

BIDDING DOCUMENT

FOR

THE PROCUREMENT OF

Componding Work Of NEA, Taplejung Distribution Center Hitti Sub Station.

Sealed Quotation

Issued by:

NEA, Taplejung Distribution Center

Taplejung Phungling Municipality Taplejung

Sealed Quotation Number

NEA-TPLG-DC-2081/082-02-Re-SQ

Issued On

23-01-2025

Abbreviations:

GCC	General Conditions of Contract
SCC	Special conditions of Contract
GON	Government of Nepal
PPMO	Public Procurement Monitoring Office
ITB	Instruction to Bidders
BDS	Bid data sheet
LOA	Letter of Acceptance
LOI	Letter of intent
BOQ	Bill of Quantities
PPA	Public Procurement Act
PPR	Public Procurement Regulations
CP	Codes of Practice
NEA	Nepal Electricity Authority

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Invitation for Sealed Quotation

Name of the Office: NEA, Taplejung Distribution Center

Address of the Office:

Taplejung Phungling Municipality Taplejung

Sealed Quotation No: NEA-TPLG-DC-2081/082-02-Re-SQ

Date of second Publication : 23-01-2025

1. The NEA, Taplejung Distribution Center invites sealed quotations from registered contractors for the construction of Componding Work Of NEA, Taplejung Distribution
2. The Estimated amount for the works is (in NRs.): 672,092.92 (Exclusive of VAT and Contingencies)
3. Eligible Bidders may obtain further information and inspect the Sealed quotation Forms at the office of NEA, Taplejung Distribution Center at Taplejung Phungling Municipality Taplejung or by reaching out to them at Telephone 024461102 or by dropping a mail at taplejung@nea.org.np [or may visit PPMO website www.bolpatra.gov.np.]
4. Sealed Quotation Forms may be purchased by eligible Bidders on the submission of a written application and upon payment of a non-refundable fee of 1000.0 NRs.

Or

Bidder who chooses to submit their bid electronically shall deposit the cost of bidding document in the account specified below:

Name of the Bank: NIC Asia Bank Ltd.

Name of the Office: NEA, Taplejung Distribution Center

Office Code no:

Office Account no: 2854150062844167

Rajaswa (revenue) Shirshak no:

5. Sealed bids must be submitted to the above office by hand or through e-GP system i.e www.bopatra.gov.np/egp on or before 07-02-2025 12:00 hours . Bids received after this deadline will be rejected.
6. Sealed Quotations shall be opened in the presence of Bidders' representatives who choose to attend at 07-02-2025 14:00 hours at the office of NEA, Taplejung Distribution Center, Bids must be valid for a period of 45 days after bid opening and must be accompanied by a bid security amounting to a minimum of NRs.23000 which shall be valid for 30 days beyond the validity period of the bid i.e 75 days.
7. If the last date of purchasing and /or submission falls on a government holiday, then the next working day shall be considered as the last date. In such case the validity period of the bid security shall remain the same as specified for the original last date of bid submission.

[Note : As mentioned in clause 49ka of PPR 2064 clause 49ka ,add more relevant information as per required]

Section - II
Instruction to Bidders

Section I. Instruction to Bidders(ITB)

<p>1. Scope of Works</p>	<p>1.1 The Employer stated in the BDS for the construction of works as detailed in attached specifications, drawings and the bill of quantities provided herein. The name of <i>Employer, name of project and contract identification number of Contracts</i> are provided in the BDS.</p>
<p>2. Eligible Bidder</p>	<p>2.1 This Invitation for Bids is open to all registered contractors with eligibility criteria specified in section III Eligibility Criteria. A bidder declared blacklisted and ineligible by the GoN, Public Procurement Monitoring Office (PPMO) and/or the DP in case of DP funded project, shall be ineligible to bid for a contract during the period of time determined by the GoN, PPMO and/or the DP.</p> <p>2.2 In case of a natural person or firm/institution/company which is already declared blacklisted and ineligible by the GoN, any other new or existing firm/institution/company owned partially or fully by such Natural person or Owner or Board of director of blacklisted firm/institution/company; shall not be eligible bidder.</p> <p>2.3 Firms shall be excluded if the corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV shall not be eligible to participate in procurement process till the concerned Court has not issued the decision of clearance against the Corruption Charges</p>
<p>3. One Bid per Bidder</p>	<p>3.1 Each Bidder shall submit only one quotation. A Bidder who submits more than one quotation shall cause all the quotations with the Bidder's participation to be disqualified.</p>
<p>4. Cost of Bidding</p>	<p>4.1 The Bidder shall bear all costs associated with the preparation and submission of his bid and the Employer shall in no case be liable for those costs.</p>
<p>5. Site Visit</p>	<p>5.1 The Bidder at his own cost, responsibility and risk may visit the site of the works and acquire all necessary information for preparing the bid and entering into a contract for construction of the works.</p>
<p>6. Content of Quotation Form</p>	<p>6.1 The Quotation Form comprise the documents listed below: Section I: Instructions to Bidders Section II: Bid Data Sheet Section III : Eligibility Criteria Section IV: Bidding Forms Section V: Works Requirements Section VI: Bill of Quantities Section VII: General Conditions of Contract (GCC) Section VIII: Special Conditions of Contract (SCC) Section IX: Contract Forms</p>

7. Clarification	7.1 A prospective Bidder may obtain clarification on the Quotation Form from the Employer on or before 5 days prior to the deadline for submission of quotation.
8. Language of Bid	8.1. All documents relating to the bid shall be in English /Nepali.
9. Documents Comprising Bid	<p>The bid by the Bidder shall comprise the following:</p> <ul style="list-style-type: none"> • Letter of Bid • Eligibility Information/Document • Bid Security and • Priced Bill of Quantities
10. Bid Prices	<p>10.1 The contract shall be for the whole works described in scope of works based on the priced Bill of Quantities submitted by the Bidder. The Bidder shall fill in rates and prices for all items of the works in Nepali Rupees. Items for which no rate or price is entered shall be deemed covered by the other rates and prices in the Bill of Quantities and shall not be paid separately by the Employer.</p> <p>All duties, taxes and other levies payable by the contractor under the contract shall be included in the rates, prices and total Bid Price submitted by the Bidder.</p>
11. Bid Validity	11.1 Bids shall remain valid for the period specified in the BDS after the bid submission deadline date prescribed by the Employer. A bid valid for a shorter period shall be rejected by the Employer as nonresponsive.
12. Bid Security	<p>12.1 The Bidder shall furnish as part of its bid, in original form, a bid security as specified in the BDS. In case of e-submission of bid, the Bidder shall upload scanned copy of Bid security letter at the time of electronic submission of the bid. The Bidder accepts that the scanned copy of the Bid security shall, for all purposes, be equal to the original. The details of original Bid Security and the scanned copy submitted with e-bid should be the same otherwise the bid shall be non-responsive.</p> <p>12.2 The bid security shall be, at the Bidder's option, in any of the following forms:</p> <ul style="list-style-type: none"> (a) an unconditional bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law or; (b) a cash deposit voucher in the Employer's Account as specified in BDS. <p>In the case of a bank guarantee, the bid security shall be submitted either using the Bid Security Form included in Section III (Bidding Forms) or in another Form acceptable to the employer. The form must include the complete name of the Bidder. The bid security shall be valid for minimum thirty (30) days beyond the original validity period of the bid</p> <p>12.3 Any bid not accompanied by an enforceable and substantially compliant bid security shall be rejected by the Employer as nonresponsive. In case of e-Submission, if the scanned copy of an acceptable Bid Security letter is not uploaded with the electronic Bid then Bid shall be rejected.</p> <p>12.4 The bid security shall be forfeited if:</p> <ul style="list-style-type: none"> (a) a Bidder requests for withdrawal during the period of bid validity specified by the Bidder on the Letter of Bid, after bid submission deadline. (b) a Bidder changes the prices or substance of the bid while providing information; (c) a Bidder involves in fraud and corruption pursuant to clause 27; (d) the successful Bidder fails to:

	<p>(i) furnish a performance security in accordance with clause 25 and 26;</p> <p>(ii) sign the Contract in accordance within the period stipulated in Letter of Acceptance;</p> <p>or</p> <p>(iii) accept the correction of arithmetical errors pursuant to clause 21.1</p>
13. Format and Signing of Bids	13.1 The bid shall be typed or written in indelible ink and shall be signed by an authorized person. Any entries or amendments including alternations, additions or corrections made shall be initialed by the same authorized person.
14. Sealing and Marking of Bids	<p>14.1 Bidders may submit their bids by hand copy or by electronically. When so specified in the BDS, bidders shall have the option of submitting their bids electronically. Procedures for submission, sealing and marking are as follows:</p> <p>(a) Bidders submitting bids by hand copy: The Bidder shall submit his bid in sealed envelopes. The envelope shall be addressed to the Employer specified in the Invitation for Quotation and shall bear the name and identification number of the quotation.</p> <p>(b) Bidders submitting Bids electronically shall follow the electronic bid submission procedure specified in the BDS</p>
15. Deadline for Submission of Bids	15.1 Bids shall be delivered to the Employer at the address no later than the time and date specified in BDS .
16. Late Bids	16.1 Any bid received by the Employer after the deadline shall not be accepted and shall be returned unopened to the Bidder upon request.
17. Modification And Withdrawal of Bids	17.1 Bids once submitted shall not be withdrawn or modified.
18. Bid Opening	18.1 The Employer shall open the bids in the presence of the Bidders' representatives who choose to attend at the time and in the place as specified in the BDS . The Employer shall prepare and provide minutes of the bid opening including the information disclosed to those present.
19. Process to be Confidential	19.1 Information relating to the examination, evaluation and comparison of bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any efforts by the Bidder to influence the Employer in the bid evaluation, bid comparison or contract award decisions may result in rejection of Bidder's bid.
20. Examination of Bids	20.1. Prior to the detailed evaluation of Bids, the Employer shall determine whether each bid (a) meets the eligibility criteria defined in Clause 2; (b) has been properly signed; (c) is accompanied by the required securities; and (d) is substantially responsive to the requirements of the Bidding documents.
21. Evaluation and Comparison of Bids	21.1 In evaluating the Bids, the Employer shall determine for each bid the evaluated Bid Price by adjusting any corrections for errors. Bids shall be checked by the Employer for any arithmetic errors. Errors shall be corrected by the Employer as follows:

	<p>(a) only for unit price Contracts, if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;</p> <p>(b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and</p> <p>(c) If there is a discrepancy between the bid price in the Summary of Bill of Quantities and the bid amount in item (c) of the Letter of Bid, the bid price in the Summary of Bill of Quantities will prevail and the bid amount in item (c) of the Letter of Bid will be corrected.</p> <p>(d) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) ,(b) and (c) above.</p> <p>21.2 In case of e-submission of bid, upon notification from the employer, the bidder shall also submit the original of documents comprising the bid as per ITB 9 for verification of submitted documents for acceptance of the e-submitted bid. If a Bidder does not provide original of document of its bid by the date and time set in the Employer’s request for clarification, its bid may be rejected.</p> <p>21.3 If the Bidder that submitted the lowest evaluated bid does not accept the correction of errors, its bid shall be disqualified and its bid security shall be forfeited.</p> <p>21.4 If the corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV such bidder’s bid shall be excluded during the evaluation.</p>
<p>22. Award of Contract</p>	<p>22.1 The Employer shall decide the award of the contract to the Bidder whose bid is within the approved estimate and who has offered the lowest evaluated Bid Price within bid validity period provided that such Bidder has been determined to be eligible in accordance with the provisions of Clauses 2.</p> <p>22.2 if the bid for an Unit Rate Contract, which results in the lowest Evaluated Bid Price is seriously unbalanced or front loaded or extremely low in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analysis, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder as mentioned in BDS to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract or may consider the bid as non-responsive.</p>
<p>23. Employer's Right to Accept any Bid and to Reject any or all Bids</p>	<p>23.1 The Employer reserves the right to accept or reject any bid or to cancel the bidding process and reject all bids, at any time prior to the award of the contract, without assigning any reasons whatsoever and without thereby incurring any liability to the affected Bidder or Bidders.</p>
<p>24. Notification of Award and</p>	<p>24.1 The Bidder whose bid is accepted and all other participating bidders shall be notified of the award by the Employer.</p>

<p>Signing of Agreement</p>	<p>24.2 The notification (hereafter called the “Letter of Acceptance”) to the successful Bidder shall state the sum that the Employer shall pay the Bidder in consideration of the execution, completion, and maintenance of the works as described by the contract. Within 7 days of receipt of the Letter of Acceptance, the successful Bidder shall deliver the Performance Security pursuant Clause 25 and sign the Agreement.</p> <p>24.3 Inability of the Bidder to make an Agreement within the above stated period shall result in cancellation of the Contract Award and forfeiture of the Bidder’s Bid Security, upon which the Contract shall then be awarded to the next successive successful Bidder.</p>
<p>25. Performance Security</p>	<p>25.1. Within seven (7) days of the receipt of Letter of Acceptance from the Employer, the successful Bidder shall furnish the performance security as under mentioned from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal in accordance with the conditions of Contract using Sample Form for the Performance Security included in Section IX (Contract Forms), or another form acceptable to the Employer.</p> <p>i) If bid price of the bidder selected for acceptance is up to 15 (fifteen) percent below the approved cost estimate, the performance security amount shall be 5 (five) percent of the bid price.</p> <p>ii) For the bid price of the bidder selected for acceptance is more than 15 (fifteen) percent below of the cost estimate, the performance security amount shall be determined as follows:</p> <p>Performance Security Amount = [(0.85 x Cost Estimate – Bid Price) x 0.5] + 5% of Bid Price.</p> <p>The Bid Price and Cost Estimate shall be inclusive of Value Added Tax.</p>
<p>26. Additional Securities</p>	<p>26.1 The Bidder may be required to provide additional Performance Security if the Employer determines that the rate quoted by the Bidder in the Bill of Quantities, front loaded or unbalanced. In such case, the Employer shall instruct the Bidder to provide additional 8% security for signing of the Contract Agreement. Bidder’s failure to do provide additional security shall result in forfeiture of the Bid Security and award of the Contract to the next lowest evaluated Bidder.</p>
<p>27. Corrupt or Fraudulent Practices</p>	<p>27.1 The Employer shall reject a bid for award if it determines that the Bidder recommended for award of contract has engaged in corrupt or fraudulent practices in competing for the contract in question.</p>
<p>28. Conduct of Bidders</p>	<p>28.1 The Bidder shall be responsible to fulfill his obligations as per the requirement of the Contract Agreement, Bidding documents, GoN’s Procurement Act and Regulations.</p> <p>28.2 The Bidder shall not carry out or cause to carry out the following acts with an intention to influence the implementation of the procurement process or the procurement agreement :</p> <ul style="list-style-type: none"> a) give or propose improper inducement directly or indirectly, b) distortion or misrepresentation of facts c) engaging or being involved in corrupt or fraudulent practice d) Interference in participation of other prospective bidders. e) coercion or threatening directly or indirectly to cause harm to the person or the property of any person to be involved in the procurement proceedings,

	<ul style="list-style-type: none"> f) collusive practice among bidders before or after submission of bids for distribution of works among bidders or fixing artificial/uncompetitive bid price with an intention to deprive the Employer the benefit of open competitive bid price.. g) contacting the Employer with an intention to influence the Employer with regards to the bid or interference of any kind in examination and evaluation of the bids during the period after opening of bids up to the notification of award of contract
<p>29.Blacklisting Bidder</p>	<p>29.1 Without prejudice to any other right of the Employer under this Contract, GoN, Public Procurement Monitoring Office may blacklist a bidder for his conduct up to three years on the following grounds and seriousness of the act committed by the bidder:</p> <ul style="list-style-type: none"> a) if it is proved that the bidder committed acts pursuant to the Sub-Clause 28.2, b) if it is proved later that the bidder/contractor had committed substantial defect in implementation of the contract or had not substantially fulfilled his obligations under the contract or the completed work is not of the specified quality as per the contract , c) if convicted by a court of law in a criminal offence which disqualifies the bidder from participating in the contract. d) if it is proved that the contract agreement signed by the bidder was based on false or misrepresentation of bidder’s qualification information, <p>29.2 A firm declared blacklisted and ineligible by the GON shall be ineligible to bid for a contract during the period of time determined by the PPMO.</p>
<p>30. Provision of PPA and PPR</p>	<p>If any provision of this document is inconsistent with Public Procurement Act (PPA), 2063 or Public Procurement Regulations (PPR), 2064, the provision of this documents shall be void to the extent of such inconsistency and the provision of PPA and PPR shall prevail.</p>

Section - II
Bid Data Sheet

Bid Data Sheet

ITB 1	The scope of work is : WORKS SEALED QUOTATION
ITB 1	The number of the Invitation for Bids is : NEA-TPLG-DC-2081/082-02-Re-SQ
ITB 1	The Employer is : NEA, Taplejung Distribution Center
ITB 11	The bid validity period shall be: 45 days.
ITB 12.1	The Bidder shall furnish a bid security, from 'A' class commercial bank with a minimum of 23000, which shall be valid for 30 days beyond the validity period of the bid.
ITB 12.2	<p>Cash Deposit Account for Bid Security :</p> <p>Bank Name: Global IME Bank Ltd.</p> <p>Bank Address: FUNGLING TAPLEJUNG</p> <p>Account Name: NEA DEPOSIT ACCOUNT</p> <p>Account Number: 5401010000198</p>
ITB 14.1	<p>Bidders shall have the option of submitting their bids electronically.</p> <p>Electronic submission procedure shall be :</p> <p>i. The bidder is required to register in the e-GP system https://www.bolpatra.gov.np/egp following the procedure specified in e-GP guideline.</p> <p>ii. Interested bidders may either purchase the bidding document from the employer's office as specified in the Invitation for Bid (IFB) or bidders may download the IFB and bidding document from e-GP system.</p> <p>iii. The registered bidders need to maintain their profile data required during preparation of bids.</p> <p>iv. In order to submit their bids electronically the cost of the bidding document shall be deposited in the account specified in IFB. In addition, electronic scanned copy (.pdf format) of the bank deposit voucher/cash receipt should also be submitted along with the bid.</p> <p>v. The bidder can prepare their bids using data and documents maintained in bidder's profile and forms/format provided in bidding document by Employer. The bidder may submit bids as a single entity.</p> <p>vi. Bidders should update their profile data and documents required during preparation and submission of their bids. The required forms and documents shall be part of technical bids.</p> <ol style="list-style-type: none"> 1. Letter of Bid (Mandatory) 2. Bid Security/Bank Guarantee (Mandatory) 3. Company registration (Mandatory) 4. VAT registration (Mandatory) 5. Tax clearances certificate or evidence of tax return submission (Mandatory) 6. Power of Attorney of Bid signatory (Mandatory) 7. Completed BoQ (Mandatory) 8. Bank Voucher for cost of bid document (Mandatory) 9. Additional documents specified in Bidding Document (If required) <p>Note : The documents specified as "Mandatory" should be included in e-submission.</p> <p>vii. After providing all the details and documents, bid response documents will be generated from the system. Bidders are advised to download and verify the response documents prior to bid submission.</p> <p>viii. For verifying the authentic user, the system will send one time password in the registered email address of the bidder. System will validate the OTP and allow bidder to submit their bid.</p> <p>ix. Once bid is submitted, bidders won't able to modify/withdrawal their bid.</p> <p>x. The Bidder / Bid shall meet the following requirements and conditions for e-submission of bids :</p> <p>The e-submitted bids must be readable through PDF reader.</p> <p>The facility for submission of bid electronically through e-submission is to promote transparency, non-discrimination, equality of access, and open competition in the bidding process. The Bidders are fully responsible to use the e-submission facility properly in e-GP system as per specified procedures and in no case the Employer shall be held liable for Bidder's inability to use this facility.</p> <p>When a bidder submits electronic bid through the PPMO e-GP portal, it is assumed that the bidder has prepared the bid by studying and examining the complete set of the Bidding documents including specifications, drawings and conditions of contract.</p>
ITB 15	<p>The deadline for Sealed Quotation submission is: 07-02-2025 12:00</p> <p>Address: Taplejung Phungling Municipality Taplejung</p>

ITB 18	<p>The bid opening shall take place at : Address :NEA, Taplejung Distribution Center Taplejung Phungling Municipality, Taplejung Koshi Pradesh Nepal Date and Time:07-02-2025 14:00</p> <p>a) e-GP system allows to download the bid response document only after bid opening date and time are met. Simultaneous login of two members of the opening committee is required for bid opening. b)The Employer shall conduct the opening of bid at the address on the same date and time as specified in bidding document in the presence of Bidders' representatives who choose to attend</p>
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Section - III
Eligibility Criteria

Eligibility Requirements

All Bidders shall submit following documents as pre- requisites for eligibility:

- 1 Firm/Company Registration Certificate
- 2 Business Registration Certificate (License)
- 3 PAN/VAT Registration Certificate
- 4 Tax Clearance Certificate/ Extension Letter/Tax return submission evidence for the F/Y 2079/80
- 5 Power of Attorney
- 6 Letter of Bid
- 7 insert addition document if required
- 8 NA

Notes to Bidders :

The information to be filled in by Bidders in the following pages shall be used for purposes of eligibility as provided for in Clause 2of the Instructions to Bidders. This information shall not be incorporated in the Contract. Attach additional pages as necessary.

Section - IV
Bidding Forms

Letter of Bid

The Bidder must accomplish the Letter of Bid in its letterhead clearly showing the Bidder's complete name and address.

Date:

Name of the contract:

Invitation for Bid No.:

To:

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents.
- (b) We offer to execute in conformity with the Bidding Documents the following Works:
- (c) The total price of our Bid, excluding any discounts offered in item (d) below is:.....
- (d) The discounts offered and the methodology for their application are:.....
- (e) Our bid shall be valid for a period of 45 days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (f) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Document;
- (g) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- (h) We declare that, we have not been black listed and no conflict of interest in the proposed procurement proceedings and we have not been punished for an offense relating to the concerned profession or business.
- (i) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive; and
- (j) If awarded the contract, the person named below shall act as Contractor's Representative:
- (k) We agree to permit the Employer/DP or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by the Employer.

Name:

In the capacity of

Signed

Duly authorized to sign the Bid for and on behalf of

Date

Bid Security

Bank Guarantee

Bank's Name, and Address of Issuing Branch or Office

(On Letter head of the Commercial bank or any Financial Institution eligible to issue Bank Guarantee as per prevailing Law)

Beneficiary: name and address of Employer.....

Date:.....

Bid Security No.:.....

We have been informed that **[insert name of the Bidder]** (hereinafter called "the Bidder") intends to submit its bid (hereinafter called "the Bid") to you for the execution of name of Contract under Invitation for Quotations No. ("the IFQ").

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we..... name of Bank.hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of.amount in figures (.amount in words) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or
- (b) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the performance security, in accordance with the ITB.
- (c) is involved in fraud and corruption in accordance with the ITB

This guarantee will remain in force up to and including the datenumber.....days after the deadline for submission of Bids as such deadline is stated in the instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date.

This Bank guarantee shall not be withdrawn or released merely upon return of the original guarantee by the Bidder unless notified by you for the release of the guarantee.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.

. . .Bank's seal and authorized signature(s) . . .

Note:

The bid security of has been counter guaranteed by the Bankon (Applicable for Bid Security of Foreign Banks).

Section - V
Works Requirements

Scope of Work

Specifications

Notes on the Specifications

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Employer without qualifying or conditioning their Bids. The specifications must be drafted to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of economy, efficiency and fairness in procurement be realized, responsiveness of Bids be ensured, and the subsequent task of bid evaluation facilitated. The specifications should require that all goods and materials to be incorporated in the Works be new, unused, of the most recent or current models, and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.

Samples of specifications from previous similar projects are useful in this respect. The use of metric units is encouraged by the Funding Agency in case of funding assisted projects. Most specifications are normally written specially by the Employer or Project Manager to suit the Contract Works in hand. The available standard specification of works of Ministry of Physical Infrastructure and Transport, DoLIDAR and Other line Ministries can be adopted for respective civil construction works.

There are considerable advantages in standardizing General Specifications for repetitive Works in recognized public sectors, such as highways, urban housing, irrigation, and water supply, in the same country or region where similar conditions prevail. The General Specifications should cover all classes of workmanship, materials, and equipment commonly involved in construction, however it may not necessarily be adequate to be used in a particular Works Contract and may necessitate preparation of Particular (Special) Specifications to amend and or supplement the provision of the General Specifications to meet the requirement of the particular Works.

Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for goods, materials, and workmanship, recognized international standards should be used as much as possible. Where other particular standards are used, whether national standards of Nepal or other standards, the specifications should state that goods, materials, and workmanship that meet other authoritative standards, and which ensure substantially equal or higher quality than the standards mentioned, will also be acceptable.

Employers should decide whether technical solutions to specified parts of the Works are to be permitted. Alternatives are appropriate in cases where obvious (and potentially less costly) alternatives are possible to the technical solutions indicated in the Procurement Documents for certain elements of the Works, taking into consideration the comparative specialized advantage of potential bidders. For example:

The Employer should provide a description of the selected parts of the Works with appropriate references to Drawings, Specifications, Bill of Quantities, and Design or Performance criteria, stating that the alternative solutions if applicable shall be at least structurally and functionally equivalent to the basic design parameters and specifications.

Such alternative solutions shall be accompanied by all information necessary for a complete evaluation by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, proposed construction methodology, and other relevant details.

Sample Clause: Equivalency of Standards and Codes Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national, or relate to a particular country or region other authoritative standards that ensure a substantially equal or higher quality than the standards and codes specified will be accepted subject to the Project Manager's prior review and written consent. Differences between the standards specified and the proposed alternative standards shall be fully described in writing by the Contractor and submitted to the Project Manager at least 30 days prior to the date when the Contractor desires the Project Manager's consent. In the event the Project Manager determines that such proposed deviations do not ensure substantially equal or higher quality, the Contractor shall comply with the standards specified in the documents.

These Notes for Preparing Specifications are intended only as information for the Employer or the person drafting the Procurement Documents. They should not be included in the final documents.

I) EARTHWORK IN EXCAVATION IN FOUNDATION

SCOPE

This specification covers the general requirements of earthwork in excavation in different materials for all types of foundations, wet or dry.

SITE CLEARANCE

- Before the earth work is started the area coming under cutting and filling shall be cleared of all obstructions, loose stones, roots, shrubs, rank vegetation, grass, brush-wood, trees and saplings of girth upto 30 cm measured at a height of one metre above ground and rubbish removed upto a distance of 150 metres outside the periphery of the area under clearance.
- Land below formation level whichever is lower, and the hollows filled up with earth, levelled and rammed. This work is deemed to be included in the earth work items and no separate payment will be admissible for the work.

SETTING OUT AND MAKING PROFILES

- Masonry or concrete pillars will be erected at suitable points in the area to serve as bench marks for the execution of the work.
- These bench marks shall be connected with G. T. S. or any other permanent bench mark approved by the Engineer-in-charge. Necessary profiles with pegs, bamboos and strings shall be made to show the correct formation levels before the work is started.
- The contractor shall supply labour and materials for setting out and making profiles and alignment for the work at his own cost and the same shall be maintained during the excavation work.
- It shall be the responsibility of the contractor to set out centre lines correctly with reference to the drawings and install substantial reference marks.

EXCAVATION

- Excavation shall include removal of all materials of whatever nature and whether wet or dry, necessary for the construction of foundation and substructure exactly in accordance to the line, levels, grades and curves as shown in the plans or directed by the engineer.
- The contractor shall notify the Engineer-in-charge before starting excavation and before the ground is disturbed, to enable him to take existing levels for the purpose of measurements.
- The ground levels shall be taken at 5 to 15 metres intervals in uniformly sloping ground and at closer distance where local mounts, pits or undulations are met with, as directed by the Engineer-in-charge.
- The ground levels shall be recorded in field books and plotted on plans, which shall be signed by the Contractor and the Engineer-in-charge, before the earth work is actually started.
- The labour required for taking levels, shall be supplied by the Contractor at his own cost.
- The Contractor shall perform excavation in all types of soils, murrum, soft and hard rock, boulders etc. in foundation, over areas and in trenches to widths, lines, levels, grades and curves as shown in the drawing or lesser widths, lines and levels as directed by the Engineer-in-charge and as per items in the schedule of quantities.

- The item in the schedule of quantities shall specify the excavation in trenches or over areas. For this purpose, the excavation for any depth in trenches for foundation not exceeding 1.5 m. in width or 10 sqm. on plan shall be described as **Excavation in foundation trenches.**
- Excavation exceeding 1.5m in width as well as 10 sqm. on plan (excluding trenches for pipes, cables etc.)
- and exceeding 30 cm in depth shall be described as **Excavation over areas.**
- Excavation exceeding 1.5m in width as well as 10 sqm. on plan but not exceeding 30 cm. in depth shall be described as Surface Excavation.

CLASSIFICATION OF EARTH WORK

The earth work shall be classified under the following main categories and measured separately for each category.

- a) All types of soils, murrum, boulders.
- b) Soft rock.
- c) Hard rock.

a) All types of Soils, Murrum, and Boulders: This includes earth, murrum, top deposits of agricultural soil, reclaimed soil, clay, sand or any combination thereof and soft and hard murrum, shingle etc. which is loose enough to be removed with spades, shovel and pick axes.

b) Excavation in Soft Rock : This shall include all materials which are rock or hard conglomerate, all decomposed weathered rock, highly fissured rock, old masonry, boulders bigger than 0.03 cum. in volume but not bigger than 0.5 cum. and other varieties of soft rock which can be removed only with pick axes, crow bars, wedges and hammers with some difficulty.

c) Excavation in Hard Rock : This includes all rock other than soft rock viz. soft rock, occurring in masses, boulders having approximate volume more than 0.5 cum. plain or reinforced cement concrete, which can best be removed by blasting or chiselling and wedging where blasting cannot be permitted owing to any restriction at site.

EXCAVATION PARAMETERS

- The excavation under all classifications in areas in trenches or in pits shall be carried out systematically.
- Cutting shall be done from top to bottom and no under-pining or undercutting will be allowed.
- The bottom and sides of excavation shall be dressed to proper level, slopes, steps, camber etc. by removing high spots, and ramming thoroughly as directed by the Engineer-in-charge.
- All the excavation shall be carried out strictly to the dimensions given in the drawing. The width shall generally be of the width and depth as shown in drawing or as directed by the Engineer-in-Charge, according to availability of the desired bearing capacity of soil below. Any excavation if taken below the specified depths and levels, the contractor shall at his own cost fill up such overcut to the specified level with cement concrete 1:4:8 in case of excavation in all types of soils and with cement concrete 1:2:4 in case of excavation in soft and hard rock.
- After the excavation is completed, the contractor shall notify the Engineer-in-Charge to that effect and no further work shall be taken up until the Engineer-in-Charge has approved the depth and dimensions and also the nature of foundation materials. Levels and measurements shall also be recorded prior to taking up any further work.

SHORING

Unless separately provided for in the schedule of quantities, the quoted rate for excavation shall include excavation of slopes to prevent falling in soil by providing and/or fixing, maintaining and removing of shoring, bracing etc. The contractor would be responsible for the design of shoring for proper retaining of sides of trenches, pits etc. with due consideration to the traffic, superimposed loads etc. Shoring shall be of sufficient strength to resist the pressure and ensure safety from slips and to prevent damage to work and property and injury to persons.

DEWATERING

Unless specifically provided for as a separate item in the schedule of quantities, rate shall also include bailing or pumping out all water which may accumulate in the excavation during the progress of further works such as mud mat concrete, R.C. footings, shuttering etc. either due to seepage, springs, rain or any other cause and diverting surface flow by bunds or other means. Care shall be taken to ensure that the water discharged sufficiently away from the foundations to keep it free from nuisance to other works in the neighbourhood.

DISPOSAL OF EXCAVATED MATERIALS

a) ANTIQUITES: Any finds of archaeological interest such as relics of antiquity, coins, fossils or other articles of value shall be delivered to the Engineer-in-Charge and shall be the property of the Government.

b) USEFUL MATERIALS: Any material obtained from the excavation which in the opinion of the Engineer-in-Charge is useful, shall be stacked separately in regular stacks as directed by the Engineer-in-Charge at a minimum distance of about 3 m from the outer edge of excavation.

Materials suitable and useful for backfilling or other use shall be stacked in convenient place but not in such a way as to obstruct free movement of materials, workers and vehicles or encroach on the area required for constructional purposes. Materials not useful in anyway shall be disposed off, levelled and compacted as directed by the Engineer-in-charge within a specified lead. The site shall be left clean of all debris and levelled on completion.

BACKFILLING

All timber work and form work shall be removed after their necessity ceases and trash of any sort shall be cleaned out from the excavation. All the space between foundation masonry or concrete and the sides of excavation must be refilled to the original surface with approved materials, in layers of 15-20cm in thickness, watered and rammed to compact.

The filling shall be done after concrete or masonry is fully set and done in such a way as not to cause undue thrust on any part of the structure. Where suitable excavated material is to be used for refilling, it shall be brought from the place where it was temporarily deposited and used in refilling.

PROTECTION

Near towns and all frequented places foundation pits, well pits and similar excavation shall be strongly fenced and marked with red lights at night in charge of watchman to avoid accidents. Adequate protective measures shall be taken to see that the foundation excavation does not affect or damage adjoining structures. All measures required for the safety of the excavation, the people working in and near the foundation trenches, property and people in the vicinity shall be taken by

the Contractor at his own cost, he being entirely responsible for any injury to life and damage to property by his negligence.

RATE

- Cleaning Site
- Setting out works
- Shoring works
- Bailing and pumping out water if no separate provision exists for the contract
- Excavation and removal of all materials of whatever nature dry or wet, necessary for the construction of the foundation including materials like explosives, removal of blows and slip and use of tools, plant and equipment necessary for satisfactory completion of the items and preparing bed for foundation
- Sorting out of useful excavated materials, conveying them to the specified lead clear beyond the structure and stacking them neatly for reuse and wasting useless material
- Backfilling the trenches alongside masonry or concrete with approved material upto natural ground level
- Necessary protection against risk or accident
- Facilities for inspection
- Compensation for any injury to life and damage to property
- Drill holes to explore the nature of substratum if necessary

II) EARTHWORK IN FILLING IN FLOOR

SCOPE

This specification covers the general requirements of earthwork in filling in floors.

GENERAL

- All fill materials will be subject to Engineer's approval. If Engineer rejects any materials, Contractor shall
- Remove the same forthwith from the site at no extra cost to the Owner.
- Surplus fill material shall be deposited / disposed off as directed by Engineer after the fill work is completed.
- No earth fill shall commence until surface water discharges and streams have been properly intercepted or otherwise dealt with as directed by Engineer.

MATERIAL

- To the extent available, selected surplus soils from excavated materials shall be used.
- Fill materials shall be free from clods, salts, sulphates, and organic or other foreign material. All clods of earth shall be broken into pieces not larger than 150-mm size mixed with properly graded fine materials consisting of murrum or earth to fill up the voids and the mixture used for filling.
- If any selected fill material is required to be borrowed; Contractor shall make arrangements for bringing such material from outside borrow pits.

- The material and source shall be subject to prior approval of Engineer. The approved borrow pit area shall be cleared of all bushes, roots of trees, plants, rubbish etc. top soil containing salts/ sulphates and other foreign materials shall be removed.
- The materials so removed shall be burnt or disposal off as directed by Engineer.
- Contractor shall make necessary access roads to borrow areas and maintain the same, if such access road does not exist, at his cost.

FILLING

- Floor filling shall be carried out with earth, watered and compacted with mechanical compaction machines upto a layer of 15cm.
- The Engineer may however permit manual compaction by hand tampers in case he is satisfied that mechanical compaction is not possible.
- When filling reaches the finished level, the surface shall be flooded with water, unless otherwise directed, for at least 24 hours, allowed to dry and then the surface again compacted as specified above to avoid settlements at a later stage.
- The finished level of the filling shall be trimmed to the level/slope specified.
- The use of rollers shall be permitted by the Engineer. Rollers shall start from the ends and go to the centre.
- The compacted surface shall be properly shaped, trimmed and consolidated to an even and uniform gradient. All soft spots shall be excavated and filled and consolidated.

RATE

The rate for earth filling in floor shall comply to the following:

- Manual labour for watering, compacting, tamping the earth
- Material borrowed for use
- Tools, equipment for the purpose
- Renting out rollers
- Necessary protection during the process

III) SAND FILLING IN FLOOR

SCOPE

This specification covers the general requirements related to the filling of sand in floor

MATERIAL

The sand used shall be clean, medium grained and free from impurities.

FILLING

- The filling-in-sand shall be kept flooded with water for 24 hours to ensure maximum consolidation.
- Any temporary work required to contain sand under flooded condition shall be to Contractor's account.
- The surface of the consolidated sand shall be dressed to required level or slope.

- Construction of floors or other structures on sand fill shall not be started until Engineer has inspected and approved the fill.

RATE

The rate for sand filling in floor shall comply to the following:

- Labour for the task
- Good quality sand for filling
- Necessary protection for the purpose
- Supplies for inspection for the task

IV) BRICK IN FLAT SOLING IN FOUNDATION AND IN FLOOR

SCOPE OF WORK

The work covered under this specification includes soling work by bricks laid under floors/foundations, hand packed, complete as per under mentioned specification and applicable drawings.

MATERIAL

- Brick shall be well burnt clay bricks of designated class and shall satisfy the strength criteria and shall be got approved by the Engineer-in-Charge before incorporation in the work.
- The bricks shall be hand Moulded or machine moulded and shall be free from nodules of free lime, visible cracks, flaws, warps and organic matter.
- The size shall normally be 230x110x55
- Shall have minimum crushing strength 10.5N/mm².
- The bricks shall not absorb the water more than one sixth of the weight of the brick.

PREPARATION OF SURFACE

- The bed on which brick soling is to be laid shall be cleared of all loose materials, levelled, watered and compacted and got approved by the Engineer-in-Charge before laying brick soling.
- Cable or pipe trenches if shown in the drawing and as required by the Engineer-in-Charge shall be got done before the soling is started.

INSTALLATION

- The ground shall be dressed, consolidated by ramming or by light rolling and a 12 mm thick cushion of sand laid.
- On the sand cushion the bricks shall be laid with fine joints and placed firmly in position by hammering with wooden mallet. The surface shall be free from undulations.
- The 'frog' side shall be on the underside. The joints shall be broken the in all direction and bricks cut as required. The pattern of laying and number of layers shall be as per Schedule of Item. Orientation shall be as desired by the Engineer.
- After laying of each layer of bricks sand shall be spread over and worked into the joints to pack the bricks tight.

- Soling shall be laid in one layer of 230 mm. or 150 mm. or other specified thickness

MODE OF MEASUREMENT

- The quoted rate shall be per square metre of the soling of specified thickness.
- The linear dimensions shall be measured upto two places of decimals of a metre and are worked out correct to the two places of decimals of a square metre.
- Plan areas of soling work actually done limiting to the dimensions as per drawings shall be measured for payment.

RATE

- The rate shall include all the materials, labour, transport etc. and no extra payment shall be made for work done at different levels.
- The rate shall also include the cost of preparation of surface, all materials and labour, watering, consolidation etc. all complete.

V) PCC (1:3: 6) FOR FOUNDATION

SCOPE

This specification consists of the requirements of materials, preparation of earth, placement of concrete surfaces, clearing, mode of measurement and rate of laying PCC in foundation in the ratio 1:3:6.

MATERIALS

Cement: Cement shall confirm to IS 269-1976. Ordinary Portland cement shall be used when no type is specified. The weight of OPC shall be taken as 1440kg per cu. m. and rapid hardening cement as 1210kg per cu. m. Each bag of cement should be undisturbed and scaled 50kg.

Tests: Tests for cement are carried out as indicated IS 269-1958. Ordinary cement stored for more than 2 months from the date of receipt from the factory shall be subjected to test and used only found satisfactorily.

Storage: Cement must be fresh and stored on planks raised 15 to 20cm away from the walls. Not more than 15 bags shall be stacked vertically in one pile and maximum width of the pile should not be more than 3m.

Sand: Sand shall confirm to IS 383-1965. It shall be river sand or pit sand. It shall be free from mica. Clay, silt content must not be greater than 5%. If so, sand shall be washed before use. Sand shall be well graded.

Coarse Aggregate: It shall confirm to IS 383-1965.

Water: Potable water shall be used for mixing concrete and curing the work.

COMBINATION OF MATERIALS

Proportion: The proportion of cement, sand and aggregate shall be 1 part cement, 3 part sand and 6 part coarse aggregate.

Batching/measurement: The measurement of cement sand and aggregate shall be by weight. If less than 1 cubic meter 'by volume', shall be permitted.

Mixing: Cement, sand and aggregate shall be mixed in mechanical mixture and unloading of concrete shall be two three minutes. 16-20 revolutions might take place in the duration.

PREPARATION OF EARTH

- All earth surfaces upon which or against which concrete is to be placed, shall be well compacted and free from standing water, mud or debris.
- Soft, yielding soils shall be removed and replaced with suitable earth and well Compacted as directed by the Engineer-in-Charge.
- Where specified, lean concrete shall be provided in the earth stratum for receiving concrete.
- The surface of absorptive soil against which concrete is to be placed shall be moistened thoroughly so that no moisture will be drawn form the freshly placed concrete and later shall help to cure the concrete.

PREPARATION OF CONCRETE SURFACES

Laying of concrete: It shall concern with the method of concreting. At first, compaction is done in 20cm layer. Concrete shall be laid and property set within 45 minutes. To avoid segregation, concrete must not be filled from 1m. This shall be done either manually or by using mechanical equipment.

Compaction of concrete: Concrete shall be compacted during placing, with approved vibrating equipment, until the concrete has been consolidated to the maximum practicable density, is free of pockets of coarse aggregate and fits tightly against all form surfaces, reinforcement and embedded fixtures. Particular care shall be taken to ensure that all concrete placed against the form faces and into corners of forms or against hardened concrete at joints is free from voids or cavities. The use of vibrators shall be consistent with the concrete mix and caution is to be exercised not to over vibrate the concrete to the point of segregation.

Stops in concrete: Shear force and Bending Moment are maximum on supports. Hence, stops in concrete shall be maintained in $1/3^{\text{rd}}$ or $2/3^{\text{rd}}$ of spans.

TESTS

The tests to be carried out for the purpose of:

- i) Slump Test
- ii) Cube Test

CLEARING ON COMPLETION

Protection: It shall be protected from rain, heat and cold. Hence, precautions must be taken. Fresh concrete shall be protected from the elements, from defacements and damage due to construction operations by leaving forms in place for ample period as specified later in this specification. Newly placed concrete shall be protected by approved means such as tarpaulins from rain, sun and winds. Steps as approved by the Engineer-in-Charge shall also be taken to protect immature concrete from damage by debris, excessive loading, vibrations, abrasion or contact with other materials etc. that may be warned against and prevented from disturbing green concrete during its setting period. If it is necessary that workmen enter the area of freshly placed concrete, Engineer-in-Charge may require that bridges be placed over the area.

Curing: It shall be done for at least 14 days. All concrete shall be cured by keeping it continuously damp or the period of time required for complete hydration and hardening to take place. Preference shall be given to the use of continuous sprays or ponded water, continuously saturated covering of sacking, canvas, hessian or other absorbent materials, or approved effective curing compounds applied with spraying equipment capable of producing a smooth, even textured coat. Extra precautions shall be exercised in curing concrete during cold and hot weather as outlined hereinafter. The quality of curing water shall be the same as that used for mixing concrete.

MODE OF MEASUREMENT

It is measured in m³.

RATE

Rate shall include all labour, materials and equipment for all the above mentioned processes.

VI) BRICKWORK IN 1:4 CEMENT MORTAR IN FOUNDATION AND SUPERSTRUCTURE

SCOPE

This specification covers the construction of brick work in general and the erection of brick structures in foundation and superstructure.

MATERIALS

Brick

- All bricks shall be of first class of standard specification made of good bricks earth thoroughly burnt and shall be of deep cherry red copper color.
- Brick shall be sharp and square and emit clear ringing sound on being struck and shall not absorb water more than one sixth of their weight after one hour of soaking by immersing in water.

Mortar

- Mortar shall be specified and material of mortar shall be of standard specification.
- In cement mortar (1:4) cement shall be fresh, Portland cement and sand shall be sharp, clean and free from organic matter. Fresh mortar shall be used, old and slate mortar shall not be used.
 - a) **Mix:** Cement and sand ratio shall be mixed dry thoroughly on clean approved platform or in a mechanical mixer and water shall then be added to obtain a mortar of the consistency of a stiff paste. Care being taken to add just sufficient water for the purpose.
 - b) **Use of mortar:** Mortar shall be used as soon as possible, after mixing and within ½ hours after cement is mixed wet. Mortar unused for more than ½ hours shall be rejected and removed (mixes of lime putty and sand can be kept for a period of 72 hours, provided it is kept damp and not allowed to dry).
 - c) **Transportation of mortar:** The well mixed mortar shall be transported from the mixing platform to the site of work in such a manner as to prevent formation of laitance and segregation.

INSTALLATION

Bond

- “English bond” shall be used in the construction of full bricks and thicker wall unless otherwise specified in drawing. For half brick thick wall “stretcher bond” shall be used throughout the length of wall.
- Quoin bricks shall be laid header and stretcher in alternative courses, bond being obtained by placing a closer next to quoin header.
- The arrangement of quoin in a course shall generally be symmetrical. Holes for required size shall be left in the brick work during laying only, for mixing pipes, services line, passage of water .etc. after they are fixed the extra hollow left in the holes shall be filled with 1:4 mortar and faces neatly made up with brick in cement mortar.
- When iron fixtures .etc. are to be laid in the brick work shall be entirely covered with not less than 10mm of cement mortar.

Soaking of brick

- Bricks shall be soaked in water such that water just penetrates the whole depth of the bricks.
- The soaked bricks shall be removed from water early enough to be skin-dry when lying.
- Alternatively bricks may be adequately soaked in stacks by profusely spraying with clean water at regular intervals for a period not less than six hours.
- Soaked bricks shall be stacked on a clean place where they are not spoiled by dirt, earth and the like.
- The period of soaking shall be found at site by a field test.
- The bricks shall be soaked in water for different periods and then broken to find the extent of water penetration.
- The least period that corresponds to complete soaking will be the one that shall be allowed for in construction work.

Laying of bricks

- Bricks shall be laid on a full bed of mortar. When laying, each brick shall be properly bedded and set in position by gently pressing with the handle of a trowel. Its inside face shall be buttered with mortar before the next brick is laid and pressed against it.
- Joints shall be filled and packed with mortar such that no hollow space is left. Walls shall be taken up truly in plumb or true to the required batter where specified.
- All courses shall be laid truly horizontal and all vertical joints shall be truly vertical. Vertical joints in alternate courses shall come directly one over the other.
- Quoin, jambs and other angles shall be properly plumbed as the work proceeds. A set of tools comprising of wooden straight edge, masonic spirit levels, square, one meter rule line and plumb shall be kept at the site of work for checking during the progress of work. All quoins shall be accurately constructed and the height of brick courses shall be kept uniform. This will be checked using a graduated wooden straight edge or a story rod indicating height of each course including thickness of joints.
- The position of damp proof course, window sills, bottom of lintels, top of the wall etc. along the height of the wall shall be marked on the graduated straight edge or story rod. Acute and obtuse quoins shall be bonded, where practicable in the same way as square quoins.
- The brick work shall be built in uniform layers.

- No part of the wall during its construction shall rise more than one meter above the general construction level. Parts of wall left at different levels shall be raked back at an angle of 45 degrees or less with the horizontal.
- Tothing shall not be permitted as an alternative to raking back. For half brick partition to be keyed into main walls, indents shall be left in the main walls.
- Block work shall not be carried out in more than a height of 1200 mm in any one day unless otherwise permitted by relevant standards.
- All pipe fittings and specials, spouts, hold fasts and other fixtures which are required to be built into the walls shall be embedded, as specified in their correct position as the work proceeds unless otherwise directed by the Engineer.
- Top courses of all plinths, parapets, steps and top of walls below floor and roof slabs shall be laid with brick on edge, unless specified otherwise.
- Brick on edge laid in the top courses at corner of walls shall be properly radiated and keyed into position to form cut corners. Bricks shall be laid with the frog up. However, when the top course is exposed, bricks shall be laid with the frog down. For the bricks to be laid with frog down, the frog shall be filled with mortar before placing the brick in position. In case of walls, one brick thick and under, one face shall be kept even and in proper plane, while the other face may be slightly rough.
- In case of walls more than one brick thick, both the faces shall be kept even and in proper plane. Pipe sleeves shall be provided for taking service lines without excessive cutting of completed work. Such sleeves in external walls shall be sloped down outward so as to avoid passage of water inside. Top of the brick work in coping and sills in external walls shall be slightly tilted.
- Where brick coping and sills are projecting beyond the face of the wall, drip course / throating shall be provided where indicated. Care shall be taken during construction that edges of jambs, sills and projections are not damaged in case of rain.
- New built work shall be covered with jute bags or tarpaulins so as to prevent the mortar from being washed away. Damage, if any, shall be made good to the satisfaction of the Engineer.
- In retaining walls and the like, where water is likely to accumulate, weep holes, 50 to 75 mm square shall be provided at 2 m vertically and horizontally unless otherwise specified. The lowest weep hole shall be at about 30 cm above the ground level. All weep holes shall be surrounded by loose stones and shall have sufficient fall to drain out the water quickly.

Thickness of joints:

The thickness of the joints in the brickwork shall be 8mm unless otherwise specified and uniform throughout the work.

Raking out joints:

Joints of brickwork shall be raked out to a depth of 6mm at the time of laying. The face of brick work shall be kept clear of all mortar, the very day the brickwork is laid

Finishing of Joints:

The face of brick work may be finished flush or by pointing. In flush finishing either the face joints of the mortar shall be worked out while still green to give a finished surface flush with the face of the brick work. Finishing of Joints. The face of brick work may be finished flush or by pointing. In flush finishing either the face joints of the mortar shall be worked out while still green to give a finished surface flush with the face of the brick work.

Curing:

The brick work shall be constantly kept moist on all faces for a minimum period of ten days. Brick work done during the day shall be suitably marked with the date on which the work is done to monitor the curing period.

Scaffolding:

Scaffolding shall be strong enough to withstand all dead, live and impact loads which are likely to come on them. Scaffolding shall be provided to allow easy approach to every part of the work. Only double scaffolding shall be used. Single scaffolding shall be used only when specifically permitted in writing by Engineer in Charge.

ACCEPTANCE CRITERIA

The acceptable deviations for brick work shall be as: Deviation from position shown on plan of any brick work shall not exceed 12.5 mm.

MEASUREMENT

Brickwork shall be measured in cubic meter (cu. ft), thickness of wall should be taken as 10 cm (1/2 brick), 20 cm (1 brick) .etc.

RATE

The rate shall comply to labour, material and equipment required for the completion of the above mentioned work.

VII) 50 mm THICK PCC (1:1/2:3) FOR DPC INCLUDING WATERPROOF COMPOUND**SCOPE:**

The work covered under this specification consists supplying and laying plain cement concrete as damp proof course with or without waterproofing admixture in accordance with this specification and applicable drawings.

MATERIALS:

Cement: Cement shall be fresh Portland cement.

Sand: Sand shall be clean, sharp and coarse of average 5 mm size and shall be free from dust and dirt and screened before use.

Course Aggregate: It shall be of clean, hard and dense stone chips 12 mm down and shall be washed before use.

MIXING

The PCC shall be mixed in the ratio of 1:1/2:3 for cement sand and coarse aggregate respectively. Waterproofing compound such as Impermo or equivalent, of approved quality, shall be mixed

thoroughly with the cement in the proportion as specified in the item, before mixing with other aggregates.

LAYING

Preparation of surface:

- Surface to receive damp proof course shall be cleaned and carefully swept to remove all dust, laitance etc. and shall be approved by the Engineer-in-Charge.

Preparation of concrete:

- Damp proof course shown shall be cement concrete as per proportion indicated in the schedule. The measurement of coarse aggregate and sand shall be by volume with gauge boxes and cement by bag having a weight of 50kg or volume of 0.0374 cu m.
- The mixing shall be done on a clean solid platform. Sand and cement in the specified quantities at first shall be mixed dry till of uniform colour and spread over the stacked course aggregate. The materials shall then be turned over once without adding water and then at least further 3 times, adding the required quantity of water gradually and slowly to give a uniform concrete.
- Approved water proofing compound @ 3% by weight of cement or as directed by the manufacturer shall be mixed in cement mortar for this concrete.

Laying:

- The top of the walls on which damp proof course is to be laid shall be constructed with bricks on edge or with frogs of the bricks down. The top of the plinth bed over which DPC, is to be placed shall be thoroughly cleaned with a steel brush, washed and wetted before laying the course of concrete.
- The damp proof course shall be laid to the full width of the wall and the edges shall be straight, even and truly vertical.
- It shall be laid to the specified thickness (2.5cm or 4 cm) over plinth wall flushing with the floor surface and shall not be carried across the doorways or such other openings DPC shall then be tamped, levelled longitudinally and transversely.
- Wooden forms shall be used to obtain good edges. No masonry work shall be commenced on freshly laid damp proof course unless it is cured for 48 hours of its laying but the curing of cement concrete shall be continued along with the masonry work.
- Damp proof course shall be kept wetted for at-least 7 days after laying, if the brickwork is not ready to proceed further .But in any case no brickwork shall be commenced on the freshly laid damp-proof course unless DPC has been flooded with water for at least 48 hrs.

Compaction:

The concrete shall be thoroughly compacted during depositing to get a dense concrete and thoroughly worked into edges and corners of the formwork by means of suitable tools such as spades and rods to get a good cast finish without honeycombing. Concrete shall not be disturbed once it is set.

Finishing:

After compaction, the concrete shall be finished by trowelling or floating. The surface shall be trowelled at intervals in order to obtain smooth, even and hard surface.

Curing:

The concrete shall be kept wet for 7 days, 24 hours after the concrete is laid.

MODE OF MEASUREMENT

The work shall be measured in sq. m. area actually laid limited to sizes as shown in drawing. The rate shall include cost of all the materials, labour etc.

RATE

The rate shall comply to the necessary labour, materials and equipment required for the completion of the above stated works.

VIII) WOOD WORK FOR DOORS AND WINDOWS FRAME

SCOPE

This specification defines the requirements regarding material, sizes, construction, workmanship, finishes and installation of wooden frames of doors, windows and ventilators.

MATERIAL

Type: The timber used shall be of the best quality wood as specified in the item. The samples of the approved timber to be used shall be deposited in the engineer's office.

Quality: Timber used for work shall be from the heart of a sound tree of mature growth, the sapwood being entirely removed. It shall have permissible gradient of in grain. It shall be uniform in substance, straight in fibre, free from large, loose, dead or cluster knots, flaws, shakes, warp, cup, spring, twist bends or defects of any kind. It should be free from spongy, brittle, flaky or brushy condition. The timber shall be either seasoned in a seasoning plant or naturally sun dried in a shed for a period of 2 years. The timber shall be free from decay, fungal growth, pitch pockets, streaks on the exposed edges, borer holes, splits and cracks.

Colour: The colour shall be uniform as far as possible, the darkness of colour among coloured species of timber generally being a sign of strength and durability.

Moisture content: The maximum permissible moisture content for timber shall be 12 per cent of dry weight of timber. (IS 287)

Sawing and Planing: All scantlings shall be sawn in straight lines and planes with uniform thickness and of full measurement from end to end shall be sawn in the direction of grain. They shall be sawn with such sufficient margin as to secure specified dimensions, lines and planes after being wrought. All members shall be straight without any warp or bow and shall have smooth, well planed edges at right angles to each other. The surface touching the wall, however, need not be planed. Slope of grain shall range in between 1 in 10 and 1 in 20.

Rejection: Timber for the work shall not be brought until seen and approved by the engineer, who may reject defective timber which shall be immediately remove from the site of work. Any effort like plugging, painting, using adhesives or resinous materials to hide defects shall render the pieces rejectable by the engineer. Timber prepared for inspection shall be clean and free from dust and paint or other material which may conceal the defects.

SIZES OF FRAMES

Unless specified otherwise in the drawings, the sizes of the frames shall be:

Door Frame: 140 x 65 mm

Window/Ventilator Frame: 100 x 50

The general **tolerance** allowed shall be + 3 mm

HOLDFASTS

- i. **Door Frames** - A minimum of 3 Holdfasts on each side.
- ii. **Window and Ventilator Frames:** For heights less than 1000 mm: 2 Holdfasts shall be fixed at quarter points of frame on each side. For height greater than 1000 mm: 3 Holdfasts shall be fixed on either side.
- iii. Holdfasts shall be 250mm long by 30mm wide by 6mm thick unless otherwise specified in the drawings. The face of the frame in contact with side walls and top lintel shall be given a coat of coal tar. All surfaces of the frame which are to be painted shall be given a coat of white lead based primer. In case of frames to be polished or varnished, the surface shall receive a priming coat of suitable polish or varnish. Frames without a timber threshold shall be braced with a sturdy base tie (12 mm dia. MS rod) to hold the frame rigid during transit and erection.

INSTALLATION OF FRAMES

- Frames shall be installed either by "Built-in-Method" or "Prepared Opening Method". In "Built-in-Method", frame shall be installed at the required place. Masonry or concrete in the wall shall be built after installation of the frame so that holdfasts and pins at the bottom are well anchored into them. In the "Prepared Opening Method", frames shall be placed in the opening already provided in the wall.
- The holdfasts and pins shall then be grouted, prepared.
- Built-in-Method shall be preferred over Opening Method of Installation.
- The datum line for the sill of door, window or ventilator shall be taken from a fixed point on the wall, finished floor or ceiling with the help of a level.
- The frames shall have overall joints at the corners. The jamb post shall be through tenoned into the mortices of the transom to the full width of the transom and thickness of the tenon shall not be less than 15 mm. The tenon shall be closely fitted into the mortises and pinned with corrosion resisting star shaped metal pins not less than 8 mm dia. or with wood dowels not less than 10 mm dia. The depth of the rebate in the frame for housing the shutter shall be 15 mm.
- The contact surfaces of tenons and mortices shall be treated with suitable adhesive. The adhesive shall be a bulk type synthetic resin adhesive conforming to IS 851 or synthetic resin adhesive (Phenolic and Aminoplastic) conforming to IS 848 or polyvinyl acetate dispersion based adhesive conforming to IS 4835.
- When a ventilator is provided above a door, full length of frame shall be provided.
- Joints in the frame vertical style or horizontal rail shall not be allowed.
- The unrebated edges of the frame in the opening shall be rounded or beaded uniformly. Rebates and plaster key grooves shall be provided as shown in the drawings.
- Six numbers of holdfasts shall be provided at each frame unless otherwise specified.

FINISHING

All such door frame and shutter where painting or polishing to be done shall be filled with wood filler in the joints planed properly with various grades of sand papers and cleaned properly. Finishing materials shall comply with "Standard Construction Materials".

WORKMANSHIP

All woodwork shall be neatly and truly finished to the exact required dimensions. Where no specific instruction is given, the Contractor shall observe the following principles:

- To cut the joint and arrange fastenings so as to weaken as little as possible pieces of timber they transmit.
- To place each abutting surface that come in contact
- To firm and fit accurately every pair of surface that come in contact

RATE

The rate shall include all labour, materials and equipment necessary to carry out the following operations:

- Supply of the timber scantlings of the specified species of wood and or required dimensions and accessories such as holdfasts, fittings and fixtures.
- Preparing the frames to the specified dimensions, shape, and workmanship and fixing the frames including shutters, holdfasts and other fittings and fixtures in the work in the correct position as shown on the drawings.
- Finishing wood works and joints with masonry with labor charge for fixing glasses (as per the item).
- Providing necessary iron monger like hinges, bolts, hooks, push bars, etc. and expanded metal where specified.

IX) WOOD WORK FOR PANELLED DOOR SHUTTERS

SCOPE

This covers the preparation, supply and fixing of panelled door shutters.

MATERIAL

All timber mentioned in the item in schedule of quantities shall be from the heart of a sound tree of nature growth entirely free from sap wood. It shall be uniform in texture, straight in fibre and shall be well and properly seasoned. It will be free from large, loose, dead or cluster knots, wedges, injuries, open shakes, borer holes, rot, decay date, discoloration, soft or spongy spot, hollow pockets, pith or centre bore and all other defects or any other damages of harmful nature which will affect the strength, durability, appearance and its usefulness for the purpose for which it is required. Only properly seasoned timber shall be used.

INSTALLATION

- Frames of timber doors- Dove-tailed joints.
- The jamb post shall be through and tenoned into the mortices of the transome to the full width of the transome and the thickness of tenon shall be closely fitted into the mortices and pinned with corrosion resisting metal pins, not less than 8 mm diameter or with hard wood or bamboo dowels not less than 10 mm dia.
- For internal/unexposed joinery work, the joints shall be glued and similarly pinned.
- The depth of rebate in frames for housing the shutters shall be 15 mm.
- The thickness of the stiles and rails shall be specified for the shutters.
- The minimum thickness of the panels shall normally be 15 mm where the clear width of panel is not more than 300 mm and 20 mm where the clear width of the panel is more than 300 mm.
- Solid wood panel for door and window shutters shall be made out of one or more strips of timber planks of not less than 125 mm width.
- Strips of not more than 200 mm width will be used to reduce chances of warping, splitting or other defects.
- The timber strips shall be joined together with continuous tongue and grooved joints, glued together and reinforced with metal dowels.
- The groovings of the solid panel shall normally run along the longer dimensions of the panel unless otherwise directed.
- The corners and edges of panels shall be finished as shown in the drawing and these shall be further tongued into stiles and rails.
- Sash bars shall have mitred joints with the stiles.
- Stiles and rails of shutters shall be made out of single piece.
- Lock and intermediate rails exceeding 200 mm in width may be made out of one or more pieces of timber, but the width of each piece shall not be less than 75 mm.
- Where more than one piece of timber is used, they shall be jointed with a continuous tongue and grooved joint glued together and reinforced with metal dowels (rust proof) at regular intervals of 20 cm or pinned with not less than three 40 mm rust proof pins of the lost head type.
- The tenons shall pass clear through stiles at least $\frac{3}{4}$ th of the width of stile.
- The stiles and rails shall have a 12mm groove to receive the panel.
- In case of the double shutters, the rebate at the closing junction of the two shutters shall be of depth not less than 2 cm

TOLERANCE

The finished work, with a tolerance of ± 1 mm in thickness and +3 mm and -2 mm in width of stiles and rails shall be acceptable. The rates for shutters are based on the dimensions of various components or parts, as furnished below, unless otherwise mentioned.

Panelled Shutters

1. Bottom and middle or lock rail: 160 to 250 mm wide
2. Other stiles and rails: 100 to 120 mm wide
3. Mullions: 100 mm wide
4. Panels, flat on both sides: 12 mm thick
5. Panels raised on one side: 20 mm thick
6. Panels raised on both sides: 25 mm thick

WORKMANSHIP

- All members of frames of doors, windows and ventilators, etc. shall be at right angles, checked from the inside surfaces of the respective members.
- All members of frames shall be straight without any warp or bow and shall have three exposed sides smooth and well planed and shall be at right angles to each other.
- The surface touching the walls may not be planed unless it is required in order to straighten up the member or to obtain the overall sizes within the tolerances referred to hereafter.
- The frames shall be wrought, framed and fixed in position as per detailed drawings.
- Specified timber shall be used and it shall be sawn in the direction of the grains.
- Sawing shall be truly straight and square.
- The scantlings shall be planed smooth and accurate to the full dimensions, rebates, roundings and mouldings as per detailed drawings.

FINISH

All surfaces of door, window and ventilator frames which are required to be painted ultimately shall be covered evenly by brush painting with a priming coat of a wood primer, or as specified.

SURFACE TREATMENT

- Woodwork shall not be painted, oiled or otherwise treated before it has been approved by the Engineer-in-Charge.
- All portions of timber abutting against masonry or concrete or embedded in ground and all joints shall be painted with approved wood primer, boiling coal tar, creosote, solignum or equivalent approved anti-termite solution as directed by the EIC.

GLUING OF JOINTS

- The contact surfaces of tenon and mortice joints shall be treated before putting together with an adhesive of make approved by the EIC.

BEADING

- Timber, plywood, hardboard and particle board panels shall be fixed only with grooves.
- In the case of glass, asbestos, mesh panels, beading shall always be provided without grooves, the beading being on one side, the other side being supported by rebate from stiles.
- For external doors, beading shall be fixed from the inside.

FITTINGS

- The cost of providing and fixing shutters shall include the cost of hinges, screws as specified in item/ standard drawing
- . All other fittings shall be measured and paid as specified or described elsewhere.

MEASUREMENTS

- Wood work and joinery work shall be measured in square metres.
- Length and width of unfinished opening shall be measured to the nearest 0.01 m.
- Areas shall be worked out to the nearest 0.01 m².

- All work shall be measured net as fixed, that is, no extra allowance in measurement shall be made for shape, joints, etc.
- However, where the dimension as fixed exceeds the specified dimensions only, the specified dimension(s) shall be measured if within tolerance limits permitted; and where one or more dimension(s) of the piece, as fixed, is less than the specified dimensions and is accepted by the EIC, then the actual dimensions will be measured.
- Items shall include:
 - (1) Supply of specified species of timber, sawn to requisite sizes without any defects, wrought, framed and fixed in position with the required standard of workmanship including supply and fixing of fixtures, straps, bolts, holdfasts, spikes, nails, screws, etc. applying glue or other jointing materials, coal-tarring or any other methods; embedded parts, glazing and supplying and fixing of all specified fittings.
 - (2) All materials, labour, scaffolding, use of equipment, etc. for framing and fixing and completing the items as specified.

RATE

Rate shall include the cost of materials and labour involved in all the operations described above for complete work.

X) GLAZED WINDOW SHUTTERS

SCOPE

This specification covers the preparation, supply and fixing of glazed window shutters, fixed or openable.

MATERIAL

Wood: All timber mentioned in the item in schedule of quantities shall be from the heart of a sound tree of nature growth entirely free from sap wood. It shall be uniform in texture, straight in fiber and shall be well and properly seasoned. It will be free from large, loose, dead or cluster knots, wedges, injuries, open shakes, borer holes, rot, decay date, discoloration, soft or spongy spot, hollow pockets, pith or centre bore and all other defects or any other damages of harmful nature which will affect the strength, durability, appearance and its usefulness for the purpose for which it is required. Only properly seasoned timber shall be used.

Glass: All glass shall be of the best quality, free from bubbles, specks, smokes, veins, air holes, blisters, and other defects. The kind of glass supplied by the contractor shall be mentioned in the item or in the special provisions or as shown in the detailed drawings. The thickness of the glass panes shall be uniform.

Putty: The putty used for fixing the glass in wood frames shall conform to IS 419-1953. The putty may be coloured to suit the colour of the window. For glazing in metal sashes, putty to be used shall conform to IS 420-1953.

Mastic: For glazing in metal sashes, patent mastic shall be used instead of putty when so specified in the special provisions or directed by the engineer. Glass bricks shall be laid in mastic specified by the manufacturers of glass blocks or in 1:3 cement mortar if specified in special provisions.

FIXING

- In wooden frames and sashes, the glass panes shall be properly cut to fit the rebates of the frames and sashes truly with a slight minus margin of about 1.5mm (1/16") on all sides.
- The rebates should not be less than 8mm (1/3") in the frames and sashes. Before glazing, the frames shall be primed and prepared for painting so that the wood may not draw out oil from the putty and the putty may adhere properly.
- The rebate shall be puttied first and then the glass pane shall be fitted into position and secured with glazier's springs and firmly back puttied. The rebates shall be chamfered.
- The putty may be given a coat of oil paint to match the side surfaces and also seal the edges of the putty to the glass. The putty shall be left for a week so before painting to ensure its setting.
- When so specified, for better class of work and larger panes of glass, the glass shall be bedded in putty and fitted to the frames with wooden beads or mouldings and secured with brass countersunk or rounded head screws or brass screws and cups.
- For fixing the plate glass or large sheets of glass, the glass shall be embedded in putty externally, but internally, wash leather, velvet, felt, rubber or some similar material approved by the Engineer shall be used before fixing the beads.

IRON MONGER FOR SHUTTERS

Unless otherwise specified, the following iron mongers shall be provided in each shutter:

Hinges:

- For window shutters upto 0.2 sq.m. area: 2 nos. 50 mm size
- For window shutters upto 0.3 sq.m. area: 2 nos. 65 mm size
- For window shutters upto 0.7 sq.m. area: 2 nos. 90 mm size
- For window shutters upto 0.5 sq.m. area: 2 nos. 75 mm size

Tower Bolts:

In each pair of window shutters, the following tower bolts shall be provided:

For ventilator:

- Top hung type: 2 nos. 50 mm size at bottom
- Bottom hung type: 2 nos. 50 mm size eye bolt at the top
- Central pivot type: 2 nos. 50 mm size at the bottom

Window:

- Bottom 150 mm size for all
- Top 230 mm long for upto 178 mm lintel height.
- Top 300 mm for above

Eye hooks:

- 75mm for all window shutters
- 150mm to 230mm for top hung
- Ventilator for bottom hung ventilator

Handle:

All window shutters shall be included with one 100mm size handle of approved make and type.

RATE

The rate shall include:

- Providing the specified type of glass panes of the required dimensions
- Fixing the glass in the frame as specified, including cutting and waste.
- Cleaning the glazed work.
- Repairing of any work damaged during glazing.
- All labour, material, scaffolding and equipment to carry out the work.

XI) 75mm THICK PCC IN FLOOR

SCOPE

This specification involves materials required, preparation, workability, workmanship, laying, curing and rates of the plain cement concrete for flooring.

MATERIALS

The entire required materials should be as specified in "STANDARD CONSTRUCTION MATERIALS". For the promotion of workability improving strength, entrainment of the air, the admixtures too can be used.

GENERAL CONSIDERATIONS

- The cement concrete shall be of proportion 1:2:4. Cement shall be fresh Portland cement of standard specifications. The coarse aggregates shall be hard and tough (granite stone) of 20 mm (3/4") gauge, well graded and free from dust, dirt, etc. The sand shall be coarse of 5mm (3/16") maximum size and down, well graded, clean and free from dust, dirt and organic matters.
- The floor shall be levelled and divided into panels of size not exceeding 1 meter in its smaller dimensions and 2 metres in large dimensions.
- Glass or aluminium strips 3mm thick and depth equal to the thickness of floor shall be fixed on the base with cement mortar.
- Required slope shall be given in the floor for draining wash water.

MIXING OF CONCRETE

- Mixing of concrete shall be done either by hand mixing or by mechanical mixer. In case of hand mixing, first cement and sand are mixed dry thoroughly and the dry mix of cement and sand mixed with ballast dry till stone ballast are well coated with dry mix of cement and sand and then mixed by adding water slowly and gradually to the required quantity and then mixed thoroughly to have uniform plastic mix. The quantity of water shall not exceed 30 litres per bag of cement. Concrete for one panel only shall be mixed in one lot.
- In case of using mechanical mixer, the water shall not be poured into the drum of the mixer until all the cement and aggregates constituting the batch are already in the drum and mixed for at least one minute.

- Mixing of each batch shall be continued until there is a uniformity in colour and consistency but mixing shall be done for less than two minutes and at least forty revolutions after all the materials and water are in drum.
- When absorbent aggregates are used or when the mix is very dry, the mixing time shall be extended as may be directed by the engineer. Mixer shall not be loaded above their rated capacity as this prevents thorough mixing.
- The entire contents of the drum shall be discharged before the ingredients for the next batch are fed into the drum. No partly set or remixed or excessively wet concrete shall be used and it shall be immediately removed from site.
- Each time the work stops, the mixer shall be thoroughly cleaned and when the next mixing starts, the first mix shall have 10% additional cement at no extra cost to the employer to allow for loss in the drum.

LAYING OF CONCRETE

- Alternate panels must be laid on alternate days.
- The floor shall be laid on two layers. The lower layer is 65mm thick and upper layer 10mm thick.
- The base shall be made rough and cleaned and soaked with water thoroughly and then given a cement wash just before laying. Concrete shall be placed gently and evenly and compacted by beating with wooden thapies and then the surface shall be tamped with wooden tampers.
- The surface shall then be smoothed with wooden floats and any unevenness shall be removed by adding 1:2 cement sand mortar.
- The whole operation of laying shall be completed within 30 minutes.

CURING AND PROTECTION OF CONCRETE

- After laying the concrete, the newly placed concrete shall be protected by approved means from rain, sun and wind.
- Surface shall be left undisturbed for 2 hours and then covered with wet bags and after 24 hours cured by flooding with water and kept flooded for 7-14 days.
- The surface of floor may be polished if specified. It is important that same brand of cement is used for the whole floor of one room and the proportions are maintained strictly to have a uniform colour.
- Junctions of floor with wall plaster dado and skirting shall be rounded off neatly.

FINISHING

Coloured floor: For coloured finish, the surface shall be finished with coloured cement or with a mixture of ordinary Portland cement and coloured pigment of the desired colour in the proportion of three of cement and one of colour or (4:1 or 5:1). For coloured floor, the thickness of the two layers must be 38mm and 12mm. For polished floor, the thickness of surface cement finishing should be 5mm to allow for grinding and polishing.

Base: In ground floor, the cement concrete floor is to be laid on a 15 cm base of line concrete or weak cement concrete as per standard specifications. If the base consists cement concrete, it shall be allowed to set for about 7 days. In case the base is of weak cement concrete the flooring shall be initiated within 48 hours of laying the base.

In first floor or upper floor, if plain cement concrete is to be laid on R.C.C slab, the surface of R.C.C slab shall be made rough with brushes while concrete is green. Before laying the cement concrete floor, the surface shall be cleaned, wetted and a neat cement wash shall be applied to get a good bond. A base of lime concrete may also be used over the R.C.C slab if specified. The base shall be provided with the slope required for the flooring.

RATES

The rates for items shall include cost of all materials consumed in the work at all levels, hire charges of materials, tools and plant, cost of labour, insurance, all transport, services, accommodation, supervision, storage, protection etc.

XII) PCC (1:1½: 3) M20 FOR RCC WORKS

SCOPE

This specification deals with materials required, preparation, workability, workmanship, laying, curing and rates of the plain cement concrete for use as reinforced cement concrete by installing reinforcement bars.

MATERIAL

Aggregate shall be of inert materials and should be clean, dense, hard, sound, durable, non-absorbent and capable of developing good bond with mortar.

Coarse aggregate shall be of hard broken stone of granite or similar stone, free from dust, dirt and other foreign matters. The stone ballast shall be of 20mm size and smaller. All the coarse material should be retained in a 5mm square mesh and should be well graded such that the voids do not exceed 42%.

Fine aggregate shall be of coarse sand consisting of hard, sharp and angular grains and shall pass through a screen of 5mm square mesh. Sand shall be of standard specifications, clean and free from dust, dirt and organic matter. Sea sand shall not be used.

Cement shall be fresh Portland cement of standard ISI specifications and shall have the required tensile and compressive stresses and fineness.

Water shall be clean and free from alkaline and acid matters and suitable for drinking purposes.

PROPORTION

The proportion for the mixture shall be 1:1½:3 (cement: sand: stone ballast) by volume when not specified.

MIXING OF CONCRETE

- Mixing of concrete shall be done either by hand mixing or by mechanical mixer. In case of hand mixing, first cement and sand are mixed dry thoroughly and the dry mix of cement and sand mixed with ballast dry till stone ballast are well coated with dry mix of cement and sand and then mixed by adding water slowly and gradually to the required quantity and then mixed thoroughly to have uniform plastic mix. The quantity of water shall not exceed 30 litres per bag of cement. Concrete for one panel only shall be mixed in one lot.
- In case of using mechanical mixer, the water shall not be poured into the drum of the mixer until all the cement and aggregates constituting the batch are already in the drum and mixed for at least one minute.
- Mixing of each batch shall be continued until there is a uniformity in colour and consistency but mixing shall be done for less than two minutes and at least forty revolutions after all the materials and water are in drum.
- When absorbent aggregates are used or when the mix is very dry, the mixing time shall be extended as may be directed by the engineer. Mixer shall not be loaded above their rated capacity as this prevents thorough mixing.
- The entire contents of the drum shall be discharged before the ingredients for the next batch are fed into the drum. No partly set or remixed or excessively wet concrete shall be used and it shall be immediately removed from site.
- Each time the work stops, the mixer shall be thoroughly cleaned and when the next mixing starts, the first mix shall have 10% additional cement at no extra cost to the employer to allow for loss in the drum.

CONVEYING

Concrete shall be handled and conveyed from the place of mixing to the place of final deposit as rapidly as practicable by approved means before the initial setting of the cement starts. Concrete shall be conveyed in such a way as will prevent segregation or loss of any of the ingredients. If segregation does occur during transport, the concrete shall be remixed. During very hot or cold weather, it shall be conveyed in deep containers, which will reduce the rate of loss of water by evaporation and loss of heat. Conveying equipment for concrete shall be well maintained and thoroughly cleaned before commencement of concrete mixing. Such equipment shall be kept free from set concrete.

LAYING

- Reinforcement shall be placed prior to the pouring of concrete; placement and cleanliness shall be checked.
- The forms shall be well wetted and all shavings, dirt and water collected at the bottom shall be removed before concrete is placed.
- Concrete shall be laid gently (not thrown) in layers not exceeding 15cm and compacted by pinning with rods and tamping with wooden tampers or with mechanical vibrating machine until a dense concrete is obtained.
- The surface shall then be smoothed with wooden floats and any unevenness shall be removed by adding 1:2 cement sand mortar.
- The whole operation of laying shall be completed within 30 minutes.
- Formwork shall be removed only when the concrete has fully set.
- A general cover of min. 25mm shall be provided to the reinforcements.

CURING

After about two hours of laying of concrete, when the concrete has begun to harden, it shall be kept damp by covering with wet gunny bags or wet sand for 24 hours.

MODE OF MEASUREMENT

The mode of measurement shall be in m³.

RATES

The rates for items shall include cost of all materials consumed in the work at all levels, hire charges of materials, tools and plant, cost of labour, insurance, all transport, services, accommodation, supervision, storage, protection etc.

XIII) STEEL REINFORCEMENT

SCOPE

This specification deals with providing and fixing tor steel and mild steel reinforcements of various sizes in all types of RCC works.

MATERIAL

Reinforcing steel shall be clean and free from loose mill scales, dust, loose rust and coats of paints, oil, grease or other coating, which may impair or reduce bond. The contractor shall make his own arrangement for procurement of Reinforcement steel bars and wires for use in Reinforced Cement Concrete works. It shall conform to the following IS specification:

- Mild steel, tor steel and medium tensile steel bars and hard drawn wire conforming to IS 432, IS 456- latest revision.
- Deformed bars conforming to IS 1139- latest revision
- Cold twisted steel bars ribbed Tor steel conforming to IS 226- latest revision
- Hard-drawn steel section conforming to IS 226- latest revision.

All steel reinforcement above 6mm shall be of tested quality.

TESTS

- The contractor shall submit the test certificate of manufacturer.
- Regular tests on steel supplied by the contractor shall be performed by the contractor at the approved lab, in presence of the Departmental Engineers as per relevant Indian Standards. Engineer-in-charge may require Contractor to perform necessary tests of samples at random as per relevant B.I.S.
- All cost of such tests and incidentals to such tests shall be borne by the Contractor.
- The quality, grade, colour coding embossing marks etc. all shall be to the entire satisfaction of the Engineer-in-Charge.
- Steel not conforming to above test criteria shall be rejected.
- The Chemical, Physical & Mechanical properties of the steel reinforcement bars shall be as per IS 1786.

- Unless otherwise specified, Selection and Preparation of Test Sample shall be as per the requirements of IS 2062.
- All test pieces shall be selected either from the cuttings of bars / wires; or from any bar/wire after it has been cut to the required or specified size and the test piece taken from any part of it. In neither case, the test piece shall be detached from the bar/wire except in the presence of the EIC or his authorized representative.
- The test pieces shall be full sections of the bars/wires and shall be subjected to physical tests without any further modifications. No reduction in size by machining or otherwise shall be permissible, except in case of bars of size 28 mm and above.
- No test piece shall be annealed or otherwise subjected to heat treatment. Any straightening which a test piece may require shall be done cold.
- For the purpose of carrying out tests for tensile strength, proof stress, percentage elongation and percentage elongation at maximum force for bars 28 mm in diameter and above, deformations of the bars only may be machined.
- For such bars, the physical properties shall be calculated using the actual area obtained after machining.
- The following IS codes shall be referred for test methods:
SN Title IS No ISO No.
 1. Mechanical testing of metals -Tensile testing 1608 6892
 2. Methods for bend test 1599 7438 & 1786 15630-1
 3. Method for re-bend test for metallic wires & bars 1786 15630-1

STACKING & STORAGE

- Steel for reinforcement shall be stored in such a way as to prevent distorting and corrosion. The steel for reinforcement shall not be kept in direct contact with ground.
- Fresh / Fabricated reinforcement shall be carefully stored to prevent damage, distortion, corrosion and deteriorations. Care shall be taken to protect steel from exposure to saline atmosphere during storage, fabrication and use.
- It may be achieved by treating the surface of reinforcement with cement wash or by suitable methods.
- Bars of different classifications, sizes and lengths shall be stored separately to facilitate issue in such sizes and lengths to cause minimum wastage in cutting from standard length.

NOMINAL SIZES

- The nominal sizes of bars/wires shall be 4mrn, 5mrn, 6mrn, 8mrn, 10mrn, 12mrn, 16mrn, 20mrn, 25 mm, 28mrn, 32mrn, 36mrn, 40 mm. (Other sizes viz. 7mrn, 18mrn, 22 mm, 45 mm and 50 mm may be procured on specific stipulations).

NOMINAL MASS

- For the purpose of checking the nominal mass, the density of steel shall be taken as 0.00785 kg/mm³ of the cross sectional area per metre.
- Unless otherwise specified, the tolerances on nominal mass shall be as per following Table.

LAPS

- Laps and splices for reinforcement shall be shown on the drawings. Splices in adjacent bars shall be staggered and the locations of all splices, except those specified on the drawings, shall be approved by the Engineer-in-Charge.
- The bars shall not be lapped unless the length required exceeds the maximum available lengths of bars at site.

BENDING

- All bars shall be accurately bent according to the sizes and shapes shown on the detailed working drawing / bar bending schedules.
- They shall be bent gradually by machine or other approved means. Reinforcing bars shall not be straightened and re-bent in a manner that will injure the materials.
- Bars containing cracks or splits shall be rejected. They shall be bent cold, except bars of over 25 mm. in diameter which may be bent hot if specifically approved by the Engineer-in-Charge. Bars that depend for their strength on cold working shall not be bent hot.
- Bars bent hot shall not be heated beyond cherry red colour (not exceeding 6450C) and after bending shall be allowed to cool slowly without quenching. Bars incorrectly bent shall be used only after straightening and re-bending is such as shall not, in the opinion of the Engineer-in-Charge, injure the material.
- No reinforcement bar shall be bent when in position in the work without approval, whether or not it is partially embedded in hardened concrete. Bars having kinks or bends other than those required by design shall not be used.

FIXING / PLACING

- Reinforcement shall be accurately fixed by any approved means maintained in the correct position as shown in the drawings by the use of blocks, spacers and chairs as per I.S. 2502 to prevent displacement during placing and compaction of concrete.
- Bars intended to be in contact at crossing point shall be securely bound together at all such points with number 16 gauge annealed soft iron wire.
- The vertical distances required between successive layers of bars in beams or similar members shall be maintained by the provision of spacer bars at such intervals that the main bars do not perceptibly sag between adjacent spacer bars.
- Binders shall be used to tightly hold the bars in place.
- The placing of reinforcement bars shall be completed well before concrete pouring
- Concrete blocks shall be used for ensuring the cover and positioning of reinforcement. They shall be made of mortar of mix one part cement to 2 parts sand by volume and cured for at least seven days.

TOLERANCE ON PLACING OF REINFORCEMENT

Unless otherwise specified, reinforcement shall be placed within the following tolerances :

Tolerance in spacing

- a) For effective depth, 200 mm or less + /- 10 mm
- b) For effective depth, more than 200 mm + /- 15 mm

COVER TO REINFORCEMENT

Nominal cover is the design depth of concrete cover to all steel reinforcements, including links. It is the dimension used in design and indicated in the drawings. It shall be not less than the diameter of the bar. Unless otherwise specified, cover to reinforcement shall be provided generally as per guidelines of IS 456.

Nominal cover to meet durability requirement

- Minimum values for the nominal cover of normal weight aggregate concrete which should be provided to all reinforcement, including links depending on the condition of exposure and as per (nominal cover to meet durability requirements).
- However for a longitudinal reinforcing bar in a column nominal cover shall in any case not be less than 40 mm or less than the diameter of such bar.
- In the case of columns of minimum dimension of 200 mm or under, whose reinforcing bar do not exceed 12 mm, a nominal cover of 25 mm may be used.
- For footings minimum cover shall be 50 mm. Nominal cover to meet specified period of fire resistance Minimum values of nominal cover of normal-weight aggregate concrete to be provided to all reinforcement including links to meet specified period of the resistance as per the tables given under clause 4.4.1 of this specifications.
- The cover shall in no case be reduced by more than one third of specified cover or 5 mm whichever is less. Unless otherwise specified, the clear cover shall be:
Column: 25mm or size of the main bar, e=whichever is greater
Beam: 25mm or size of the main bar, e=whichever is greater
Slab: 15mm or size of the main bar, e=whichever is greater

THE BARS SHALL BE KEPT IN CORRECT POSITION BY THE FOLLOWING METHODS

- In case of beam and slab construction precast cover blocks in cement mortar 1:2 (1 cement : 2 coarse sand) about 4 x 4 cm section and of thickness equal to the specified cover shall be placed between the bars and shuttering, so as to secure and maintain the requisite cover of concrete over reinforcement.
- In case of cantilevered and doubly reinforced beams or slabs, the vertical distance between the horizontal bars shall be maintained by introducing chairs, spacers or support bars of steel at 1.0 metre or at shorter spacing to avoid sagging.
- In case of columns and walls, the vertical bars shall be kept in position by means of timber templates with slots accurately cut in them; or with block of cement mortar 1:2 (1 cement : 2 coarse sand) of required size suitably tied to the reinforcement to ensure that they are in correct position during concreting.
- In case of other R.C.C. structure such as arches, domes, shells, storage tanks etc. a combination of cover blocks, spacers and templates shall be used as directed by Engineer-in-Charge.

INSPECTION

Erected and secured reinforcement shall be inspected and approved by Engineer-in-Charge prior to placement of concrete.

MODE OF MEASUREMENT FOR REINFORCEMENT FOR R.C.C. WORKS

Reinforcement as detailed in schedule of quantities shall be measured for payment lineally as per the cutting length nearest to a centimetre shown in bar bending schedule submitted by the contractor and approved by the Engineer-in-Charge and weight calculated based on the standard weights as per I.S.1786.

RATE

Rate shall include all material, labour and other incidental items for the completion of the work.

XIV) FORM WORKS (CENTERING AND SHUTTERING WORKS)

SCOPE

This specification covers centering and shuttering works for RCC works of any size and shape.

MATERIAL

- Timber used for formwork shall be well seasoned, free from sap, shakes, loose knots, worm holes, warps or other surface defects in contact with concrete. Faces coming in contact with concrete shall be free from adhering grout, plaster, paint, projecting nails, splits or other defects. Joints shall be sufficiently tight to prevent loss of water and fine material from concrete.
- Plywood shall be used for exposed concrete surfaces, where called for. Sawn and wrought timber may be used for unexposed surfaces. Inside faces of forms for concrete surfaces which are to be rubbed finished shall be planed to remove irregularities or unevenness in the face. Form work with lining will be permitted.
- All new and used form lumber shall be maintained in a good condition with respect to shape, strength, rigidity, water tightness, smoothness and cleanliness of surfaces. Form lumber unsatisfactory in any respect shall not be used and if rejected by Engineer-in-Charge shall be removed from the site.

GENERAL

- The form work shall consist of shores, bracings, sides of beams and columns, bottom of slabs etc. including ties, anchors, hangers, inserts etc. complete which shall be properly designed and planned for the work.
- The false work shall be so constructed that up and down vertical adjustment can be made smoothly. Wedges may be used at the top or bottom of timber shores, but not at both ends, to facilitate vertical adjustment or dismantling of form work.

DESIGN OF FORM WORK

- The design and engineering of form work as well as its construction shall be the responsibility of Contractor.
- If so instructed, the drawings and calculations for the design of the form work shall be submitted well in advance to the Engineer-in-Charge for approval before proceeding with work, at no extra cost to the Department. Engineer-in-Charge approval shall not however, relieve Contractor of the full responsibility for the design and construction of the form work.
- The design shall take into account all the loads vertical as well as lateral that the forms will be carrying including live and vibration loadings.

TOLERANCES

The formwork shall be so made as to produce a finished concrete true to shape, lines, levels, plumb and dimensions as shown on the drawings subject to the following tolerance unless otherwise specified elsewhere in this specification or drawings or directed by the Engineer. For:

- Sectional dimension: 5mm
- Plumb: 1 in 1000 of height
- Levels: 3mm before any deflection has taken place

TYPE OF FORMWORK

- Form work may be of timber, plywood, metal, plastic or concrete.
- For special finishes, the formwork may be lined with plywood, steel sheets, oil tempered hard board etc. Sliding forms and slip forms may be used with the approval of Engineer-in-Charge.

FORMWORK REQUIREMENTS AND CONSTRUCTION

- Forms shall conform to the shapes, lines, grades and dimensions including camber of the concrete as called for in the drawings.
- Ample studs, waler braces, straps, shores etc. shall be used to hold the forms in proper position without any distortion whatsoever until the concrete has set sufficiently to permit removal of forms.
- Forms shall be strong enough to permit the use of immersion vibrators. In special cases, from vibrators may also be used. The shuttering shall be close boarded.
- Shores supporting successive stories shall be placed directly over those below or be so designed and placed that the load will be transmitted directly to them. Trussed supports shall be provided for shores that cannot be secured on adequate foundation.
- Formwork, during any stage of construction showing signs of distortion or distorted to such a degree that the intended concrete work will not conform to the exact contours indicated on the drawings, shall be repositioned and strengthened.
- Poured concrete affected by the faulty formwork, shall be entirely removed and the formwork corrected prior to placing new concrete.
- Excessive construction camber to compensate for shrinkage settlement etc. that may impair the structural strength of members will not be permitted.
- Forms for substructure concrete may be omitted when, in the opinion of Engineer-in-charge, the open excavation is firm enough to act as the form. Such excavations shall be slightly larger than required by the drawings to compensate for irregularities in excavation and to ensure the design requirement.
- Forms shall be so designed and constructed that they can be stripped in the order required and their removal do not damage the concrete. Face formwork shall provide true vertical and horizontal joints, conforming to the architectural features of the structure as to location of joints and be as directed by Engineer-in-Charge.
- Where exposed smooth or rubbed concrete finishes are required, the forms shall be constructed with special care so that the desired concrete surfaces could be obtained which require a minimum finish.

BRACINGS, STRUTS AND PROPS

- Shuttering shall be braced, strutted, propped and so supported that it shall not deform under weight and pressure of the concrete and also due to the movement of men and other materials. Bamboos shall not be used as props or cross bracings.

- The shuttering for beams and slabs shall be so erected that the shuttering on the sides of beams and under the soffit of slab can be removed without disturbing the beam bottoms.
- Repropping of beams shall not be done except when props have to be reinstated to take care of construction loads anticipated to be in excess of the design load. Vertical props shall be supported on wedges or other measures shall be taken whereby the props can be gently lowered vertically while striking the shuttering.
- If the shuttering for a column is erected for the full height of the column, one side shall be left open and built upon sections as placing of concrete proceeds, or windows may be left for pouring concrete from the sides to limit the drop of concrete to 1.0 m. or as directed by Engineer-in-Charge.

CHAMFERS AND FILLERS

- All corners and angles exposed in the finished structure shall be formed with mouldings to form chamfers or fillers on the finished concrete.
- The standard dimensions of chamfers and fillets, unless otherwise specified, shall be 20 x 20 mm. Care shall be exercised to ensure accurate mouldings.
- The diagonal face of the moulding shall be planed or surfaced to the same texture as the forms to which it is attached.

WALL TIES

- Wire ties passing through the walls, shall not be allowed. Also through bolts shall not be permitted.
- For fixing of formwork, alternate arrangements such as coil nuts shall be adopted at the contractors cost.

REMOVAL OF FORMS

- Contractors shall record on the drawings or a special register, the date upon which the concrete is placed in each part of the work and the date on which the shuttering is removed there from. In no circumstances shall forms be struck until the concrete reaches a strength of the at least twice the stress due to self weight and any construction erection loading to which the concrete may be subjected at the time of striking formwork.
- In normal circumstances (generally where temperatures are above 15 0C.) forms may be struck after expiry of the following periods:

Stripping time:

a) Vertical form work to columns, walls beams 16 – 24 h

b) Soffit form work to slabs (Props to be refixed immediately after removal of formwork) 3 days

c) Soffit form work to beams Props to be refixed immediately after removal of formwork 7 days

d) Props to slabs:

1. Spanning up to 4.5 m 7 days

2. Spanning over 4.5 m 14 days

e) Props to beams and arches:

1. Spanning up to 6 m 14 days

2. Spanning over 6 m 21 days

- For other cements and lower temperature, the stripping time recommended above may be suitably modified.

- The number of props left under the sizes and the position shall be such as to be able to safely carry the full dead load of the slab, beam or arch., as the case may be together with any live load likely to occur during curing or further constructions.
- Where the shape of the element is such that the form work has the re-entrant angles the form work shall be removed as soon as possible.
- After the concrete has set, to avoid shrinkage cracking occurring due to the restraint imposed, striking shall be done slowly with utmost care to avoid damage to arise and projection and without shock or vibration, by gently easing the wedges. If after removing the formwork, it is found that timber has been embedded in the concrete, it shall be removed and made good as specified earlier.
- Reinforced temporary openings shall be provided, as directed by Engineer-in-Charge, to facilitate removal of formwork which otherwise may be in-accessible.
- Tie rods, clamps, form bolts etc. which must be entirely removed from walls or similar structures shall be loosened not sooner than 24 hours no later than 40 hours after concrete has been deposited.
- Ties, except those required to hold forms in place, may be removed at the same time. Ties withdrawn from walls and grade beams shall be pulled towards the inside face. Cutting ties back from the faces of walls and grade beams will not be permitted. Work damaged due to premature or careless removal of forms shall be re-constructed at contractors cost.

REUSE OF FORMS

- Before reuse, all forms shall be thoroughly scraped, cleaned, nails removed, holes that may leak suitably plugged and joints examined and when necessary repaired and the inside retreated to prevent adhesion, to the satisfaction of Engineer-in-charge.
- Warped lumber shall be resized. Contractor shall equip himself with enough shuttering to complete the job in the stipulated time.

MODE OF MEASUREMENT

- In case the items of concreting are inclusive of cost of form work, no separate measurements shall be taken for form work.
- However, if the form work is to be paid separately and the item exists in the Schedule of Quantities for various types of form work, the net area of exposed surface of concrete members as shown in drawings coming in contact with form work shall be measured under item of formwork in square meters.
- All temporary formwork such as bulk heads, stop boards provided at construction joints which are not shown in the drawings shall not be measured.
- No deductions shall be made for openings/ obstructions upto an area of 0.1 sqm. and nothing extra shall be paid for forming such openings.

RATE

The rate shall include the cost of erecting, centering, shuttering materials, transport, deshuttering and removal of materials from site and labour required for all such operations etc.

XV) 10mm THICK CEMENT SAND PLASTER IN (1:3) IN CEILING

SCOPE

The work covered under these specifications consists of supplying all materials and rendering all types of plaster/pointing finishes strictly in accordance with these specifications, applicable drawings etc. For all finishing works mentioned above, only blended cement shall be used.

MATERIAL

- Blended cement, sand and water required for the work shall be in the ratio of 1:3 of cement: sand.
- The types of cement, sand and water to be used shall conform to "Standard Construction Materials".

GENERAL

- The plastering works shall generally conform to I.S. 1661 (Pt. III) (Code of practice for cement and cement plaster finish on walls and ceilings).
- All general precautions as specified in I.S. 1661 (Pt. III) clause-8 shall be taken and preparation of the back ground shall be done as laid down in I.S. 1661 clause 12 and I.S. 2402 shall be generally followed for rough cast and sand faced plaster work. Scaffolding required for facility of working shall be provided by the contractor at his own cost.
- This may be double or single according to the requirement and shall be approved by the Engineer-in-Charge. Stage scaffolding shall be erected when ceiling plastering is done.
- The contractor shall be responsible for accidents, if any, take place. The contractor shall cooperate with the other agencies also.
- All finishing in and around these boxes and around the conduit boxes in ceiling shall be done by plastering by the contractor without any extra cost to the Department.
- The decision of the Engineer-in-Charge in this regard shall be final and binding on the contractor.

PREPARATION OF SURFACE

- The surface to be plastered shall first be thoroughly cleaned of all muck and cleaned down.
- All joints shall be raked out in case of brick work / stone masonry and closely hacked in case of concrete, under the relevant masonry / concrete items.
- The surface to be plastered shall be well wetted for a minimum period of 6 hours before commencing the work.
- The mortar for all plaster work shall be blended cement mortar of mix as specified in the schedule of quantities.
- Before commencement of plastering operation, the contractor shall ensure that all the service pipes, electrical conduits, boxes, switch boxes etc. have been installed in position by other agencies and the plastering surface is duly approved by the Engineer-in-Charge.
- The entire work of preparation of surface before plastering shall thus be co-ordinated by the main civil contractor with all other agencies working at site.

SCAFFOLDING

- Wooden ballies, planks, trestles, GI pipes, plyboard and other scaffolding material shall be sound and erected in accordance with the specifications given.

- After erection of scaffolding and before commencement of plastering work, top most junctions/joints/sides with beam/column shall be thoroughly packed with blended cement mortar to prevent cracks.

OPERATIONS

- Cement and fine aggregates shall be mixed dry in the required proportions to obtain a uniform colour. Water shall then be added to get the required consistency for the plaster.
- Mixing shall be done mechanically. However, manual mixing will be allowed only in exceptional circumstances at the discretion of the Engineer-in-Charge. Manual mixing, where adopted, shall be carried out on a clean water tight platform. After water is added during mixing, the mix shall be held back and forth for 10 to 15 minutes. In machine mixing, the mixer shall run at least five minutes after placing all the ingredients in the drum. Only so much quantity of mortar which can be used within half an hour after the addition of water shall be prepared at a time. Any mortar for plaster which is set or partially set shall be rejected & shall be removed forthwith from the site.
- The concrete on the ceiling slab shall be cleaned thoroughly.
- The plaster shall be laid with somewhat more than 10 mm. thickness and pressed and levelled with wooden ruler to a finished thickness of 10 mm. Straight edges shall be freely used to ensure a perfectly even surface. All exposed angles and junctions of walls, doors, windows, beams, slabs etc. shall be carefully finished so as to furnish a neat and even surface.

FINISHING

When specified, the plastered surface shall be finished with lime, 'terraco' or plaster of paris.

CURING

The plastered surface shall be cured for at least two days. After finishing, it shall be kept wet for 7 days.

MODE OF MEASUREMENT

It shall be measured in m².

RATE

The rate shall comply with the necessary labour, materials and equipment required for the completion of the work.

XVI) 20mm THICK CEMENT SAND PLASTER IN (1:3) IN WALL, FLOOR, ETC.

SCOPE

The work covered under these specifications consists of supplying all materials and rendering all types of plaster/pointing finishes strictly in accordance with these specifications, applicable drawings etc. For all finishing works mentioned above, only blended cement shall be used.

MATERIAL

- Blended cement, sand and water required for the work shall be in the ratio of 1:4 of cement: sand.
- The types of cement, sand and water to be used shall conform to “Standard Construction Materials”.

GENERAL

- The plastering works shall generally conform to I.S. 1661 (Pt. III) (Code of practice for cement and cement plaster finish on walls and ceilings).
- All general precautions as specified in I.S. 1661 (Pt. III) clause-8 shall be taken and preparation of the back ground shall be done as laid down in I.S. 1661 clause 12 and I.S. 2402 shall be generally followed for rough cast and sand faced plaster work. Scaffolding required for facility of working shall be provided by the contractor at his own cost.
- This may be double or single according to the requirement and shall be approved by the Engineer-in-Charge. Stage scaffolding shall be erected when ceiling plastering is done.
- The contractor shall be responsible for accidents, if any, take place. The contractor shall cooperate with the other agencies also.
- All finishing in and around these boxes and around the conduit boxes in ceiling shall be done by plastering by the contractor without any extra cost to the Department.
- The decision of the Engineer-in-Charge in this regard shall be final and binding on the contractor.

PREPARATION OF SURFACE

- The surface to be plastered shall first be thoroughly cleaned of all muck and cleaned down.
- All joints shall be raked out in case of brick work / stone masonry and closely hacked in case of concrete, under the relevant masonry / concrete items.
- The surface to be plastered shall be well wetted for a minimum period of 6 hours before commencing the work.
- The mortar for all plaster work shall be blended cement mortar of mix as specified in the schedule of quantities.
- Before commencement of plastering operation, the contractor shall ensure that all the service pipes, electrical conduits, boxes, switch boxes etc. have been installed in position by other agencies and the plastering surface is duly approved by the Engineer-in-Charge.
- The entire work of preparation of surface before plastering shall thus be co-ordinated by the main civil contractor with all other agencies working at site.

SCAFFOLDING

- Wooden ballies, planks, trestles, GI pipes, plyboard and other scaffolding material shall be sound and erected in accordance with the specifications given.
- After erection of scaffolding and before commencement of plastering work, top most junctions/joints/sides with beam/column shall be thoroughly packed with blended cement mortar to prevent cracks.

OPERATIONS

- Cement and fine aggregates shall be mixed dry in the required proportions to obtain a uniform colour. Water shall then be added to get the required consistency for the plaster.
- Mixing shall be done mechanically. However, manual mixing will be allowed only in exceptional circumstances at the discretion of the Engineer-in-Charge. Manual mixing, where adopted, shall be carried out on a clean water tight platform. After water is added during mixing, the mix shall be held back and forth for 10 to 15 minutes. In machine mixing, the mixer shall run at least five minutes after placing all the ingredients in the drum. Only so much quantity of mortar which can be used within half an hour after the addition of water shall be prepared at a time. Any mortar for plaster which is set or partially set shall be rejected & shall be removed forthwith from the site.
- The concrete on the ceiling slab shall be cleaned thoroughly.
- The proportions of sand and cement shall be as specified and shall cover all irregularities, undulations, depressions due to chasing etc. in the surface to be plastered.
- The mortar shall be applied slightly more than 20 mm. thick and pressed and levelled with wooden ruler or straight edge to finished thickness of 20 mm. Straight edges shall be freely used to ensure a perfectly even surface.
- The finished surface shall be true and even and present uniform texture throughout and all joining marks shall be eliminated.
- All corners, edges and angles shall be made perfectly to line, plane and plumb. All exposed angles and junctions of walls, doors, windows, beams, slabs etc. shall be carefully finished so as to furnish a neat and even surface.
- Plastering items amongst all other things as described in various items also include:
 - i) Preparation of surfaces to receive the plaster, providing cement plaster of the specified average thickness and proportions with specified number of coats.
 - ii) All labour, materials, scaffolding, use of tools and equipment to complete the plastering work as per specifications.
 - iii) Curing for 10 days.
 - iv) Cleaning the surface of doors, windows, floors or any other surfaces where plastering might have splashed.
 - v) Finishing the portion of plaster left above the terrazzo, plain cement tiles, ironite or any type of skirting work to be finished rounded or as directed by the Engineer-in-Charge, in a separate operation after laying of floor tiles skirting.

FINISHING

When specified, the plastered surface shall be finished with lime, 'terrace' or plaster of paris.

CURING

The plastered surface shall be cured for at least two days. After finishing, it shall be kept wet for 7 days.

MODE OF MEASUREMENT

It shall be measured in m².

RATE

The rate shall comply with the necessary labour, materials and equipment required for the completion of the work.

XVII) SHISAN WOOD HANDRAILING

SCOPE

This specification defines the requirements regarding material, sizes, construction, workmanship, finishes and installation of wooden handrails.

Type: The timber used shall be of the best quality 'shisan' wood as specified in the item. The samples of the approved timber to be used shall be deposited in the engineer's office.

Quality: Timber used for work shall be from the heart of a sound tree of mature growth, the sapwood being entirely removed. It shall have permissible gradient of in grain. It shall be uniform in substance, straight in fibre, free from large, loose, dead or cluster knots, flaws, shakes, warp, cup, spring, twist bends or defects of any kind. It should be free from spongy, brittle, flaky or brushy condition. The timber shall be either seasoned in a seasoning plant or naturally sun dried in a shed for a period of 2 years. The timber shall be free from decay, fungal growth, pitch pockets, streaks on the exposed edges, borer holes, splits and cracks.

Colour: The colour shall be uniform as far as possible, the darkness of colour among coloured species of timber generally being a sign of strength and durability.

Moisture content: The maximum permissible moisture content for timber shall be 12 per cent of dry weight of timber. (IS 287)

Sawing and Planing: All scantlings shall be sawn in lines corresponding to the slope of the staircase in the direction of grain. The members shall be planed as per the design of the handrail.

Rejection: Timber for the work shall not be brought until seen and approved by the engineer, who may reject defective timber which shall be immediately removed from the site of work. Any effort like plugging, painting, using adhesives or resinous materials to hide defects shall render the pieces rejectable by the engineer. Timber prepared for inspection shall be clean and free from dust and paint or other material which may conceal the defects.

FABRICATION

- The fabrication of wooden hand rail shall follow the standard specification for wood work.
- The wooden handrail shall be in single piece per flight panel, moulded, shaped and finished to required dimensions as shown in drawing and as directed by the Engineer-in-charge.
- The hand railing shall be secured perfectly to line, slope and level to M.S. flat runners, balusters, newels and posts.
- M.S. grill, balusters, M.S. flat frame work fabricated as per the drawing and shall be strictly according to the specifications specified in manufacturing of M.S. grills and structural steel work.
- M.S. balusters, newels, M.S. flat frame work and posts as the case may be, shall be fabricated in a workman like manner.

ERECTION

- The hand railing shall follow the inclination of stair in case of stair-case and shall be perfectly in line, level and plumb for all other railings.
- Railing shall be joined in lengths with plain butt joints, dowelled and held together by hand rails, bolts, clamps and M.S. frame work.

MODE OF MEASUREMENT

- Hand railing shall be measured for payment in running meters.
- The length shall be measured along the top centre line of the hand rail and shall be measured between ends of balusters, newels posts as the case may be upto two places of a decimal.

RATE

Rate is to include fabrication, leaving suitable pockets, grouting the same, fixing, all labour, materials, transporting, painting, polishing, finishing, scaffolding if necessary and as described in the schedule of quantities.

XVIII) SPECIFICATION OF MARBLE STONE FLOORING

SCOPE

This specification covers marble flooring in cement mortar.

MATERIAL

Marble:

- The colour and quality of marble slabs shall be of the kind of marble specified in item/drawings/as directed
- by the Engineer-in-charge.
- The marble, from which the slabs are made, shall be of selected quality, hard, sound, dense and homogenous in texture, free from cracks, decay, weathering and flaws.
- Before starting the work, the contractor shall get the samples of marble slabs approved by the Engineer-in-charge.
- All slabs which go into work shall strictly conform to the samples, failing which the entire materials are likely to be rejected. The slabs shall be machine polished and machine cut to the dimensions specified in items of schedules of quantities/drawings and as directed by the Engineer-in-charge.

Bedding/backing mortar:

- The bedding mortar shall be a mixture of cement and sand in the ratio of 1:3.
- For this either hand-mixing or machine-mixing shall be carried out as specified by the EIC.

LAYING/ FLOORING

- Before laying the cement mortar bedding/backing, the concrete/brick, floor/wall surfaces shall be thoroughly hacked, cleaned of all mortar scales, concrete lumps etc., brushed, washed with water to remove mud, dirt etc. From the surface and shall be thoroughly wetted.
- Until and unless the surface is approved by the Engineer-in-Charge, the flooring shall not be started.
- A bedding of cement mortar of 20 mm. average thickness with the minimum thickness at any place under the slab not less than 13mm. shall be laid evenly and to the required slopes as directed.
- The marble slabs shall be thoroughly washed and cleaned and then be laid on the bedding/backing with cement floating at the rate of 4.39 kg/m².
- All slabs shall be truly and evenly set in a thick cement slurry or paste like consistency applied to the sides and bottom and over the prepared base. The slabs shall then be tamped down with a wooden mallet until they are exactly in true plane and line with adjacent slabs.
- All slabs shall be extended up to the unplastered surface of masonry walls/RCC columns/RCC walls.
- The slabs shall be close jointed in matching cement slurry and the cement slurry coming out through the thin joints shall be immediately wiped clean.
- The grains of marble stone shall be matched as shown in drawing or as directed by the Engineer-in-Charge.
- All slabs shall be so laid as to have continuous lines from various rooms to the corridors.
- No change of lines shall be permitted at junction between rooms and corridor, if the same flooring is specified in both the places.

POLISHING AND FINISHING

- The grinding may be done either by hand or by machine.
- Manual grinding should be done after two days of laying of marble flooring.
- Machine grinding should commence 3-4 days after laying marble stone flooring.

First Grinding

- The grinding should be done by machine with grit No. 60.
- The water should be used profusely during grinding.
- After grinding the surface should thoroughly be washed to remove all grinding mud.
- A grout of cement and pigment in the same mix and proportion apply to the surface.
- It should be allowed to dry and then cured for four days.

Second Grinding

- The second grinding is done with machine fitted with fine grit blocks No120.
- The surface is again washed cleanly and is repaired if required.

MEASUREMENT

- Marble stone flooring, sills, treads, risers, dado cladding etc. shall be measured in square metre correct to two places of decimal.

- The length and breadth shall be measured between the finished faces correct to two places of decimal of metre. No deduction shall be made nor extra paid for any opening of area upto 0.05 sqm.
- Nothing extra shall be paid for working at different levels.

RATE

The rate shall include the cost of all materials, transport tools, plants, scaffolding and labour involved in all operations described above.

Section - VII
Drawings

Note:

1. It is customary to bind the drawings in a separate volume, which is often larger than other volumes of the contract documents. The size will be dictated by the scale of the drawings, which must not be reduced to the extent that details are reduced illegible.
2. A simplified map showing the location of the Site in relation to the local geography, indicating major roads, posts, airports, and railroads, is helpful.
3. The construction drawings, even if not fully developed, must show sufficient details to enable bidders to understand the type and complexity of the work involved and the price the Bill of Quantities.

Section - VIII
Bill of Quantities

Notes for Unit Rate Contracts:

Objectives

The objectives of the Bill of Quantities are

- (a) To provide sufficient information on the quantities of Works to be performed to enable Bids to be prepared efficiently and accurately; and
- (b) When a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed.

In order to attain these objectives, Works should be itemized in the Bill of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bill of Quantities should be as simple and brief as possible.

Content

The Bill of Quantities should be divided generally into the following sections:

- (a) Preamble;
- (b) Work Items (grouped into parts);
- (c) Day works Schedule;
- (d) Provisional Sums; and
- (d) Summary.

Preamble

The Preamble should indicate the inclusiveness of the unit prices, and should state the methods of measurement which have been adopted in the preparation of the Bill of Quantities and which are to be used for the measurement of any part of the works.

Work Items

The items in the Bill of Quantities should be grouped into sections to distinguish between those parts of the Works which by nature, location, access, timing, or any other special characteristics may give rise to different methods of construction, or phasing of the Works, or considerations of cost. General items common to all parts of the works may be grouped as a separate section in the Bill of Quantities.

Day work Schedule

A Day work Schedule should be included only if the probability of unforeseen work, outside the items included in the Bill of Quantities, is high. To facilitate checking by the Employer of the realism of rates quoted by the Bidders, the Day work Schedule should normally comprise the following:

- (a) A list of the various classes of labour, materials, and Constructional Plant for which basic day work rates or prices are to be inserted by the Bidder, together with a statement of the conditions under which the Contractor will be paid for work executed on a day work basis.
- (b) Nominal quantities for each item of Day work, to be priced by each Bidder at Day work rates as bid. The rate to be entered by the Bidder against each basic Day work item should include the Contractor's profit, overheads, supervision, and other charges.

Provisional Sums

A general provision for physical contingencies (quantity overruns) may be made by including a provisional sum in the Summary Bill of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a provisional sum in the Summary Bill of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises. Where such provisional sums or contingency allowances are used, the Contract Data should state the manner in which they will be used, and under whose authority (usually the Project Manager's).

Summary

The Summary should contain a tabulation of the separate parts of the Bill of Quantities carried forward, with provisional sums for Day work, for physical (quantity) contingencies, and for price contingencies (upward price adjustment) where applicable.

These Notes for Preparing Specifications are intended only as information for the Employer or the person drafting the Bidding documents. They should not be included in the final documents.

Preamble of Bill of Quantities

A. General

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract, Technical Specifications, and Drawings.
2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Project Manager and valued at the rates and prices bid in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Project Manager may fix within the terms of the Contract.
3. For any item for which measurement is based on records made before or during construction the records shall be prepared and agreed between the Engineer and the Contractor. Should the Contractor carry out such work without the prior agreement of the Engineer, the Engineer may request the Contractor to carry out investigations to confirm the extent of the work and the quantity of work certified for payment shall be solely at the Engineer's discretion. The cost of any such investigation shall be borne by the Contractor.
4. The rates and prices bid in the priced Bill of Quantities shall, except as otherwise provided under the Contract, include all construction equipment, labour, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.
5. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
6. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
7. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bill of Quantities. The Specification Clause references where given in the item description of the Bills of Quantities are for the convenience of bidders and generally refer to the principal relevant-specification clause but do not necessarily represent the whole of the specification requirements for the work required within the item. The presence of a Specification clause reference shall not in any way reduce the Bidders obligation to complete work in accordance with all the requirements of the Specification.
8. Provisional Sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Project Manager in accordance with the Conditions of Contract.
9. The method of measurement of completed work for payment shall be in accordance with the Specifications.
10. The abbreviations and symbols used in this Bill of Quantities are:
[Insert as applicable]

B. Day work Schedule

a) General

1. Work shall not be executed on a day work basis except by written order of the Project Manager. Bidders shall enter basic rates for day work items in the Schedules. These rates shall apply to any quantity of day work ordered by the Project Manager. Nominal quantities have been indicated against each item of day work, and the extended total for day work shall, be carried forward as a Provisional Sum to the Summary Total Bid Amount. Unless otherwise adjusted, payments for day work shall be subject to price adjustment in accordance with the provisions in the Conditions of Contract.

b) Day work Labour

1. In calculating payments due to the Contractor for the execution of day works, the hours for labour will be reckoned from the time of arrival of the labour at the job site to execute the particular item of day work to the time of departure from the job site, but excluding meal breaks and rest periods. Only the time of classes of labour directly doing work ordered by the Project Manager and are competent to perform such work will be measured. The time of gangers (charge hands) actually doing work with the gangs will also be measured but not the time of foremen or other supervisory personnel.
2. The Contractor shall be entitled to payment in respect of the total time that labour is employed on day work, calculated at the basis rates entered by it in the " SCHEDULE OF DAY WORK RATES: 1. LABOUR ". The rates for labour shall be deemed to cover all costs to the Contractor including (but not limited to) i) the amount of wages paid to such labour, transportation time, overtime, subsistence allowances, ii) any sums paid to or on behalf of such labour for social benefits in accordance with Nepal law, iii) Contractor's profit, overheads, superintendence, liabilities and insurance and iv) charges incidental to the foregoing.

c) Day work Equipment

1. The Contractor shall be entitled to payments in respect of Constructional Plant already on site and employed on day work at the basis rental rates entered by him in the "SCHEDULE OF DAY WORK RATES:2 EQUIPMENT ". The said rates shall be deemed to include due and complete allowance for depreciation, interest, indemnity and insurance, repairs, maintenance, supplies, fuel, lubricant, and other consumables and all overhead, profit and administrative costs related to the use of such equipment. The cost of drivers, operators and assistants also shall be included in the rate of the equipment and no separately payment shall be made for it.
2. In calculating the payment due to the Contractor for Constructional Plant employed on day work, only the actual number of working hours will be eligible for payment, except that where applicable and agreed with the Project Manager, the travelling time from the part of the Site where the Construction Plant was located when ordered by the Project Manager to be employed on day work and the time for return journey there to shall be included for payment.

d) Day work Materials

1. The Contractor shall be entitled to payment in respect of materials used for day work (except for materials for which the cost is included in the percentage addition to labour costs as detailed heretofore), at the rates entered by him in the "SCHEDULE OF DAY WORK RATES: 3 MATERIALS" and shall be deemed to include overhead charges and profit as follows;
 - (i) the rates for materials shall be calculated on the basis of the invoiced price, freight, insurance, handling expenses, damage, losses, etc. and shall provide for delivery to store for stockpiling at the Site.
 - (ii) the cost of hauling materials for use on work ordered to be carried out as day work, from the store or stockpile on the Site to the place where it is to be used also shall be include in the same rate.

Provisional Sums

A general provision for physical contingencies (quantity overruns) may be made by including a provisional sum in the Summary Bill of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a provisional sum in the Summary Bill of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic

supplementary approvals as the future need arises. Where such provisional sums or contingency allowances are used, the SCC should state the manner in which they will be used, and under whose authority (usually the Project Manager's).

The estimated cost of specialized work to be carried out, or of special goods to be supplied, by other contractors should be indicated in the relevant part of the Bill of Quantities as a particular provisional sum with an appropriate brief description. A separate procurement procedure is normally carried out by the Employer to select such specialized contractors. To provide an element of competition among the Bidders in respect of any facilities, amenities, attendance, etc., to be provided by the successful Bidder as prime Contractor for the use and convenience of the specialist contractors, each related provisional sum should be followed by an item in the Bill of Quantities inviting the Bidder to quote a sum for such amenities, facilities, attendance, etc.

Bill of Quantities

1 Provisional Sum						
Procurement Item Details						
Sl. No.	Item Description	Unit	Quantity	Unit Rate (NPR)	Amount (NPR)	
1	0		0.0	0.0	0.00	
2 Construction work						
2.1 Bridge Construction Work						
Procurement Item Details						
Sl. No.	Item Description	Unit	Quantity	Bidder's Rate (NPR)	Bidder's Rate (in words)	Total Amount (NPR)
1	Dismantal of wall Brick Measonsry	Cum	16.92			
2	Earth Excavation Works	m3	17.17			
3	stone solling works of Wall and piller	m3	8.46			
4	Stone Masonary Wall As Need 1:4 C/S Mortar	m3	2.70			
5	Pcc (1:3:6) M 10 of wall and piller	m3	4.35			
6	50 mm Iron Pipe For Vertical Support c/c 2m distance, 25*25*4 iron angle frame bet. SWGGI Chain link 2"*2" Mesh size intilation works.	Sqm	225.60			
Total of Procurement Items						
Total Item Price						
VAT						
Grand Total						

Section - IV
General Conditions of Contract

Section VII. General Conditions of Contract (GCC)

1. General Provisions	
1.1 Definitions	In the Contract as defined below, the words and expressions defined shall have the following meanings assigned to them, except where the context requires otherwise:
The Contract	<p>1.1.1 “Contract” means the Agreement signed between the Employer and the contractor and the other documents listed in the Special Conditions of Contract (SCC).</p> <p>1.1.2 “Specification” means the document as listed in the SCC, and any variation to such document.</p> <p>1.1.3 “Drawings” means the Employer’s drawings of the Works as listed in the SCC, and any variation to such drawings.</p> <p>1.1.4 “Bill of Quantities” means the priced and completed bill of quantities forming part of the Tender.</p> <p>1.1.5 “Bid or Quotation” means the contractor’s priced offer to the Employer for the execution and completion of the Works and the remedying of any defects therein in accordance with the provisions of the Contract, as accepted by the Letter of Acceptance.</p> <p>1.1.6 “Letter of Acceptance” means the formal acceptance by the Employer of the bid or Tender.</p>
Persons	<p>1.1.7 “Employer” means the person named in the Agreement and the legal successors in title to this person, but not (except with the consent of the contractor) any assignee.</p> <p>1.1.8 “Contractor” means the person named in the Agreement and the legal successors in title to this person, but not (except with the consent of the Employer) any assignee.</p> <p>1.1.9 “Party” means either Employer or the contractor.</p>
Date, Times and Periods	<p>1.1.10 “Commencement Date” means the date stated in the SCC after the date the Agreement comes into effect or any other date agreed between the Parties.</p> <p>1.1.11 “Day” means a calendar day.</p>

	<p>1.1.12 "Time for Completion" means the time for completing the Works as stated in the SCC (or as extended under Sub-Clause 6.3), calculated from the Commencement Date.</p>
Money and Payments	<p>1.1.13 "Cost" means all expenditure properly incurred (or to be incurred) by the contractor, whether on or off the Site, including overheads and similar charges, but does not include profit.</p> <p>1.1.14 "Contract Price" means the sum stated in the Letter of Acceptance as payable to the contractor and adjusted with any Variation Orders and Other Adjustments upon completion of the works and the remedying of any defects therein in accordance with the provisions of the Contract.</p> <p>1.1.15 "Retention Money" means the aggregate of all monies retained by the Employer pursuant to Sub-Clause 10.3</p>
Other Definitions	<p>1.1.16 "Contractor's Equipment" means all apparatus, machinery, vehicles, facilities and other things required for the execution of the Works but does not include Materials or Plant.</p> <p>1.1.17 "Country" means Nepal.</p> <p>1.1.18 "Employer's Liabilities" means those matters listed in Sub-Clause 5.1.</p> <p>1.1.19 "Materials" means things of all kinds (other than Plant) intended to form or forming part of the permanent work.</p> <p>1.1.20 "Plant" means the machinery and apparatus intended to form or forming part of the Permanent Works.</p> <p>1.1.21 "Site" means the places provided by the Employer where the Works are to be executed, and any other places specified in the Contract as forming part of the Site.</p> <p>1.1.22 "Variation" means any change which is a result of unforeseen circumstances that arise as a result of instruction by the Employer/ Engineer under Sub-Clause 9.1.</p> <p>1.1.23 "Works" means all the work and design (if any) to be performed by the contractor including temporary work and any Variation.</p> <p>1.1.24 "Permanent Works" means the permanent works to be executed (Including Plant) in accordance with the Contract.</p> <p>1.1.25 "Temporary Works" means all temporary works of every kind (other than contractor's Equipment) required in or about the execution and completion of the Works and the remedying of any defects therein.</p>
1.2 Interpretation	<p>Words importing persons or parties shall include firms and organisations. Words importing singular or one gender shall include plural or the other gender where the context requires.</p>
1.3 Priority of Documents	<p>The documents forming the Contract shall to be taken as mutually explanatory of one another. If an ambiguity or discrepancy is found in the documents, the Employer shall issue any necessary instructions to the contractor, and the priority of the documents shall be in accordance with the order as listed in the SCC.</p>
1.4 Law	<p>The law of the Contract is stated in the Law of Nepal.</p>

1.5 Communications	<p>Where provision is made for the giving or issue of any notice, instruction, or other communication by any person, unless otherwise specified such communication shall be written in the language stated in the SCC as shall not be unreasonably withheld or delayed.</p> <p>If a notice given pursuant to Sub Clause 1.5 fails to be delivered due to failure to trace the address of the party then the notice shall be published as public notice in a National daily newspaper and when the notice is so published then the notice shall be considered to be delivered to the concerned party.</p>
1.6 Statutory Obligations	<p>The contractor shall comply with the laws of Nepal where activities are performed. The contractor shall give all notices and pay all fees and other charges in respect of the Works.</p>
2. The Employer	
2.1 Provision of Site	<p>The Employer shall provide the Site and right of access thereto at the times stated in the SCC.</p>
2.2 Permits and Licenses	<p>The Employer shall, if requested by the contractor, assist him in applying for permits, licences or approvals which are required for the Works.</p>
2.3 Employer's Instructions	<p>The contractor shall comply with all instructions given by the Employer in respect of the Works including the suspension of all or part of the Works.</p>
2.4 Approvals	<p>No approval or consent or absence of comment by the Employer or the Employer's representative shall affect the contractor's obligations.</p>
3. Employer's Representatives	
3.1 Authorised Person	<p>One of the Employer's personnel shall have authority to act for him. This authorised person shall be as stated in the SCC, or as otherwise notified by the Employer to the contractor.</p>
3.2 Employer's Representative	<p>The Employer may also appoint a firm or individual to carry out certain duties. The appointee may be named in the SCC, or notified by the Employer to the contractor from time to time. The Employer shall notify the contractor of the delegated duties and authority of this Employer's representative.</p>
4. The Contractor	
4.1 General Obligations	<p>The contractor shall carry out the Works properly and in accordance with the Contract. The contractor shall provide all supervision, labour, Materials, Plant and contractor's Equipment which may be required. All Materials and Plant on Site shall be deemed to be the property of the Employer.</p> <p>During continuance of the of the contract, the contractor and his sub-contractors shall abide at all times by all labour laws, including child labour related enactments, and rules made there under.</p> <p>A child who has not attained the age of fourteen years shall not be employed in any work as a labourer.</p>

4.2 Contractor's Representative	The contractor shall submit to the Employer for consent the name and particulars of the person authorised to receive instructions on behalf of the contractor.
4.3 Subcontracting	The contractor shall not subcontract the Works.
4.4 Performance Security	As stated in the SCC , the Contractor shall deliver to the Employer no later than the date specified in the Letter of Acceptance.
5. Employer's Liabilities	
5.1 Employer's Liabilities	<p>In this Contract, Employer's Liabilities mean:</p> <ul style="list-style-type: none"> a. war, hostilities (whether war be declared or not), invasion, act of foreign enemies, within the Country, b. rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war, within the Country, c. riot, commotion or disorder by persons other than the contractor's personnel and other employees, affecting the Site and/or the Works. d. use or occupation by the Employer of any part of the Works, except as may be specified in the Contract, e. design of any part of the Works by the Employer's personnel or by others for whom the Employer is responsible, f. any operation of the forces of nature affecting the Site and/or the Works, which was unforeseeable or against which an experienced contractor could not reasonably have been expected to take precautions g. a suspension under Sub-Clause 2.3 unless it is attributable to the contractor's failure, h. any failure of the Employer, i. physical obstructions or physical conditions, other than climatic conditions, encountered on the Site during the performance of the Works, which obstructions or conditions were not reasonably foreseeable by an experienced contractor and which the contractor immediately notified to the Employer, j. any delay or disruption caused by any Variation, k. any change to the law of the Contract after the date of the contractor's offer as stated in the Agreement, l. losses arising out of the Employer's right to have the permanent work executed on, over, under, in or through any land, and to occupy this land for the permanent work, and m. damage which is an unavoidable result of the contractor's obligations to execute the Works and to remedy any defects.
6. Time for Completion	
6.1 Execution of the Works	The contractor shall commence the Works on the Commencement Date and shall proceed expeditiously and without delay and shall complete the Works within the Time for Completion.
6.2 Programme	The contractor shall submit to the Employer a programme for the Works within the time stated in the SCC

6.3 Extension of Time	<p>The contractor shall be entitled to an extension to the Time for Completion if he is or shall be delayed by any of the Employer's Liabilities.</p> <p>The contractor shall submit an application to the Employer for extension of time, stating the causes for delay, 21 days before the expiry of the Contract completion date.</p> <p>On receipt of an application from the contractor, within 21 days , the Employer shall consider all supporting details provided by the contractor and shall decide extend the Time for Completion as appropriate.</p>
6.4 Liquidated Damages for Delay	<p>If the contractor fails to complete the Works within the Time for Completion, the contractor's liability to the Employer for such failure shall be to pay the amount stated in the SCC for each day for which he fails to complete the Works.</p>
7. Taking-Over	
7.1 Completion	<p>The contractor may notify the Employer when he considers that the Works are complete.</p> <p>In addition to the other provisions, before acceptance of the completed works, Employer shall verify and assure that such works are within the set objective, quality and appropriate to operate and use.</p>
7.2 Taking-Over Notice	<p>The Employer shall notify the Contractor when he considers that the Contractor has completed the Works stating the date accordingly. Alternatively, the Employer may notify the Contractor that the Works, although not fully complete, are ready for taking over, stating the date accordingly.</p> <p>The Employer shall take over the Works upon the issue of this notice. The Contractor shall promptly complete any outstanding work and, subject to Clause 8, clear the Site.</p>
8. Remedying Defects	
8.1 Remedying Defects	<p>The Employer may at any time prior to the expiry of the period stated in the SCC, notify the Contractor of any defects or outstanding work. The Contractor shall remedy at no cost to the Employer any defects due to the Contractor's design, materials, plant or workmanship not being in accordance with the Contract.</p> <p>Failure to remedy any defects or complete outstanding work within a reasonable time of the Employer's notice shall entitle the Employer to carry out all necessary work at the Contractor's cost.</p>
8.2 Uncovering and Testing	<p>The Employer may give instruction as to the uncovering and/or testing of any work. Unless as a result of any uncovering and/or testing it is established that the contractor's design, materials, plant or workmanship are not in accordance with the Contract, the Contractor shall be paid for such uncovering and/or testing as a Variation in accordance with Sub-Clause 9.2.</p>
9. Variations and Claims	
9.1 Right to Vary	<p>The Employer may instruct Variations.</p>

9.2 Valuation of Variations	Variations shall be valued as follows: a. where appropriate, at rates in the Contract, or b. in the absence of appropriate rates, the rates in the Contract shall be used as the basis for valuation or c. at appropriate new rates, as may be agreed or which the Employer considers appropriate.
9.4 Right to Claim	If the contractor incurs cost as a result of any of the Employer's Liabilities, the contractor shall be entitled to the amount of such cost. If as a result of any of the Employer's Liabilities, it is necessary to change the Works, this shall be dealt with as a Variation.
9.5 Variation and Claim Procedure	The contractor shall submit the Employer an itemised make-up of the value of Variations and claims within 7 days of the instruction or of the event giving rise to the claim. The Employer shall check and if possible agree the value. In the absence of agreement, the Employer shall determine the value.
10. Contract Price and Payment	
10.1 Valuation of the Works	The Contract Bill of Quantities and the approved Variation quantities shall be used to calculate the valuation of the works completed .The Contractor shall be paid for the quantity of work done at the rate in the Bill of Quantities or rate agreed pursuant to clause 9.2 for varied works.
10.2 Payments Certificates	The Contractor shall submit to the Employer monthly statements of the estimated value of the works completed less the cumulative amount certified previously. The Employer shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor
10.3 Payments	The Employer shall pay to the contractor the amount certified less retention at the rate stated in the SCC within 30 days of the date of each certificate.
10.4 Payment of Retention	One half of the retention shall be repaid by the Employer to the contractor within 30 days upon expiry of Defects Liability Period and the Employer has certified that the notified defects have been corrected. The remainder of the retention shall be paid by the Employer to the contractor within 7 days after submission of evidence document from the concerned Internal Revenue Office that the contractor has submitted his Income Returns
10.5 Advance Payment	10.5.1 The Employer shall make advance payment to the Contractor of the amounts stated in the SCC in two equal installments by the date stated in the SCC, against provision by the Contractor of an unconditional bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal in a form acceptable to the Employer in amounts equal to the advance payment. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest shall not be charged on the advance payment.

	<p>10.5.2 The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Project Manager.</p> <p>10.5.3 The advance payment shall be repaid by deducting proportionate amounts, as stated in SCC, from payments otherwise due Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages.</p>
<p>10.6 Local Taxation & Value Added Tax</p>	<p>a. The prices quoted by the Contractor shall include all taxes that may be levied in accordance to the laws and regulations in being in Nepal.</p> <p>b. The Contractor shall pay VAT in the concerned VAT office within time frame specified in VAT regulation.</p>
<p>11. Termination of Contract and Payment</p>	<p>11.1 The Employer may terminate the Contract at any time if the contractor;</p> <ul style="list-style-type: none"> a. does not commence the work as per the Contract, b. abandons the work without completing, c. fails to achieve progress as per the Contract. <p>11.2 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.</p> <p>11.3 Fundamental breaches of Contract shall include, but shall not be limited to, the following :</p> <ul style="list-style-type: none"> (a) The Contractor uses the advance payment for matters other than the contractual obligations, (b) the Contractor stops work for 30 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager; (c) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 30 days; (d) the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation. (e) a payment certified by the Project Manager is not paid by the Employer to the Contractor within 90 days of the date of the Project Manager’s certificate; (f) the Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager; (g) The Contractor fails to update the Program as per the contract and demonstrate acceleration of the works within a reasonable period of time determined by the Project Manager; (h) the Contractor does not maintain a Security, which is required; (i) the Contractor has delayed the completion of the Works by the number of

	<p>days for which the maximum amount of liquidated damages can be paid, as defined in the SCC 6.4 ; and</p> <p>(j) If the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.</p> <p>11.5 Notwithstanding the above, the Employer may terminate the Contract for convenience.</p> <p>11.6 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.</p>
	<p>11.7 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer.</p> <p>11.8 If the Contract is terminated for the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.</p> <p>11.9 If the Contract is terminated because of fundamental breach of Contract or for any other fault by the Contractor, the performance security shall be forfeited by the Employer.</p> <p>In such case, amount to complete the remaining works as per the Contract shall be recovered from the Contractor as Government dues.</p>
<p>12. Risk and Responsibility</p>	
<p>12.1 Contractor's Care of the Works</p>	<p>The contractor shall take full responsibility for the care of the Works from the Commencement Date until the date of the Employer's notice under Sub-Clause 7.2. Responsibility shall then pass to the Employer. If any loss or damage occurs to the Works during the above period, the contractor shall rectify such loss or damage so that the Works conform to the Contract.</p>
<p>12.2 Force Majeure</p>	<p>If a Party is or shall be prevented from performing any of its obligations by Force Majeure, the Party affected shall notify the other Party immediately. If necessary, the contractor shall suspend the execution of the Works and, to the extent agreed with the Employer, demobilise the contractor's Equipment.</p> <p>If the event continues for a period of 90 days, either Party may then give notice of termination which shall take effect 30 days after the giving of the notice.</p> <p>After termination, the contractor shall be entitled to payment of the unpaid balance of the value of the Works executed and of the Materials and Plant reasonably delivered to the Site, adjusted by the following:</p> <p>a. any sums to which the contractor is entitled under Sub-Clause 9.4,</p>

	<p>b. the Cost of his suspension and demobilisation, c. any sums to which the Employer is entitled.</p> <p>The net balance due shall be paid or repaid within 30 days of the notice of termination.</p>
<p>13. Resolution of Disputes</p>	
<p>13.2 Amicable Settlement</p>	<p>The Employer and the Contractor shall attempt to settle amicably by direct negotiation any disagreement or dispute arising between them under or in connection with the Contract.</p>
<p>14. Conduct of Bidders</p>	<p>14.1 The Bidder shall be responsible to fulfill his obligations as per the requirement of the Contract Agreement, Bidding documents, GoN's Procurement Act and Regulations.</p> <p>14.2 The Bidder shall not carry out or cause to carry out the following acts with an intention to influence the implementation of the procurement process or the procurement agreement :</p> <ul style="list-style-type: none"> a) give or propose improper inducement directly or indirectly, b) distortion or misrepresentation of facts c) engaging or being involved in corrupt or fraudulent practice d) interference in participation of other prospective bidders. e) coercion or threatening directly or indirectly to cause harm to the person or the property of any person to be involved in the procurement proceedings, f) collusive practice among bidders before or after submission of bids for distribution of works among bidders or fixing artificial/uncompetitive bid price with an intention to deprive the Employer the benefit of open competitive bid price.. g) contacting the Employer with an intention to influence the Employer with regards to the bid or interference of any kind in examination and evaluation of the bids during the period after opening of bids up to the notification of award of contract
<p>15. Blacklisting Bidder</p>	<p>15.1 Without prejudice to any other right of the Employer under this Contract, GoN, Public Procurement Monitoring Office may blacklist a bidder for his conduct up to three years on the following grounds and seriousness of the act committed by the bidder:</p> <ul style="list-style-type: none"> a) if it is proved that the bidder committed acts pursuant to the Sub - Clause 14.2, b) if it is proved later that the bidder/contractor had committed substantial defect in implementation of the contract or had not substantially fulfilled his obligations under the contract or the completed work is not of the specified quality as per the contract , c) if convicted by a court of law in a criminal offence which disqualifies the bidder from participating in the contract. d) if it is proved that the contract agreement signed by the bidder was

	<p>based on false or misrepresentation of bidder's qualification information,</p> <p>e) other acts mentioned in the Bidding Data</p> <p>15.2 A firm declared blacklisted and ineligible by the GON shall be ineligible to bid for a contract during the period of time determined by the PPMO.</p>
16. Provision of PPA and PPR	If any provision of this document are inconsistent with Public Procurement Act (PPA), 2063 or Public Procurement Regulations (PPR), 2064, the provision of this documents shall be void to the extent of such inconsistency and the provision of PPA and PPR shall prevail.

Section - V
Special Conditions of Contract

Section VIII - Special Conditions of Contract (SCC)

This SCC forms part of the Agreement

[Note: with the exception of the items for which the Purchaser's requirements have been inserted, the Bidder shall complete the following information before submitting his Sealed Quotation.]

1.1.1	Documents forming the Contract listed in the order of priority: 1. The Agreement 2. Special Conditions of Contract 3. General Conditions of Contract 4. The Technical Specifications 5. The Drawings 6. The Bill of Quantities
1.1.12	The indented completion date for the works shall be 3 MONTH .
1.5	The language of the contract is ENGLISH/NEPALI.
2.1	The Site Possession Date(s) shall be: After Contract Agreement
3.1	The Authorised person is : Tdcs Admin
3.2	Name and Address of Employer's representative is : Tdcs Approver, Taplejung Taplejung Koshi Pradesh Phungling Municipality
4.4	The Performance Security amount is: : 5% i) If bid price of the bidder selected for acceptance is up to 15 (fifteen) percent below the approved cost estimate, the performance security amount shall be 5 (five) percent of the bid price. ii) For the bid price of the bidder selected for acceptance is more than 15 (fifteen) percent below of the cost estimate, the performance security amount shall be determined as follows: Performance Security Amount = $[(0.85 \times \text{Cost Estimate} - \text{Bid Price}) \times 0.5] + 5\%$ of Bid Price. The Bid Price and Cost Estimate shall be inclusive of Value Added Tax
6.2	Time for the submission of programme : 15 days.
6.4	Liquidated Damages for Delay is 0.05% of the Contract Price per day up to a maximum of 10% of sum stated in the Agreement.
8.1	Period for notifying defects is 365 days calculated from the date stated in the notice under Sub-Clause 7.2.
10.5.1	The Advance Payments shall NOT be applicable
10.5.3	Deductions from Payment Certificates will commence in the first certificate in which the Value of works executed exceeds 30% of the Contract Price. Deduction will be at the rate of 0% of the respective Monthly Interim Payment Certificate until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the end of 80 % of the approved contract price.

Section - IX
Contract Forms

Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

Letter of Acceptance

[on letterhead paper of the Employer]

Date:

To: name and address of the Contractor

Subject: Notification of Award

This is to notify that your Quotation dateddatefor execution of the.....name of the contract and identification number, as given in the SCC for the Contract price of Nepalese Rupees [insert amount in figures and words in Nepalese Rupees], as corrected in accordance with the Instructions to Bidders is hereby accepted in accordance with the Instruction to Bidders.

You are hereby instructed to contact this office to sign the formal contract agreement within 7 days with Performance Security of[specify the performance security amount computed as per ITB 22.2 and 25.1] consisting of a Bank Guarantee in the format included in Section IX (Contract Forms) of this Bidding Document.

The Employer shall forfeit the bid security, in case you fail to furnish the Performance Security and to sign the contract within specified period.

Authorized Signature:

Name and Title of Signatory:

Contract Agreement

THIS AGREEMENT made theday of between..... name of the Employer (“the Employer”), of the one part, andname of the Contractor(hereinafter “the Contractor”), of the other part:

WHEREAS the Employer desires that the Works known as name of the Contractshould be executed by the Contractor, and has accepted a Quotation by the Contractor for the execution and completion of these Works and the remedying of any defects in the sum of NRs[insert amount of contract price in words and figures including taxes] (hereinafter “the Contract Price”).

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement.
 - (a) the Letter of Acceptance;
 - (b) the Letter of Bid;
 - (c) the Addenda Nos insert addenda numbers if any
 - (d) the Special Conditions of Contract;
 - (e) the General Conditions of Contract;
 - (f) Bills of Quantities (BOQ);
 - (g) the Specification;
 - (h) the Drawings;
 - (i) the Activity Schedules; and
 - (j).....[Specify if there are any other document]
3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Nepal on the day, month and year indicated above.

Signed by
for and on behalf the Contractor in the
presence of

Signed by.....
for and on behalf of the Employer in the
presence of

Witness, Name Signature, Address, Date

Witness, Name, Signature, Address, Date

Performance Security

Bank's Name, and Address of Issuing Branch or Office

(On Letter head of the Commercial bank or any Financial Institution eligible to issue Bank Guarantee as per prevailing Law)

..... *Bank's Name, and Address of Issuing Branch or Office*Beneficiary:
..... Name and Address of Employer
Date:

Performance Guarantee No.:.....

We have been informed that *[insert name of the Contractor]* (hereinafter called "the Contractor") has been notified by you to sign the Contract No. *[insert reference number of the Contract]* for the execution of *[insert name of contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we..... *[insert name of the Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of*[insert name of the currency and amount in figures*]* (... .. *insert amount in words*) such sum being payable in Nepalese Rupees, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the.....Day of **, and any demand for payment under it must be received by us at this office on or before that date.

.....
Seal of Bank and Signature(s)

Note:
All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.
* The Guarantor shall insert an amount representing the percentage of the Contract Price specified in the Contract in Nepalese Rupees.
** Insert the date thirty days after the date specified for the Defect Liability Period. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee".

Advance Payment Security

Bank's Name, and Address of Issuing Branch or Office

(On Letter head of the Commercial bank or any Financial Institution eligible to issue Bank Guarantee as per prevailing Law)

..... *Bank's Name, and Address of Issuing Branch or Office*.....

Beneficiary:*Name and address of employer*

Date :

Advance Payment Guarantee No.....

We have been informed thathas entered into Contract No. *Name and Address of Employer*.....*name of the Contractor*.....(hereinafter called "the Contractor")..reference number of the Contract.....dated with you, for the execution of ...contract and brief description of Works (hereinafter called "the Contract").

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum..... name of the currency and amount in figures*...(.... *amount in words*) is to be made against an advance payment guarantee.

At the request of the Contractor, we... *name of the Bank* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of.....name of the currency and amount in figures*.....(*amount in words*)upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the day of**, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

.....
Seal of Bank and Signature(s)

Note:

All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.

*The Guarantor shall insert an amount representing the amount of the advance payment in Nepalese Rupees of the advance payment as specified in the Contract.

** Insert the date Thirty days after the expected completion date. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee".