetted prior to application. This helps in providing a strong bond with substrate.

Mixing

- 12 to 16 litres of clean water shall be required for a bag of 40 kg of wall care putty. Required quantity of putty (which is required to be used at a time) shall be added to the water in right proportion. (considering pot life of the mix as 60 minutes).
- Mix shall be stirred continuously by using an electric mixer or by hand to obtain a homogeneous lump-free paste.
- The paste shall be allowed to stand for about 10 minutes for the additives to dissolve.
- The paste shall be re-mixed again for about 2 minutes.
- This mix should be used within 60 minutes.

Application

- The plastered surface shall be dampened with clean water and excess water shall be allowed to be drained-off.
- Over plastered / Coarse putty substrate, two coats of fine wall care putty shall be applied to smoothen the surface with a steel trowel. The thickness of each coat should not exceed 1.0 mm and total wall putty thickness should be 1.5mm.
- Finished surface of wall care putty shall not require any dressing by Emery Paper but if at all it is done, the paper should not be less than 500 number.
- Coverage of wall care putty depends upon surface quality. The coverage area of wall care putty on smooth normal mortor plastered wall is 2.0 to 2.5 Sqm per Kg per mm thickness.

PRIMER

Materials

The primer shall be of approved brand and manufacture.

Scaffolding

Wherever scaffolding is necessary it shall be erected in such a way that as far as possible on part of scaffolding shall rest against the surface to be white or colour washed A properly secured strong and well tied suspended platform (Zoola) may be used for white washing. Where ladders are used pieces of old gunny bags shall be tied at top and bottom to prevent scratches to the floors and walls.

Preparation of the Surface

The surface shall be thoroughly cleaned of dust, old white or colour wash by washing and scrubbing. The surface shall then be allowed to dry for at least 48 hours. It shall then be sand papered to give a smooth and even surface.

Any uneveness shall be made good by applying putty, made of plaster of paris mixed with water on the entire surface including filling up the undulations and then sand papering the same after it is dry.

Application

The primer shall be applied with a brush on the clean dry and smooth surface. Horizontal strokes shall be given first and vertical strokes shall be applied immediately afterwards. This entire operation will constitute one coat. The surface shall be finished as uniformly as possible leaving no brush marks. It shall be allowed to dry for at least 48 hours, before Paint is applied. Apply two coats of primer.

Mode of Measaurement and Payment

All the measurements for payment shall be taken on net surface area actually painted, unless otherwise specified. Deduction will be made from the areas for fixtures, grills, ventilation, outlets, electrical boxes and such obstructions not painted, if they are individually more than 0.05 sqm.

The rate includes all the materials, labour, tools, scaffolding etc.

The rate shall be for a unit of One Sq. Meter.

ITEM : Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even shade including throughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.

1.0. Materials

Water shall be conform M-1. The plastic emulsion shall conform to I.S.: 5411-1969 (part-l).

2.0. Workmanship

2.1. Scaffolding : The relevant specifications of item-No. 42 Para 2.1 shall be followed.

2.2. Preparation of surface : The relevant specification of item No. 42Para 2.2 shall be followed.

2.3. Preparation of Mix :

This shall be done as per manufacture's instructions. The thinning of emulsion is to be done with water and not with turpentine. The quantity of thinner to be added shall be as per manufacturer instructions.

2.4. Application :

2.4.1. Before pouring into small containers for use, the paint shall be stirred thoroughly in item container. When applying also, the paint shall be continuously stirred in the smaller container, so that its consistency is kept uniform.

2.4.2. The paint shall be laid on evenly and smoothly by means of crossing and laying off the crossing and consist of covering the area over with paint, brushing the surface hard for the first time over and then, brushing alternately in opposite direction two or three times and then finally brushing lightly in direction at right angles to the same. In this process, no brush Marks shall be left after the laying off is finished. No hair marks from the brush or clogging of paint puddles in the corners of panels, angles of moldings, etc. shall be left on the work. The ful process of crossing and laying off will constitute one coat

2.4.3. The paint shall be applied with brush or rollers. For undecorated surfaces, the surface shall be treated with minimum two coats of cement water proofing paint. The second or subsequent coat shall not be started until the proceeding coat as become sufficiently hard to resist marking by brushing being used.

2.4.4. The surface on finishing shall present a flat velvety smooth finish. It shall be even and uniform in shade without patches, brush marks, paint drops etc.

2.5. Precautions :

(a)Old brushes if they are to be used with emulsion paints, shall be completely dried of turpentine or oil paint by washing in warm soap water. Brushes shall be quickly washed in water immediately after use and kept immersed in water fusing break periods to prevent the paint from hardening on the brush.

(b)In the preparation of wall for plastic emulsion painting, no oil base petals shall be sued in filling cracks, holes etc.

(c)Splashes on floors etc. shall be cleaned out without delay as they will be difficult to remove after hardening.

(d)Washing or surfaces treated with emulsion paint shall not be done within 3 to 4 weeks of application

2.6. Protective payment : The relevant specifications of item No. 42shall be followed.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No.42 shall be followed.

3.2. The rate shall be for a unit of One Sq. Meter.

ITEM : Finishing wall with weather proof exterior emulsion paint on wall surface (two coats) to give an required shape even shade after thoroughly brushing the surface to remove all dirt, and remains of loose powdered materials.etc complete

1.0. Mode of measurements and payment

1.2. The rate shall be for a unit of one Sq. Meter

ITEM : Painting two coats (excluding priming coat) on new wood and wood based surfaces with enamel paint interior to give an even shade including the surface off all dist, dust and other foreign matter and papering and stopping.

1.0. Materials

1.1. The enamel paint shall conform to I.S. 133-1975.

2.0. Workmanship

2.1. General : The materials required for work of painting work shall be obtained directly from approved manufactures or approved dealer and brought to the site in maker's drums; kegs. etc. with seal unbroken.

2.1.2. All materials not in actual use shall be kept properly protected, lids of containers shall be kept closed and surface of paint in open or partially open containers covered with a thin layer of turpentine to prevent formation of skin. The materials which have become state or flat due to improper and long storage shall not be used. The paint shall be stirred thoroughly in its container before pouring into small containers. While applying also, the paint shall be continuously stirred in smaller container. No left over paint shall be put back into stock tins. When not in use the containers shall be kept properly closed.

2.1.3. If for any reasons, things is necessary, the brand of thinner recommended by the manufacturer shall be used.

2.1.4. The surface to be painted shall be thoroughly cleaned and dusted. All rust, dirt and grease shall be thoroughly removed before painting is started. No painting on exterior or other exposed part o the work shall be carried out in wet, damp or otherwise unfavorable weather and all the surfaces shall be thoroughly dry before painting work is started.

2.2. Application of paint:

2.2.1. Brushing operations are to be adjusted to the spreading capacity advised by the manufacture of particular paint. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of covering the area over with paint, brushing the surface hard for the first time over and then brushing alternately in opposite directions two or three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after the -laying off is finished. The full process of crossing and laying off will constitute one coat.

2.2.2. Each coat shall be allowed to dry completely and lightly rubbed with very fine grade of sand-paper and loose particles brushed off before next coat is applied. Each coat shall vary slightly in shade and shall be got approved from Engineer-in-charge before next coat is started.

2.2.3. Each coat the last shall be lightly rubbed down with sand paper of fine pumice stone and cleaned of dust before the next coat is applied. No hair marks from the brush of clogging of paint puddles in the corners of panels, angles of moldings etc. shall be left on the work.

2.2.4. Special care shall be taken while painting over bolts, nuts, rivets, overlaps etc. Approved best quality brushes shall be used

3.0. Mode of measurements and payment

3.1. The rate shall include the cost of all materials and labour required for various operations described above. Risers of steps: skirting and dedo shall be measured in square meters, length and height shall be measured along the finished face of the skirting or dedo including curves, where special such as covers. internal and external angles,etc., used. The length and height shall be measured correct lo the centimeter except in case of risers and skirtingwhere height shall be measured correct to 3 mm

3.2. The rate shall be for a unit of one Sq. Meter.

ITEM : Applying priming coat over new wood and wood based surface after and including preparing the surface by thoroughly cleaning oil, grease, dirt and other forging matter sand papering and knotting Ready mixed paint brushing priming, for enamel.

1.0. Materials

1.1. The ready mixed paint for brushing priming for enamels wood shall conform to I.S. 106-1962.

2.0. Workmanship

2.1. Preparation of Surfaces :

2.2.1. AH wood work shall be dry and free from any foreign matter incidental to building operations. Nails shall be punched well below the surface to provide a film key for stopping. Moldings shall be carefully smoothened with abrasive paper and projecting fibers shall be removed. Flat portions shall be smoothened off with abrasive paper used across the grain prior to painting prior to painting and with the grain prior to staining or if the wood is to be left in its natural colour, wood work which is to be stained may be smoothened by scraping instead of by glass papering if so required.

2.2.2. Any knots, resinous, streaks or bluefish sap wood that are not large enough to justify cutting out shall be treated with two coats of pure shellac knotting applied thinly and extended about 25 mm. beyond the actual area requiring treatment.

2.2. **Application of primer :**

2.2.1. After the preparation of the surface, the priming coat shall be applied immediately. The brushing operations are to be adjusted to the spreading capacity advised by the manufacturer of the particular primer. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of covering the area over with paint, brushing alternately in opposite directions, two or three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. The full process of crossing and laying off wall constitute one coat.

2.2.2. During painting, every time, after the priming coat has been worked out of the brush bristles or after thebrush has been unloaded, the bristles of the brush shall be opened up by striking the brush against portion of the unpainted surface with the end of the bristles, held at right angles to the surface, so that bristles thereafter will collect the correct amount of paint when dipped again in to a paint container The prima/y coat shall be allowed to dry completely before painting is started.

2.2.3. No hair marks from the brush or clogging at pain puddles in the corner of panels angles of molding etc. shall be left on the work

2.2.4. Special care shall be taken while painting over bolts, nuts, rivets, overlaps etc.

2.2.5. The container when not in use shall be kept close and free from air so that paint does not thickness and also shall be kept guarded from dust.

3**.0. Mode of measurements and payment**

3.1. The relevant specifications of item No. 37 shall be followed.

3.2. The rate shall be for a unit of One sq. meter.

ITEM : Painting two coats (excluding priming coat) on new wood and wood based surface with ready mixed paint, brushing, oil, gloss, semi gloss to give and even shade including cleaning of all dust, dirt and other foreign matter sand papering and stopping.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 37 shall be followed except that the painting work shall be carried out on previously painted wood and wood based surfaces with enamel paint to give even shade in one coat.

2**.0. Mode of measurements and payment**

2.1. The relevant specifications of item No. 37 t shall be followed

2.2. The rate shall be for a unit of One sq meter.

ITEM : Providing and laying Vitrified tiles 8 to 10 mm thick ,24'' x 24'' in flooring treads of steps and

landing laid on a bed of 12mm thick cement mortar 1:3 (1-cement : 3-coarse sand) finishing with flush pointing in white cement.

1.0. Materials

1.1 Water shall conform to M-1 Cement mortar shall conform to M-11 White glazed tiles shall conform to M-55

2.0. Workmanship

2.1. Bedding :

2.1.1. The sub grade shall be cleaned, wetted and mopped. The bedding shall then be laid evenly over the surface tamped and corrected to desired level and allowed to harden enough to offer a rigid cushion to tiles and to enable the monsoon to place wooden planks across and squat on it.

2.1.2. The white glazed tiles shall be laid on cement mortar bedding of 12 mm. thick in C.M. 1:3. The mortar shall have sufficient plasticity for laying and there shall be no hard lumps that would interfere with the evenness of bedding. The base shall be cleared and well wetted. The mortar shall then be spread in thickness not less than 10 mm. at any place and average 12 mm. thickness. The proportion of the cement mortar shall be as specified in the item.

2.2**. Fixing tiles :**

2.2.1. The tiles before laying shall be soaked in water for at least tow hours. Neat gray cement grout at 33 kg/Cement/Sq. mt. of honey like consistency shall be spread over the mortar bedding as directed. The edges of the tiles shall be smeared with neat cement slurry. The tiles shall be well pressed and gently tapped with a wooden mallet till they are properly bedded and in level with the adjoining tiles. There shall be. no hollows in bed or joints. The joints between the tiles shall be as thin as possible in straight line or as per pattern.

2.2.2. The tiles shall not have staggered joints. The joints shall be true to centre line both ways. The Nahni trap coming in the flooring shall be so positioned that its grating shall replace only one tile as far as possible. Where full size tiles cannot be fixed they shall be cut (Swan) to the required size and the edges rubbed smooth to ensurestraight and true joints. The joints shall be filled with grey cement grout with wire brush or trowel to a depth of 5 mm. and loose material removed. White cement shall be used for pointing the joints. After fixing the tiles finally in an even plane the flooring shall be kept wet and allowed to nature undisturbed for 7 days.

2.3. Cleaning :

2.3.1. The surplus cement grout that may have come out of the joints shall be cleaned off before it sets. Once the floor has set, it shall be carefully washed, cleared by dilute acid and dried. Proper precautions and measures shall be taken to ensure that the tiles are not damaged in any way till the completion of the .construction.

3.0. Mode of measurements & payment

3.1. The work done shall be measured in sq. mt. for visible area of work done. The length and width of the flooring shall be measured not between the faces of skirting or dedos or plastered face of wall as the case may be. The paving under dedo or skirting shall not be measured. No deduction shall be made not extra paid for any opening in the floor of area-up to 0.1 sq.mt. Nothing extra shall be paid for laying the floors at different levels in the same rooms.

3.2. The rate shall be for a unit of one Sq. Meter.

ITEM : 'Providing and applying Epoxy Grout filling in Tile Joints in 3 mm x 3mm Groove in line and level etc. Comp. as per instruction by Architect and as per Engineer-in-charge. For all Floor,

1.0. Mode of measurements and payment

1.1. The rate shall be for a One Running Meter.

ITEM : Providing and laying Vitrified tiles 8 to 10 mm thick , 24'' x 24'' in skrting risers of steps and dedo on 10mm thick cement plaster 1:3 (1-cement : 3-coarse sand) and jointed with white cement slurry.

1.0. Materials

Water shall conform to M-1 Cement mortar shall conform to.M-11 White glazed tiles shall conform to M-55

2.0. Workmanship

2.1. Preparation of Surface:

In case of brick masonry wall, the joints shall be raked out to a depth of least 15 mm. while the masonry is being laid. In case of concrete wall the surface shall be chiseled and roughed with wire brushes. The surface shall becleaned and wetted thoroughly before commencing the laying work.

2.2. Laying ;

2.2.1. The wall surface shall be covered with 10 mm. thick plaster of cement mortar 1:3 mix and allowed to harden. The plaster shall be roughened with wire brushes both way. The back of tiles shall be floated with grey cement slurry set and edges with white cement slurry in bedding mortar. The tiles shall be gently tapped in position on after the other keeping the joints as thin as possible. Top of skirting or dedo shall be truly horizontal and the joints vertical or as per required pattern.

2.2.2. Risers of steps, skirting and dedo shall rest on top of treads or flooring. Where full size tiles cannot be fixed, They shall be cut to the required size and the edges be smoothened.

2.2.3. The joints shall be cleaned and flush pointed with white cement. The surface shall be kept wet for seven days. After curing the surface shall be washed clean.

3.0. Mode of measurements and payment

3.1. The rate shall include the cost of all materials and labour required for various operations described above. Risers of steps: skirting and dedo shall be measured in square meters, length and height shall be measured along the finished face of the skirting or dedo including curves, where special such as covers. internal and external angles, etc., used. The length and height shall be measured correct lo the centimeter except in case of risers and skirting where height shall be measured correct to 3 mm

3.2. The rate shall be for a unit of one Sq. Meter

ITEM : Providing and laying polished Kota stone slab flooring over 20mm (Average) thick base of cement mortar 1:6 (1-cement : 6-coarse sand) or L.M. 1.1.5 (1-Lime putty :1.5 - coarse sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of slab including rubbing and polishing etc. complete. (A) 25mm thick

1.0. Materials

1.1. Water shall conform to M-1. Lime mortar shall conform to M-10. Cement mortar shall conform to M-11 Polished kota stone shall conform to M-49,

2.0. Workmanship

2.1. Each slab shall be cut to the required size and shape and fine chisel dressed at all the edges. The sides trust dressed shall have a full contract if a straight edge is laid along. The sides shall be table rubbed with coarse sand before paving. All angles and edges of the slabs shall be true square and free from chippings and giving a plane surface. The thickness shall be 25 mm. (Average) as specified in the item but not less than 20 mm. at any place of the slab.

2.2. Bedding for the Kota stone slabs shall be of cement mortar 1:6 (1 cement : 6 coarse sand) or L.M. 1:1.5 of average thickness 20 mm given in the description of the item. Sub grade shall be cleaned, wetted and mopped Mortar of the specified mix and thickness shall then be spread on an area sufficient to receive one kota stone slab. The slab shall be washed clean before laying. It shall be laid on top, pressed, tapped gently to bring it in level with the other slabs. If shall then be lifted and laid aside. Top surface of the mortar shall then be corrected by adding fresh mortar at hollows or depressions. The mortar shall then be allowed to harden bit. Over this surface, cement slurry of honey-like consistency shall be applied. The slab shall then be gently placed in position and tapped with wooden mallet till it is properly padded in level with and close to the adjoining slab. The joint shall be as fine as possible. The slabs fixed in the floor adjoining, the walls shall enter not less than 10 mm. under the plaster, skirting or dedo. The junction between the wan and floor shall be finished neatly. The finished surface shall be true to levels and slopes as directed

2.3. The floor shall be kept wet for a minimum period of 7 days so that bedding and joints set properly

2.4. Polishing shall be normally commenced after 14 days of laying the stone slab. First polishing shah be done with carborundum stones of 120 grade grit fitted in the heavy machine and then second polishing shall be done with carborundum stone of 220 to 350 grade grit fitted in heavy machine. Water shall be properly used during polishing. The stone shall then be washed clean with water When directed by the Engineer-in-charge, wax polish of approved quality shall be applied on the surface with the help of soft cloth over a clean and dry surface. Then the polishing machine fitted with bobs shall be run over it.

2.5. The holes required for Nahni traps, pipes and any other fittings shall be made, without any extra cost.

3.0. Measurement & payment

3.1. The rate shall include the cost of all materials and labour involved in ail the operations described above. The kota stone flooring shall be measured in square meters correct to two places decimal, length and breadth shall be measured correct to a centimeter and between the finished face of skirting dedo plaster and no deduction shall be made nor extra paid for any opening in floor of areas up to 0 1 sq

3.2. The rate shall be for a unit of one Sq. Meter.

ITEM : Providing & laying Green marble stone skirting over 20 mm.av. base of C.M.1:6 (1 cement :6 coarse sand) & jointed with grey cement slurry incl.rubbing & polishing comp.(A) Green Marble 18 mm. Thick. 1.0 Mode of measurements and payment

1.0. Measurement & payment

1.2. The rate shall be for a unit of one Sq. Meter.

ITEM : Labour Charges For Edge Finished For Granite.

1.0. Mode of measurements and payment

1.2. The rate shall be for a unit of one Running Meter.

ITEM : (a) Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc. consisting of following operations.

(a) Applying and grouting a slurry coat of neat cement using 2.75 Kg./sqm of cement admixed with proprietary water proofing compound comforming to IS:2645 over the R.C.C. slab including cleaning the surface before tratment.

(b) Laying cement concrete using broken bricks/brick bats 25 mm to 100 mm size with 50% of cement mortar 1:5 (1 Cement : 5 Coarse sand) admixed with proprietary water proofing compound conforming to IS:2645 ,brick bats is finally covered by jointless cement plaster 20mm th. in C.M. 1:4 added with special water proofing compound confirming to IS:2645 & top smooth finished with trowel with false chequered marking of 300 mm.size.The treatment is carried along the vertical surface of the parapet & other adjoining wall up to height of about 300 mm in a shape of quarter round vata Incl. curing etc. Comp. With average thickness of 120 mm and minimum thickness at khurra as 65 mm.

Material

The cement shall confirm to M-3, water shall confirm to M-1, sand shall confirm to M-6, water proofing compound shall confirm to manufacturer's specification, brick bats shall confirm to M-14 and cement mortar shall confirm to M-11.

Preparing the Surface:

It would be advantageous to roughen the surface by scrapping the surface when the slab is being cast, however the surface need not be hacked. In case the slab is already cast and surface fairly finished, the same shall be cleaned neatly of all mortar droppings, loose materials etc.

Blending Cement/Water with water proofing compound:

(i) Whenever the water proofing compound is to be used, it is advantageous to blend the same with cement if the water proofing compound is in powder from and if the same is in liquid form the required quantity of water blended with water proofing compound alone should be used for preparing slurry /mortar.

(ii) The water proofing compound to be used shall conform to IS : 2645 and be of reputed brand with a clear ISI marked on the container which should be in the form of sealed tins or closed packets.

(iii) The correct quantity of water proofing compound to be used per 50 kg grey cement shall be as prescribed by the manufacturer on the tins/ packets literature. However, not more than 3% of water proofing compound shall be used per 50 kg of grey cement.

(iv) Blended cement with water proofing compound or water mixed with liquid water proofing compound shall be used to prepare slurry/mortar.

Preparing of Slurry:

(i) The quantity of water required to prepare the slurry with 2.75 kg of cement to painted over an area of 1 sqm shall be calculated exactly. Consider this quantity of water as x liter per sqm.

(ii) Depending upon the area of surface that has to be covered, the required quantity of slurry should be prepared using 2.75 kg blended cement + x litres of water per sqm area to be covered, taking particular care to see that only that much quantity of slurry shall be prepared which can be used within ½ and hour of preparation.

Application of Slurry under Base coat:

(i) The slurry prepared as explained above shall be applied over the dempened surface with brushes very carefully, including the joints between the floor slab and the parapet wall, holes on the surfaces and joints of pipes in masonry/concrete.

(ii) The application of the slurry should continue up to a height of 300 mm over the parapet wall and also to the groove. The slurry should also be applied up to a height of 150 mm over pipe projection etc.

Laying Base coat 20 mm thick:

Immediately after the application of slurry and when the application is still green, 20 mm thick cement plaster as base coat with cement mortar 1:4 (1 blended cement : 4 coarse sand) shall be evenly applied over the concrete surface taking particular care to see that all corners and joints are properly packed and the application of the base coat shall be continued up to a height of 300 mm over the parapet wall.

Preparing Brick-Bat Concrete Mix:

(i) Brick bat of size 25mm to 100mm out of cover burnt bricks shall be used for the purpose of brick bat coba.

(ii) Depending upon the area of concrete surface to be covered the calculated quantity of brick bats to cover the area shall be heaped for mixing. Cement mortar 1:5 (1 blended cement : 5 coarse sand) shall be prepared separately of half the quantity of brick bats, collected by volume.

(iii) The bricks bats shall be properly dampened for six hours before the cement mortar is added. The materials shall be thoroughly mixed by adding some water if needed and the homogenous mix thus prepared should only be used. Under no circumstances dry brick bats should be mixed with the mortar.

Laying Brick bat coba:

(i) When the base coat takes initial set or preferably on the subsequent day the brick bat coba after mixing as specified above shall be laid to required slope / gradient. To ensure fixing up of proper level/gradient correct level points should be fixed with brick bat coba mix only and the brick bat coba shall be laid to the top of level points. The surface of brick bat coba shall be finished neatly to proper slope.

(ii) The haunches / gola at the junction of parapet wall and the roof shall be formed only with brick bat coba.

(iii) In case the brick bat coba is laid on the base coat immediately on initial set there will be no necessary of applying cement slurry over the base coat before laying the brick-bat coba.

However, if the brick bat coba is to be laid on the subsequent day, cement slurry prepared as described above shall be applied over the top surface of the base coat, then only the brick bat coba shall be laid.

Application of Slurry Over Brick-bat Coba:

Immediately on laying brick-bat coba i.e. when the initial set takes place, or at least on the subsequent day

cement slurry prepared as described above it shall be applied on the surface of brick-bat coba. The application of slurry shall be the same as described which should cover the haunches/gola, and the remaining small portion of parapet wall and also inside the groove.

Laying Finishing Layer (Protective Coat):

i) Immediately on applying the cement slurry over the surface of the brick bat coba and when the lurry applied is still green, a 20 mm thick layer of cement plaster, without leaving any joints shall

be applied with cement mortar 1:4 (1 blended grey cement : 4 coarse sand) over the entire surface including the haunches/gola and the small portion on the parapet wall. The groove in the parapet wall over the haunches shall also be filled neatly packing the mortar firmly in the groove.

ii) The treatment shall also be continued along inner side of parapet up to the height of 30cm in the shape of round vata. Care shall be taken to see that the surface remain smooth and it is neatly cleaned and finished of all slurries, dirt after laying.

Curing and Testing the Treatment:

The entire surface thus treated shall be flooded with water by making kiaries with weak cement mortar, water shall be made to remain on the roof slab for a minimum period of two weeks during which it can be observed if there are any leakage or not.

Brick bat coba shall be provided as specified, however recommended average thickness is 120mm and minimum at Khurra as 65 mm.

Mode of measurement and payment

The measurement shall be taken along the finished surface of treatment including the rounded and tapered portion at junction of parapet wall. Length and breadth shall be measured correct to a cm and area shall be worked out to nearest 0.01 sqm. No deduction in measurement shall be made for openings or recesses or chimney stacks, roof lights or khurras of area upto 0.40 sqm., nor anything extra shall be paid for making such openings, recesses etc. For areas exceeding 0.40 sqm., deduction will be made in the measurements for the full openings and nothing extra shall be paid for making such openin

The rate incl. all the material and labour involved in the satisfactory completion of work. The item with all respect, the payment shall be made on square meter basis and measurement shall be taken as per the clear inside length and breadth from parapet wall and average over finishing floor as breadth.

Contractor shall be bound to carry out all such rectification work without claiming any extra. The rate shall be unit for a one square meter.

A guarantee bond of ten years guarantee requisite stamp paper shall be given by the contractor to the department. Any defect will be observed later on, shall be rectified by the contractor at his own risk and cost. A guarantee bond on appropriately stamped paper shall be given by the contractor to the department in the manner and form prescribed below:

FORM OF GUARANTEE BOND

I/We…….(Contractor) hereby guarantee that work will remain unaffected and will not be any way damaged, for a period for 10 years after completion of the work of watern proofing as per the terms and conditions of the contract and or damage that might be caused on account of anything, I hereby Guarantees to make good any loss of damages suffered by the Government of Gujarat and further guarantee to redo effective work without claiming any extra cost.

ITEM : Providing and filling in depressions of Bath and W.C. At all floor levels, after completing plumbing work of pans, pipes,traps etc. with cinder or fly ash as directed by Engineer in charge etc. comp.

In general the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / GWSSB relevant drawings and as per the instructions of Engineer in Charge. Work shall be carried out as per item

description.

1.0 Materials

Water shall conform to M-1.Cement shall conform to M-3. Sand shall conform to M-6. Cinder shall conform to M-9

2.0 Workmanship

2.1 The cinder to be used for filling shall be free from salts,organic or other foreign matter. All clods of cinder shall be broken.

2.2 As soon as the work in depression has been completed and measured the depression floor shall be cleared of all debris,brick bats: mortar dropping etc., and filled with cinder in layers not exceeding 20 cms. Each layer shall be adequately watered, rammed and consolidated before the succeeding layer is laid. The cinder filling shall be rammed with iron or wooden rammers where feasible and with the but ends of crow-bars, where rammer cannot be used. When filling reaches finished level the surface shall be flooded with water for at least 24 hours and allowed to dry and then rammed and consolidated.

2.3 The finished level of filling shall be kept to shape intended to be given to floor.

3.0 Mode of Measurements & Payment

3.1 The payment shall be made for filling in sunken floor. No deduction shall be made for shrinkage or voids, if consolidated as instructed above. The rates includes all materials, labour, tools and plants in satisfactory completion of work as specified above.

3.2. The rate shall be for a unit of one cubic meter.

ITEM : Providing and laying broken chine mosaic flooring for terrace using 12 mm to 20 mm broken pieces of glazed tiles to be laid over cement mortar 1:3 to plain or slope and to be tempered to bring mortar creme out upto surface using white cement including rounding off junctions and extending them upto 15 cm along the wall,clearing with water and oxalic acid etc. as directed.

1.0 Material

1.1 The cement shall confirm to M-3 (3.1), water shall confirm to M-1 (1.1 to 1.5), sand shall confirm to m-6 (6.1 to 6.3), cement mortar shall confirm to M-11 (11.1 to 11.3.2), White glazed tiles used for items shall be broken to proper size and shape. Material shall be got approved by Engineer in charge.

2.0 Workmanship

2.1 After the completion of treatment shown in DTS NO.85 broken china mosaic flooring shall be done as a finishing layer (protective coat) of broken china mosaic For terrace using 12 mm to 20 mm broken pieces of glazed.

2.2 **Laying Finishing Layer (Protective Coat) of China Mosaic**

2.3 Immediately on applying the cement slurry over the surface of the brick bat coba and when the slurry applied is still green, a 20 mm thick layer of cement plaster, without leaving any joints shall be applied with cement mortar 1:3 (1 blended grey cement : 3 coarse sand) over the entire surface including the haunches/gola and the small portion on the parapet wall. The groove in the parapet wall over the haunches shall also be filled neatly packing the mortar firmly in the groove.

2.4 Combination of white and coloured broken pieces of glazed tiles of **even thickness** shall be laid on the layer of cement mortar immediately. The broken tile pieces shall be laid and pressed uniformly and entire surface shall be pressed by wooden template, so that the pieces gets pressed in uniform layer and do note protrude above the surface. The surface shall then be filled and finished with white cement slurry. The China mosaic layer shall be done in pattern and design given in the drawings. The treatment shall also be continued along inner side of parapet up to the height of 15cm in the shape of round vata. Care shall be taken to see that the surface remain smooth and it is neatly cleaned and finished of all slurries, dirt after laying.

2.5 **Curing and Testing the Treatment :**

The entire surface thus treated shall be flooded with water by making kiaries with weak cement mortar, water shall be made to remain on the roof slab for a minimum period of two weeks during which it can be observed if there are any leakage or not.

3.0 **Mode of measurement and payment :**

3.1 The rate incl. all the material and labour involved in the satisfactory completion of work.

3.2 The item with all respect, the payment shall be made on square meter basis and measurement shall be takenas per the clear inside length and breadth from parapet wall and average over finishing floor as breadth.

3.3 The rate shall be for one sq. meter.

ITEM : Providing and fixing PVC SWR Nahni trap IS 14735 for drain - 100 mm diameter with jali of the following nominal diameter of self cleansing design with C.I scread down or hinged grating including the cost of cutting and making good the walls.

1.0. Materials

1.1. The- 100 mm. dia. sand cast iron gratings for gulley, floor or Nahni trap shall be of best quality and make as approved.

2.0. Workmanship

2.1. The CAST IRON grating shall he provided to gulley trap floor or Nahni trap as the case may be in best workmen like manner.

3.0. Mode of measurements and payment

3.1. The rate shall includes cost of all labour, materials, tools and plants, etc. required for satisfactory completion of this item.

3.2. The rate shall be for a unit of One number

ITEM : Providing, laying and jointing in true line and level 110 diametre U.P.V.C (Type B) conforming to IS 13592-1992 with one end plain and other end socketed with rubber ring, & fittings conforming to ISI 14735-1999 of approved make for drainage system pipe line, pipe shall be jointed with each other with rubber lubricant, pipe shall be fixed on wall using of PVC clamp of the size 110 mm diametre x 149 mm length x 145 mm heigh at every 2000 mm center to center or shall be concealed in walls as directed including necessary fittings such as bends, shoes etc. including testing of pipes and joints and jointed with adhesive solvent cement including cost of all materials.

1.0 Mode of measurements and payment

1.1. The rate shall be for a unit of Running Meter.

ITEM : Providing laying (to level or slopes) and jointing reinforced concrete Light duty non-pressure pipes I.S. class NP2 of the following internal diameter with collars and butt ends prepared for collar joints including testing of joints complete.(B) 150mm

1.0 Mode of measurements and payment

1.1. The rate shall be for a unit of Running Meter

ITEM : Providing & Fixing PVC 75mm pipe for confirming to IS no 13592 (Type -b) of prince /superme/jain/astral/make for water spout from passage (varnda) fix with cement mature 1:1 & finishing outside as wall as inside including cost of cutting holes & making grove the wall etc complete -75mm dia

1.0 Mode of measurements and payment

1.1. The rate shall be for a unit of Running Meter.

ITEM : Constructing brick masonry chamber for underground C.I. Inspection chamber and bends with bricks having crushing strength not less than 35Kg/Cm2 in C.M. 1:5 C.I. cover with frame (Light duty) 455mm x 610mm intenal dimensions total weight of cover with frame to be not less than 38Kg. (Wt. of cover 23 Kg.) and Wt. of frame 15Kg.) (R.C.C. top slabe with 1:2:4 mix (1- cement :2- coarse sand :4-graded stone aggregate 20mm size) foundation concrete 1:5:10 inside plaster 15mm thick with cement mortar 1:3 finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete.(i) Inside dimensions 455mmx 610mm and 450mm deep for single pipe line.

1.0. Materials :

Water shall conform to M-1. Cement shrill conform to M-3. Coarse sand shall conform to M-5. Brick shall conform to M-15. Stone aggregate shall conform to M-12. Brick bat shall conform to M-14 M.S. bar shall conform to M-18.

2.0. Workmanship:

2.1. C.I. inspection chamber with provision of C.I. bends of specified size with bolts, nuts and felt washers for underground drain shall be enclosed in masonry chamber which shall be constructed as under:

2.2. The excavation shall be done true to dimensions and level shown in one the plans or as directed.

2.3. Bed concrete shall be 15. Cms, thick C.C. 1:5:10 (1 cement : 5 coarse sand : 10 graded brick bat aggregates. The projection of bed concrete beyond the masonry waifs shall be 7.5 cms.

2.4. Masonry walls and plaster work shall be carried out as per relevant specifications of item 24.40.

2.5. The cover slab shall be constructed as per relevant specifications of 24.27 (I).

3.0. Mode of measurements and payment:

3.1. The earth work in excavation, providing and laying C.I. inspection chamber and bends shall be measured and paid for separately.

3.2. The rate shall be for a unit of One number

ITEM : Extra for every additional depth of 0.1 mt beyond 0.45 mt.

1.0 Mode of measurements and payment

1.1. The rate shall be for a unit of NOS.

ITEM : Providing and fixing Wash Down Water closet European type W.C. pan with integral P or S trap including jointing the trap with soil pipe in cement mortar 1:1 (1 cement : 1 find sand) (seat and cover to be measured and paid for separately) (A) Viterous china pattern – I

Make- Cera, Parry ware, HindWare- 350 x 500 x 390 mm, Jaquar-Size- 350 x 480 x 390 mm

In general the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. /GWSSB, relevant drawings and as per the instructions of Engineer-in-Charge. Work shall be carried out as per item description.

1.0 Materials

1.1 Wash down water closet (European type W.C. Pan) Cera, Parry ware, HindWare - 350 x 500 x 390 mm, Jaquar-Size- 350 x 480 x 390 mm make shall conform to M-60. Cement mortar shall conform to M-11.

2.0 Workmanship

2.1 The closet shall be fixed to the floor by means of 75 mm. long 6.5 mm. diameter counter sunk bolts and nuts embedded in the floor concrete using rubber or before washers so as not to allow any lateral displacement The joint between the trap of W.C. and soil pipe shall ho made with C M. 1:1 (1 cement : 1 fine sand)

3.0 Mode of measurements and payment

3.1 The rate shall includes the cost of all materials and labour involved in all the operations described under workmanship.

3.2 The rate includes cost of all labour for fixing pans and sent and cover, inlet, connections etc. complete including testing the same. The payment of seat and cover shall be made separately.

3.2 The rate shall be for a unit of One number.

ITEM : Prov.& Fixing water closet squatting pan (Orissa type W.C.pan) at all floor levels, size 580mm incl. 100 mm size "P'or "S" trap for water closet squatting pan joining the trap with the pan & soil pipe in C.M. 1:1 (1 cement :1 fine sand) etc. Comp.(A) Vitreous china long pattern of approved colour For all Floor

In general the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D / GWSSB / R&B / MoRT&H, relevant drawings and as per the instructions of Engineer-in-Charge. Work shall be carried out as per item description.

1.1.0 Materials

1.1.1 Water closet squatting pan (**Orissa type W.C.pan**) shall conform to M-62. Cement mortar shall conform to M-11

2.2.0 Workmanship

2.2.1 The pan shall be sunk into the floor and embedded in a cushion of average 15 cm. cement concrete 1:5:10 (1 cement : 10 graded stone aggregate or brick aggregate 40 mm. nominal size) or and its bed concrete, the floor should be left 115 mm.-below the top level of the pan so as to allow for flooring and its bed concrete. The floor should be suitably stopped so that the .waste water is drained into the pan. The shall be provided with 100 mm. 'P' or 'S' trap as specified in the DTS NO.82 with approximately 50 mm seal-The joints between the pan and the trap shall be made leak-proof with cement mortar 1:1 (1 cement : 1 fine sand).

3.3.0 Mode of measurements and payment

3.3.1 The rate shall include the cost of all materials and labours involved in the operations described under workmanship.

3.3.2 The rate shall be for a unit of One number.

3.3.3 The 'P' or 'S' trap unit of One number.

The rate shall be for a unit of one nos.

ITEM : Providing and fixing S.W. gully trap with C.I. grating brick masonry chamber and watertight C.I. cover with frame of 300 mm. x 300 mm. size (Inside) with standard weight : (A) square mount taps 100 mm. x 100 mm. size P. type

1.0. Materials :

Water shall conform to M-1. (2) Cement mortar of proportion 1:5 shall conform to M-11. (3) Burnt brick shall conform to M-15. (4} The S.W. Galley trap of 100 mm. x 100 mm. size shall confirm to .M-70.

2.0. Workmanship

2.1. Excavation for gulley trap shall be done true to dimensions and levels as indicated on plans or as directed. The excavation work shall generally be done as per relevant specifications of item 4.0.0.of earth work.

2.2. Fixing:

2.2.1. The gully trap shall be fixed over cement concrete 1:5:10 (I cement : 5 sand : 10 graded brick bats aggregate 40 mm nominal size) foundation. 650 square and 100 mm. thick The depth of top of concrete below the ground level shall be 675 mm. The jointing of gulley outlet to the branch drain shall be done similar to jointing of S.W. pipe ac;

2.3. Brick masonry chamber : After fixing and testing gulley and branch drain, a brick masonry 300 x 330 mm. inside with bricks in CM 1:5 (1 cement : 5 sand) shall be built with a 100 mm. brick work round oh; gulley trap from the top of bed concrete up to ground level. The space between the chamber walls and the trap shall be filled with cement concrete 1:5:10. The upper portion of the chamber i.e. above the top level of the trap shall be plastered inside with cement mortar 1:3 (1 cement: 3 sand) finished with floating coat of neat cement. The corners and bottom of the chamber shall be rounded of so as to slope towards the grating.

2.4. C.I. cover with frame 300 mm, x 300 mm. (inside) size shall then be fixed on the top of the brick masonry with C.C. 1:2:4 (1 lent : 2 coarse sand : 4 graded aggregate 20 mm. nominal size) 40 mm. thick and rendered smooth.

The finished top of the cover shall be left about 40 mm. above the adjoining ground level so as to exclude the surface water from entering the gulley trap.

3.0. Mode of measurements & payment:

3.1. The rate includes cost of all labour, materials, tools and plant etc. required for satisfactory completion of this item as described above.

3.2. The rate shall be for a unit of one number basis.

ITEM : Providing and fixing washbasin with single hole for pillar tap with C.I. or M.S. brackets painted white including sutting holes and making good the same but excluding fittings.(A) Vitreous China:(ii) Flat Back washbasin 550 mm x v 400mm size. (i) In white colour.

1.0. Materials

1.1. The white glazed earthenware wash basin shall be 550 mm. x 400mm. of 1st quality and make as approved by the Engineer-in-charge. The wash basin shall-conform to M-59.

2.0. Workmanship

2.1. The washbasin shall be fixed on the wall as and where directed. The wash basin shall be supported on a pair of M.S. or C.I. brackets fixed in C.M. 1:3 (1 cement : 3 sand). The bracket shall conform to I.S. : 775-1962. The wall plaster on the rear shall be cut to rest the top edge of the washbasin. After fixing the basing, plaster shall be made good and surface finished to match the existing one.

2.2. The brackets shall be painted white with ready-mixed paint.

2.3. The C.I. brass trap and union shall be connected to 32 mm. dia. waste pipe which shall be suitably bent towards the wall and which shall discharge into an open drain leading to a gully trap or direct in to gully-trap on the ground floor and shall be connected to a waste pipe through a floor trap on the upper floors. C.P. brass trap and union may not be provided where the surface drain or a floor trap is placed directly under the basin and the waste is discharged in to vertically.

2.4. The height of the front edge to the wash basin from the floor level shall be 80 cms.

2.5. The necessary inlet, outlet connections and fittings such as pillar cocks, CP dress waste trap waste pipe, stopcock, chain wish rubber plug etc. shall be fixed.

2.6. The payment of fittings shall be made separately under separate items.

3.0. Mode of measurements & payment

3.1. The rate includes cost of all labour, materials, tool3 and plant etc. required for satisfactory completion of this item as specified in workmanship.

3.2. The rate shall be for a unit of One number.

ITEM : Providing and fixing Urinal of approved quality including connection with trap and with integral longitudinal flush pipe.(A) Squating plate pattern white earthenware 550mm x 300mm.

1.0 Materials :

1.1 The squatting plate pattern, white glazed earthenware urinal of 550 mm x 300 mm shall conform to I.S. 771-1063. It shall be test India make.

2.0. Workmanship

2.1. The squatting plate urinal shall be fixed as directed.

2.2. The top edge of the squatting plate shall be flush with the finished floor level adjacent to it. It shall be embedded on a layer of 25 mm. thick cement mortar 1:8 (1 cement: 8 find sand) laid over a bed of brunt brickbat cement 1:5 :10(1 cement: 5 fine sand, 10 graded brick aggregate 20 mm. nominal size). There shall be 100 mm. dia. glazed earthenware or vitreous china channel as specified with stop and outlet pieces suitably fixed in floor in cement mortar 1:3 (1 cement: 3 coarse sand) and joint finished with white cement. The earthenware vitreous china shall discharge into 65 mm. C.P. brass outlet grating. The trap and fitting shall be fixed as directed.

3.0. Mode or measurements and payment

3.1. The rate includes .cost of all materials, tools and plants and labour required for satisfactory completion of this item.

3.2. The rate shall be for a unit of One number.

ITEM : Bib Cock Auto Closing System with Built-in Control Cock With Wall Flange

1.0. Mode or measurements and payment

1.1 The rate shall be for a unit of one Nos.

ITEM : Flush Valve Dual Flow With 32mm Size Control Cock With Elbow Set (Fixed Discharge Of 3.00/6.00 Lts Per Flushing JAQUAR PRS 043

1.0. Mode or measurements and payment

1.1 The rate shall be for a unit of one Nos.

ITEM : Providing & fixing Angular Stop Cock JAQUAR CON 053 KN

1.0. Mode or measurements and payment

1.1 The rate shall be for a unit of one Nos.

ITEM : Providing & Fixing P.V.C. pipes (SCH-80) of Prince/ Supreme/ Jain/ Astral/ Tulsi/ Finolex make for water supply line at all floor levels incl. fixtures like bends, tees, shoe etc joined with resin of approved brand & manufacture etc. comp. Pipe shall be fixed on the wall the help of clamp at every two meter C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials., All Floor (as per approval of architect's specification ,selection & drawing detail. Or Engineer In charges)

(A) 15 mm Dia
(B) 25 mm Dia
(C) 40 mm Dia
(D) 50mm. dia.
(E) 65mm. dia.

1.1.1 The relevant specification of U-PVC pipes shall be followed for this item. The P.V.C. pipes shall be of SCH-80 of Prince, Supreme, Jain, Astral or Tulsi make for water supply of required diameter. All the fixtures like bend, tees, shoes etc shall be used for line and jointed with resin of approved brand.

1.1.2 The pipe line shall be fixed on the wall and floor as per detail. The joint shall be leak proof and the test shall be done with required pressure of water. The work shall be carried out as per detail and directed by engineer

in charge.

1.0. Mode or measurements and payment

1.1 The rate shall be for a unit of Running meter.

ITEM : Providing & Fixing C.P.V.C. pipes (SDR 13.5) of Prince/ Supreme/ Jain/ Astral/ Tulsi/Finolex make for water supply line at all floor levels incl.fixtures like bends, tees, shoe etc joined with resin of approved brand & manufacture etc. comp. Pipe shall be fixed on the wall the help of clampat every two meter C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing thesame with adhesive solvent, including cost of all materials. (A) 20 mm dia. (B) 25 mm dia. (D) 32 mm dia. (E) 40 mm dia. (F) 50 mm dia.

1.0. Mode or measurements and payment

1.1 The rate shall be for a unit of Running meter

ITEM : Providing & Fixing gun metal check or non return full way wheel valve at all floors levels, etc. complete. (A) 15 mm. dia.

1.0 Materials:

1.1 The gun metal check or not return full way wheel valve or specified dial, shall conform to I.S. : 778-1964. The non-return valve shall be of tested quality.

2.0. Workmanship

2.1. The gun metal check or non-return valve shall be fully cleared of all foreign matter before fixing. The fixing of shall be done by means of bolts nuts and 3 mm. rubber insertions with flags of spigot and socketed tail pieces, drilled to the same specifications as in case of socket and spigot flanges in case of flanged pipes. The joining shall be done leak proof.

3.0. Mode of measurements and payment

3.1. The rate includes all labours, materials, tools and plant etc. required for satisfactory completion of this item.

3.2. The rate shall be for a unit of One number.

ITEM : Providing & Fixing abonite ball cock of approved qualities directed etc. comp. (A) 25 mm. dia.

1.0. Materials :

The ball cock of specified diameter shall conform to M-75

2.0. Workmanship

The ball cock of specified diameter shall be fixed as directed. The fixing of ball cock shall be carried out as per relevant specification of item No. 23 (A) for joints etc.

3.0. Mode of measurement & payment

3.1. The rate includes-cost of all materials and labour involved for carrying out satisfactory work.

3.2. The rate shall be for a unit of One number.

ITEM : PVC SWR Vent Cowl (A) 75 mm. dia. (B) 110 mm Dia.

1.0 Materials:

1.1 The cowl vent and necessary fittings shall be of rigid P.V.C. and of approved brand and quality having required thickness uniform internal diameter of 75/110 mm without any defect. The jointing materials for pipe i.e. adhesive solvent cement shall be of approved quality and it shall be such that by applying / using it 100% water proof joints can be obtained.

2.0 Workmanship

2.1 The cowl vent shall be fitted to pipe line with help of white lead or required material, the joint shall be leak-proof and no water seepage shall be allowed.

3.0 Mode of measurement and payment:

3.1 The rate shall include all materials, tools, plants and labour involved in satisfactory completion of work as prescribed above.

3.2 The rate shall be paid per one No. basis.

ITEM : Providing and fixing for wall plugs and standard holder bat clamps comprising of two semicircular haves of flat iron and cast iron base screwed on wooden plugs. (C) 100 mm dia.

1.0. Materials and workmanship

1.1. The bat clamps shall consist of a iron base with a projecting 1 shaped lay, teeth web of which the semi-circular halves of the flat iron clamps are bolted. The base on the holder bat clamp shall be screwed on a pair of wooden plugs fixed in the wall with screw slotted driven through the holes in the base. The ' screws shall be not less than 75 mm. long-for 80 mm. diameter pipes and 100 mm. diameter pipes. The plugs shall be fixed in the wall to a depth of 150 mm. in cement mortar, 1:2 centrally to the holes in the base of the bat clamps and with their front face projecting to such a length' from the brick face that when the bat clamps is fixed, the outer base of its base shall be flush with the plaster face of the wall. The plugs shall be 110 mm. x 50 mm. wide at face increasing to 160 mm. x 70 mm. width at rear and shall be 70 mm. deep throughout.

2.0. Mode of measurement & payment

2.1. The work shall be measured on number basis of clamps prescribed with accessories including cost of all materials and labour involved in all the operation including jointing etc. complete fixing in position etc. complete.

2.2. The rate shall be for a unit of one number.

ITEM : Providing & Fixing Kathi around the vertical PVC drainage pipes for concealing with cement plaster 20 mm avg thickness(C.M. 1:3 [1 cement :3 coarse sand]) finishing as per instruction given by Eng. in charge. MR

(A) 75 mm PVC PIPE

(B) 100 mm /110 mm PVC PIPE

(C) 110 mm /150 mm PVC PIPE

1.0. Mode of measurement & payment

1.1 The rate shall be for one running meter.

ITEM : Providing & fixing Z - clamps at all floor levels of approved design to C.I. S.C.I. or PVC pipes including the cost of cutting holes & making good the wall etc. Complete - 100 mm dia as per architect instructions

(A) 40 to 50 mm dia

(B) 75 to 90 mm dia

(C) 110 mm dia to upto 150 mm dia

1.1.0 Materials and Workmanship :-

The G.I. Z- Clamps

PVC Coated (8mm) U- Bolts of approved design shall be for C.I or PVC.rain or wast water pipe 75 & 110 mm.dia.The bat clamps shall consist of a cast iron base with a projecting I shaped lay, teeth web of which the semi circular halves of the flat iron clamps are bolted. The base on the holder bat clamp shall be screwed on a pair of wooden plugs fixed in the wall with screw slotted driven through the holes in the base,The screws shallnot be less than 75 mm. long for 80 mm. diametre pipes. The plugs shall be fized in the wall to a depth of 150 mm in cement mortar 1:2 centrally to the holes in the base of the bat clamps and with their front face projecting to such a length form the brick face that when the bat clamps is fixed, the outer base of its base shall be flush with the plaster face of the wall. The plugs shall be 110 mm. x 50 mm.wide at take increasing to 160 mm. x 70 mm. width at rear and shall be 70 mm.deep through out.

The bat clamps shall be fixed as directed with C.C. blocks of 100 mm x 100 mm x 100 mm size. The relevent specifications of item No.17 shall be followed for concrete work.

1**.0. Mode of measurement & payment**

1.1 The rate shall be for a unit of One Number.

ITEM : Providing and fixing Towel Ring 300mm long fabricated from seamless stainless steel tube 2mm thick in bath room with polished wall flange at end of bars with heavy duty anchor fasteners & accessories.

1.0 Material and Workmanship

1.1 Towel Ring fabricated from **seamless stainless steel tube 2mm** thick in bath room with polished wall flange at end of bars with heavy duty anchor fasteners & accessories. **make of Cera, Parry ware, Jaquar, HindWare.**

2.0 Mode of Measurement and Payment

2.1 The rate shall be for a unit of One Number.

ITEM : Providing & Fixing stainless steel recessed type Soap dish of approved make including providing & fixing screws, washers, cutting & making good the walls.Make,Cera,Parryware, Jaquar,Hindware

In general the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D./ GWSSB relevant drawings and as per the instructions of Engineer-in-Charge. Work shall be carried out as per item description.

1**.0. Mode of measurement & payment**

1.1 The rate shall be for a unit of One Number.

ITEM : Providing & fixing colouron galvaniced steel, zinc / aluminium allus coated sheet 0.5 mm. thick roofing fixed with gslvanised grom J or L hook bolts and bolt 8mm dia with bituman and impet washer filled with white lead etc. Excluding the cost of purlins rafter and trusses. (TATA or Jindal Make) As per Engineer in Charge.

1**.0. Mode of measurement & payment**

1.1 The rate shall be for a unit of Sq.Meter.

ITEM : Removal of Sintex tank with all fittings and refixing at same location but on the pedastal of 0.3m height from slab level with all necessary fittings and fastenings as per requirements and as per directions of engineer in charge. As per M.R. all new material required to reinstall is consider in rate.

1.0. Mode of measurement & payment

2.0. The rate shall be for a unit of one Nos.

ITEM : Vegetation Removal from building at any height from root of vegetation requried chippi/.demolation wall /rcc &Remove root up to end & apply chemical for destroy the root. touch up as per requirment to only as per instructed by enginner incharge vegetation nos only decided with engineer in charge in advance.

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Job

ITEM : Aluminium section Window opening and refixing with all necessary fix & fiting etc only as per instrction by EIC.

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Square meter

ITEM : RCC Core Cutting is about making precise, circular cuts for creating holes of required diameters for Rehabilitation in civil works. The core drilling rod is fitted with diamond pieces at the drilling end. The core cutting machine can be used for both horizontal and vertical hole making purposes.

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Nos.

ITEM : Polishing green polished kota stone slab flooring at all flooring after repair work done as direct by E.I.C

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Square meter

ITEM : Apply hacking on RCC member manual or by mechanical as discoused by engineer incharge. 350 - 400 notches (dents) per sqmt. Process of making the back ground rough before plastering for better bonding of mortar with RCC (Tacha)

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Square meter

ITEM : Providing and fixing FRP FRAME size 125 x 65 mm and 35 mm thick FRP shutter with wood grain raised panneled design finish shutter having extra reinforcement on sides & edges in Gel coat finish. The core of the shutter & frmae is to be filed up with injected polyurethene foam done in situ along with embedded wooden pieces for stiffening & also taking hinges & fixtures. The whole FRP frame & shutter is to be water proof weather proof,termite proof &resistance to mild acid/alkali. Rates are to be inclusive of S.S.hinges with fastener sleeve & alluminium fixtures & fastentings. Product should have 3 years performance guarantee and company have ISO 9001-2000 certificate., All Floor (as per approval of architect's specification ,selection & drawing detail.or Engineer Incharge)

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Square meter.

ITEM : Providing and fixing 35 mm thick shutters for Doors, windows and clearstory windows including black enamelled M.S. butt hinges with necessary screws. (A) Indian teak wood. (i) Fully Panelled.

1.0. Materials

Teak wood shall conform to M-29 Glass shall conform to M-38. Anodised aluminium butt hinges shall conform to M-43.

2.0 Workmanship

2.1. The item covers the requirement of preparation of shutters for doors, windows, clerestory windows, their supply and fixing.

2.2. Shutters:

2.2.1. Paneled shutters shall be constructed in the form of timber frame work of styles and rails with panel inserted of type as specified in the detailed drawings. Panel shall be fixed by providing grooves in the style and rails. The styles and rails shall be joined to each other by mortise and tenon joints at right angles.

2.2.2. All members of the shutters shall be straight without any warp or bow and shall have smooth, well planned faces at right angles to each other.

2.2.3. The size of styles and rails shall be as per drawings or as directed. Styles and rails of shutters shall be made of one piece only.

2.3. Timber panelling:

2.3.1. Thickness of the panel shall be as specified in the item as shown in the drawing or as directed. If the panel is made from more than one piece the pieces shall be finished as shown in the detailed drawings and shall be

joined with continuous groove with specified size. The end pieces of the panel and the top and bottom of the panel shall be provided with continuous tongue to frame into groove of the frame shutter. An air space of 1.5 mm. shall be left in the groove of frame of shutter while framing the panels in it.

2.3.2. The faces of the panel as well as various pieces of the panel shall be- closely fitted to the sizes of the grooves.

2.3.3. Finishing of the corners of raised panel edges shall be done as shown in drawings or as directed.

2.3.4. The thickness specified shall be finished thickness and no tolerance will be permitted.

2.5. Fixtures and Fastenings:

2.5.1. The rate shall include anodised butt hinges including fixing with iron screws. The size and number of hinges shall be as per table given in annexure-1.

3.0. Mode of measurement and payment

3.1. The rate for shutter includes cost of providing block and cleat for keeping the shutter in open position if directed.

3.2. The dimension of the shutter shall be measured clear size of the shutter in close position between the grooves of the frame.

3.3. The rate shall be for a unit of one sq. meter

ITEM : Carrying out wall treatment for termite control including injecting (8mm dia- 75 mm drill for 115 mm thick wall and 8mm dia- 100 drill for 230 mm wall) with chemical solution in oil base including labour and material Using Imidacloprid concentration 20EC As per IS 6316 paret - II concentration by weight 0.50 percent is recommended i.e one liter chemical emulsion dilute with 19 liter of IS Concentration total dillite concentration with be 20 liter inclusive of one liter chemical emulsion recommended as per I.S.

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Square meter

ITEM : Removing & refixing interlocking type cement concrete paver block (Rubber moulded) of approved shape, design & color fixing on fine sand bedding item includes leveling by using vibratory plates compacted machine item also includes all martials, labour, equipment, tools, plants, watering, cleaning etc complete.

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Square meter

ITEM : Providing and Replace door, Window S.S. Fixtures fix in wooden / Alluminium door - window with ISI marks as per approoved by engineer in charge.
A) 4" x 1.25 " S.S. Hinge ,(B) 5" x 1.25" S.S. Hinge ,(C) 8" S.S. Aldraf ,(D) 10" S.S. Aldraf,(E) 12" S.S. Aldraf ,(F) 4" S.S. Handle,(G) 6" S.S. Handle ,(H) 4" S.S. Stopper ,(I) 8" S.S. Stopper,(J) 8" S.S. Pavan Ankdi Heavy duty

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Nos.

ITEM : Providing & Fixing water proof plywood (ISI marks 710grade) at the door, window and any space in the building. necessary hardware, serews materials etc. complete as per instruction by engineer in charge. A) 6 mm., (B) 8 mm., (C) 12 mm., (D) 18 mm.

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Square meter

ITEM : Providing & laying weep hole in parapet wall/sunk by using PVC pipe of 75 mm -500mm including laying in proper grede and jointing the completed as per instruction by engineer in charge.

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of Each.

ITEM : Providing & Applying Surface Water Proofing treatment on existing Water proofing.

(1) Cleaning Surface Slab up to Mother slab & free from any Loose Material. Paint, Dust, Greaze or Remove all existing bituminous Coating Completely. It is recommended to use intense wise brushing on high speed Water jet for through Cleaning.

(2) The Substrate must be checked for its Soundness using Small hammer. All Cracks at corner joint, Channels and Parapet Should Be Properly treated.

(3) Cracks/construction joints treatment: Opening the cracks/construction joints,if any, in V/U shape using electrically operated cutting machine. Cleaning the surface thoroughly from dust and loose partical using wire brush and air blower. Filling the cracks if any with polymer modified cement mortar hybrid PU Sealant depending on the width of crack/joint.

(4) Epoxy primer: The Epoxy primer must be applied on clean and dry surface by mixing base and hardener in equal proportions with the help of stirrer and adding equal amount of water and appling on the surface at 80-100 grams per sqmt and allowed it to dry untill tack free

(5) Hybrrid polyurea part-A(base) and part-B(hardner) are packed in two separate containers having the correct predetermined mixing ratio by weight.Stir individual container separately,Part-A and PArt-B very well, to get homogeneous material. The whole quantity of Part-B is added into Part-A. The two components should be mixed for about 2-3 minutes with a low-speed mixer(300 rpm),until the mixture becomes uniform. It is important to stir the mixture thoroughly near the sides and bottom of the container, to achieve uniform dispersion of the hardner. Over dry primed surface, apply mixed material with brush/roller/spray at the rate of 2 Kg/Sqmtr. Apply second coat at same coverage after 4 to 6 hour interval.

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Square meter

ITEM : Steel work welded, in built up sections frame work including, cutting, hoisting, fixing in position and applying a priming coat of red lead paint. In beams and joints, channels, angles tees, flats, with connecting plates or angle cleats as in main and cross beams. Hip and jack rafters, purlins, connected to common falters and the like.

1.0. Materials

The structured steel work shall conform to M-22. Red lead paint shall conform to I.S : 102-1962.

2.0. Workmanship

2.1. The steel sections as specified or required, shall be cut, square and to correct lengths, as per drawings and design. The cut ends exposed to view shall be finished smooth. No two pieces shall be welded or otherwise jointed to make up the required length of member, except as indicated in the drawing or as directed. All straightening and shaping to form shall be done by application of pressure and not by hammering. Any bending or cutting shall be carried out in suet] a manner as not to impair the strength of the metal. All operations shall be done in cold state unless otherwise directed/permitted.

2.2. Steel riveted or bolted in built up sections, frame work.

2.2.1. The steel structure as shown in the drawings or as per direction of the Engineer-in-charge shall be laid out on a level platform to full scale and to full size in parts. A steel tape shall be used for measurements to ensure maximum accuracy.

2.2.2. Wooden templates 12 mm. to 19 mm. thick or metal sheet template shall be made to correspond to each connecting gussets plate and rivet holes shall be accurately marked on them and drilled. The templates shall be laid on the steel members and holes of the steel members shall also be marked for curing. The base of steel column and the .position of Anchor bolts shall be carefully set out

2.2.3. Ail stiffeners shall be formed by pressure and where practicable the metal shall not to be cut and welded in making these. In major work', or whore so specified, shop drawings giving complete details and information for the fabrication of the component parts of the structure including location, type, size, (origin and details or rivets, bolts or weld shall be prepared in advance of the actual fabrication and as distinctly marked or stenciled with paint with the identification mark as given in the stop drawings. The bars shall be thickened at the ends, so as to provide for screwed threads and gradually tapered off to meet their normal section. Great accuracy shall be observed in fabrication of various member, so that these can be assembled without being unduly

packed, stained, or forced into position and when build up, shall be true and tree from twists, brinks, buckles, or open joints. Before making holes in individual members for fabrication the steel work intended to be riveted or belted together shall be as ambled or clamped properly and tightly so as to ensure close abutting or lapping or the surfaces of the different members. All softeners shall bear tightly both at top and bottom without being drawn or caulked. The abutting joints shall be cut or crossed true and straight and fitted close together. Web splice plates and tillers under stiffened shall be cut to fit within 3 mm. or flange Angles Web plates of Girders shall have no cover. Plates, shall have their ends flush with the top of angles forming the flanges unless otherwise required. The web plates when spiced ^.hall have clearance of not more than 6 mm. The erection, clearance for created ends of members connecting steel shall preferably be not greater than i.5 mm. The erection clearance at the ends o' beams without web cleats shall not be more than 3 mm. at each end but where for a practical reason greater clearance is necessary, suitably designed seating shall be provided.

Pains and rollers shall be accurately tuned to gauge. These straight and smooth and free from flows. The roller bearing shall be provided with adequate arraignments fur holding the girders or truss resting on it. In columns caps and bases, the ends of shifts together with the attached gussets Angles, channels etc after riveting together shah be accurately mechanized so that the parts connected Butt against each other over the entire surfaces of contact connecting angles or channels shall he fabricated and placed in position with greater accuracy so that they are nut unduly reduced in thickness by machining. The ends of bearing stiffeners shall be mechanized or ground to tit tightly both at the top and bottom, Alt holes shall generally be drilled to the required size and at required, position. Sub punching shall be permitted provided it is done 3 mm. or less in diameter and reamer thereafter to the require size. The holes for rivets and bolts shall be larger by 0 4. to 6 mm. than the nominal diameter of rivets or black holts depending upon me diameter of rivets.

Holes shall have their axis perpendicular to the surface bored through. The drilling or remarrying shall be free from burrs, and the holes should be clean and accurate holes for counter sunk bolts shall be made in such a mariner that their heads fit flush with the surface after fixing.

The fabrication work shall be completed in workshop as far as it is practicable to do so. Site joints shall be done with rivets and fitted bolts or black bolts, as shown in the drawings or as directed. Generally the following principles shall govern the use of reverts turned and fitted bolts, and block bolts.

(i) Rivets and turned and fitted bolts shall be used where the connections is such that slip under load has to be avoided.

(ii) Black bolts may be used very sparingly where a force is carried through a connection without impact, vibration or reversal or stresses.

2.2.4. Riveting:

The parts assembled for riveting shall be in close contact with each other and the bearing stiffeners shall bear tightly both at top and bottom without being drawn or caulked. Members to be riveted shall be properly pinned or bolted and rigidly held to gather while riveting. Drifting of holes shall no! be permitted Except to draw the parts together and the drifting tools so used shall have maximum diameter not exceeding, the nominal diameter of rivets or bolls. Drifting done during assembling shall not distort the metal 01 enlarge the holes. The shanks of rivets shall project beyond the plate-surface sufficiently so as to fill hole thoroughly and form the required head after riveting.

The riveting shall be done by hydraulic or pneumatic process. However, where such facilities air not available, hand riveting may be permitted. The rivet shall be heated red hot, care being taken to control the temperature of heating so as not to burn the steel. Rivers of diameter less than 10 mm. may be fitted cold. Rivets shall be of heat finish with heads full and of equal size. All loose, burnt or badly formed reverts with concentric or deficient heads shall be cut out and replaced. The heads of rivets shall be central to shanks and shall grip the assembled member firmly. In cutting out rivets, care shall be taken so as not be injure assembled members, caulking or reequipping shall not be permitted. For testing rivets, a hammer weighing approximately 0 25 kg shall be used. Both heads of the rivets shall be

tapped, slack rivets will give a hollow sound and a jar.

All rivet heads shall be painted with red lead paint within a week of their fixing.

2.2.5. All bolt heads and nuts shall be hexagonal arid of equal size unless specified otherwise. The screwed heads shall conform to I.S. 1363-1960 and the threaded surface shall not be tapered. The bolts shall be of such length so as to project two clear threads beyond the nuts when fixed in position and these shall lit in the holes without any shakes. The nut shall be fit in the threaded ends of bolts properly.

Where turned and fitted bolts are required to be used in place of rivets shall be provided with washers not less

than 6 mm. thick so that the nut when tightened shall not bear on the unthreaded body of the bolt Tapered washers shall be provided for all heads and nuts bearing on leveled surfaces. The threaded portion of the bolt shall not be within the thickness of the parts bolted together, the faces of the bolt heads and nuts abutting against steel members shall be machine finished. Where there is a risk of the nut being removed or becoming loose due to vibrations or reversal of stresses, these shall be secured from slackening by me use of locknuts, spring washers, cross-cutting or hammering down of threads as directed.

Bolts, nuts, and-washers shall be thoroughly cleaned and dipped m double boiled linseed oil before use. The whole steel work shall be painted with a coat of priming coat of red lead, as per relevant specification of painting

2.2.6. Welding shall generally be done by electric process. Gas welding shall be resorted to, using oxyacetylene flame with specific prior approval. Gas welding shall not be permitted for structural steel work.

2.2.7 The work shall be done as shown in the shop drawings which should clearly indicate various details of the joints to he welded, shop and site welded as well as type of electrodes to be used, symbol for welding on plans and shop drawings shall be according to I.S. 813-1961. As far as possible every effort shall be made to limit the welding that must be done after improper welding that is likely to be done due to heights and difficult positions on scaffoldings etc. The welding work shall conform to I.S. 816-1969.

2.2.8 Preparation of surfaces : Surfaces which are to be welled together shall be free from loose mill scale, rust, paint, grease or other foreign matter. A coating of boiled linseed oil shall be permitted.

2.2.9 Assembly for welding : Before welding is commenced, the plates shall first be brought together and firmly clamped or spot welded at specified distance. This temporary connection has to be strong enough to hold the plates accurately in place without displacement.

2.2.10 Precautions : All operations connected with welding and cutting equipment shall conform to safety requirement given in I.S. 818-1968. The following paints shall be borne in mind during the process of welding:

(a) Are length voltage and amperage shall be suited to the thickness of material type of groove and other circumstances of the work.

(b) The segments of welding shall be such that where possible the members which offer. the greatest resistance to compression are welded first.

2.2.11 The defective welds which shall be considered harmful to the structural strength shall cut out and rewarded.

2.2.12 Finished welds and adjacent parts shall be protected with clean boiled linseed oil and after all stag has been removed. Welds and adjacent parts shall l*o painted after the same are approved.

2.2.13 All the members shall be thoroughly cleaned of rust-scales, dust etc. and given a priming coat of red lead paint before fixing them in position.

3.0 Mode of measurements & payment

3.1. The steel work shall be measured in general as under:

(a) All work shall be measured on the basis of finished dimensions as fixed at site and measured net unless specified otherwise.

(b) The weight of steel sections, steel rods, and steel strips in finished work shall be calculated Hum standard weight on the same basis on which steel is supplied to Contractor by department or those given in relevant I S : if steel is arranged by the contractor.

(c) The weight of steel plates and strips shall be taken from relevant I.S. based on 7.35 kg./ sq. meter fur every millimeter sheet thickness if steel is supplied to the contractor by department.

(d) Unless otherwise specified, weight of cleats, brackets, packing pieces, bolts, nuts, washer, distance pieces, separators, diaphragm gusset (taking overall square dimensions) fish plates etc. shall lie added to the weight of respective items.

(c) In riveted work allowance is to be made for weight of rivet hands. No deductions shall be made for rivet or bolts holes excluding holes for anchor or holding down bolts.

(I) For forged steel and steel castings, weight shall be calculated on the basis of 7850 kg./cum. (y) Unless otherwise specified, no allowance shall be made for the weld metal in case of welded steel structure.

(i) Dimensions other than cross sections and thickness of plates shall be measured to nearest 0.001m

(j) Mill tolerance shall be ignored when weight is determined by calculation.

3.2. The rate includes cost of all material, labour, erection, hoisting scaffolding, protective measure, required for proper completion of the item of work. This shall also include conveyance and delivery handling, loading, unloading and storing etc. required for completing the item described above including necessary wastage involved.

3.3. The rate shall be for a unit of one quintal.

ITEM : Providing and fixing in position collapsible steel shutters with vertical channels 20 x 10x2 mm. braced with flat iron diagonals 20 x 5 mm. size with top and bottom rails of T Iron 40 x 40 x 6 mm. with 38 mm. dia steel pulleys complete with bolts, nuts, locking arrangements, stoppers, handles, including applying a priming coat red lead paint.

1.0. Materials

The collapsible steel gate shall conform to M-33.

2.0. Workmanship

J-rails shall be fixed to the floor and to the lintel at top by means of Anchor bolls, embedded in cement concrete-of floor and lintel. The anchor bolts shall be placed approximately at 45 mm. centers alternatively in groove shall be formed along the runner for the purpose. The collapsible gate shall fixed at the sites by fixing the double channels in the T-iron rail and also by hold fasts bolted to the end double channel and fixed in the masonry of the side walls or the otherwise.

In case where the collapsible gate is not required to the lintel beams or slop above, a toe iron suitably designed may be fixed at the top embedded in masonry and provided with necessary clamps and roller arrangement at the top.

All the adjoining work damaged while fixing of gate shall be made good to match the existing work without any extra payment.

All the members of the collapsible gate including. T-iron shall be thoroughly cleaned of rust, scales dust etc., and given a priming coat of red lead, before fixing them in position.

3.0. Mode of measurement and payment

3.1. The collapsible gate shall be measured in sq. meter. The height of the gate shall be measured as the length of double channels and breadth from outside to outside of the end fixed double channels in open position of the gate. The rate includes providing handles, arrangements stoppers etc.

3.2. The rate -shall be for a unit of one sq. meter

ITEM : Providing & Fixing 6 nos steel cap wall hook 1 inches, length 1.75 inches silver pack of premium hangers ,(rust resistant coating reliable hanging hardware) with pvc coated steel wire rope (0.5 mm gauge) for drying clothes/clothesline in 1 typical hostel room. (6 Nos. Cap wall hook with 10 m wire rope.)

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Nos.

ITEM : Providing & Fixing Plain Glass sheet 4 mm thick in Door, Window & Ventilation with necessary lapi/scrow/khili etc as per instruction by engineer in charge.

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Square meter

ITEM : Dismantling the existing Solar water heater of any size along with plusmbing connection and making the site clear. Inclusive erecting on proper location inlet-outlet water connection flexible piping of capacity up to 100 lit to 200 lit. with all material if required for re erection. Recheck after refix & it must be in working condition same as before opening (Note: Only one consider for single hostel)

ITEM : Providing & Fixing Nylon net (having net weight-0.065 kg/sq.mt) in outside as well as inside plaster / terrace water proofing at any height (no load or lift will be paid for the same) etc as direct by E.I.C

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Square meter

ITEM : Concrete Core Test. Cutting and extracting undisturbed Concrete Core of specified diameters preferable with its length finished after end preparation equal to twice the diameter but in any case not less than the diameter of the core from the R.C.C members at specified locations with portable power driven core cutting equipment. After the core has been extracted, the hole shall be made good by plugging with non shrinkable high strength grout as approved by Engineer In-charge. The rate shall include necessary scaffolding and platform and but exclude cost of all the operations like water & electricity supply, etc. complete. Testing the extracted concrete cores of any diameter for evaluating compressive strength and submittin test results, etc. complete

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Nos.

ITEM : Ultrasonic Pulse Velocity (UPV) test. Conducting Ultrasonic pulse velocity measurement test confirming to IS 13311 or equivalent international codes on Indentified area in required intervals including surface preparation, necessary Scaffolding, etc. complete and submitting test results as directed by Engineer-in -charge.

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Nos.

ITEM : To carry out the rebound hammer test at various floors for structural members of annexed Building

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Nos.

ITEM : Disposal of unserviceable material with all lead & lift, cleaning etc. (Building rubbish)

Loading -Unloading & Carting & Transporting and Disposing unserviceale material from site (2.82 cmt -min quantity Per Tractor Trip)

Note: The disposal destination will be confirmed with VNSGU/ consultant in advance.

The measurement shall be carried out Each(per) Tractor trip.

ITEM : The post-construction cleaning process typically includes dusting and cleaning all surfaces, vacuuming and sweeping all floors, cleaning windows and glass surfaces, cleaning and disinfecting bathrooms and toilet removing all debris, trash, and excess materials from the property. only satisfactory as per hostel warden /consultant and payment received only after written confirmation from them.

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Square meter

ITEM : All pipe lines opening and remove/refixing on terrace with all necessary fix & fiting etc only as per instrction by EIC. 25mm to 65mm to 150mm.

1.0 Mode of measurement & payment

1.1 The rate shall be for a unit of one Running meter

For other Materials : not mentioned above, First quality, ISI marked products shall be used after obtaining approval of Engineer-in-Charge.

Signature of the Appicant :

Registrar
VEER NARMAD SOUTH GUJARAT UNIVERSITY.

SPECIFICATION FOR ELECTRICAL INSTALLATION

SUPPLY :

The supply mains will be brought in at places marked drawing and will be 3 Phase 50, cycles, 4 wires system 415 volts between phase and 230 volts between phase and neutral.

SAMPLES :

The Contractor shall submit to the Engineer-in-charge for approval samples of accessories and apparatus they (the contractor) propose to use for the installation.

The tenderer shall submit a list of important contracts carried out by them to the Engineer-in-charge.

DRAWINGS :

Samples to be submitted by the contractor and thi s specifications shall not be departed from without the instructions of the Engineer-in-charge in writing. No approval given by the Engineer-in-charge approval to any drawings or samples submitted by the contractor shall in any way exonerate the contractor from his liability out the work in accordance with the terms of this contract.

SUPERVISION :The whole of the work, shall be carried out to the satisfaction of the municipal Engineer and under the constant supervision of the contractor's competant qualified and experience Electrical Engineer. The contractor shall if require, furnish the full details of the Engineer's qualification.

GENERAL SPECIFICATIONS

1. WIRING RULES :

   The installation generally shall be carried in cinfirmity with the Indian Electricity Act/Rules and the latest edition of the wiring rules of the Installation of Elecrical Enginner (London) but where this specification differs from those rules the specifications shall be folowed.

2. DEFINITION :

   The definition of terms the I.E.C. wiring rules shall apply.

3. PRESSURE AND FREQUENCYN :

   The supply will be three phase 50 cycles A.C. 4 wire system 415 volts between phase, and 230 volts between phase and neutral and appratus required shall be suitable for this supply.

4. SYSTEM OF WIRING :

   Wiring forlights, fans wall sockets, refrigerators and bells shall be carried out as described in the items and details shall be confirmed with the specification herein.

5. All iring must be done on the distribution system with main and branch distribution board at convenient centres and without isolated fuse. All conductors shall be run as far as possible so as to be easily acessible and capable of being inspected. Facility for maintance shall be particularly provided for and blancing of circuits carefully arranged.

6. CONDUCTORS :

   All conductors shall be of copper as set for in the I.E.C. wiring rules 11th edition and no insulated concuctor shall have acrose section less than of 1/0.044 and every such conductor of greater gross section shall be standard.

7. FALL OF POTENTIAL :

   The cross sectional area of all conductor inside the building shall be so proportioned to their lands that the drop in pressure between the main fuses and the nearest consuming appliance shall not exceed 2% with all divicer in use.

8. CURCUITS :

   No final lighting of fan circuits from a distribution in boards shall carry more than 3 ampeares of 6 points and as far as possible the loading shall be arranged so as to obviate the necessity of using various sizes of fuse wires on sub-circuite.

9. TESTS :

   The installation with fittings complete shall before current is switch on satisfactorily pass the following test.

(a) All the lamps and appliance having been connected to the conductors and all switches and fuses be (ON a pressure not less then twice the working pressure) (subject to a limit of 500 volts) shall be applied and the installation

resistance of the whole or any part of the installation to earth must be less in megohms than 25 devided by the number of points.

10. JOINTS :

All joints in coductors shall be made by means of approved mechanical connector in suitable approved joints boxes but as far as possible looping back shall be adopted.

11. SWITCHES :

(a) All main switches shall be of quick make and break combined switch and fuse, ironclad tupe of reliable make and subject to approval.

(b) All branches switches controlling not more than 5 ampears shall be of quick and break, push button or tumbler pattern and shall be 'NO' when the knob is down, the attachment of covers to the base of the switch must be by means of machine serews. All fan and wall socket shall provided with controlling switches.

12. DISTRUBUTION BOARDS :

All distrubution boards shall be fitted with hard grin pattern Home Office Type procelain fuses (one on positive side of circuit, the neutral being connected to a common bus bar of copper in such away that the circuit can be easily isolated from the distribution boards) of substantial make and atleast of 5/10 Amp. capacity poecelain 5 amp. round cut-outs will not be allowed to be used as fuse holder. All distribution boards shall be fitted with the wall enclosed in box of approved pattern (to be supplied by the contractor) when concelled system is adopted and on polished folding Type Teakwood blocks with cover in the case of open wiring in each case the pattern shall be submitted to the Engineer-in-charge for approval. Load on each floor shall be distributed on required distribution boards.

13. CELLING ROSES AND SOCKETS :

Celling roses and wall sockets shall be of reliable make and subject ot the approva. The subspension of the flexible wire for light pendants shall be so executed that the weight of the pendant will not be carried by the terminals of the ceiling rose.

14. LAMP HOLDERS :

Lamp holders for use on brackets shal have not less than a half inch female nipple. All cases must be solid and substantial and of bayonet pattern. Pendent lamp holder shall have a good grips fitted on them so as to carry the weight of the pendent.

15. INTERCHANGE ABILITY :

Similiar parts of all the switches, lamp holders, ceiling rose, brackets, pendants and all other fittings of the same type shall be interchangeable.

16. CONDUIT TO BE CONTINUOUS :

Conduit shall be of rigid P.V.C.

17. BUNCHING OF WIRES :

The wires of a circuit must be each together in a conduit.

18. JOINTS IN CONDUIT :

The lengths of conduit shall be jointed by means of adhesive solution.

19. PRECAUTION AGAINST INSECTS AND DAMP :

All cutlets of conduit system shall be properly drained and ventilated but in such a manner as to prevent the entry of insects.

20. PROTECTION OF CONDUIT :

The conduits and fittings shall be joined by means of ahdesive soclution.

21. CONDUCTOR :

All conductors used in inconduit wiring shall be standard confirming to I.S. 694 1988 Part -II

22. ERECTION AND EARTHING OF CONDUIT :

Conduit shall be electrically continuous through out and shall be permanently and efficiently connected to earth by means of solied or standard copper wire having a cross sectional area not less than that of No. 8 S.W.G. in conduit system the pipe must be continuous when passing through wall of 1 floor and earthing shall extend to

the metal frame of all mainand branch switches and distribution boards. Gas pipes must not be used for obtaining and earth connection.

23. EARTH WIRE AND PLATES :

The earthing wire and the connection with earth shall be of 8 SWG G.I. as per specified instructed by Engineer-in-charge and shall be so constructed and laid as to avoid the formation of any electronic couple. all earthing wired shall be efficiently protected against mechanical damages.

24. PASSING THROUGH WALLS :

The conductor shall be carried in an approved heaby gauge solid drawn or lapwelded conduit tube or procelain the ducts. Where a wall tube passes outside a building so as to be exposed to the weather, the other end shall be bellomouthed and turned down wards.

25. PLUGGING WALLS :

Plugs for ordinary walls or ceiling shal be of well seasoned teak wood not less than two inches long by one inch. Square on the inner and three forth inch square on the outer or they shall be cemented into the walls to within one fourth inch of surfacer used with plaster or line putting to give the cement hold the plugs, two conterboards not less than half inch diameter, one inch deep must be provided on each of the two opposite sides. Iron screw may be used for attaching battens to the plugs. Where owing to IRREGULAR COURING OR OTHER REASONS THE PLUGGING OF THE WALLS IRREGULAR PRESENTS DIFFICULTIES BATTONS OR CONDUIT SHALL BE ATTACHED TO THE WALLS OR CEILING IN AMANNER APPROVED BY THE ENGINEER-IN-CHARGE.

25. ATTACHMENT TO WALLS AND CEILINGS :

In the case of lead covered or Cab-Tyre Shethed system the conductors shall be fixed on varnished teak wood battans not less than half inch in thickness by means of metal clips (of approved make) spaced at intervals of not more than 4.1/2 inches. The clips shall be fixed to T.W.battons by means of brass screws or pins set level with the surface of the clips. Pawl plug may be used for fixing battans to walls and ceiling, but only taper T.W. plugs (see clause 24) shall be used for fixing T.W. base blocks for switches regulator and ceiling rose.

26. ATTACHMENT OF FITTINGS AND ACCESSORIES :

All ceiling roses, wall socket switches, regulators, brackets, pendants and accessories attached to wall or ceiling shall be mounted on substantial teak wood varnished blocks having solid backs not less than quarter inch thicks.All accessories shall be fixed to such base blocks by means of brass screw.

27. PASSING THROUGH FLOORS :

All wires passing through floors shall be efficiently protected by means of metal or T.W. covering box extending not less than 8 fts. above floor level condit or procellain tubes shall be used for lading the wires though the floor.

28. FITTINGS :

No wire shall be buried directly in plaster.

29. FITTINGS :

Fans, regulators, lighting, fixtures etc. whether spplied by the employer or conductor shall be erected in position by the contractor in such manner as not expose any unsightly fittings necessary for suspension from the ceiling or walls, and in cofirmity with the surrounding architectural design.

30. RATING :

The raing of consuming devises unless indicated on the drawings will be as follows :-

Ceiling Fans	150 Watts.
Desk fans	80 Watts
Lights	60 Watts
Wall sockets	80 Watts

31. LOCATION OF CONTROL BOARDS :

The controll boards shall be fixed in consulation with the Engineer-in-charge.

32. All makings on the switches and distribution boards shall comply with Rule 510 of Indian Electricity Act.

33. All control switches shall be located as far as possible on walls.

34. In wiring work should be used approved by I.S.I.

SPECIFICATION CONCEALED CONCUIT WIRING SYSTEM

1. All concuit used shall be completely concealed and suitable outlet boxes shall be provided to facilitate easy repairs and maintance.
2. As far as possible the conduit system shall be so designed and erected on to obviate one use of tees, elbows and sharp bends.
3. All the concut-system shall be throughly cleaned after completion of erection and before the cable is pulled in No. length of concuit shall have more than the equivalent of two quaarters bends from outlet to outlet.
4. The concuit shall b of saple cross sectional area to facilitate the pulling in of wires. In no case shall the total cross section of the wires (Measured over the insulation) be more than the half the area of the concuit bore except in short lengths of straight concuit pipe.
5. CUTTING AWAY AND MAKING GOOD :
   The tender is to include all necessary cutting away and making good for the purpose of the Electrical contract. The Electrical contractor will be held responsible for, and will have to make good at his own expense to be satisfaction of the Engineer-in-charge any damage to or disfigurement of the sits which may have been closed by acts of Commission of him self or his sevantsor agentsin connection of carrying out of the contract.
6. DRAWINGS :
   The contractor shall supply to the Engineer-in-charge a complete set wiring diagrams showing the run of concealed conduits, outlet boxes. Distribution boards, main switch etc. so as to facilitate the future maintanance of the installation.
7. OUTLET BOXES :
   The outlet boxes shall be of metal and so designed as maintain the continuity of the conduit system throughout and the conduits shall be attached to the boxes either by screw joints or nuts on eigher side of the wall of the outlet box.
8. SWITCHES DISTRIBUTION BOARDS ETC. :
   The position of distribution board, fan regulators and control, switches shown in the Drawings shall be dhered to. If desired by the Engineer-in-charge the position of these shall be chrged without any extra charges. The height of wall socket points, shall be fixed in consultation with the Engineer-in-charge.
9. CABLES :
   All cable used for wiring shall be standard and circuit wire shall be 3/029 V.I.R.
10 MAINS :
   All mains from service board leading upto other floors shall be in concealed concuit system.
11. MARKING :
   (more than 3 pin one place) be clearly marked to indicate which consuming device each controls.
12. MAIN DISTRIBUTION BOARDS :
   Main distribution boards for concealed wiring shall be fixed in positions flush with walls shown on the drawing and shall consist of :-
   (a) One main switch (controlling each section).
   (b) Hangarian type circuit fuse (1 per circuit and a common bus) control boards with switches and fan regulators shall be fixed flush with the walls and in a manner as to expose only the switch know and fan regulators handle for operation.

G E N E R A L

1. Meters for power points and light and fan points shall be separate mains shall be brought to the position indicated on the planned the line shall be taken there from to tyhe distribution boards on various floors.
2. Electric company's charges for bringing the main cables to position indicated together with the connection for meters are payble by the owners.
3. It will be the responsibility of the contractor to get power connection form supply co. The application shall be signed by the contractor & service connection charges shall be paid by the corporation. The Corporation will not take over the installation unless power supply permanent connection is received and the entire installation is energised.
4. The contractor having erectric contract licence of Gujarat State shall only be eligible to tender.

SPECIFICATION OF MATERIAL

RECOMMENDED MAKE OF MATERIAL TO BE USED:

Sr. No.	Item	Make
1.	Wiring Accessories	SOR Category - II
2.	Switchgear & DB	SOR Category - III
3.	Wires and Cables	POLY CAB, FINOLEX,RR
4.	Lift	KONE, Schinddler, Otis, Mitsubishi
5.	Concealed Pipes	PRICISION,FIA approved and ISI
6.	Ceiling Fan	CROMPTON,BAJAJ,BEE (5 star rating)
7.	Glands and lugs	HMI, MCI and Dowels
8.	Pump	CROMPTON,SOR Category-III
9.	Starter	L&T, Siemens, Cropton
10.	Lighting Items	SOR Category-III
11.	Measuring Instruments	Enercon, Meco, Rushabh
12.	Air condition	BEE (5 Star rating)
13.	Panel Fabruicator/Builder	CPRI Approved only

NOTE:

1. All the termination of distribution board and ICTP should be terminated with appropriate size lugs and glands.

2. All the material used shall be ISI and FIA approved only.

3. Make of components required to be used by contractor to complete the installation, if not mentioned anywhere, shall be required to GOT IT APPROVED by Engineer-in-charge.

4. The make of Tube, Ballast and fitting must be of same make.

Signature of the Electrical Contractor.

SPECIAL CONDITION

(1) Point wiring shall be from the distribution fuse board, No sub main shall be measured.

(2) Samples fo materials shall be given to Engineer-in-charge and approval should be taken in writing before its use.

(3) Fabrication drawing should be get approved from the Engineer-in -charge prior to Manufacturer.

(4) Pipe laying lay out shall be as per consultants drawings.

(5) There shall be no junction in wiring out let box shall be used after bond.

(6) Electrical contractor shall make good the civil work if chased of damaged.

(7) 50% payment shall be paid to the contractor on delivery of material at site, either of bill value or item rate which is less, in case of open PVC conduit wiring.

(8) 30% of item rate shall be paid on laying of pipes. 50 % on completion. 10% after 30 days of final take over of the installation date. 10 % shall be paid after 365 days from the date of take over of installation, in case of concealed.

(9) Electrical Engineer-in-charge opinion shall be final and binding on contractor.

(10) Qualified labour and supervisors shall work at site.

(11) Electrical Contractor shall not permit unqualified labour contractor to work at site. He shall observe Govt. rules regarding control of labour. He shall submit test report and carry our tests as required and furnish detailed drawings on completion of work. The responsible authorised person by the contractor should be available of site dailhy when work is in progress.

(12) The work shall be carried out during working days between 8.00 A.M. to 6.00 P.M. only. The cable trench should not remain open for more than 24 hours after excavation. If contractor intends to work on holiday or outside working hours specified, he shall take prior permission from the Enginner-in-charge. In that case overtime to the staff shall have to be paid by the Contractor. The Electrical appliance-materials shall be bear the ISI mark or declaration indicating manufacture's names and appliances material used having been manufactured in accordance with the manufactures's certificate issued by the Government of Gujarat and confirming to the standar specified by the I.S.I. shall be given by the contractor.

The conditions laid down under House Hold Electrical applicances (Quality control Act 1981) shall be followed.

I/We agree to carry out the above work at rates indicated above at _____ percentage above/below the rates indicated above i.e. I/We agree to carryout the above work at a total cost of Rs. _____ .

The Contractor shall provide test report and get the installation approved from Govt. Elect. Authority is required.

CONTRACTORS STAMP AND SIGNATURE.

10. SCHEDULE FOR TESTING OF MATERIALS :

Sr. No.	Brief description of Materials : to be tested	Prescription of test, which shall be carried out	Frequency at which test shall be carried out (As per GERI Q.C. Vol-12002)
1.	Sand	(1) Gradation (2) Fineness Modulus (3) Specific Gravity (4) Water Absorption (5) Silt Content	1/150 Cmt. for concrete or as per requirement of relevant specification.
2.	Coarse Aggregate	(1) Gradation (2) Impact Value (3) Flakiness Index (4) Water Absorption (5) Stripping Value	1/150 Cmt. for concrete or as per requirement of relevant specification.
3.	C.C.Cube	(1) Compressive Strength	1-5 Cmt. 1-Test 6-15 Cmt. 2-Test 16-30 Cmt. 3-Test 31-50 Cmt. 4-Test 51 Cmt. & above 4 + 1 for each additional 50 Cmt. or part of thereof.
4A.	Flush Door	(1) End Immersion Test (2)Glue Adhesion Test	Randomly as per IS:7638:1975
4B.	Cement Bonded Door	- As per IS:14276:1995	As per IS:
5.	Tiles	(1) Wet Transverse Strength (2) Water Absorption	Randomly as per Strength IS:4905:1968
6.	Red Brick	(1) Compressive Strength (2) Water Absorption	As per IS:5454:1978

Notes :

(1) For Sand and Coarse aggregate, 02 nos. of full bag for one sample shall be supplied by the agency.
(2) For water test, 5.00 liters of water shall be supplied by the agency in plastic container for each sources.
(3) Sample from the lot shall be selected by authorized representative along with representative ofEngineer-in-Charge.
(4) Selected sample shall be handed over personally by representative of VNSGU in sealed condition with a letter containing sample no. and sampling date.
(5) Test report shall be received by the department containing reference of department's letter, sample No. sampling date and date of testing.

Signature of the Applicant :

Registrar
VEER NARMAD SOUTH GUJARAT UNIVERSITY.

11. SCHEDULE OF APPROVED MAKE FOR VARIOUS MATERIALS :

SR. NO.	ITEM DESCRIPTION		APPROVED BRANDS AND MANUFACTURERS	
			FIRST PREFERENCE	OTHERS
A.	CIVIL WORKS :			
01.	53 grade Cement. PPC/ OPC, confirmaing to IS 12269/87 as per latest amendments	:	Ambuja, Ultratech, Sanghi, Hathi, Siddhi, J. K. Laxmi.	Best locally available. Sample to be approved
02.	Fine Aggregate.	:	Bodeli screen sand only approved	Best locally available. Sample to be approved
03.	Coarse Aggregate.	:	Areth, chikhli vs only approved.	Best locally available. Sample to be approved. 10 mm vs only as approved by rehab consultant .
04.	Reinforcement Steel. TMT – Fe 415, Fe 500 confirming to IS 1786/85 as per latest amendments	:	Tata, Sail, Rashtriya Ispat Nigam Ltd. (RINL), Electro Therm, Ram Swaroop.	Best locally available. Sample to be approved
05.	Structural Steel.	:	Tata, Sail, Rashtriya Ispat, and Nigam Ltd. (RINL).	
06.	Admixtures.	:	Fosroc, Roff , sika ,mapai	Fosroc, Roff , sika as approved.
07.	Bonding agent.	:	Fosroc, Roff , sika ,mapai	Fosroc, Roff, sika as approved.
08.	Plasticiser.	:	Fosroc, Roff , sika , mapai	Fosroc, Roff, sika as approved.
09.	Water Proofing Chemicals.	:	Fosroc, Roff , sika ,mapai	Roff, Fosroc, sika as approved.
10.	Synthetic resin based WP membrane.	:	Fosroc, Roff , sika ,mapai	Fosroc, Roff sika approved.
11.	Fibre.	:	“Recron” Reliance.	Saint gobain as approved.
12.	Bricks.	:	APC, MAYA, MAA	Best locally available. SZP, JBC, Amit. Sample to be approved.
13.	First quality Ceramic Tiles.	:	H. & R. Johnson.	Nitco, Siddharth, Naveen, Euro, Endura, as approved.
14.	First quality Vitrified Tiles.	:	H. & R. Johnson.	Nitco, Siddharth, Naveen, Euro, Endura, as approved.
15.	First quality Glazed Tiles.	:	H. & R. Johnson.	Somany, Nitco as approved.
16.	Tiling Aids, Grout & Sealer.	:	Bal-Endura.	Roff as approved.
17.	Chemically treated, Moulded Panel Door.	:	‘Masonite’ by Gujcon.	Glo-door, Kalptaru as approved.
18.	Concrete Fastners an Anchor bolts.	:	. Hilti Hy -200	Hilti Hy -200 ,.

19.	Aluminium frame Works.	:	Jindal.	National Aluminum, Banco, Hindalco as approved.
20.	Glass & Mirror.	:	Saint Gobain.	Asahi Float, Modi Guard, as approved.
21.	Plywood manufactured out of Garjan wood. .	:	Ecotec Greenply.	Anchor, Donear, Centuryply, Archidply, Kitply as approved.
22.	Fibre Cement Board.	:	Cemply.	Bison Panel Board, as approved.
23.	Hardware Fittings.	:	Everite.	Godrej, Navbharat, Chetna, Netal fold as approved.
24.	Door Closers.	:	EGL.	HardwinEverite as approved.
25.	Floor Springs.	:	Hardwin.	Omega, Everite as approved.
26.	Adhesives.	:	Fevicol SH and Araldite.	Mahacol, Vamicolm, as approved.
27.	Color coated zinc aluminium roofing sheets	:	Manaksia.	Ispat,tata , Jindal , Esser as approved.
28.	Anti-Termite Chemical	:	VNSGU approved.	Chlorpyriphos, Lindane as approved.
29.	External acrylic emulsion paint and primer	:	ICI Dulux.	Asian Paints, Berger Paints, as approved.
30.	Textured Paint	:	Alltek.	Sterling, Walltex, Snow Decor, as approved.
B.	**PLUMBING AND SANITATION WORKS :**			
01.	U-PVC SWR Pipes & Fittings.	:	Supreme.	Prince, Finolex, Kisan as approved.
02.	R C C NP 2 Pipes.	:		As approved.
03.	PVC Plain threaded Pipes & Fittings.	:	Supreme.	Prince, Finolex, Kisan as approved.
04.	Chlorinated Polyvinyl Chloride CPVC pipes accordance to ASTM D 2846 and solvent cement	:	Astral.	Flowguard, as approved.
05.	Non - return Valve, Ball type.	:	Astral.	Prince, Supreme, as approved.
06.	Sanitary Fittings & Fixtures, Faucets and Sensors.	:	Jaquar.	Parryware, Aquel, Marc, as approved.
07.	Sanitary wares	:	Parryware, Johnson Padder.	Roka, Cera, Neycer, as approved.
08.	Stainless Steel Sinks	:	Nirali.	Jayna, as approved.
09.	C. I. Manhole Covers	:	Neco.	BIC, SIL, RIF as approved.
10.	C P Brass Accessories	:	Jaquar Continental.	Or its equivalent as approved.
11.	Dispensors and Dryers	:	Kimberley & Technocraft.	Toshi, as approved.
12.	Submersible Pumps	:	KSB.	Kirloskar, “CRI”, Grundfoss.
13.	Open Well Submersible Pumps	:	KSB.	Kirloskar, “CRI”, Grundfoss.

14.	Gas based Geysers	:	Nupur.	Spherehot, Hotfit, Warm Stream.
15.	HDPE Overhead Tanks	:	Sintex.	Reno, as approved.

For other Materials : not mentioned above, First quality, ISI marked products shall be used after obtaining approval of Engineer-in-Charge.

Signature of the Appicant :

Registrar
VEER NARMAD SOUTH GUJARAT UNIVERSITY.

12. CONTRACTOR FOLLOWED STRICKLY (Rehabilitation Work)

1) Contractor first responsibility to check all plaster for soundness on all room walls and ceiling and remove hollow sound plaster and then strictly follow instruction as per E.I.C

2) Contractor shall guarantee the work for a period **(36 months**) defect liability from the date of issue of completion certificate.

3) Minimum **B.E Civil** or experience person for rehabilitation work appoint as an engineer /supervisor for site, **without responsible person at site work is not allowed at site.**

4) 1 bag mixture machine or half bag diesel or electric operated or batch mix machine required. for Concrete making.

5) **Hand driven machine** required for preparation of P.M.M motor or thixo tropic motor and manual preparation at site is not allowed. In any Case.

6) Air blower machine required after scraping of plaster or before plaster on existing wall.

7) Hacking with machinery required in old existing structure elements.

8) Concrete Cube test required -1 test (3 cubes) per jacketing of coloumn or beam(Cube size 70x70x70mm) For Thixo tropic up to minimum 50 sq.mt -1 test
For Thixo tropic up to minimum 50 to 100 sq.mt -2 test
For Thixo tropic up to minimum 100 to 500 sq.mt -4 test

9) Thixo tropic & micro concrete work only in presence of engineer at site from contractor & engineer from consultant or engineer from SMC.

10) Portable or quality water used in repair or any work.

11) **Sand – (Bodeli**-screen sand without soil lumps) only use for repair & rehabilitation work, **Nareshwar & Black sand / nareshwar pano sand / koicha sand is not allowed in repair & all work. so Do only order for Bodeli screen sand only.(Except bodeli screen sand all sand are rejected)**

12) Aggregate of VS 10 mm for Micro concrete and 20 mm vs for Normal M-20 or M-25 mix, Chemical use as per approved brand confirming with Consultant or E.I.C only.

13) Check all slopes of terrace as well as sunk slab (pre- approved from consultant at site) and level mark (thaiya) always check with EIC for better execution of work.

14) Kani vata required above water proofing as per drawings.

15) First coat of outside plaster / inside plaster only done after checking of all pointing work as well as chicken mesh application as well as rehab work like thixo / pmm/ injection grouting and finalize with racron 3s and plasticizer or water proofing agent as per instruction of E.I.C.

16) Outside plaster work required 2-day curing after finalize single coat and then valid for second coat.

17) Always check PMM/ /Thixo work before water proofing work adjoin area.

18) All sewage & rain water pipe joint must be fill up with swell chemical or as per instructed by EIC.

19) Contractor have to manage Weight balance up to 30kg (on site).

20) Made a farma for concrete work as per PMM / THIXO work and concrete or thixo as well as PMM only allowed in container in no case it was allowed on ground (steel or aluminium container required) if Flooring damage then concrete need to **be replaced as then own cost**. And in kota stone one single coat polishing required if flooring damage by contractor -without charge.

21) All PMM / THIXO hidden measurement record with Engineer in-charge day to day in site register.

22) Cube of PMM / THIXO –split test done as per instructed by Engineer in charge or Consultant.

23) Injection grouting cement or epoxy nos & spacing for grouting **only as per directed by E.I.C** & in presence of E.I.C or consultant.

24) In Water proofing work bottom surface naked without any stinking object on slab and with base slab applied bond coat with SBR / RBR Epoxy as per instructed by E.I.C

25) In Water proofing top layers (finishing coat) we have to use racron 3s and top with 400 x 400mm chex (dori) with nylon string .

26) Terrace parapet column always cast in M20- M-25 As per instructed by E.I.C only (pre-Approval need)

27) On Terrace coping renew or renovate as per E.I.C & Always with projection as per standard drawings with in & out both side projection and with groove.

28) Always column jacketing 75 mm /100mm in thickness except & inform for the change in thickness.

29) Before plastering all PMM / THIXO measurement must be written in site register & pics also taken

30) Always Remove Plaster for Damage Column beam as per visual inspection and as per NDT test result as instructed by E.I.C

31) Terrace OHT must be fix only on concrete pedestal, do not rest OHT Directly on slab.

32) In all passage, Balcony adequate weep hole with minimum 50 mm / 75 mm UPVC pipe Min C/C 3.00 m or as per instructed by E.I.C

33) Thixo/ PMM Measurement 0 mm to 25 mm and 0 mm to50 mm only Single Measurement is to be done in bill not twice for the same measurement will be paid in both.

34) Terrace water proofing junction & sunk beam slab junction and RCC Chajja and masonry junction we have 40mm x 40mm thixo/pmm vati then do next process.
For hidden measurement.

35) Water Measurement liter marked On Bucket Compulsory & by Trial. Finalize Water Quantity For M-25 Concrete and Micro-Concrete & Thixo. First Finalize & then is no Change Allowed throughout Project.

36) Double scaffolding if scaffolding made by bamboo & H.frame or Cap Lock System
for scaffolding no hole allowed in walls.

37) As per scrapping of external plaster and internal plaster are concern,. So, no additional payment has to be made for scaffolding and it will be only done with chipper.

38) Contractor first responsibility to check all plaster for soundness on all room walls and ceiling and remove hollow sound plaster and then strictly follow instruction as per E.I.C

39) In micro concrete for from work slab plates are not allowed in any case (3 x 2)

40) For jacketing work before form work shear keys are note in site register and apply epoxy bonding only as a bonding agent for new and existing new concrete.

41) Contractor or his representative always need to be compulsory present in weekly meeting as per decided .

I read and accept and agreed to do work only as per all above requirement or condition or methodology .

Sign of Contractor

Item Number (upto 200 characters)	Item Description	Quantity (only figures)	UNIT (upto 50 characters)	Tender Rate (Upto 2 Decimals)	Amount (Upto 2 Decimals)
1	WORK UP TO PLINTH : 'Excavation for foundation upto 1.5 m depth including sorting out and stacking of useful materials and disposing off the excavated stuff upto 50 Meter lead.(A) Loose or soft soil loose or soft soil (With Manual Labour) (I) 0 to 1.5mt. Depth	60.00	C.M.	203.83	12229.80
2	Providing and laying cement concrete 1:3:6 (1-Cement : 3- coarse sand : 6-hand broken stone aggregates 40 mmnominal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth	3.38	C.M.	3005.76	10159.47
3	Providing and laying controlled cement concrete M.250 and curing complete excluding the cost of formwork and reinforcement for reinforced concrete work in (A) Foundations, footings, Base of columns and Mass concrete.	9.00	C.M.	4222.43	38001.87
4	Providing and laying controlled cement concrete M.250 exposed work with curing etc. complete including the cost of formwork but excluding the cost of reinforcement for R.C.C. work in '(B) Beam: (ii) Having cross-sectional area more than 0.08Sq.M and upto 0.12 Sq.M	0.41	C.M.	9547.56	3914.50
5	Providing TMT Bar FE 500/500D reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor two level	676.50	Kg.	76.21	51556.07
6	Filling in foundation and plinth with murrum or selected soil in layers of 20cm. thickness including watering, ramming and consolidating etc. complete.	47.62	C.M.	289.06	13765.04
7	Brick work using common burnt clay building bricks having crushing strength not less than 35 kg./Sq.Cm. in foundation and plinth in Cement Mortar 1:6 (1- Cement : 6 -fine sand) up to plinth level.	3.31	C.M.	4237.00	14024.47
8	Providing & Applying 20mm to 35mm. Th.(Max. 35 mm Thickness Consider) Heavy Roller plaster on walls or similar surfaces at all floor levels consisting of 12 mm av. Th. Backing coat of C.M. 1:3 (1 cement:3 sand : racron 3s (0.5 nos per bag)) also plaster master wterproofing chemical 100 ml /bags as per companey manual or 75ml/ bag as per mandatorai mandatory & approved by E.I.C or consultant & 8 mm. th. Finishing coat of C.M. 1:1 (1 cement: 1 sand) apply thick cement slurry and apply roller horizontal as well as vartical (two times) up to good quality and size of grain in elevation as per directed by engineer incharge. (Including Scaffolding) up to plinth level	40.00	S.M.	356.90	14276.00
9	WORK ABOVE PLINTH LEVEL: Providing and laying controlled cement concrete M.250 exposed work with curing etc. complete including the cost of formwork but excluding the cost of reinforcement for R.C.C. work in (A) Column: (ii) Having cross-sectional area more than 0.08Sq.M and upto 0.12 Sq.M. Terrace floor (second floor)	0.31	C.M.	12713.48	3941.18
10	As above but Upper terrace	0.12	C.M.	12750.75	1530.09
11	Providing and laying controlled cement concrete M.250 exposed work with curing etc. complete including the cost of formwork but excluding the cost of reinforcement for R.C.C. work in (B) Beam : (ii) Having cross-sectional area more than 0.08Sq.M and upto 0.12 Sq.M. Ground Floor	2.48	C.M.	9547.56	23677.95
12	As above but First Floor	2.48	C.M.	9584.83	23770.38
13	As above but Terrace floor (second floor)	11.50	C.M.	9622.10	110654.15
14	Providing and laying controlled cement concrete M.250 and curing complete excluding the cost of formwork and reinforcement for reinforced concrete work in (C) Slabs,landing,shelves,Balconies, Lintels, Beams, Girders and Cantilever upto floor two level. (C) Slab : (4) Slabs having more than 13 cm. Thickness. Ground Floor	1.87	C.M.	3010.15	5628.98
15	As above but First Floor	0.07	C.M.	3049.79	213.49
16	As above but Terrace floor (second floor)	4.27	C.M.	3089.43	13191.87
17	As above but (D) Copping : Terrace Floor (second floor)	16.09	C.M.	4562.32	73407.73

18	Providing TMT Bar FE 500D reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor two level . Ground Floor	1492.90	Kg.	76.21	113773.91
19	As above but First Floor	1366.90	Kg.	77.21	105538.35
20	As above but Terrace floor (second floor)	3004.90	Kg.	78.21	235013.23
21	As above but Upper terrace	129.00	C.M.	79.21	10218.09
22	Demolition of Brick work and stone masonry including stacking of serviceable materilas and disposal of unserviceable materials with all lead and lift.(ii) In Cement Mortar.	46.33	C.M.	550.40	25500.03
23	Removing and scraping of old deteriorated plaster of any thickness fromm wall / R.C.C member including stacking of serviceable material and disposal of unserviceable from site of work with all lead and lift	1217.50	S.M.	19.57	23826.48
24	Demolition including stacking of serviceable materilasand disposal of unserviceable materials with all leadand lift. (i) R.C.C. work	12.33	C.M.	1057.85	13043.29
25	Demolition of terrace including stacking of serviceable materilas and disposal of unserviceable materials with all lead and lift. (i) Brick tile covering. (Terrace level) (Water proofing up to naked slab Consider)	475.11	S.M.	63.63	30231.25
26	Dismentling C.I. pipes G.S.W.pipes abd A.C. rain water pipes with fittings and clamps including stacking the materials with all lead and lift (for any dia, of pipe)	220.00	R.M.	74.77	16449.40
27	Dismentling doors, windows, ventilators etc. (wood or steel) shutters including chowkhats architraves, holdfasts and other attachment etc. complete and stacking them within all lead and lift.(i) Not exceeding 3 Sq.M. in area.	20.00	EACH	187.71	3754.20
28	Dismentaling tiled of stone floors laid in mortar including stacking of serviceable materilas and disposal of unserviceable materials with all lead and lift.	98.54	S.M.	47.72	4702.33
29	REPAIR & REHABILITATION WORKS : Providing Cement Concrete work 50% - M30-(design mix) and 50% micro concrete plus recron - 3s (12mm long polyester fiber) plus appropriate dose of super plasticizer with curing, finishing smooth, etc. complete for jacketing of structural members at all floor levels, lead, lift, including breaking, chipping, dismentling existing loose cover concrete and exposing respective existing reinforcement as directed by the engineer-in-charge, applying wirebrush for making surfaces of steel and concrete free from rust and other loose materials, applying rust removing chemical on existing reinforcement, applying anti-corrosive coating on existing reinforcement, applying polymer treatment and bonding agent on existing concrete surfaces as directed by the Engineer-in-charge, etc. complete. The make and quality of rust removing chemical, anti-corrossive coating, polymer / epoxy bonding agent shall be approved by engineer-in-charge. The procedure for application shall be strictly in accordance with manufacturer's detail specification, which shall be submitted before start of work and shall be approved by the Engineer-in-charge. The rates shall include the cost of providing, erecting and maintaining leakproof shuttering /formwork /scaffolding, etc. to be used for concreting, providing and erecting props, temporary frame work and maintain them in position for required time, to existing load bearing elemnts for reliving loads coming on to structural members being repaired/strengthened but excludes the cost of reinforcement. The rate shall also include required breaking of adjoining RCC structural elements like slab, beam, etc. and reinstating the same in original shape and size by using above mentioned procedure and material, as directed by the Engineer-in-charge, etc. complete. If required all loose cover concrete shall be removed as directed by the engineer-in-charge. Any other work which may get disturbed due to above mentioned procedure shall be repaired and reinstated to original condition to the complete satisfaction of the Engineer-in-charge and NOS claim for extra payment for the same shall be entertained. chemical use BASF, Sunanda, Fosroc, Pidilite etc as per Approved by engineer incharge	8.27	C.M.	29100.00	240657.00

30	Providing Cement Concrete work 75% - M30-(1:1:2) by weight mix and 25% micro concrete by weight plus recron - 3s or equivalent (12mm long polyester fiber) plus appropriate dose of super plasticizer (as per manufacturers spacification and approved by consultant) with curing, finishing smooth, etc. complete for jacketing of structural members at all floor levels, lead, lift, including breaking, chipping, dismentling existing loose cover concrete and exposing respective existing reinforcement as directed by the engineer-in-charge, applying wirebrush for making surfaces of steel and concrete free from rust and other loose materials, Providing and Applying a rust removing, chloride and sulphate free non-alkaline, inorganic nano film forming surface passivating solution conforming to IS 9077 Rust remover & passivater of approved brand by brush or cotton swab to the existing reinforcement bars. Chemical should react with corrosion products to convert them to a stable passivating naNOS-film on the surface of the steel and return the steel back to its original greyish white colour and special surface acting chemicals help in promoting the adhesion of consequent coatings to the steel surface. Further the coating should be NOSn-alkaline so as to remove any water soluble salts especially corrosion inducing chlorides and the formation of the passivating film prevents flash rusting between the rust removal and the primer application. 'Cleaning the surface after 24 hrs of chemical application, to remove detached rust deposits. Ensure that the steel surface is rust free., Providing and applying Rust preventing anticorrosive coating (As per manufacturer specification) over steel free from rust. Apply this slurry over steel and allow it to cure for at least 6 hours. Similarly Applying second coat of Rust preventing anticorrosive coating over steel and allow it to cure, Applying bonding coat of approved make to the entire damaged surface on existing concrete surfaces as directed by the Engineer-in-charge, etc. complete. The procedure for application shall be strictly in accordance with manufacturer's detail specification, which shall be submitted before start of work and shall be approved by the Engineer-in-charge. 'The rates shall include the cost of providing, erecting and maintaining leakproof shuttering /formwork /scaffolding, etc. to be used for concreting, providing and erecting props, temporary frame work and maintain them in position for required time, to existing load bearing elemnts for reliving loads coming on to structural members being repaired/strengthened but excludes the cost of reinforcement, Shear connector and plaster . The rate shall also include required breaking of adjoining RCC structural elements like slab, beam, etc. and reinstating the same in original shape and size by using above mentioned procedure and material, as directed by the Engineer-in-charge, etc. complete. 'If required all loose cover concrete shall be removed as directed by the engineer-in-charge. Any other work which may get disturbed due to above mentioned procedure shall be repaired and reinstated to original condition to the complete satisfaction of the Engineer-in-charge and NOS claim for extra payment for the same shall be entertained. FOR 1 C.M.t.	3.83	C.M.	18941.00	72544.03
31	Fixing clerestory window chowkhats in existing openings including cutting masonry for hold fasts, embedding hold fasts in cement concrete blocks with cement concrete 1 : 3 : 6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm single size), painting two coats of coal tar to sides of chowkhats and making good the damge to walls complete including disposal of rubbish to the dumping ground within 50 m lead.	15.00	NOS.	496.00	7440.00
32	Providing and applying cement mortar (1:3) modified by using polymer and expanding grout additives at various thickness for repair/strengthening of various RCC elements at all floor levels, lead, lift, including breaking, chipping, dismentling existing cover concrete and exposing existing reinforcement, applying wirebrush for making surfaces of steel and concrete free from rust and other loose materials, applying rust removing chemical on existing reinforcement, applying anti-corrosive coating on existing reinforcement, applying polymer bonding agent on existing concrete surfaces before applying polymer modified mortar in specified thickness as directed by the Engineer-in-charge. The rates shall also include providing and applying 12 mm thick cement mortar (1:4) modified with plasticizer for finishing smooth the repaired surfaces, providing and applying curing agent on the repaired surfaces, etc. complete as directed by the Engineer-in-charge. The make and quality of rust removing chemical, anti-corrossive coating, polymer bonding agent, polymer and expanding grout additives, plasticizer, curing agent, etc. shall be approved by engineer-in-charge. The procedure for application shall be strictly in accordance with manufacturer's detail specification, which shall be submitted before start of work and shall be approved by the Engineer-in-charge. The rates shall include the cost of providing, erecting and maintaining leakproof shuttering /formwork /scaffolding, etc. to be used for the purpose, providing and erecting props, temporary frame work and maintain them in position for required time, to existing load bearing elemnts for reliving loads coming on to structural members being repaired/strengthened but excludes the cost of reinforcement. The rates shall include the cost of providing, erecting formwork with drainage outlet for presocking and air venting. The formwork shall be such that it provides suitable excess points to pour or pump the mixed micro fluid concrete in place. The cost shall also include providing and erecting props, temporary frame work and maintain them in position for required time, to existing load bearing elements for relieving loads coming on to structural members being repaired/strengthened but excludes the cost of reinforcement. chemical use BASF, Sunanda, Fosroc, Pidilite etc as per Approved by engineer incharge. Note:- Only One Measurment Consider for Payment. **0mm to 25mm thickness**	99.05	S.M.	1217.71	120614.18
33	As above but **0mm to 50mm thickness**	99.05	S.M.	2353.21	233085.45

34	Providing and fixing rebar of following diameter using chemical grout of Swanchore/Hilti/Fischer or equivalent make including cost of all equipments, tools, material, labour, etc. Standard procedure as mentioned in manufacturer's specifications shall be strictly followed, which shall be submitted and got approved from the authority prior to start of work. The rate shall also include cost of drilling of hole of required diameter and depth as mentioned in manufacturer's specification, cleaning the hole with required air blower and other necessary tools and tackles, positioning, providing and grouting chemical, allied fixtures and fasteners, etc. but excluding the cost of reinforcing bar etc. complete. Item includes necessary scaffolding, staging, labour, tools and equipments, etc. complete as directed by the engineer-in-charge. Hilti Etc approved from engineer incharge. (A) 8 mm dia	550.00	NOS.	80.00	44000.00
35	As above but (B) 10 mm dia	200.00	NOS.	90.00	18000.00
36	As above but (C) 12 mm dia	100.00	NOS.	125.00	12500.00
37	As above but (D) 16 mm dia	20.00	NOS.	190.00	3800.00
38	Providing Formwork of ordinary timber planking so as to give rough finish including centering, Shuttering, Struting and propping etc. height of propping and centering below supporting floor to ceiling nott excluding 4m and removal of the same for Cast in situ reinforced concrete and plain concrete work. (G)Column, pillers, post and strusts. (i)Square rectangular polygonal in plan (upto 10 ton)	12.68	S.M.	305.42	3872.73
39	Providing and applying cement mortar 1:4 enriched with expanding grout additive in required proportion in cement for repair of cracks in RCC and non-RCC members after making 25mm x 25mm groove, cleaning the surface and applying coat of bonding, finishing smooth the repaired surfaces, providing and applying curing agent on the repaired surfaces, etc. complete at all floor levels as directed by engineer-in-charge. The make and quality of expanding grout additives, bonding agent, curing agent, etc. shall be approved by the engineer-in-charge. The procedure for application shall be strictly in accordance with manufacturer's detail specification, which shall be submitted before start of work and shall be approved by the Engineer-in-charge.	200.00	R.M.	120.00	24000.00
40	Carrying out Injection grouting for cracks in RCC structural members by drilling holes of 15 mm diameter upto minimum depth of 75 mm, fixing aluminium nozzle / rubber pipe using cementitious compound, injecting polymer modified slurry (SBR+cement+water) 1:1:1 material at specified pressure with grouting pump till it the material refuses to impregnate inside the hole. If required or suggested by the Engineer-in-charge, injection grouting shall be carried out more than once for a hole to assure proper spreading of grout material and filling of capillaries / voids within the element. After satisfactory injection grouting, the nozzle/pipe shall be cut and sealed by non-shrink epoxy putty. The surface shall be finished smooth with C:M (1:4) and reinstated to the original condition as directed by the Engineer-in-charge. The rate shall include the cost of providing and supplying all tools, materials, labour, scaffolding, props, formwork, etc. complete. The make and quality of epoxy grout, epoxy putty, etc. shall be approved by the Engineer-in-charge. The procedure for application shall be strictly in accordance with manufacturer's detail specification, which shall be submitted before start of work and shall be approved by the Engineer-in-charge. (Actual no of holes and their locations shall be as decided by the Engineer-in-charge)	100.00	NOS.	250.00	25000.00

41	Carrying out Injection grouting for cracks in RCC structural members by drilling holes of 15 mm diameter upto minimum depth of 75 mm, fixing aluminium nozzle / rubber pipe using non-shrink epoxy putty, injecting epoxy grout material at specified pressure with grouting pump till it the material refuses to impregnate inside the hole. If required or suggested by the Engineer-in-charge, injection grouting shall be carried out more than once for a hole to assure proper spreading of grout material and filling of capillaries / voids within the element. After satisfactory injection grouting, the nozzle/pipe shall be cut and sealed by non-shrink epoxy putty. The surface shall be finished smooth with C:M (1:4) and reinstated to the original condition as directed by the Engineer-in-charge. The rate shall include the cost of providing and supplying all tools, materials, labour, scaffolding, props, formwork, etc. complete. The make and quality of epoxy grout, epoxy putty, etc. shall be approved by the Engineer-in-charge. The procedure for application shall be strictly in accordance with manufacturer's detail specification, which shall be submitted before start of work and shall be approved by the Engineer-in-charge. (Actual no of holes and their locations shall be as decided by the Engineer-in-charge)	150.00	NOS.	450.00	67500.00
42	Providing and appliying thixotropic Making up lost section of concrete / mortor with thixotropic repair mortor of one-component, normal-setting, shrinkage-compensating, thixotropic mortar for layers up to 20 mm thick. Supply and application of one-component, normal-setting, shrinkage-compensating thixotropic mortar made from cementitious binders, selected aggregates, special additives and synthetic polyacrylonitrile fibres, for reconstructing deteriorated concrete structures. Apply the mortar after adequate preparation of the substrate by removing all deteriorated concrete to form a sufficiently-rough, solid substrate with no detached portions. Clean the steel reinforcement down to bare metal and apply a passivating treatment by brush-applying two coats of one-component, anti-corrosion cementitious mortar. Apply the product by trowel or spray with a continuous-feed rendering machine on a clean substrate saturated with water in layers up to 20 mm thick. To improve expansion in the open air during the first few days of curing, add a special curing additive when mixing the mortar to reduce both plastic and hydraulic shrinkage at a dose of 0.25% in weight on the weight of the mortar. The product must comply with the minimum requirements of EN 1504-3 for structural mortars and have the following performance characteristics: Compressive strength (EN 12190) (MPa):> 40 (after 28 days), Flexural strength (EN 196/1) (MPa): 7 (after 28 days), Compressive modulus of elasticity (EN 13412) (GPa): 25 (after 28 days) Adhesion to substrate (EN 1542) (MPa):> 2 (after 28 days), Capillary absorption (EN 13057) (kg/m²•h0.5): < 0.20, Thermal compatibility measured as adhesion according to EN 1542 (MPa): – freeze-thaw cycles with de-icing salts (EN 13687/1): > 1.5 (after 50 cycles), Storm cycles (EN 13687/2):> 1.5 (after 30 cycles), dry thermal cycles (EN 13687/4):> 1.5 (after 30 cycles), Reaction to fire (EN 13501-1) (Euroclass):1 Consumption (per cm of thickness) (kg/m²): approximately 18.5 Kg included and calculated in the price for work carried out according to specification: (1) hydro-cleaning of adhesion surfaces and saturation of substrate with water immediately before applying the mortar; (2) application of the mortar by trowel or spray around steel reinforcement; (3) levelling off surfaces with a straight edge and final tamping; (4) careful curing of the mortar by spraying on water for at least 7 days (3times) after application. **0mm to 25mm thickness**. Note:- Only Single Measurment Consider for Payment.	61.91	S.M.	1990.00	123200.90
43	As above but **0mm to 50mm thickness**. Note:- Only Single Measurment Consider for Payment.	61.91	S.M.	3780.00	234019.80
44	Pointing on brickwork with cement mortar 1:1 (1- cement : 3-coarse sand)	1217.50	S.M.	135.00	164362.50
45	MASONARY & PLASTER WORKS : Brick work using common burnt clay building bricks having crushing strength not less than 35 kg./Sq.Cm. in foundation and plinth in Cement Mortar 1:6 (1- Cement : 6 -fine sand) (A) Modular. Ground Floor	15.73	C.M.	4284.12	67389.21
46	As above but First Floor	15.73	C.M.	4323.76	68012.74
47	As above but Terrace floor (second floor)	45.76	C.M.	4363.40	199669.18
48	As above but Upper terrace	0.12	C.M.	4403.04	528.36

49	(i) Half brick masonry in common brunt clay building bricks having crushing strength not less than 35 Kg/Sq.Cm. in Cement mortar 1:4 (1-Cement : 4 - coarse sand) in foundation and plinth (A) Modular. Ground Floor	38.58	S.M.	590.53	22782.65
50	As above but First Floor	38.58	S.M.	630.17	24311.96
51	Providing 15 mm thick cement plaster by using Ready Mix Mortar for plaster in single coat on rough (similar) side of single or half brick walls for interior plastering upto floor two level and finished even and smooth in Cement mortar 1:3 (1 Cement : 3 sand). Ground Floor	322.27	S.M.	188.42	60722.11
52	As above but First Floor	365.98	S.M.	228.06	83465.40
53	As above but Terrace floor (second floor)	73.95	S.M.	267.70	19796.42
54	Providing & Applying 20mm to 35mm. Th.(Max. 35 mm Thickness Consider) Heavy Roller plaster on walls or similar surfaces at all floor levels consisting of 12 mm av. Th. Backing coat of C.M. 1:3 (1 cement:3 sand : racron 3s (0.5 nos per bag)) also plaster master wterproofing chemical 100 ml /bags as per companey manual or 75ml/ bag as per mandatorai mandatory & approved by E.I.C or consultant & 8 mm. th. Finishing coat of C.M. 1:1 (1 cement: 1 sand) apply thick cement slurry and apply roller horizontal as well as vartical (two times) up to good quality and size of grain in elevation as per directed by engineer incharge. (Including Scaffolding) Outside All Floor Plaster	504.62	S.M.	356.90	180098.88
55	Providing & fixing G.i mesh 25X25X3mm used for celling repair fixed with celling rebar column as per directed by enginner incharge rate excluding the rebar cost	12.15	S.M.	610.63	7419.15
56	Providing throating or plaster drip and moulding it to R.C.C. chajja	233.46	R.M.	41.66	9725.94
57	COLOUR WORKS : Applying two coats of putty & two coats of primer of approved brand and manufacture on new wall surface to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth. (Acrylic or Cement base Putty as per only sanction by E.I.C) for all floor. (A) for wall and similar surfaces	2368.12	S.M.	40.59	96121.99
58	(NOTE:- Scraping colour up to the orignal plaster Surface.)	2368.12	S.M.	4.06	9614.57
59	Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even shade including throughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.(Min two coat base required)	2368.12	S.M.	79.39	188005.05
60	Finishing wall with weather proof exterior emulsion paint on wall surface (two coats) to give an required shape even shade after thoroughly brushing the surface to remove all dirt, and remains of loose powdered materials.etc complete. All Floor. (A) For wall	1682.08	S.M.	114.53	192648.62
61	(NOTE:- Scraping colour up to the orignal plaster Surface.)	1682.08	S.M.	11.45	19259.82
62	Painting two coats (excluding priming coat) on new steel and other metal surface with enamel paint, brushing, interior to give an even shade including cleaning the surface an even shade including cleanicn the surface of all dirt, dust and other foreign matter.	186.02	S.M.	87.81	16334.42
63	Appliying priming coat over new wood and wood based surface after and including preparing the surface by throughly cleaning oil, grease, dirt and other foreign matter, sand papering and knotting. (C) Ready mixed paint brushing priming for enamel	192.78	S.M.	41.05	7913.62
64	Painting two coats (excluding priming coat) on new wood and wood based surface with ready mixed paint, brushing, oil, gloss, semi gloss to give and even shade including cleaning of all dust, dirt and other foreign matter sand papering and stopping.	192.78	S.M.	105.31	20301.66
65	FLOORING WORKS : Providing and laying Vitrified tiles 8 to 10 mm thick ,24" x 24" in flooring treads of steps and landing laid on a bed of 12mm thick cement mortar 1:3 (1-cement : 3-coarse sand) finishing with flush pointing in white cement. All floor	98.54	S.M.	1040.35	102516.09
66	Providing and applying Epoxy Grout filling in Tile Joints in 3 mm x 3mm Groove in line and level etc. Comp. as per instruction by Architect and as per Engineer-in-charge. For all Floor	295.62	R.M.	40.00	11824.80

67	Providing and laying Vitrified tiles 8 to 10 mm thick , 24" x 24" in skrting risers of steps and dedo on 10mm thick cement plaster 1:3 (1-cement : 3-coarse sand) and jointed with white cement slurry. All floor	73.77	S.M.	1081.71	79797.75
68	Providing and laying polished Kota stone slab flooring over 20mm (Average) thick base of cement mortar 1:6 (1-cement : 6-coarse sand) or L.M. 1.1.5 (1-Lime putty :1.5 - coarse sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of slab including rubbing and polishing etc. complete. (A) 25mm thick	10.00	S.M.	989.45	9894.50
69	Providing & laying Green marble stone skirting over 20 mm.av. base of C.M.1:6 (1 cement :6 coarse sand) & jointed with grey cement slurry incl.rubbing & polishing comp.(A) Green Marble 18 mm. Thick.	18.00	S.M.	1440.63	25931.34
70	Labour Charges For Edge Finished For Granite.	120.00	R.M.	43.43	5211.60
71	WATERPROOFING WORKS : NOSTE :- (1) The whole work is to be executed through specialized agency with a guarantee of 10 (Ten) years given on a prescribed proforma duly stamped (2) The rate shall include for work at all floors & conducting water proof test as directed. (M.R.) (A) Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C.,kitchen and the like consisting of : (a) I course of applying cement slurry @ 4.4 Kg./sqm mixed with water proofing compound conforming to IS : 2645 in recommended proportions. (b) II course of a layer of plaster in C.M. 1:3 with water proofing compound confirming to IS:2645 about 25 mm. th' in the floor of the depression & about 18mm th' On the side walls of the depression up to the floor level, water proofing plaster about 18 mm. th' be continued on the walls above the floor level for a height of 600 mm. with surface suitable to receive further treatment (c) Finishing top with stone aggregate 10mm to 12mm NOSminal size spreading @0.008 C.M./S.M., thoroughly embedad in plaster layer. as per specifications & instructions of Engineer in charge (Cement consumption 0.316 Bags / S.M.)	46.30	S.M.	333.50	15441.05
72	(B) Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc. consisting of following operations. (a) Applying and grouting a slurry coat of neat cement using 2.75 Kg./sqm of cement admixed with proprietary water proofing compound comforming to IS:2645 over the R.C.C. slab including cleaning the surface before tratment. (b) Laying cement concrete using broken bricks/brick bats 25 mm to 100 mm size with 50% of cement mortar 1:5 (1 Cement : 5 Coarse sand) admixed with proprietary water proofing compound conforming to IS:2645 ,brick bats is finally covered by jointless cement plaster 20mm th. in C.M. 1:4 added with special water proofing compound confirming to IS:2645 & top smooth finished with trowel with false chequered marking of 300 mm.size.The treatment is carried along the vertical surface of the parapet & other adjoining wall up to height of about 300 mm in a shape of quarter round vata Incl. curing etc. Comp. With average thickness of 120 mm and minimum thickness at khurra as 65 mm. NOTE :- Testing for water leakage on Terrace (a) Fill up all Rain water outlet with cement mortar. (b) Fill up water 230mm in height for 15 days. Fill up evaporate water continuously. (2 time befor & after.) (c) Check from Terrace leakage / Damp from beneath Floor. (d) After checking mark all weak/ damp or leakage portion in celing with marker pen after 15 days. (e) Remove all store water from rain water pipe. (Only terrace plan area Consider for payment)	480.10	S.M.	596.85	286547.69
73	Proviidng and filling in depression of bath and W.C. at all floor levels , after completing plumbing work of pans, pipes, traps etc. with cinder or fly ash as directed by engineer in charge. etc.complete.	5.64	C.M.	470.00	2650.80
74	Providing and laying broken chine mosaic flooring for terrace using 12 mm to 20 mm broken pieces of glazed tiles to be laid over cement mortar 1:3 to plain or slope and to be tempered to bring mortar creme out upto surface using white cement including rounding off junctions and extending them upto 15 cm along the wall,clearing with water and oxalic acid etc. as directed.	480.10	S.M.	747.29	358773.93

75	WATER SUPPLY & SANITARY WORKS : Providing and fixing PVC SWR Nahni trap IS 14735 for drain - 100 mm diameter with jali of the following nominal diameter of self cleansing design with C.I scread down or hinged grating including the cost of cutting and making good the walls. All floor	24.00	NOS.	571.08	13705.92
76	Providing, laying and jointing in true line and level 110 diametre U.P.V.C (Type B) conforming to IS 13592-1992 with one end plain and other end socketed with rubber ring, & fittings conforming to ISI 14735-1999 of approved make for drainage system pipe line, pipe shall be jointed with each other with rubber lubricant, pipe shall be fixed on wall using of PVC clamp of the size 110 mm diametre x 149 mm length x 145 mm heigh at every 2000 mm center to center or shall be concealed in walls as directed including necessary fittings such as bends, shoes etc. including testing of pipes and joints and jointed with adhesive solvent cement including cost of all materials. (A) 110 mm dia	170.00	R.M.	836.73	142244.10
77	(B) 160 mm dia	100.00	R.M.	831.22	83122.00
78	Providing laying (to level or slopes) and jointing reinforced concrete Light duty non-pressure pipes I.S. class NP2 of the following internal diameter with collars and butt ends prepared for collar joints including testing of joints complete.(B) 150mm	100.00	R.M.	248.67	24867.00
79	Providing & Fixing PVC 75mm pipe for confirming to IS no 13592 (Type - b) of prince /superme/jain/astral/make for water spout from passage (varnda) fix with cement mature 1:1 & finishing outside as wall as inside including cost of cutting holes & making grove the wall etc complete - 75mm dia . All floors level	20.00	R.M.	140.00	2800.00
80	Constructing brick masonry chamber for underground C.I. Inspection chamber and bends with bricks having crushing strength not less than 35Kg/Cm2 in C.M. 1:5 C.I. cover with frame (Light duty) 455mm x 610mm intenal dimensions total weight of cover with frame to be not less than 38Kg. (Wt. of cover 23 Kg.) and Wt. of frame 15Kg.) (R.C.C. top slabe with 1:2:4 mix (1- cement :2- coarse sand :4-graded stone aggregate 20mm size) foundation concrete 1:5:10 inside plaster 15mm thick with cement mortar 1:3 finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete.(i) Inside dimensions 455mmx 610mm and 450mm deep for single pipe line.	5.00	NOS.	2932.93	14664.65
81	Extra for every additional depth of 0.1 mt beyond 0.45 mt.	5.00	NOS.	222.71	1113.55
82	Providing and fixing water closet squatting Pan (Indian type W.C. Pan) size 580mm (Earthwork, bed concrete, foot reste and trap to be measured and paid for separately) (A) Vitreous China.(I) Long pattern = White colour	6.00	NOS.	954.45	5726.70
83	Providing and fixing S.W. gully trap with C.I. grating brick masonry chamber and water tight C.I. cover with frame of 300mm x 300mm size (inside) with standard weight.(i) Square mouth traps.(B) 150mm x 100mm size P or R type	4.00	NOS.	1246.92	4987.68
84	Providing and fixing washbasin with single hole for pillar tap with C.I. or M.S. brackets painted white including sutting holes and making good the same but excluding fittings.(A) Vitreous China:(ii) Flat Back washbasin 550 mm x v 400mm size. (i) In white colour.	2.00	NOS.	1460.31	2920.62
85	Providing and fixing Urinal of approved quality including connection with trap and with integral longitudinal flush pipe.(A) Squating plate pattern white earthenware 550mm x 300mm.	8.00	NOS.	1562.12	12496.96
86	Flush Valve Dual Flow With 32mm Size Control Cock With Elbow Set (Fixed Discharge Of 3.00/6.00 Lts Per Flushing JAQUAR PRS 043	6.00	NOS.	3760.50	22563.00
87	Providing & fixing Angular Stop Cock . JAQUAR CON 053 KN	8.00	NOS.	1161.50	9292.00

88	Providing & Fixing P.V.C. pipes (SCH-80) of Prince/ Supreme/ Jain/ Astral/ Tulsi/Finolex make for water supply line at all floor levels incl. fixtures like bends, tees, shoe etc joined with resin of approved brand & manufacture etc. comp. Pipe shall be fixed on the wall the help of clamp at every two meter C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials. (A) 15 mm dia	200.00	R.M.	93.00	18600.00
89	As above but (B) 25 mm dia	100.00	R.M.	161.00	16100.00
90	As above but (C) 40 mm dia	50.00	R.M.	248.00	12400.00
91	As above but (D) 50 mm dia	20.00	R.M.	319.00	6380.00
92	Providing & Fixing C.P.V.C. pipes (SDR 13.5) of Prince/ Supreme/ Jain/ Astral/ Tulsi/Finolex make for water supply line at all floor levels incl. fixtures like bends, tees, shoe etc joined with resin of approved brand & manufacture etc. comp. Pipe shall be fixed on the wall the help of clamp at every two meter C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials. (A) 20 mm dia	20.00	R.M.	129.00	2580.00
93	As above but (B) 25 mm dia	20.00	R.M.	174.00	3480.00
94	As above but (D) 32 mm dia	50.00	R.M.	244.00	12200.00
95	As above but (E) 40 mm dia	100.00	R.M.	326.00	32600.00
96	As above but (F) 50 mm dia	5.00	R.M.	516.00	2580.00
97	Providing & Fixing gun metal check or non return full way wheel valve at all floors levels, etc. complete. (B) 25 mm. dia.	2.00	NOS.	420.63	841.26
98	As above but (C) 40 mm dia	4.00	NOS.	663.43	2653.72
99	Providing & Fixing abonite ball cock of approved qualities directed etc. comp. (A) 25 mm. dia.	1.00	NOS.	102.91	102.91
100	PVC SWR Vent Cowl 75 mm dia	2.00	NOS.	9.41	18.82
101	PVC SWR Vent Cowl 110 mm dia	4.00	NOS.	19.68	78.72
102	Providing and fixing for wall plugs and standard holder bat clamps comprising of two semicircular haves of flat iron and cast iron base screwed on wooden plugs. (C) 100 mm dia.	30.00	NOS.	79.54	2386.20
103	Providing & Fixing Kathi around the vertical PVC drainage pipes for concealing with cement plaster 20 mm avg thickness(C.M. 1:3 [1 cement :3 coarse sand]) finishing as per instruction given by Eng. incharge. MR (A) 75 mm PVC PIPE	100.00	R.M.	102.00	10200.00
104	(B) 100 mm /110 mm PVC PIPE	100.00	R.M.	129.00	12900.00
105	(C) 110 mm /150 mm PVC PIPE	100.00	R.M.	150.00	15000.00
106	Providing & fixing Z - clamps at all floor levels of approved design to C.I. S.C.I. or PVC pipes including the cost of cutting holes & making good the wall etc. Complete - 100 mm dia as per architect instructions. (A) 40 to 50 mm dia	60.00	NOS.	42.00	2520.00
107	(B) 75 to 90 mm dia	25.00	NOS.	55.00	1375.00
108	(C) 110 mm dia to upto 150 mm dia	25.00	NOS.	70.00	1750.00
109	Providing and fixing Towel Ring 300mm long fabricated from seamless stainless steel tube 2mm thick in bath room with polished wall flange at end of bars with heavy duty anchor fasteners & accessories.	2.00	NOS.	1050.00	2100.00
110	Providing & Fixing stainless steel recessed type Soap dish of approved make including providing & fixing screws, washers, cutting & making good the walls.	2.00	NOS.	750.00	1500.00
111	Providing & fixing colouron galvaniced steel, zinc / aluminium allus coated sheet 0.5 mm. thick roofing fixed with gslvanised grom J or L hook bolts and bolt 8mm dia with bituman and impet washer filled with white lead etc. Excluding the cost of purlins rafter and trusses.(TATA or Jindal Make)	74.82	S.M.	838.00	62699.16
112	OTHER WORKS : Removal of Sintex tank with all fittings and refixing at same location but on the pedastal of 0.3m height from slab level with all necessary fittings and fastenings as per requirements and as per directions of engineer in charge. As per M.R.	8.00	NOS.	2207.00	17656.00

113	Vegetation Removal from building at any height from root of vegetation requried chippi/.demolation wall /rcc &Remove root up to end & apply chemical for destroy the root. touch up as per requirment to only as per instructed by enginner incharge	1.00	JOB	5000.00	5000.00
114	Aluminum section Window opening and refixing with all necessary fix & fiting etc only as per instrction by EIC.	16.20	S.M.	581.00	9412.20
115	RCC Core Cutting is about making precise, circular cuts for creating holes of required diameters for Rehabilitation in civil works. The core drilling rod is fitted with diamond pieces at the drilling end. The core cutting machine can be used for both horizontal and vertical hole making purposes. 75mm - 110 mm	10.00	NOS.	307.00	3070.00
116	As above but 150 mm	3.00	NOS.	511.00	1533.00
117	Apply hacking on RCC member manual or by mechanical as discoused by engineer incharge. 350 - 400 notches (dents) per sqmt. Process of making the back ground rough before plastering for better bonding of mortar with RCC (Tacha)	20.00	S.M.	24.00	480.00
118	Providing and fixing FRP FRAME size 125 x 65 mm and 35 mm thick FRP shutter with wood grain raised panneled design finish shutter having extra reinforcement on sides & edges in Gel coat finish. The core of the shutter & frmae is to be filed up with injected polyurethene foam done in situ along with embedded wooden pieces for stiffening & also taking hinges & fixtures. The whole FRP frame & shutter is to be water proof weather proof,termite proof &resistance to mild acid/alkali. Rates are to be inclusive of S.S.hinges with fastener sleeve & alluminium fixtures & fastentings. Product should have 3 years performance guarantee and company have ISO 9001-2000 certificate. **Same as above but Without Frame**	22.50	S.M.	2805.78	63130.05
119	Providing and fixing 35 mm thick shutters for Doors, windows and clearstory windows including blackenamelled M.S. butt hinges with necessary screws. (A) Indian teak wood. (i) Fully Panelled.	21.60	S.M.	3308.03	71453.45
120	Carrying out wall treatment for termite control including injecting (8mm dia- 75 mm drill for 115 mm thick wall and 8mm dia- 100 drill for 230 mm wall) with chemical solution in oil base including labour and material Using Imidacloprid concentration 20EC As per IS 6316 paret - II concentration by weight 0.50 percent is recommended i.e one liter chemical emulsion dilute with 19 liter gof IS Concentration total dillite concentration with be 20 liter inclusive of one liter chemical emulsion recommended as per I.S.	911.00	S.M.	30.00	27330.00
121	Removing & refixing interlocking type cement concrete paver block (Rubber moulded) of approved shape, design & colour fixing on fine sand bedding item includes leveling by using vibratory plates compacted machine item also includes all matrials, labour, equipmet, tools, plants, watering, cleaning etc complete	20.00	S.M.	92.92	1858.40
122	Providing and Replace door, Window S.S. Fixtures fix in wooden / Alluminium door - window with ISI marks as per approoved by engineer in charge. (A) 4" × 1.25" S.S. Hinge	30.00	NOS.	125.00	3750.00
123	(B) 5" x 1.25" S.S. Hinge	204.00	NOS.	150.00	30600.00
124	(C) 8" S.S. Aldraf	102.00	NOS.	180.00	18360.00
125	(D) 10" S.S. Aldraf	20.00	NOS.	210.00	4200.00
126	(E) 12" S.S. Aldraf	51.00	NOS.	240.00	12240.00
127	(F) 4" S.S. Handle	5.00	NOS.	150.00	750.00
128	(G) 6" S.S. Handle	51.00	NOS.	180.00	9180.00
129	(H) 4" S.S. Stopper	10.00	NOS.	125.00	1250.00
130	(I) 8" S.S. Stopper	51.00	NOS.	175.00	8925.00
131	(J) 8" S.S. Pavan Ankdi Heavy duty	5.00	NOS.	100.00	500.00
132	Providing & Fixing water proof plywood (ISI marks 710grade) at the door, window and any space in the building. necessary hardware, serews materials etc. complete as per instruction by engineer in charge. (A) 6 mm	50.00	S.M.	406.00	20300.00
133	(B) 8 mm.	10.00	S.M.	482.00	4820.00
134	(C) 12 mm.	5.00	S.M.	584.00	2920.00
135	(D) 18 mm.	5.00	S.M.	825.00	4125.00

136	Providing & laying weep hole in parapet wall/sunk by using PVC pipe of 75 mm -500mm including laying in proper grede and jointing the completed as per instruction by engineer in charge.	5.00	EACH	129.00	645.00
137	Steel work, riveted in built up sections framed work including cutting, hoisting, fixing in position and applying a priming coat of red lead paint. (A) In beams and joists, channels angles Tees, flats, with connecting plates or angle cleats as in main and cross beams. Hip and jack rafters, purlins conneted to common rafters and the like.	51.08	Qtl.	9047.86	462164.69
138	Providing & Fixing 6 nos steel cap wall hook 1 inches, length 1.75 inches silver pack of premium hangers ,(rust resistant coating reliable hanging hardware) with pvc coated steel wire rope (0.5 mm gauge) for drying clothes/clothesline in 1 typical hostel room. (6 Nos. Cap wall hook with 10 m wire rope.)	51.00	NOS.	369.00	18819.00
139	Providing & Fixing Plain Glass sheet 4 mm thick in Door ,Window & Vantilation with necessary lapi/scrow/khili etc as per instruction by engineer in charge.	7.74	S.M.	450.00	3483.00
140	Dismantling the existing Solar water heater of any size along with plumbing connection and making the site clear. Inclusive erecting on proper location inlet-outlet water connection flexible piping of capacity up to 100 lit to 200 lit. with all material if required for re erection. (Note: Only one consider for single hostel)	2.00	JOB	7000.00	14000.00
141	Providing & Fixing Nylon net (having net weight-0.065 kg/sq.mt) in outside as well as inside plaster / terrace water proofing at any height (no load or lift will be paid for the same) etc as direct by E.I.C	1215.06	S.M.	39.00	47387.34
142	Disposal of unserviceable material (A) Bldg. rubbish. Loading -Unloading & Carting & Transporting and Disposing unserviceale material from site (2.82 cmt -min quantity Per Tractor Trip)	73.00	Per Each Trip	600.00	43800.00
143	The post-construction cleaning process typically includes dusting and cleaning all surfaces, vacuuming and sweeping all floors, cleaning windows and glass surfaces, cleaning and disinfecting bathrooms and toilet removing all debris, trash, and excess materials from the property. only satisfactory as per hostel warden /consultant and payment received only after written confirmation from them.	911.00	S.M.	20.00	18220.00
144	All pipe lines opening and remove/refixing on terrace with all necessary fix & fiting etc only as per instrction by EIC. 25mm to 65 mm	150.00	R.M.	35.00	5250.00

145	**ELECTICAL WORKS :** Point wiring in Copper [MODULAR] : Point wiring for Light / Bell with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires up to 10 mtr length , in below type of pipe erected with 6A Modular type switch / bell push & accessories and earth continuity of following type, erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured/metallic/white front plate modules erected on / in wall / ceiling as per pipe erected, with necessary Lamp holder/ceiling rose / H.D.Connector as directed. (h) with oval conduit /PVC casing capping double lock type erected concealed in wall/ceiling complete. Cat. III	130.00	Pt.	409.05	53176.50
146	Point wiring for FAN with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (Green) both are of .ISI marked 1.1 KV Grade FRLS PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected with 6A Modular type switch and hum free EME step type electronic fan regulator mounted and accessories with earth continuity of following type erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured/metallic/white front plate modules erected on / in wall / ceiling as per pipe erected. with necessary ceiling rose / H.D.Connector as directed. (h) with oval conduit /PVC casing capping double lock type erected concealed in wall/ceiling complete. Cat. III	60.00	Pt.	588.83	35329.80
147	Providing & erecting Switch board for Computer or electric apparatus consisting of following modular type accessories mounted with PVC / Metallic concealed/open box with single mounting base frame covered with textured/metallic /white front plate,modules erected with necessary connections as directed 1 no. 6A/16A universal plug-switch combined. 3 nos. 6A Switch 3 nos. 6A 5 pin Plug For Modular Type Accessories. Cat. III	55.00	Ea.	1081.71	59494.05
148	Point wiring for Individual Plug with & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected complete with Modular type switch & 5 pin Plug erected on PVC / Metallic/Wooden box covered with appropriate front plate modules erected on / in wall / ceiling as per pipe erected with following type of accessories. [B] 6/16A Plug and 16 amp switch with 2-2.5 sq. mm Cu. Mains from mcb d b boards. (h) with oval conduit /PVC casing capping double lock type erected concealed in wall/ceiling complete. Cat. III	55.00	Pt.	609.03	33496.65
149	Point wiring for on board looped PLUG with tissino type single pole ISI marked Switch and Socket erected with necessary connections erected on wooden /Metal/ PVC Box covered with 3 mm thick PC(Polycarbonate) /Acrylic sheet for open / concealed wiring for following size.	7.00	Pt.	241.39	1689.73
150	**Mains & Wires** Mains with 1.1 KV grade FRLS PVC insulated ISI marked stranded Copper conductor wire in following type of pipe to be erected concealed in /flushed on wall/ceiling, with 1.5 sq. mm copper conductor FRLS PVC insulated stranded wire of green colour for earth continuity of following size (a) with medium class Rigid PVC pipe and accessories (a) 2 wire 1.5 sq. mm	450.00	Mtr.	59.59	26815.50
151	(b) 2 wire 2.5 sq. mm (From LDB to SB and SB to SB)	750.00	Mtr.	78.78	59085.00
152	Mains with 1.1 KV grade FRLS PVC insulated ISI marked stranded Copper conductor wire in following type of pipe to be erected in / on wall / ceiling with 2.5 sq. mm copper conductor FRLS PVC insulated stranded wire of green colour for earth continuity of following size (D) partial PVC pipe and drops in oval conduit / PVC casing capping (h) 4 wire 6 sq. mm	250.00	Mtr.	172.71	43177.50

153	Supplying & erecting XLPE(IS:7098)(I)-88 ISI unarmoured copper cable 1.1 KV grade to be erected as directed of following size. (E) 3 core 2.5 Sq. mm	80.00	Mtr.	136.35	10908.00
154	Providing following type of Modular Type Accessories mounted with PVC / metallic/Wooden box, single mounting base frame covered with textured / metallic/white front plate , modules erected with necessary connections as per site situation directed by Engineer In charge. (5) Electronic hum Free steps EME Fan regulator, Cat. III	26.00	Mtr.	380.77	9900.02
155	LT Switchgear, Distribution Boards & LT Panel : Providing & erecting 415 V MCB Four Pole for Motor & Inductive Load (C Curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity. (c) 63 Amp. Cat. III	3.00	Ea.	737.30	2211.90
156	Providing and erecting Sheet Steel powder coated MCB distribution board - flush / surface mounted fitted with busbar, neutral link, earth bar and DIN rail, Conforms to IS 8623-1 & 3, IEC 61439-1 & 3 without MCB to house appropriate nos. of MCBs.(The DBs should be used of same company of MCB to be used) suitable for (A) single phase incoming and horizontal single phase outgoing (b) sheet steel double door (IP-43) (iii) 12 way	3.00	Ea.	1492.78	4478.34
157	providing and erecting Miniature circuit breaker single pole 6A to 25A suitable to operate on 240 V A.C. system and having breaking capacity 10 KA to be erected in existing box. confirming to IS 8828/1996 with ISI Mark. Cat. III	40.00	Ea.	112.11	4484.40
158	**Indoor Lighting Item :** Supplying and erecting LED indoor fittings. (iv) 22-24 Watts, Surge - 2KV,IP-20, conventional 4 feet (Cat-lll)	130.00	Ea.	373.70	48581.00
159	(i) 5-10 Watts, Surge-2 KV, IP-20, conventional 1 to 2 feet	20.00	Ea.	165.64	3312.80
160	Supplying and erecting LED street light / Flood light fittings with High power White LEDs wattage of 3 Watt and above assembled on single MCPCB, efficiency more than 130 lm/w and corrosion free High pressure die cast aluminium housing with smooth finish powder coated and heat sink extruded aluminium with diffuser and Polycarbonate optics/ lenses with company mark/name engraved or embossed 160 to 270 V,Power Factor more than 0.95, THD < 10 %, CCT 3000 K to 5700K,Uniformity ratio >0.45, Luminaire efficacy> 100 lumens/watt . LED driver efficiency > 85 %.(fittings required LM-79 & LM-80 certificates)(NOTE: Below description have shown ranges of Wattage capacity of LED fittings.The Engineer incharge may select any wattage capacity between the ranges shown.) (B) Flood Light (IP-65), Surge protection -4KV integral and ,Light must have 440VAC line supply with over-voltage protection. (vii) above 200 to 250 watts ,Cat.III	2.00	Ea.	10818.11	21636.22
161	**Fan & Accessories :** Providing & erecting Approved make Ceiling Fan with double ball bearing ISI mark with Condenser 230 volt A.C.50 Hz 1200 mm sweep complete having 3 blades aluminium body and blade sets having ornamental design shanks , canopy erected with earthing. [Make shall be approved by Engineer in Charge]	60.00	Ea.	2311.89	138713.40
162	Supplying & erecting single phase approved make industrial exhaust fan suitable for medium duty ring mounted low noise operation suitable for medium duty having following dia size and maximum speed in RPM [A] 305 mm dia 900 RPM Cat.II	16.00	Ea.	2054.34	32869.44
163	**Earthing System** : Providing and erecting HOT deep Galvanised iron strip wire 8 to 16 SWG.	3.00	Kg.	77.77	233.31

164	Supplying & erecting in earthpit of minimum bore dia. 225mm size approved make Safe Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made of corrosion free hot dipped G.I.Pipes having Outer pipe dia of 80 mm having 80-200 Micron galvanising, Inner pipe dia of 40 mm having 200-250 Micron galvanising, connection terminal dia of 14 mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation suitable for following type of applications with chamber and heavy duty cover (A)(approved make OEM has to submit test certificate including value of earth resistance of installation duly stamped and signed by agency and officer Incharge has to ensure the value of earthing resistane mentioned in test Certificate) & having back filling compound of (B) Inner chemical (CCM Compound)- Resistivity:- 0.2 ohm / meter testing as per IEC 62561-2017, Voltage drop:- < 1 volt at no load & dry form, Sulphar content:- <2%(C) Back fill Compound :- Earthing compound should be capable to retain moisture for long time Necessary test report must be submitted by Agency. [B] For Electrical installation up to 11 KV located in other than normal soil i.e. Soft Rock, Marshy Soil etc. -Length of Pipe : 2 mtr -Back filling Compound :1 no. Bag of 25 Kg.	2.00	Ea.	7095.25	14190.50
165	Providing one bag of 25 Kg. Additional Back Filling Compound (BFC) suitable for safe earthing device.	5.00	Ea.	707.00	3535.00
166	Repairing : 'Dismantling the existing ceiling fan / exhaust fan / cabin fan / bracket fan complete with accessories, G.I. down rod, frame etc. and making the site clear.	53.20	Ea.	9.09	483.59
	TOTAL AMOUNT WITHOUT GST :				**6691266.19**
	ADD : Appicable GST @ 18%				**1204427.91**
	TOTAL AMOUNT WITH GST :				**7895694.10**