TENDER DOCUMENT

FOR

Construction of 6 Storied Dormitory at Patuakhali 1320 (2×660) MW Coal Fired Thermal Power Plant Project

By

Open Tendering Method (OTM)

Reference NO.: PUR-001 (LW/PATUAKHALI/OTM)/2023-24 Dated 14.08.2023

Package-A, Lot-02

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Section 1.Instructions to Tenderers

A. General

1. Scope of Tender

1.1 The Procuring Entity, as indicated in the Tender Data Sheet (**TDS)** issues this Tender Document for the procurement of Works and physical services incidental thereto as specified in the **TDS** and as detailed in **Section 6: Bill of Quantities**. The name of the Tender and the number and identification of its constituent lot(s) are stated in the **TDS.**

1.2 The successful Tenderer shall be required to execute the Works and physical services as specified in the General Conditions of Contract

2. Interpretation

2.1 Throughout this Tender Document:

(a) the term "in writing" means communication written by hand or machine duly signed and includes properly authenticated messages by facsimile or electronic mail;

(b) if the context so requires, singular means plural and vice versa;

(c) "day" means calendar days unless otherwise specified as working days;

(d) "Person" means and includes an individual, body of individuals, sole proprietorship, partnership, company, association or cooperative society that wishes to participate in Procurement proceedings;

(e) "Tenderer" meansa Person who submits a Tender;

(f) "Tender Document" means the Document provided by a Procuring Entity to a Tenderer as a basis for preparation of the Tender; and

(g) "Tender" depending on the context, means a Tender submitted by a Tenderer for execution of Works and physical services to a Procuring Entity in response to an Invitation for Tender.

3. Source of Funds

3.1 The Procuring Entity has been allocated public funds as indicated in the **TDS** and intends to apply a portion of the funds to eligible payments under the Contract for which this Tender Document is issued.

3.2 For the purpose of this provision, "public funds" means any monetary resources appropriated to the Procuring Entity under Government budget, or loan, grants and credits placed at the disposal of the Procuring Entity through the Government by the development partners or foreign states or organisations.

3.3 Payments by the development partner, if so indicated in the **TDS**, will be made only at the request of the Government and upon approval by the development partner or foreign state or Organisation in accordance with the applicable Loan / Credit / Grant Agreement, and will be subject in all respects to the terms and conditions of that Agreement.

4. Corrupt, Fraudulent, Collusive, Coercive (or Obstructive in case of Development Partner) Practices

4.1 The Government and the Development Partner, if applicablerequires that the Procuring Entity as well as the Tenderers and Contracts (including , sub-contractors, agents, personnel, consultants, and service providers)shall observe the highest standard of ethics during implementation of procurement proceedings and the execution of Contracts under public funds.

4.2 For the purposes of ITT Sub Clause 4.3, the terms set forth below as follows:

(a) "corrupt practice" means offering, giving or promising to give, receiving, or soliciting either directly or indirectly, to any officer or employee of the Procuring Entity or other public or private authority or individual, a gratuity in any form; employment or any other thing or service of value as an inducement with respect to an act or decision or method followed by the Procuring Entity in connection with a Procurement proceeding or Contract execution;

(b) "fraudulent practice" means the misrepresentation or omission of facts in order to influence a decision to be taken in a Procurement proceeding or Contract execution;

(c) "collusive practice" means a scheme or arrangement between two (2) or more Persons, with or without the knowledge of the Procuring Entity, that is designed to arbitrarily reduce the number of Tenders submitted or fix Tender prices at artificial, non-competitive levels, thereby denying the Procuring Entity the benefits of competitive price arising from genuine and open competition;

(d) "coercive practice" means harming or threatening to harm, directly or indirectly, Persons or their property to influence a decision to be taken in the Procurement proceeding or the execution of a Contract, and this will include creating obstructions in the normal submission process used for Tenders.

(e) "Obstructive practice" (applicable in case of Development Partner) means deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and /or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation.

4.3 Should any corrupt, fraudulent, collusive, coercive (or obstructive in case of Development Partner) practice of any kind is determined by the Procuring Entity or the Development Partner, if applicable, this will be dealt in accordance with the provisions of the Public Procurement Act and Rules and Guidelines of the Development Partners as stated in the ITT sub-clause 3.3.In case of obstructive practice, this will be dealt in accordance with Development Partners Guidelines.

4.4 If corrupt, fraudulent, collusive, coercive (or obstructive in case of Development Partner) practices of any kind is determined by the Procuring Entity against any Tenderer or Contracts (including sub-contractors, agents, personnel, consultants, and service providers) in competing for, or in executing, a contract under public fund:

(a) Procuring Entity and/or the Development Partner shall exclude the concerned Tenderer from further participation in the concerned procurement proceedings;

(b) Procuring Entity and/or the Development Partner shall reject any recommendation for award that had been proposed for that concerned Tenderer;

(c) Procuring Entity and/or the Development Partner shall declare, at its discretion, the concerned Tenderer to be ineligible to participate in further Procurement proceedings, either indefinitely or for a specific period of time;

(d) Development Partner shall sanction the concerned Tenderer or individual, at any time, in accordance with prevailing Development Partner' sanctions procedures, including by publicly declaring such Tenderer or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Development Partner-financed contract; and (ii) to be a nominated sub-contractor, consultant, manufacturer or Contractor, or service provider of an otherwise eligible firm being awarded a Development Partner-financed contract; and

(e) Development Partner shall cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Procuring Entity or of a beneficiary of the loan engaged in corrupt, fraudulent, collusive, coercive or obstructive practices during the procurement or the execution of that Development Partner financed contract, without the Procuring Entity having taken timely and appropriate action satisfactory to the Development Partner to remedy the situation.

4.5 Tenderer shall be aware of the provisions on corruption, fraudulence, collusion, coercion (and obstruction, in case of Development Partner) of the Public Procurement Act, 2006, the Public Procurement Rules, 2008 and others as stated in GCC Clause 38.

4.6 In further pursuance of this policy, Tenderers, Contractors and their sub-contractors, agents, personnel, consultants, service providers shall permit the Government and the Development Partner to inspect any accounts and records and other documents relating to the Tender submission and contract performance, and to have them audited by auditors appointed by the Government and/or the Development Partner during the procurement or the execution of that

Development Partner financed contract.

5. Eligible Tenderers

5.1 This Invitation for Tenders is open to all potential Tenderers from all countries, except for any specified in the **TDS.**

5.2 Tenderers shall have the legal capacity to enter into the Contract under the Applicable law.

5.3 Tenderers shall be enrolled in the relevant professional or trade organisations registered in Bangladesh.

5.4 Tenderers may be a physical or juridical individual or body of individuals, or company, association or any combination of them in the form of a Joint Venture(JV) invited to take part in public procurement or seeking to be so invited or submitting a Tender in response to an Invitation for Tenders.

5.5 Tenderers shall have fulfilled its obligations to pay taxes and social security contributions under the provisions of laws and regulations of the country of its origin.

5.6 Tenderers should not be associated, or have been associated in the past, directly or indirectly, with a consultant or any of its affiliates which have been engaged by the Procuring Entity to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the works to be performed under this Invitation for Tenders.

5.7 Tenderers in its own name or its other names or also in the case of its Persons in different names shall not be under a declaration of ineligibility for corrupt, fraudulent, collusive or coercive practices as stated under ITT Sub Clause 4.4 (or obstructive practice, in case of Development Partner) in relation to the Development Partner's Guidelines in projects financed by Development Partner.

5.8 Tenderers are not restrained or barred from participating in Public Procurement on grounds of poor performance in the past under any Contract.

5.9 Tenderers shall not be insolvent, be in receivership, be bankrupt, be in the process of bankruptcy, be not temporarily barred from undertaking business and it shall not be the subject of legal proceedings for any of the foregoing.

5.10 Government-owned enterprise in Bangladesh may also participate in the Tender if it is legally and financially autonomous, it operates under commercial law, and it is not a dependent agency of the Procuring Entity.

5.11 Tenderers shall provide such evidence of their continued eligibility satisfactory to the Procuring Entity, as the Procuring Entity will reasonably request.

5.12 These above requirements for eligibility will extend, as applicable, to each JV partner and Subcontractor proposed by the Tenderers.

5.13 Tenderers shall have the up-to-date valid license(s), issued by the corresponding competent authority, as specified in the **TDS.**

6. Eligible Materials, Equipment and Associated Services

6.1 All materials, equipment and associated services to be supplied under the Contract are from eligible sources, unless their origin is from a country specified in the **TDS.**

6.2 For the purposes of this Clause, "origin" means the place where the Materials and Equipment are mined, grown, cultivated, produced or manufactured or processed, or through manufacturing, processing, or assembling, another commercially recognized new product results that differs substantially in its basic characteristics from its components or the place from which the associated services are supplied.

6.3 The origin of materials and equipment and associated services is distinct from the nationality of the Tenderer.

7. Site Visit

7.1 Tenderers are advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be at Tenderer's own expense.

B. Tender Document

8. Tender Document: General

8.1 The Sections comprising the Tender Document are listed below, and should be read in conjunction with any Addendum issued under ITT Clause 11.

- Section 1 Instructions to Tenderers (ITT)
- Section 2 Tender Data Sheet (**TDS**)
- Section 3 General Conditions of Contract (GCC)
- Section 4 Particular Conditions of Contract (**PCC**)
- Section 5 Tender and Contract Forms
- Section 6 Bill of Quantities (**BOQ**)
- Section 7 General Specifications
- Section 8 Particular Specifications
- Section 9 Drawings

8.2 The Procuring Entity is not responsible for the completeness of the Tender Document and their addenda, if these were not purchased directly from the Procuring Entity, or through its agent as specified in the **TDS.**

8.3 Tenderers are expected to examine all instructions, forms, terms, and specifications in the Tender Document as well as in addendum to Tender, if any.

9. Clarification of Tender Document

9.1 A prospective Tenderer requiring any clarification of the Tender Document shall contact the Procuring Entity in writing at the Procuring Entity's address and within time

as specified in the **TDS.**

9.2 The Procuring Entity is not obliged to answer any clarification request received after that date as stated under ITT Sub Clause 9.1.

9.3 The Procuring Entity shall respond in writing within five (5) working days of receipt of any such request for clarification received under ITT Sub Clause 9.1.

9.4 The Procuring Entity shall forward copies of its response to all those who have purchased the Tender Document, including a description of the enquiry but without identifying its source.

9.5 Should the Procuring Entity deem it necessary to revise the Tender Document as a result of a clarification, it will do so following the procedure under ITT Clause 11.

10. Pre-Tender Meeting

10.1 To clarify issues and to answer questions on any matter arising in the Tender Document, the Procuring Entity may, if stated in the **TDS**, hold a pre-Tender Meeting at the place, date and time as specified in the **TDS**. All potential Tenderers are encouraged and invited to attend the meeting, if it is held.

10.2 Tenderers are requested to submit any questions in writing so as to reach the Procuring Entity not later than one day prior to the date of the meeting.

10.3 Minutes of the pre-Tender meeting, including the text of the questions raised and the responses given, together with any responses prepared after the meeting, will be transmitted within five (5) working days after holding the meeting to all those who purchased the Tender document and to even those who did not attend the meeting. Any revision to the Tender Document listed in ITT Sub Clause 8.1 that may become necessary as a result of the pre-Tender meeting will be made by the Procuring Entity exclusively through the issue of an Addendum pursuant to ITT Sub Clause 11 and not through the minutes of the pre-Tender meeting.

10.4 Non-attendance at the Pre-Tender meeting will not be a cause for disqualification of a Tenderer.

11. Addendum to Tender Document

11.1 At any time prior to the deadline for submission of Tenders, the Procuring Entity, on its own initiative or in response to an inquiry in writing from a Tenderer, having purchased the Tender Document, or as a result of a pre-Tender meeting may revise the Tender Document by issuing an Addendum.

11.2 The Addendum issued under ITT Sub Clause 11.1 shall become an integral part of the Tender Document and shall have a date and an issue number and must be circulated by fax, mail or e-mail, to Tenderers who have purchased the Tender Documents, within five (5) working days of issuance of such Addendum, to enable Tenderers to take appropriate action

11.3 The Procuring Entity shall also ensure posting of the relevant addenda with the reference number and date on their websites including notice boards, where the Procuring Entity had originally posted the IFTs.

11.4 To give a prospective Tenderer reasonable time in which to take an addendum into account in preparing its Tender, the Procuring Entity may, at its discretion, extend the deadline for the submission of Tenders, pursuant to ITT Sub Clause 42.2.

11.5 If an addendum is issued when time remaining is less than **one-third** of the time allowed for the preparation of Tenders, the Procuring Entity at its discretion shall extend the deadline by an appropriate number of days for the submission of Tenders, depending upon the nature of the Procurement requirement and the addendum. In any case, the minimum time for such extension shall not be less than three (3) working days.

C. Qualification Criteria

12. General Criteria

12.1 Tenderers shall possess the necessary professional and technical qualifications and competence, financial resources, equipment and other physical facilities, managerial capability, specific experience, reputation, and the personnel, to perform the contract, which entails setting pass/fail criteria, which if not met by the Tenderers, will result in consideration of its Tender as non-responsive.

12.2 In addition to meeting the eligibility criteria, as stated in ITT Clause 5, Tenderers must satisfy the other criteria stated in ITT Clauses 13 to 18 inclusive

12.3 To qualify for multiple number of contracts/lots in a package made up of this and other individual contracts/lots for which Tenders are invited in the Invitation for Tenders, the Tenderers shall demonstrate having resources sufficient to meet the aggregate of the qualifying criteria for the individual contracts. The requirement of general experience as stated under ITT Sub Clause 14.1(a) and specific experience, unless otherwise of different nature, as stated under ITT Sub Clause 15.1(b) shall not be separately applicable for each individual lot.

13. Litigation History

13.1 Litigation history shall comply with the requirement as stated under ITT Sub Clause15.1(c).

14. Experience Criteria

14.1 Tenderers shall have the following minimum level of construction experience to qualify for the performance of the Works under the Contract:

(a) a minimum number of years of general experience in the construction of works as Prime Contractor or

Subcontractor or Management Contractor as specified in the **TDS**; and

(b) specific experience as a Prime Contractor or Subcontractor or Management Contractor in construction works of a nature, complexity and methods/construction technology similar to the proposed Works, in at least a number of contract(s)and, each with a minimum value over the period, as specified in the **TDS**.

15. Financial Criteria

15.1 Tenderers shall have the following minimum level of financial capacity to qualify for the performance of the Works under the Contract.

(a) the average annual **construction** turnover as specified in the **TDS** during the period specified in the **TDS;**

(b) availability of minimum liquid assets i.e. working capital or credit facilities from any scheduled Bank of Bangladesh, net of other contractual commitments, of the amount as specified in the **TDS**;

(c) satisfactory resolution of all claims under litigation cases and shall not have serious negative impact on the financial capacity of the Tenderers. All pending litigation shall be treated as resolved against the Tenderers; and

(d) The Minimum Tender Capacity as specified in the TDS.

16. Personnel Capacity

16.1 Tenderers shall have the following minimum level of personnel capacity to qualify for the performance of the Works under the Contract consisting of a Construction Project Manager, Engineers, and other key staff with qualifications and experience as specified in the **TDS.**

17. Equipment Capacity

17.1 Tenderers shall own suitable equipment and other physical facilities or have proven access through contractual arrangement to hire or lease such equipment or facilities for the desired period, where necessary or have assured access through lease, hire, or other such method, of the essential equipment, in full working order, as specified in the **TDS.**

18. Joint Venture (JV)

18.1 Tenderers may participate in the procurement proceedings forming a Joint Venture(JV) by an agreement, executed case by case on a non-judicial stamp of value as specified in the **TDS** or alternately with the intent to enter into such an agreement supported by a Letter of Intent along with the proposed agreement duly signed by all legally authorised partners of the intended JV and authenticated by a Notary Public, with the declaration that the partners will execute the JV agreement in the event the Tenderer is successful.

18.2 The figures for each of the partners of a JV shall be added together to determine the Tenderer's compliance with the

minimum qualifying criteria; however, for a JV under ITT Sub Clause 18.1, with number of partners as specified in the **TDS** to qualify, Leading partner and other partners must meet the criteria as specified in the **TDS.** Failure to comply with these requirements will result in non-responsiveness of the JV Tender.

18.3 Each partner of the JV shall be jointly and severally liable for the execution of the Contract, all liabilities and ethical and legal obligations in accordance with the Contract terms.

18.4 JV shall nominate the **Leading Partner** as **REPRESENTATIVE** being entrusted with the Contract administration and management at Site who shall have the authority to conduct all business for and on behalf of any and all the partners of the JV during the Tendering process and, in the event the JV is awarded the Contract, during contract execution including the receipt of payments for and on behalf of the JV.

19. Subcontractor(s)

19.1 Tenderers may intend to subcontract an activity or part of the Works, in which case such elements and the proposed Subcontractor shall be clearly identified.

19.2 The Procuring Entity may require Tenderers to provide more information about their subcontracting arrangements. If any Subcontractor is found ineligible or unsuitable to carry out the subcontracted tasks, the Procuring Entity may request the Tenderers to propose an acceptable substitute.

19.3 A Subcontractor may participate in more than one Tender, but only in that capacity.

19.4 The Procuring Entity may also select in advance Nominated Subcontractor(s) to execute certain specific components of the Works and if so, those will be specified in the **TDS**.

19.5 The successful Tenderer shall under no circumstances assign the Works or any part of it to a Subcontractor.

D. Tender Preparation

20. Only one Tender

20.1 Tenderers shall submit only one (1) Tender for each lot, either individually or as a JV. Tenderer who submits or participates in more than one (1) Tender in one (1) lot of a package or in one (1) package with one (1) lot will cause all the Tenders of that particular Tenderer to be rejected.

21. Cost of Tendering

21.1 Tenderers shall bear all costs associated with the preparation and submission of its Tender, and the Procuring Entity shall not be responsible or liable for those costs, regardless of the conduct or outcome of the Tendering process.

22. Issuance and Sale of Tender Document

22.1 The Procuring Entity shall make Tender Documents available immediately to the potential Tenderers, requesting and willing to purchase at the corresponding price by the date the advertisement has been published in the newspaper.

22.2 There shall not be any pre-conditions whatsoever, for sale of Tender Documents and the sale of such Document shall be permitted up to the day prior to the day of deadline for the submission of Tender.

23. Language of Tender

23.1 Tenders shall be written in the English language. Correspondences and documents relating to the Tender may be written in English or *Bangla*. Supporting documents and printed literature furnished by the Tenderers that are part of the Tender may be in another language, provided they are accompanied by an accurate translation of the relevant passages in the English or *Bangla* language, in which case, for purposes of interpretation of the Tender, such translation shall govern.

23.2 Tenderers shall bear all costs of translation to the governing language and all risks of the accuracy of such translation.

24. Contents of Tender

24.1 The Tender prepared by the Tenderers will comprise the following:

(a) the Tender Submission Letter(**Form PW3-1**), as stated under ITT Sub Clause 25.1;

(b) the Tenderer Information as stated under ITT Clauses 5,29 and 32 (**Form PW3-2**);

(c) the priced BOQ for each lot in accordance with ITT Clauses 25,27and 28;

(d) the Tender Security as stated under ITT Clauses 35, 36 and 37.

(e) the alternatives, if permissible, as stated under ITT Clause 26;

(f) the written confirmation authorizing the signatory of the Tender to commit the Tenderer, as stated under ITT Sub Clause 40.3;

(g) the Valid Trade license ;

(h) documentary evidence of Tax Identification Number (TIN) and Value Added Tax (VAT) as a proof of taxation obligations as stated under ITT Sub Clause 5.5;

(i) the Technical Proposal describing work plan & method, personnel, equipment and schedules as stated under ITT Clause 31;

(j) documentary evidence as stated under ITT Clause 29 and 32 establishing the Tenderer's eligibility and the minimum qualifications of the Tenderers required to be met for due performance of the Works and physical services under the Contract;

(k) document establishing legal and financial autonomy and compliance with commercial law, as stated under ITT Sub Clause5.10 in case of government owned entity;

(l) tenderer's past performance information in (**Form PW3-5a**) & documentary evidence for past performance evaluation and rating matrix as stated under ITT Sub Clause 50.2;

(m) tenderer's capacity information in (**Form PW3-5B**) & documentary evidence for tenderers capacity; and

(n) any other document as specified in the **TDS.**

25. Tender Submission Letter and Bill of Quantities

25.1 Tenderers shall submit the Tender Submission Letter (**Form PW3-1**), which shall be completed without any alterations to its format, filling in all blank spaces with the information requested, failing which the Tender may be rejected as being incomplete.

25.2 Tenderers shall submit the priced BOQ using the form(s) furnished in **Section 6: Bill of Quantities.**

25.3 If in preparing its Tender, the Tenderer has made errors in the unit rate or the total price, and wishes to correct such errors prior to submission of its Tender, it may do so, but shall ensure that each correction is initialled by the authorised person of the Tenderer.

26. Alternatives

26.1 Unless otherwise specified in the **TDS**, alternative technical solutions shall not be considered.

26.2 When specified in ITT clause 26.1, Tenderers are permitted to submit alternative technical solutions for specified parts of the Works, and such parts will be identified in the **TDS.**

26.3 Only the technical alternatives, if any, of the lowest evaluated Tenderer conforming to the basic technical requirements will be considered by the Procuring Entity.

27. Tender Prices, Discounts and Price Adjustment

27.1 The prices and discounts quoted by the Tenderers in the Tender Submission Letter (**Form PW3-1**) and in the BOQ shall conform to the requirements specified below.

27.2 Tenderers shall fill in unit rates for all items of the Works both in figures and in words as described in the BOQ, excluding any discount offered.

27.3 The items quantified in the BOQ for which no unit rates have been quoted by the Tenderer will not be paid for, by the Procuring Entity when executed and shall be deemed covered by the amounts of other rates in the BOQ and, it shall not be a reason to change the Tender price.

27.4 The price to be quoted in the Tender Submission Letter, as stated under ITT Sub Clause 25.1, shall be the total price of the Tender, excluding any discounts offered.

27.5 Tenderers shall quote any unconditional discounts in the Tender Submission Letter as stated under ITT Sub Clause 25.1.

27.6 Tenderers wishing to offer any unconditional discount to any package or lot as applicable shall mention discount in percentage (%) in the Tender Submission Letter. Discount shall be equally applicable on all the items of BOQ and shall be applied after arithmetic correction of the tender.

27.7 All applicable taxes, custom duties, VAT and other levies payable by the Contractor under the Contract, or for any other causes, as of the date twenty-eight (28) days prior to the deadline for submission of Tenders, shall be included in the unit rates and the total Tender price submitted by the Tenderers.

27.8 Unless otherwise specified in the **TDS** and provided in the Contract, the price of a Contract shall be fixed in which case the unit rates may not be modified in response to changes in economic or commercial conditions.

27.9 If so stated under ITT Sub Clause 27.9, Tenders are being invited with a provision for price adjustments. The unit rates quoted by the Tenderers are subject to adjustment during the performance of the Contract in accordance with the provisions of General Condition of Contract (GCC) Clause 69 and, in such case the Procuring Entity shall provide the indexes and weightings or coefficients in **Appendix to the Tender (Table 1.1 and Table 1.2)** for the price adjustment formulae as specified in the Particular Conditions of Contract (**PCC**).

28. Tender Currency

28.1 Tenderers shall quote all prices in the Tender Submission Letter and in the BOQ in Bangladesh Taka (BDT) currency.

29. Documents Establishing Eligibility of the Tenderer

29.1 Tenderers, if applying as a sole Tenderer, shall submit documentary evidence to establish its eligibility as stated under ITT Clause 5 and, in particular, it shall:

(a) complete the eligibility declarations in the Tender Submission Letter (**Form PW3-1**);

(b) complete the Tenderer Information (**Form PW3-2**);

(c) complete Subcontractor Information (**Form PW3-4**), if it intends to engage any Subcontractor(s).

29.2 Tenderers, if applying as a partner of an existing or intended JV shall submit documentary evidence to establish its eligibility as stated under ITT Clause 5 and, in particular, in addition to as stated under ITT Sub Clause 29.1, it shall:

(a) provide for each JV partner, completed JV Partner Information (**Form PW3-3**);

(b) provide the JV agreement or Letter of Intent along with the proposed agreement of the intended JV as stated under ITT Sub Clause 18.1

30. Documents Establishing the Eligibility and Conformity of Materials, Equipment and Services

30.1 Tenderers shall submit documentary evidence to establish the origin of all Materials, Equipment and services to be supplied under the Contract as stated under ITT Clause 6.

30.2 To establish the conformity of the Materials, Equipment and services to be supplied under the Contract, the Tenderers shall furnish, as part of its Tender, the documentary evidence (which may be in the form of literature, specifications and brochures, drawings or data) that these conform to the technical specifications and standards specified in **Section 7, General Specifications** and **Section 8, Particular Specifications.**

31. Documents Establishing Technical Proposal

31.1 Tenderers shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in **TDS**, in sufficient detail to demonstrate the adequacy of the Tenderer's proposal to meet the work requirements and the completion time.

32. Documents Establishing the Tenderer's Qualification

32.1 Tenderers shall complete and submit the Tenderer Information (**Form PW3-2/PW3-3**) and shall include documentary evidence, as applicable to satisfy the following:

(a) general experience, of the entity(s) participating in the Tender, in construction works as stated under ITT Sub Clause 14.1(a), substantiated by the year of registration/constitution/licensing in its country of origin;

(b) specific experience, of the entity(s) participating in the Tender, in construction works under public sector of similar nature and size as stated under ITT Sub Clause 14.1(b), substantiated by Completion Certificate (s) issued by the relevant Procuring Entity(s);

(c) average annual **construction** turnover i.e. total certified payments received for contracts in progress or completed under public sector for a period as stated under ITT Sub Clause 15.1(a), substantiated by Statement(s) of Receipts, from any scheduled Bank of Bangladesh, issued not earlier than twenty-eight (28) days prior to the day of the original deadline for submission of Tenders;

(d) adequacy of minimum liquid assets i.e. working capital substantiated by Audit Reports mentioned in (i) below or credit line(s) substantiated by any scheduled Bank of Bangladesh in the format as specified (**Form PW3-7**), without alteration, issued not earlier than twenty-eight (28) days prior to the day of the original deadline for submission of Tenders for this Contract as stated under ITT Sub Clause 15.1(b);

(e) information regarding claims under litigation,

current or during the last years as specified in the **TDS**, in which the Tenderer is involved, the parties concerned, and value of claim as stated under ITT Sub Clause 15.1(c), substantiated by statement(s) of the entity(s) participating in the Tender in its letter-head pad;

(f) technical and administrative personnel along with their qualification and experience proposed for the Contract as stated under ITT Clause 16;

(g) major items of construction equipment proposed to carry out the Contract as stated under ITT Clause 17, substantiated by statement(s) of the entity(s) participating in the Tender in its letter-head pad declaring source of its availability;

(h) authority(s), to seek references from the Tenderer's Bankers or any other sources, of the entity(s) participating in the Tender in its letter-head pad;

(i) reports on the financial standing of the Tenderer, such as profit and loss statements and audited balance sheet for the past years as specified in the **TDS**, of the entity(s) participating in the Tender, substantiated by Audit Reports.

33. Validity Period of Tender

33.1 Tenders shall remain valid for the period as specified in the **TDS** after the date of Tender submission deadline. A Tender valid for a period shorter than that specified will be considered, non- responsive.

34. Extension of Tender Validity and Tender Security

34.1 In exceptional circumstances, prior to the expiration of the Tender Validity period, the Procuring Entity may solicit all the Tenderers' consent to an extension of the period of validity of their Tenders; provided that those Tenderers have passed the preliminary examination as stated under ITT Sub Clause 51.3.

34.2 The request for extension of Tender Validity period shall state the new date of the validity of the Tender.

34.2 The request and the responses shall be made in writing. Validity of the Tender Security provided under ITT Clause 35 shall also be suitably extended for twenty-eight (28) days beyond the new date for the expiry of the Tender Validity. If a Tenderer does not respond or refuses the request it shall not forfeit its Tender Security, but its Tender shall no longer be considered in the evaluation proceedings. A Tenderer agreeing to the request will not be required or permitted to modify its Tender.

35. Tender Security

35.1 Tenderers shall furnish as part of its Tender, in favour of the Procuring Entity or as otherwise directed on account of the Tenderer, a Tender Security in original form (not copy) and in the amount, as specified in the **TDS**.

35.2 If the Tender is a Joint Venture, the Tenderer shall furnish as part of its Tender, in favour of the Procuring Entity or as otherwise directed on account of the title of the existing or

intended JV or any of the partners of that JV or in the names of all future partners as named in the Letter of Intent of the JV, a Tender Security in original form and in the amount as stated under ITT Sub Clause 35.1.

35.3 In case of substitution of the Tender as stated under ITT Clause 46 a new Tender Security shall be required in the substituted Tender.

36. Form of Tender Security

36.1 The Tender Security shall:

(a) at the Tenderer's option, be either;

i. in the form of a Bank Draft or Pay Order, or

ii. in the form of an irrevocable unconditional Bank Guarantee issued by any scheduled Bank of Bangladesh, in the format (**Form PW3-6**),without any alteration, furnished in **Section 5: Tender and Contract Forms**;

(b) be payable promptly upon written demand by the Procuring Entity in the case of the conditions as stated under ITT Sub Clause 39.1 being invoked; and

(c) remain valid for at least twenty-eight (28) days beyond the expiry date of the Tender Validity in order to make a claim in due course against a Tenderer in the circumstances as stated under ITT Sub Clause 39.1.

37. Authenticity of Tender Security

37.1 The authenticity of the Tender Security submitted by a Tenderer may be examined and verified by the Procuring Entity at its discretion in writing from the Bank issuing the security.

37.2 If a Tender Security is found to be not authentic, the Procuring Entity may proceed to take measures against that Tenderer as stated under ITT Sub Clause 4.4.

37.3 A Tender not accompanied by a valid Tender Security will be considered non-responsive.

38. Return of Tender Security

38.1 No Tender Security shall be returned to the Tenderers before contract signing.

38.2 Unsuccessful Tenderer's Tender Security will be discharged or returned as soon as possible but within twenty-eight (28) days after the expiry of the Tender Validity period as stated under ITT Sub Clauses 33.1.

38.3 The Tender Security of the successful Tenderer will be discharged upon the Tenderer's furnishing of the performance security and signing of the Contract Agreement.

39. Forfeiture of Tender Security

39.1 The Tender Security may be forfeited, if a Tenderer:

(a) withdraws its Tender after opening of Tenders but within the validity of the Tender as stated under ITT Clause 33 and 34; or

(b) refuses to accept a Notification of Award as stated

under ITT Sub Clause 64.3; or

(c) fails to furnish Performance Security as stated under ITT Sub Clause 65.1 and 65.2; or

(d) refuses to sign the Contract as stated under ITT Sub Clause 70.2; or

(e) does not accept the correction of the Tender price following the correction of the arithmetic errors as stated under ITT Clause 55.

40. Format and Signing of Tender

40.1 Tenderers shall prepare one (1) original of the documents comprising the Tender as described in ITT Clause 24 and clearly mark it "ORIGINAL" In addition, the Tenderers shall prepare the number of copies of the Tender, as specified in the **TDS** and clearly mark each of them "COPY." In the event of any discrepancy between the original and the copies, the ORIGINAL shall prevail.

40.2 Alternatives, if permitted as stated under ITT Clause 26, shall be clearly marked "Alternative".

40.3 The original and each copy of the Tender shall be typed or written in indelible ink and shall be signed by the Person duly authorized to sign on behalf of the Tenderer. This Tender specific authorization shall be attached to the Tender Submission Letter (**Form PW3-1**). The name and position held by each Person(s) signing the authorization must be typed or printed below the signature. All pages of the original and of each copy of the Tender, except for un-amended printed literature, shall be numbered sequentially and signed by the person signing the Tender.

40.4 Any interlineations, erasures, or overwriting will be valid only if they are signed or initialled by the Person(s) signing the Tender.

E. Tender Submission

41. Sealing, Marking and Submission of Tender

41.1 Tenderers shall enclose the original in one (1) envelope and all the copies of the Tender, including the alternatives, if permitted under ITT Clause 26, in another envelope, duly marking the envelopes as "ORIGINAL (O)" "ALTERNATIVE (A)" (if permitted) and "COPY." These sealed envelopes will then be enclosed and sealed in one (1) single outer envelope.

41.2 The inner and outer envelopes shall:

(a) be addressed to the Procuring Entity at the address as stated under ITT Sub Clause 42.1;

(b) bear the name of the Tender and the Tender Number as stated under ITT Sub Clause 1.1;

(c) bear the name and address of the Tenderer;

(d) bear a statement "DO NOT OPEN BEFORE ---------- ----------" the time and date for Tender opening as

stated under ITT Sub Clause 48.1;

(e) bear any additional identification marks as specified in the **TDS.**

41.3 Tenderers are solely and entirely responsible for pre-disclosure of Tender information if the envelope(s) are not properly sealed and marked.

41.4 Tenders shall be delivered by hand or by mail, including courier services at the address(s) as stated under ITT Sub Clause 42.1.

41.5 The Procuring Entity will, on request, provide the Tenderer with acknowledgement of receipt showing the date and time when it's Tender was received.

42. Deadline for Submission of Tender

42.1 Tenders shall be delivered to the Procuring Entity at the address specified in the **TDS** and not later than the date and time specified in the **TDS.**

42.2 The Procuring Entity may, at its discretion, extend the deadline for submission of Tender as stated under ITT Sub Clause 42.1, in which case all rights and obligations of the Procuring Entity and Tenderers previously subject to the deadline will thereafter be subject to the new deadline as extended.

42.3 If submission of Tenders is allowed in more than one location, the date and time, for submission of Tenders for both the primary and the secondary place(s), shall be the "**same and not different**" as specified in the **TDS.**

42.4 The Procuring Entity shall ensure that the Tenders received at the secondary place(s) are hand-delivered at the primary place as stated under ITT Sub Clause 42.1, within THREE (3) HOURS after the deadline for submission of Tenders at the secondary place (s), in case of MULTIPLE DROPPING as stated under ITT Sub Clause 42.3, as specified in the **TDS**.

43. Late Tender

43.1 Any Tender received by the Procuring Entity after the deadline for submission of Tenders as stated under ITT Sub Clause 42.1shall be declared LATE and returned unopened to the Tenderer.

44. Modification, Substitution or Withdrawal of Tender

44.1 Tenderers may modify, substitute or withdraw its Tender after it has been submitted by sending a written notice duly signed by the authorized signatory and properly sealed, and shall include a copy of the authorization ; provided that such written notice including the affidavit is received by the Procuring Entity prior to the deadline for submission of Tenders as stated under ITT Clause 42.

45. Tender Modification

45.1 Tenderers shall not be allowed to retrieve its original Tender, but shall be allowed to submit corresponding modification to its original Tender marked as "**MODIFICATION (M)".**

46. Tender Substitution

46.1 Tenderers shall not be allowed to retrieve its original Tender, but shall be allowed to submit another Tender

marked as **"SUBSTITUTION (S)".**

47. Tender Withdrawal

47.1 Tenderers shall be allowed to withdraw its Tender by a Letter of Withdrawal marked as **"WITHDRAWAL(W)".**

F. Tender Opening and Evaluation

48. Tender Opening

48.1 Tenders shall be opened immediately after the deadline for submission of Tenders at the primary place as specified in the **TDS** but not later than **ONE HOUR** after expiry of the submission deadline at the same primary place unless otherwise stated under ITT Sub Clause 48.2.

48.2 If submission of Tenders is allowed in more than one location as stated under ITT Sub Clause 42.3 and 42.4, Tenders shall be opened, immediately after receipt of Tenders from all the secondary place(s), at the primary place at the date and time as stated under ITT Sub Clause 48.1.

48.3 Persons not associated with the Tender may not be allowed to attend the public opening of Tenders.

48.4 Tenderers' representatives shall be duly authorised by the Tenderer. Tenderers or their authorised representatives will be allowed to attend and witness the opening of Tenders, and will sign a register evidencing their attendance.

48.5 The authenticity of withdrawal or substitution of, or modifications to original Tender, if any made by a Tenderer in specified manner, shall be examined and verified by the Tender Opening Committee (TOC) based on documents submitted as stated under ITT Sub Clause 44.1.

48.6 Ensuring that only the correct (M), (S), (A), (O) envelopes are opened, details of each Tender will be dealt with as follows:

(a) the Chairperson of the TOC will read aloud each Tender and record in the Tender Opening Sheet (TOS):

(i) the name and address of the Tenderer;

(ii) state if it is a withdrawn, modified, substituted or original Tender;

(iii) the Tender price;

(iv) the official cost estimate;

(v) any discounts;

(vi) any alternatives;

(vii) the presence or absence of any requisite

Tender Security; and

(viii) such other details as the Procuring Entity, at its discretion, may consider appropriate

(b) only discounts and alternatives read aloud at the Tender opening will be considered in evaluation.

(c) all pages of the original version of the Tender, except for un-amended printed literature, will be initialled by members of the TOC.

48.7 Upon completion of Tender opening, all members of the TOC and the Tenderers or Tenderer's duly authorised representatives attending the Tender opening shall sign by name, address, designation, the TOS, copies of which shall be issued to the Head of the Procuring Entity or an officer authorised by him or her and also to the members of the TOC and any authorised Consultants and, to the Tenderers immediately.

48.8 The omission of a Tenderer's signature on the record shall not invalidate the contents and effect of the record under ITT Sub Clause 48.6.

48.9 No Tender will be rejected at the Tender opening stage except the LATE Tenders as stated in the ITT Clause 43.

49. Evaluation of Tenders

49.1 Tenders shall be examined and evaluated only on the basis of the criteria specified in the Tender Document.

49.2 **Tender Evaluation Committee** (**TEC**) shall examine, evaluate and compare Tenders that are responsive to the requirements of Tender Documents in order to identify the successful Tenderer.

49.3 Tenderers having quoted the tender price more than 10 (Ten) percent above or below the official cost estimate, the tender will be rejected.

50. Evaluation Process

50.1 TEC may consider a Tender as responsive in the Evaluation, only if it is submitted in compliance with the mandatory requirements set out in the Tender Document. The evaluation process should begin immediately after Tender opening following four steps:

(a) Preliminary examination

(b) Technical examination and responsiveness

(c) Financial evaluation and price comparison

(d) Post-qualification of the Tender.

50.2 In case of tie for the evaluated price, the tenderer shall be selected based on the "Past Performance Evaluation and rating matrix for different aspects" to be used in assessing the Tenderer's quality as stated below:

Past Performance Evaluation Matrix

Aspect No.	Aspect	Point	Score	Note
1	Total Number of Works Contract successfully completed within only PE's organization during last 5 years	140	Score 1 $= \frac{A}{B} \times 140$ A= Number of Completed Contracts of the Tenderer B= Highest Number of Completed Contracts among the Tenderers	Tenderers shall submit a list of Successfully Completed Contracts (in Form-PW3-5.1) during the last 5 years under the Procuring Entity's organization inviting tender, supported by Completion Certificates. A Contract not supported by Completion Certificate shall not be taken into evaluation. TEC shall determine the Total Number and Total Value of Contracts from the List as provided by the Tenderers for which the Contract Value of each Contract is up to +75% of the Official Cost Estimate of the proposed Work.
2	Total Value of Works Contract successfully completed within only PE's organization during last 5 years	100	Score 2 $= \frac{C}{D} \times 100$ C= Value of Completed Contracts of the Tenderer D= Highest Value of Completed Contracts among the Tenderers	
3	Total Value of On-going works and Current Commitment under all PEs Organization as shown in Tender Capacity Formula	60	Score 3 $= \frac{E}{F} \times 60$ E= Value of On-Going Works and Current Commitments of the Tenderer F= Highest Value of On-Going Works and Current Commitments among the Tenderers	Tenderers shall submit a list of On-going Contracts and Current Commitments (in Form-PW3-5.1) under any government organization supported by Contract Agreement / Notice to Proceed A Contract not supported by Contract Agreement / Notice to Proceed shall not be taken into consideration.
	Total Point	300	Total Score =Score 1+Score 2+Score 3	

50.3 In case of the Tenderer is a JV, the business share of the JV Partners of this Tender shall be applied in determining the JV Total Contract Numbers and Values.

50.4 If the total score of all the Tenderers become 0.00 (zero), the Tender shall be rejected for Re-Tendering.

50.5 In very rare case of highest equal Total Scores, Winner shall be selected according to Score 1, if Score 1 is same then Winner shall be selected according to Score 2. Otherwise Tender shall be rejected for Re-Tendering.

51. Preliminary Examination

51.2 TEC shall examine the Tenders to confirm that all documentation as stated under ITT Clause 24 has been provided, to determine the completeness of each document submitted.

51.3 TEC shall confirm that the following documents and information have been provided in the Tender. If any of these documents or information is missing, the Tender shall be considered rejected.

(a) Tender Submission Letter;

(b) Priced Bill of Quantities;

(c) Written confirmation authorizing the signatory of the Tender to commit the Tenderer; and

(d) Valid Tender Security.

52. Technical Responsiveness and Technical Evaluation

52.1 TEC's determination of a Tender's responsiveness is to be based on the contents of the Tender itself without recourse to extrinsic evidence.

52.2 A responsive Tender is one that conforms in all respects to the requirements of the Tender Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:

(a) affects in any substantial way the scope, quality, or performance of the Works and physical services specified in the Contract; or

(b) limits in any substantial way, or is inconsistent with the Tender Documents, the Procuring Entity's rights or the Tenderer's obligations under the Contract; or

(c) if rectified would unfairly affect the competitive position of other Tenderers presenting responsive Tenders.

During the evaluation of Tenders, the following definitions shall apply:

"Deviation" is a departure from the requirements specified in the Tender Document;

"Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Tender Document; and

"Omission" is the failure to submit part or all of the information or documentation required in the Tender Document.

52.3 If a Tender is not responsive to the mandatory requirements set out in the Tender Document, shall not subsequently be made responsive by the Tenderer by correction of the material deviation, reservation, or omission.

52.4 There shall be no requirement as to the minimum number of responsive Tenders.

52.5 There shall be no automatic exclusion of Tenders which are above or below the official estimate except ITT sub-Clause 49.3.

52.6 TEC shall evaluate the aspects of the Tender submitted as stated under ITT Clauses 29, 30,31 and 32 and, to

confirm that all requirements specified in Section 7: General Specifications and Section 8: Particular Specifications of the Tender Document have been met without any material deviation, reservation or omission.

52.7 Provided that a Tender is responsive, TEC may request that the Tenderer submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Tender related to documentation requirements. Such omission shall not be related to any aspect of the rates of the Tender reflected in the Priced BOQ or any mandatory criteria. Failure of the Tenderer to comply with the request may result in the consideration of its Tender as non-responsive.

52.8 TEC may regard a Tender as responsive even if it contains;

(a) minor or insignificant deviations which do not meaningfully alter or depart from the technical specifications, characteristics and commercial terms and, conditions or other mandatory requirements set out in the Tender Document; or

(b) errors or oversights, that if corrected, would not alter the key aspects of the Tender.

53. Clarification on Tender

53.1 TEC may ask Tenderers for clarification of their Tenders, including breakdowns of unit rates, in order to facilitate the examination and evaluation of Tenders. The request for clarification by the TEC and the response from the Tenderer shall be in writing, and Tender clarifications which may lead to a change in the substance of the Tender or in any of the key elements of the Tender as stated under ITT Sub Clause 52.2, will neither be sought nor be permitted.

53.2 Changes in the Tender price shall also not be sought or permitted, except to confirm the correction of arithmetical errors discovered by the TEC in the evaluation of the Tenders, as stated under ITT Sub Clause 55.1.

53.3 Any request for clarifications by the TEC shall not be directed towards making an apparently non-responsive Tender responsive and reciprocally the response from the concerned Tenderer shall not be articulated towards any addition, alteration or modification to its Tender.

53.4 If a Tenderer does not provide clarifications of its Tender by the date and time, its Tender shall not be considered in the evaluation

54. Restrictions on Disclosure of Information

54.1 Following the opening of Tenders until issuance of Notification of Award no Tenderer shall, unless requested to provide clarification to its Tender or unless necessary for submission of a complaint, communicate with the concerned Procuring Entity

54.2 Tenderers shall not seek to influence in anyway, the

examination and evaluation of the Tenders

54.3 Any effort by a Tenderer to influence the Procuring Entity in its decision concerning the evaluation of Tenders, Contract awards may result in the non-responsiveness of its Tender as well as further action in accordance with Section 64 (5) of the Public Procurement Act, 2006.

54.4 All clarification requests shall remind Tenderers of the need for confidentiality and that any breach of confidentiality on the part of the Tenderer may result in their Tender being non-responsive.

55. Correction of Arithmetical Errors

55.1 Provided that the Tender is responsive, the TEC shall correct arithmetical errors on the following basis:

(a) if there is a discrepancy between the unit price and the line item total price that is obtained by multiplying the unit price and quantity, the unit price will prevail and the line item total price shall be corrected, unless in the opinion of the TEC there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted will govern and the unit price will be corrected; and

(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

(c) 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) and (b) above.

55.2 TEC shall correct the arithmetic errors and shall promptly notify the concerned Tenderer(s).If the Tenderer does not accept the correction of arithmetic errors, its Tender shall be rejected.

56. Financial Evaluation

56.1 TEC will evaluate each Tender that has been determined, up to this stage of the evaluation, to be responsive to the requirements set out in the Tender Document.

56.2 To evaluate a Tender, the TEC will consider the following:

(a) the Tender price, excluding Provisional Sums and the provision, if any, for contingencies in the priced BOQ, but including Daywork items ;

(b) adjustments for correction of arithmetical errors, as stated under ITT Sub Clause 55.1;

(c) adjustments in order to take into consideration the unconditional discounts as stated under ITT Sub Clause 27.5 and 27.6, if any..

56.3 Variations, deviations, alternatives and other factors which are in excess of the requirements of the Tender Document or otherwise result in unsolicited benefits for the Procuring

Entity will not be taken into account in Tender evaluation.

56.4 The estimated effect of any price adjustment provisions under GCC Clause 71, applied over the period of execution of the Contract, will not be taken into account in Tender evaluation.

56.5 If so indicated in the ITT Sub Clause 1.1 the Procuring Entity may award one or multiple lots to one Tenderer following the methodology specified in ITT Sub Clause 56.6.

56.6 To determine the lowest-evaluated lot/package the TEC will take into account:

(a) the lowest-evaluated Tender for each lot;

(b) the resources sufficient to meet the qualifying criteria for the individual lot or aggregate of the qualifying criteria for the multiple lots;

(c) the price reduction on account of discount per lot/package as offered by the Tenderer in its Tender; and

(d) the Contract-award sequence that provides the optimum economic combination on the basis of least overall cost of the total Contract package taking into account any limitations due to constraints in Works or execution capacity determined in accordance with the tender capacity as stated in ITT Sub Clause 15.1 (d) and post-qualification criteria as stated under ITT Clause 59.

56.7 TEC may recommend to increase the amount of the Performance Security above the amounts as stated under ITT Sub Clause 65.1 but not exceeding twenty-five (25) percent of the Contract Price, if in the opinion of TEC, it is found that the Tender is significantly below the updated official estimated cost or unbalanced as a result of front loading.

57. Price Comparison

57.1 TEC shall compare all responsive Tenders to determine the lowest-evaluated Tender, as stated under ITT Clause 56.

57.2 In the extremely unlikely event that there is a tie for the lowest evaluated price, the Tenderer with the superior past performance as stated in ITT sub-clause 50.2 shall be selected.

57.3 In the event that there is a tie for the lowest price and none of the Tenderers has the record of past performance with the Procuring Entity as stated under ITT Sub Clause 57.2, then the Tenderer shall be selected, subject to firm confirmation through the Post-qualification process, after consideration as to whether the Tenderer has demonstrated in its Tender superior past performance with the other Procuring Entities or a more efficient work programme and work methodology.

57.4 The successful Tenderer as stated under ITT Sub Clause 57.1, 57.2 and 57.3 shall not be selected through lottery

under any circumstances.

58. Negotiations

58.1 No negotiations shall be held during the Tender evaluation or award, with the lowest or any other Tenderer.

58.2 The Procuring Entity through the TEC may, however, negotiate with the lowest evaluated Tenderer with the objective to reduce the Contract Price by reducing the scope of works or a reallocation of risks and responsibilities, only when it is found that the lowest evaluated Tender is significantly higher than the official estimated cost; the reasons for such higher price being duly investigated.

58.3 If the Procuring Entity decides to negotiate for reducing the scope of the requirements under ITT Sub Clause 58.2, it will be required to guarantee that the lowest Tenderer remains the lowest Tenderer even after the scope of work has been revised and shall further be ensured that the objective of the Procurement will not be seriously affected through this reduction.

58.4 In the event that the Procuring Entity decides because of a high Tender price to reduce the scope of the requirements to meet the available budget, the Tenderer is not obliged to accept the award and shall not be penalised in any way for un-accepting the proposed award.

59. Post-qualification

59.1 The determination on Post-qualification shall be based upon an examination of the documentary evidence of the Tenderer's qualifications submitted by the Tenderer, pursuant to ITT Clause 32, clarifications as stated under ITT Clause 53 and the qualification criteria indicated in ITT Clauses 12 to 17. Factors not included therein shall not be used in the evaluation of the Tenderer's qualification.

59.2 An affirmative determination shall be a prerequisite for award of the Contract to the Tenderer. A negative determination shall result in non-responsiveness of the Tenderer's Tender, in which event the Procuring Entity shall proceed to the next lowest evaluated Tender to make a similar determination of that Tenderer's capabilities to perform the Contract satisfactorily, if awarded.

59.3 TEC may verify information contained in the Tender by visiting the premises of the Tenderer as a part of the post qualification process, if practical and appropriate.

60. Procuring Entity's Right to Accept any or to Reject Any or All Tenders

60.1 The Procuring Entity reserves the right to accept any Tender or to reject any or all the Tenders any time prior to contract award and , to annul the Procurement proceedings with prior approval of the Head of the Procuring Entity, any time prior to the deadline for submission of Tenders following specified procedures, without thereby incurring any liability to Tenderers, or any obligations to inform the Tenderers of the grounds for the Procuring Entity's action.

61. Rejection of All Tenders

61.1 The Procuring Entity may, in the circumstances as stated under ITT Sub Clause61.2 reject all Tenders following recommendations from the TEC only after the approval of such recommendations by the Head of the Procuring Entity.

61.2 All Tenders can be rejected, if -

(a) the price of the lowest evaluated Tender exceeds the official estimated cost, provided the estimate is realistic, subject to ITT Sub Clause 58.2 ; or

(b) there is evidence of lack of effective competition; such as non-participation by a number of potential Tenderers; or

(c) the Tenderers are unable to propose completion of the contract within the stipulated time in its Tender, though the stipulated time is reasonable and realistic; or

(d) all Tenders are non-responsive; or

(e) evidence of professional misconduct, affecting seriously the Procurement process, is established pursuant to Rule 127 of the Public Procurement Rules, 2008

61.3 Notwithstanding anything contained in ITT Sub-Clause 61.2 Tenders may not be rejected if the lowest evaluated price is in conformity with the market price.

62. Informing Reasons for Rejection

62.1 Notice of the rejection will be given promptly within seven (7) working days of decision taken by the Procuring Entity to all Tenderers and, the Procuring Entity will, upon receipt of a written request, communicate to any Tenderer the reason(s) for its rejection but is not required to justify those reason(s).

G. Contract Award

63. Award Criteria

63.1 The Procuring Entity shall award the Contract to the Tenderer whose Tender is responsive to all the requirements of the Tender Document and that has been determined to be the lowest evaluated Tender, provided further that the Tenderer is determined to be Post-qualified in accordance with ITT Clouse 59.

63.2 Tenderer will not be required, as a condition for award, to undertake responsibilities not stipulated in the Tender Documents, to change its price, or otherwise to modify its Tender.

64. Notification of Award

64.1 Prior to the expiry of the Tender Validity period and within one (1) week of receipt of the approval of the award by the Approving Authority, the Procuring Entity shall issue the Notification of Award (NOA) to the successful Tenderer.

64.2 The NOA, attaching the contract as per the sample (**Form PW3-8**) to be signed, shall state :

(a) the acceptance of the Tender by the Procuring Entity;

(b) the price at which the contract is awarded;

(c) the amount of the Performance Security and its format;

(d) the date and time within which the Performance Security shall be furnished; and

(e) the date and time within which the Contract shall be signed.

64.3 The NOA shall be accepted by the successful Tenderer within seven (7) working days from the date of its issuance.

64.4 Until a formal contract is signed, the NOA will constitute a Contract, which shall become binding upon the furnishing of a Performance Security and the signing of the Contract by both parties.

65. Performance Security

65.1 Performance Security shall be provided by the successful Tenderer in BDT currency, of the amount as specified in the **TDS**.

65.2 The Procuring Entity shall increase the amount of the Performance Security on the recommendation of TEC above the amounts as stated under ITT Sub Clause 56.7.

65.3 The proceeds of the Performance Security shall be payable to the Procuring Entity unconditionally upon first written demand as compensation for Contractor's failure to complete its obligations under the Contract.

65.4 In the event a Government owned enterprise as stated under ITT Sub Clause 5.10 is the successful Tenderer, Performance Security, as stated under ITT Sub Clause 65.1, shall not be required and, in lieu, there shall be Retention Money as specified in the **TDS.**

66. Form and Time Limit for Furnishing of Performance Security

66.1 Performance Security, as stated under ITT Clause 65, may be in the form of a Bank Draft, Pay Order or an irrevocable unconditional Bank Guarantee in the format (**Form PW3-10**), without any alteration, issued by any scheduled Bank of Bangladesh acceptable to the Procuring Entity.

66.2 Within fourteen (14) days from the date of acceptance of the NOA but not later than the date specified therein, the successful Tenderer shall furnish the Performance Security for the due performance of the Contract in the amount as stated under ITT Sub Clauses 65.1 or 65.2.

67. Validity of Performance Security

67.1 Performance Security shall be required to be valid until a date twenty-eight (28) days beyond the Intended Completion Date as specified in Tender Document.

68. Authenticity of Performance Security

68.1 The Procuring Entity shall verify the authenticity of the Performance Security submitted by the successful Tenderer by sending a written request to the branch of the Bank issuing the Pay Order, Bank Draft or irrevocable unconditional Bank Guarantee in specified format.

69. Contract Signing

69.1 At the same time as the Procuring Entity issues the NOA, the Procuring Entity will send the draft Contract Agreement and all documents forming the Contract to the successful Tenderer.

69.2 Within twenty–eight (28) days of the issuance of the NOA, the successful Tenderer and the Procuring Entity shall sign the contract. In the event the successful Tenderer is a JV, all partners of that JV must sign.

69.3 Failure of the successful Tenderer to submit the Performance Security, as stated under ITT Sub Clause 65.1, or to sign the Contract, as stated under ITT Sub Clause69.2, shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender Security. In that event the Procuring Entity may award the Contract to the next lowest evaluated responsive Tenderer, who is determined by the TEC to be qualified to perform the Contract satisfactorily.

70. Publication of Notification of Award of Contract

70.1The NOA for Contract shall be notified by the Procuring Entity to the Central Procurement Technical Unit within seven (**7**) days of its issuance for publication in their website, and that notice shall be kept posted for not less than a month.

71. Debriefing of Tenderers

71.1 Debriefing of Tenderers by the Procuring Entity shall outline the relative status and weakness only of his or her Tender requesting to be informed of the grounds for not accepting the Tender submitted by him or her, without disclosing information about any other Tenderer.

71.2 In the case of debriefing, confidentiality of the evaluation process shall be maintained.

72. Adjudicator

72.1 The Procuring Entity proposes the person named in the **TDS** to be appointed as Adjudicator under the Contract, at an hourly fee and for those reimbursable expenses as specified in the **TDS**.

73. Right to Complain

73.1 Tenderer has the right to complain in accordance with the Public Procurement Act 2006 and the Public Procurement Rules, 2008.

Section 2. Tender Data Sheet

Instructions for completing Tender Data Sheet are provided in italics in parenthesis for the relevant ITT clauses	
ITT Clause	**Amendments of, and Supplements to, Clauses in the Instructions to Tenderers**
A. General	
ITT 1.1	The Procuring Entity is **RPCL-NORINCO Intl Power Limited (RNPL).**
	The Name of the Tender is: **Construction of 6 Storied Dormitory at Patuakhali 1320 (2×660) MW Coal Fired Thermal Power Plant Project** Tender Ref: PUR-001 (LW/PATUAKHALI/OTM)/2023-24 Dated 14.08.2023 Package: A, Lot-02
ITT3.1	The source of funds is RNPL Own fund.
ITT3.3	The name of the Development Partner is N/A
ITT5.1	Tenderers from the following countries are not eligible **Only Bangladeshi Contractors are Eligible.**
ITT 5.13	Tenderers shall have the following up to date valid License 1st class licensed contractor of any Govt./Semi-Govt./autonomous body. Updated enlistment documents must be submitted.
ITT6.1	Materials, Equipment and associated services from the following countries are not eligible: Israel
B. Tender Document	
ITT8.2	The following are authorised agents/offices of the Procuring Entity for the purpose of issuing the Tender Document: Name: Project Director, Patuakhali 1320 (2×660) MW Coal Fired Thermal Power Plant Project, RPCL-Norinco Intl Power Limited (RNPL) Address: Atlanta Trade Center (Level-7), House # 01, Road # 1/A, Sector # 04, Uttara, Dhaka-1230, Bangladesh Telephone No.: +88 02 48956157, +88 02 48956158 e-mail address: pd1320rnpl@gmail.com
ITT9.1	For **clarification of Tender Document purposes** only, the Procuring Entity's address is: Attention: Project Director, Patuakhali 1320 (2×660) MW Coal Fired Thermal Power Plant Project, RPCL-Norinco Intl Power Limited (RNPL) Address: Atlanta Trade Center (Level-7), House # 01, Road # 1/A, Sector # 04, Uttara, Dhaka-1230, Bangladesh Telephone No.: +88 02 48956157, +88 02 48956158 e-mail address: pd1320rnpl@gmail.com and contact the Procuring Entity within **31-08-2023 at 12.00 PM Noon** (Local Time)
ITT10.1	A Pre-Tender meeting will be held at Atlanta Trade Center (Level-7), House # 01, Road # 1/A, Sector # 04, Uttara, Dhaka-1230, Bangladesh On 31.08.2023 time 10:00 AM

C. Qualification Criteria

ITT 14.1(a)	The minimum number of years of general experience of the tenderer in the construction works as prime contractor or sub-contractor or management contractor shall be 5 (five) years.
ITT 14.1(b)	The minimum specific experience as a Prime Contractor or Subcontractor or Management Contractor in construction works of at least 1 (one) contract of similar nature in public sector successfully completed within the last 5 (five) years, each with a value of at least Tk. 5.00 Crore ***[for Tenders where the package contains more than one (1) lot, this qualification requirements, only when applicable, shall be mentioned separately for each lot in the package]***
ITT 15.1(a)	The required average annual construction turnover shall be greater than Tk. 15.00 Crore over the last 5 (Five) years. ***[for Tenders where the package contains more than one (1) lot, this qualification requirements shall be mentioned separately for each lot in the package]***
ITT 15.1(b)	The minimum amount of liquid assets or working capital or credit facilities of the Tenderer shall be **Tk 3.00 Crore** **[for Tenders where the package contains more than one (1) lot, this qualification requirements shall be mentioned separately for each lot in the package]**
ITT 15.1(d).	The minimum capacity shall be: Tk **6.00** Crore The following formulae shall be used to calculate the Tender Capacity Assessed Tender Capacity = (A*N*1.5-B) Where A=Maximum value of Works performed in any one year during last five years N= Completion time of the proposed work in years B= Value of Existing commitments and works to be completed during the next N Years For Tenders where the package contains more than one (1) Lot, this qualification requirement shall be mentioned separately for each lot in the package Note 1: In case the value of N is less than 12 (twelve) months the value of N shall be considered as 01 (one) Note 2: In case of JV tender capacity requirement for leading partner shall be minimum 40% and for other partners shall be minimum 25%.
ITT 16.1	A Construction Project Manager, Engineer, and other key staff shall have the following qualifications and experience:

SN	Position and Educational Qualification	Total Works Experience (years)	Similar Works Experience (years)
1	Project Manager- B.Sc in Civil Engineering -1 No.	10	5
2	Site Engineer- Diploma in Civil Engineering-2 No	10	5
3	Site Superviser-H.SC-1 No.	10	5
4	Forman (Civil)-SSC-1 No.	10	5

ITT 17.1

Tenderers shall own or have proven access to hire or lease of the major construction equipment, in full working order as follows:

No	Equipment Type and Characteristics	Minimum Number Required
1	Truck 5-10 Tons	2 Nos.
2	Roller 10 Ton	2 Nos.
3	Trolley (mini truck) 2.5-3 Tons	1 Nos
4	Mixture Machine-7.5 cft	2 Nos.
5	Vibrator machine with nozzle	02 Nos.
6	Standard Shuttering Materials	1500 Sqm
7	Prop (Steel pipe/Bamboo)	3500 Nos
8	Pump with motor	04 Nos.
9	Welding machine	01 set.
10	Wince machine	01 No.
11	Rod cutter machine	01 No.

[for Tenders where the package contains more than one (1) lot, this qualification requirement may be necessary for each lot in the package, subject to the nature of the control required over each package]

ITT 18.1

The value of non-judicial stamp for execution of the Joint Venture Agreement shall be Tk 300 only

ITT 18.2

Maximum number of partners in the JV shall be 3 (Three)

The **minimum qualification** requirements of Leading Partner, other Partner(s) and requirements by summation of a JV shall be as follows :

TDS Clauses References	Requirements by summation	Requirements for Leading Partner	Requirements for other Partner(s)
ITT-14.1(a)	Summation not applicable	Same as stated in **TDS**	Same as for Leading Partner
ITT-14.1(b)	100% (summation of different contracts)	At least one Contract	Minimum requirement not applicable
ITT-15.1(a)	100%	40%	25%
ITT-15.1(b)	100%	40%	25%
ITT-16.1(a)	100%	Minimum requirement not applicable	Minimum requirement not applicable
ITT-17.1	100%	Minimum requirement not applicable	Minimum requirement not applicable

[it is suggested that the Procuring Entity adheres to the above proportion of minimum qualifying requirements to meet the specific procurement needs. ***Percent share of business of the JV partners shall not be taken into account in determining the qualification of a JV]***

ITT 19.4	The Nominated Subcontractor(s) named [insert name(s)] shall execute the following specific components of the proposed Works: None

D. Tender Preparation

ITT 24.1 (m)	The Tenderer shall submit with its Tender the following additional attested (Not below the rank of executive engineer) documents: (i) Current dated bank solvency certificate (max15 days prior to the tender closing date) stating balance. (ii) Signed CV with Photo, Educational & experience certificate for key personal. (iii) Owner ship/Leased document of listed Transport, tools and equipment.
ITT 26.1	Alternatives will not be permitted.
ITT 26.2	Alternative technical solutions for any parts of works will not be permitted.
ITT 27.9	The prices quoted by the Tenderers shall be fixed for the duration of the Contract.
ITT 31.1	The required Technical Proposal shall include the following additional information: **Safety & security planning**
ITT 32.1(e)	The required information regarding claims under litigation shall be current or during the last **3** (three) years.
ITT 32.1 (i)	The required reports on the financial standing, such as profit and loss statements and audited balance sheet shall be for the past **3** (three) years.
ITT 33.1	The Tender Validity period shall be **90** (Ninety) days.
ITT 35.1	The amount of the Tender Security shall be **Tk. 20** lac in favour of RNPL-NORINCO INTL POWER LIMITED (RNPL) **[for more than one lot in a package, the Tender Security for each lot may be determined on different percentage basis and , should be mentioned separately]**
ITT 40.1	In addition to the original of the Tender **1** (one) original and **2** (two) copies shall be submitted.

E. Tender Submission

ITT 41.2(e)	The inner and outer envelopes shall bear the following additional identification marks : **None.**
ITT 42.1	For **Tender submission purposes** only, the Procuring Entity's address is: Name: Project Director, Patuakhali 1320 (2×660) MW Coal Fired Thermal Power Plant Project, RPCL-Norinco Intl Power Limited (RNPL) Address: Atlanta Trade Center (Level-7), House # 01, Road # 1/A, Sector # 04, Uttara, Dhaka-1230, Bangladesh Telephone No.: +88 02 48956157, +88 02 48956158 Time & Date: **11-09-2023 at 12.00 PM Noon (Local Time)**
ITT 42.3	N/A
ITT 42.4	N/A

F. Tender Opening and Evaluation

ITT 48.1	The Tender opening shall take place at: Address: Atlanta Trade Center (Level-7), House # 01, Road # 1/A, Sector # 04, Uttara, Dhaka-1230, Bangladesh Telephone No.: +88 02 48956157, +88 02 48956158 Time & Date: **11-09-2023 at 12.30 Noon (Local Time)**
G. Contract Award	
ITT 65.1	The amount of Performance Security shall be 10% (Ten percent) percent of the Contract Price.
ITT 65.4	The Retention Money shall be: N/A
ITT 72.1	The Adjudicator proposed by the Procuring Entity is Chief Engineer (Project), BREB, Dhaka. The hourly fee shall be **Tk 50,000** (Fifty Thousand Taka).

Section 3. General Conditions of Contract

A. General

1. Definitions

1.1 In the Conditions of Contract, which include Particular Conditions and these General Conditions, the following words and expressions shall have the meaning hereby assigned to them. Boldface type is used to identify the defined terms:

(a) **Act means** The Public Procurement Act, 2006 (Act 24 of 2006).

(b) **Adjudicator** is the expert appointed jointly by the Procuring Entity and the Contractor to resolve disputes in the first instance, as provided for in GCC Sub Clause 92.2.

(c) **Approving Authority** meansthe authority which, in accordance with the Delegation of Financial Powers, approves the award of contract.

(d) **Bill of Quantities (BOQ)** means the priced and completed Bill of Quantities forming part of the Contract defined in GCC Clause 59.

(e) **Compensation Events** are those defined in GCC Clause 67.

(f) **Competent Authority** means the authority that gives decision on specific issues as per delegation of administrative and/or financial powers.

(g) **Completion Certificate** means the Certificate issued by the Project Manager as evidence that the Contractor has executed the Works and physical services in all respects as per design, drawing, specifications and Conditions of Contract.

(h) **Completion Date** is the actual date of completion of the Works and physical services certified by the Project Manager, in accordance with GCC Clause 78.

(i) **Contract Agreement** means the Agreement entered into between the Procuring Entity and the Contractor, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein to execute, complete, and maintain the Works.

(j) **Contract Documents** means the documents listed in GCC Clause 6, including any amendments thereto.

(k) **Contractor** means the Person under contract with the Procuring Entity for the execution of Works under the Rules and the Act as stated in the **PCC**.

(l) **Contract Price** means the price payable to the Contractor as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions therefrom, for the execution, completion and maintenance of the Works in accordance with the provisions of the Contract.

(m) **Contractor's Tender** is the completed Tender Document including the priced BOQ and the Schedules submitted by the

Contractor to the Procuring Entity.

(n) **Cost** means all expenditures reasonably incurred or to be incurred by the Contractor, whether on or off the Site, including overhead, taxes, duties, fees and such other similar levies including corresponding incidental charges and premiums for banking and insurances, as applicable.

(o) **Day** means calendar day unless otherwise specified as working days.

(p) **Dayworks** means work carried out following the instructions of the Procuring Entity or the authorised Project Manager and is paid for on the basis of time spent by the Contractor's workers and equipment at the rates specified in the Schedules, in addition to payments for associated Materials and Plant.

(q) **Defect** is any part of the Works not completed in accordance with the Contract.

(r) **Defects Correction Certificate** is the certificate issued by the Project Manager upon correction of defects by the Contractor.

(s) **Drawings** include calculations and other information provided in Section 9 or as approved by the Project Manager for the execution and completion of the Contract.

(t) **Equipment** is the Contractor's apparatus, machinery, vehicles and other things required for the execution and completion of the Works and remedying any defects excluding Temporary Works and the Procuring Entity's Equipment (if any), Plant, Materials and any other things to form or forming part of the Permanent Works.

(u) **Force Majeure** means an event or situation beyond the control of the Contractor that is not foreseeable, is unavoidable, and its origins not due to negligence or lack of care on the part of the Contractor; such events may include, but not be limited to, acts of the Government in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes or more as included in GCC Clause 83;

(v) **GCC** means the General Conditions of Contract.

(w) **Government** means the Government of the People's Republic of Bangladesh.

(x) **Goods** mean the Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.

(y) **"Head of the Procuring Entity"** means the Secretary of a Ministry or a Division, the Head of a Government Department or Directorate; or the Chief Executive, or as applicable, Divisional Commissioner, Deputy Commissioner, Zilla Judge; or by whatever designation called, of a local Government agency, an autonomous or semi-autonomous body or a corporation, or a corporate body established under the Companies Act;

(z) **Intended Completion Date** is the date calculated from the Commencement Date as specified in the **PCC**, on which it is intended that the Contractor shall complete the Works and physical services as specified in the Contract and may be revised only by the Project Manager by issuing an extension

of time or an acceleration order.

(aa) **Materials** means things of all kinds other than Plant intended to form or forming part of the Permanent Works, including the supply-only materials, if any, to be supplied by the Contractor under the Contract.

(bb) **Month** means calendar month.

(cc) **Original Contract Price** is the Contract Price stated in the Procuring Entity's Notification of Award (**Form PW3-7**) and further clearly determined in the **PCC**.

(dd) **Permanent works** means the permanent works to be executed by the Contractor under the Contract.

(ee) **PCC** means the Particular Conditions of Contract.

(ff) **Plant** means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works, including vehicles purchased for the Procuring Entity and relating to the construction of the Works and physical services.

(gg) **Procuring Entity** means a Procuring Entity having administrative and financial powers to undertake procurement of Works and physical services using public funds and is as named in the **PCC** who employs the Contractor to carry out the Works.

(hh) **Project Manager** is the person named in the **PCC** or any other competent person appointed by the Procuring Entity and notified to the Contractor who is responsible for supervising the execution and completion of the Works and physical services and administering the Contract.

(ii) **Provisional Sums means** amounts of money specified by the Procuring Entity in the BOQ which shall be used, at its discretion for meeting other essential expenditures under the Contract pursuant to GCC Sub Clause 75.

(jj) **Retention Money** means the accumulated retention moneys which the Procuring Entity retains under GCC Clause 70.

(kk) **Schedules** means the document(s) entitled schedules, completed by the Contractor and submitted with the Tender Submission Letter, as included in the Contract. Such document may include the data, lists and schedules of rates and/or prices.

(ll) **Site** means the places where the Permanent Works are to be executed including storage and working areas and to which Plant and Materials are to be delivered, and any other places as may be specified in the **PCC** as forming part of the Site.

(mm) **Site Investigation Reports** are those that were included in the Tender Document and are factual and interpretative reports about the surface and subsurface conditions at the Site.

(nn) **Specification** means the Specification of the Works included in the Contract and any modifications or additions to the specifications made or approved by the Project Manager in accordance with the Contract.

(oo) **Start Date** is the date defined in the **PCC** and it is the last date when the Contractor shall commence execution of the

Works under the Contract.

(pp) **Subcontractor** means a person or corporate body, who has a contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site.

(qq) **Temporary Works** means all temporary works of every kind other than Contractor's Equipment required on the Site for the execution and completion of the Permanent Works and remedying of any defects.

(rr) **Variation** means any change to the Works directly procured from the original Contractor to cover increases or decreases in quantities, including the introduction of new work items (non-Tendered items) that are either due to change of plans, design or alignment to suit actual field conditions, within the general scope and physical boundaries of the contract.

(ss) **Works** means all works associated with the construction, reconstruction, site preparation, demolition, repair, maintenance or renovation of railways, roads, highways, or a building, an infrastructure or structure or an installation or any construction work relating to excavation, installation of equipment and materials, decoration, as well as physical services ancillary to works as detailed in the **PCC**, if the value of those services does not exceed that of the Works themselves.

(tt) **Writing** means communication written by hand or machine duly signed and includes properly authenticated messages by facsimile or electronic mail.

2. Interpretation

2.1 In interpreting the GCC, singular also means plural, male also means female or neuter, and the other way around. Headings in the GCC shall not be deemed part thereof or be taken into consideration in the interpretation or construction of the Contract. Words have their normal meaning under the language of the Contract unless specifically defined.

2.2 Entire Agreement

The Contract constitutes the entire agreement between the Procuring Entity and the Contractor and supersedes all communications, negotiations and agreements (whether written or verbal) of parties with respect thereto made prior to the date of Contract Agreement; except those stated under GCC Sub Clause 6.1(j).

2.3 Non waiver

(a) Subject to GCC Sub Clause 2.3(b), no relaxation, forbearance, delay, or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect, or restrict the rights of that party under the Contract, neither shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.

(b) Any waiver of a party's rights, powers, or remedies under the Contract must be in writing, dated, and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being

waived.

2.4 Severability

If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

2.5 Sectional completion

If sectional completion is specified in the **PCC**, references in the GCC to the Works, the Completion Date, and the Intended Completion Date apply to any section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

3. Communications & Notices

3.1 Communications between Parties (notice, request or consent required or permitted to be given or made by one party to the other) pursuant to the Contract shall be in writing to the addresses specified in the **PCC**.

3.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

3.3 A Party may change its address for notice hereunder by giving the other Party notice of such change to the address.

4. Governing Law

4.1 The Contract shall be governed by and interpreted in accordance with the laws of the People's Republic of Bangladesh.

5. Governing Language

5.1 The Contract shall be written in English. All correspondences and documents relating to the Contract may be written in English or *Bangla*. Supporting documents and printed literature that are part of the Contract may be in another language, provided they are accompanied by an accurate translation of the relevant passages in English, in which case, for purposes of interpretation of the Contract, such translation shall govern.

5.2 The Contractor shall bear all costs of translation to the governing language and all risks of the accuracy of such translation.

6. Documents Forming the Contract and Priority of Documents

6.1 The following documents forming the Contract shall be interpreted in the following order of priority:

(a) the signed Contract Agreement (**Form PW3-9**);

(b) the Notification of Award (**PW3-8**);

(c) the completed Tender and the Appendix to the Tender;

(d) the Particular Conditions of Contract;

(e) the General Conditions of Contract;

(f) the Technical Specifications;

(g) the General Specifications;

(h) the Drawings;

(i) the priced BOQ and the Schedules; and

(j) any other document listed in the **PCC** forming part of the Contract.

7. Scope of Works

7.1 The Works to be executed, completed and maintained shall be as specified in the BOQ, the General and Particular Specifications and Drawings.

7.2 Unless otherwise stipulated in the Contract, the Works shall include all such items not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for completion of the Works as if such items were expressly mentioned in the Contract.

8. Assignment

8.1 Neither the Contractor nor the Procuring Entity shall assign, in whole or in part, its obligations under the Contract.

9. Eligibility

9.1 The Contractor and its Subcontractor(s) shall have the nationality of a country other than that specified in the **PCC**.

9.2 All materials, equipment, plant, and supplies used by the Contractor in both permanent and temporary works and services supplied under the Contract shall have their origin in the countries except any specified in the **PCC**.

10. Gratuities / Agency fees

10.1 No fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the Tender or in the Contract, have been given or received in connection with the procurement process or in the Contract execution.

11. Confidential Details

11.1 The Contractor's and the Procuring Entity's personnel shall disclose all such confidential and other information as may be reasonably required in order to verify the Contractor's compliance with the Contract and allow its proper implementation.

11.2 Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.

12. Joint Venture (JV)

12.1 If the Contractor is a JV ,

(a) each partner of the JV shall be jointly and severally liable for all liabilities and ethical or legal obligations to the Procuring Entity for performance of the Contract;

(b) the JV partners shall nominate the **Leading Partner** as **REPRESENTATIVE** being entrusted with the Contract administration and management at Site who shall have the authority to conduct all business including the receipt of payments for and on behalf of all partners of the JV;

(c) If there is a dispute that results in legal action being taken in court then action will be taken against all partners of the JV, if they are available and, if only one partner is available, then that partner alone shall answer on behalf of all partners and, if the complaint lodged is proven, the penalty shall be applicable on that partner alone as whatever penalty all the partners

would have received; provided that if the other partners of the JV subsequently become available before the legal action has been completed, the Procuring Entity shall have the right to take action against those other partners of that JV as well.

(d) the composition or constitution and legal status of the JV shall not be altered without the prior approval of the Procuring Entity;

(e) alteration of partners, **except the Leading partner**, shall only be allowed if any of them is found to be incompetent or has any serious difficulties which may impact the overall implementation of the Works, whereby the incoming partner shall require to posses qualifications higher than that of the outgoing partner;

(f) "if any of the partners of JV has been debarred from participating in any procurement activity due to corrupt, fraudulent, collusive or coercive practices and while in case, the Leading partner is found incompetent or has been debarred due to the same reasons stated herein the Contract shall be terminated pursuant to GCC Sub Clause 87.1(b)."

13. Possession of the Site

13.1 The Procuring Entity shall give possession of the Site or part(s) of the Site, to the Contractor on the date(s) stated in the **PCC**. If possession of a part of the Site is not given by the date stated in the **PCC**, the Procuring Entity will be deemed to have delayed the start of the relevant activities, and this will be a Compensation Event as stated under GCC Sub Clause 67.1(a).

14. Access to the Site

14.1 The Contractor shall allow the Project Manager and any person authorised by the Project Manager access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.

15. Procuring Entity's Responsibilities

15.1 The Procuring Entity shall pay the Contractor, in consideration of the satisfactory progress of execution and completion of the Works and physical services, 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 Agreement.

15.2 The Procuring Entity shall make its best effort to guide and assist the Contractor in obtaining, if required, any permit, licence, and approvals from local public authorities for the purpose of execution of the Works and physical services under the Contract.

16. Approval of the Contractor's Temporary Works

16.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Project Manager, who is to approve them, if they comply with the Specifications and Drawings.

16.2 The Contractor shall be responsible for design of Temporary Works.

16.3 The Project Manager's approval shall not alter the Contractor's responsibility for design of the Temporary Works.

16.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.

17. Contractor's Responsibilities

17.1 The Contractor shall execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract Agreement.

18. Taxes and Duties

18.1 The Contractor shall be entirely responsible for all applicable taxes, custom duties, VAT, and other levies imposed or incurred inside and outside Bangladesh.

19. Contractor's Personnel

19.1 The Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred to in the **PCC**, to carry out the functions stated in the Schedule or other personnel approved by the Project Manager.

19.2 The Project Manager will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are equal to or higher than those of the personnel named in the Schedule.

19.3 If the Project Manager asks the Contractor to remove a particular person who is a member of the Contractor's staff or work force from the Site, he or she shall state the reasons, and the Contractor shall ensure that the person leaves the Site within three (3) days and has no further connection with the work in the Contract.

20. Subcontracting

20.1 Subcontracting the whole of the Works by the Contractor shall not be permissible. The Contractor shall be responsible for the acts or defaults of any Subcontractor, his or her agents or employees, as if they were the acts or defaults of the Contractor.

20.2 The prior consent, in writing, of the Project Manager shall however be obtained for other proposed Subcontractor(s).

20.3 Nominated Subcontractor named in the Contract shall be entitled to execute the specific components of the Works stated in the **PCC**.

20.4 Subcontractors shall comply with the provisions of GCC Clause 38.

21. Other Contractors

21.1 The Contractor shall cooperate and share the Site with other Contractors, public authorities, utilities, the Project Manager and the Procuring Entity between the dates given in the Schedule of other Contractors. The Contractor shall also provide facilities and services for them as described in the Schedule. The Procuring Entity may modify the Schedule of other Contractors, and shall notify the Contractor of any such modification.

22. Project Manager's Decisions

22.1 Except where otherwise specifically stated in the **PCC**, the Project Manager will decide Contractual matters between the Procuring Entity and the Contractor in its role as representative of the Procuring Entity.

23. Delegation

23.1 The Project Manager may delegate any of his duties and responsibilities to his representative except to the Adjudicator, after notifying the Contractor, and may cancel any delegation, without retroactivity, after notifying the Contractor.

23.2 Any communications to the Contractor in accordance with such delegation shall have the same effect as if it was given by the Project Manager.

24. Instructions

24.1 The Contractor shall carry out all instructions of the Project Manager that comply with the applicable law.

25. Queries About the Contract Conditions

25.1 The Project Manager, on behalf of the Procuring Entity, will clarify queries on the Conditions of Contract.

26. Safety, Security and Protection of the Environment

26.1 The Contractor shall throughout the execution and completion of the Works and the remedying of any defects therein:

(a) take all reasonable steps to safeguard the health and safety of all workers working on the Site and other persons entitled to be on it, and to keep the Site in an orderly state;

(b) provide and maintain at the Contractor's own cost all lights, guards, fencing, warning signs and watching for the protection of the Works or for the safety on-site; and

(c) take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of the Contractors methods of operation.

27. Working Hours

27.1 The Contractor shall not perform any work on the Site on the weekly holidays, or during the night or outside the normal working hours, or on any religious or public holiday, without the prior written approval of the Project Manager.

28. Welfare of Labourers

28.1 The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's personnel relating to their employment, health, safety, welfare, immigration and shall allow them all their legal rights.

28.2 The Contractor, in particular, shall provide proper accommodation to his or her labourers and arrange proper water supply, conservancy and sanitation arrangements at the site for all necessary hygienic requirements and for the prevention of epidemics in accordance with relevant regulations, rules and orders of the government.

28.3 The Contractor, further in particular, shall pay reasonable wages to his or her labourers, and pay them in time. In the event of delay in payment the Procuring Entity may effect payments to the labourers and recover the cost from the Contractor.

29. Child Labour

29.1 The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development in compliance with the applicable labor laws and other relevant treaties ratified by the government.

30. Discoveries

30.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Procuring Entity. The Contractor shall notify the Project Manager of such discoveries and carry out the Project Manager's instructions for dealing with them.

31. Procuring Entity's and Contractor's Risks

31.1 The Procuring Entity carries the risks that the Contract states are Procuring Entity's risks and the Contractor carries the risks that the Contract states are Contractor's risks.

32. Procuring Entity's Risks

32.1 From the Start Date until the Defects Correction Certificate has been issued, the following are Procuring Entity's risks:

(a) the risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to

i. use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works or

ii. negligence, breach of statutory duty, or interference with any legal right by the Procuring Entity or by any person employed by or Contracted to him except the Contractor.

(b) the risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Procuring Entity or in the Procuring Entity's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.

32.2 From the Completion Date until the Defects Correction Certificate has been issued, the risk of loss of or damage to the Works, Plant, and Materials is Procuring Entity's risk, except loss or damage due to:

(a) a Defect which existed on the Completion Date;

(b) an event occurring before the Completion Date, which was not itself Procuring Entity's risk; or

(c) the activities of the Contractor on the Site after the Completion Date.

33. Contractor's Risks

33.1 From the Start Date until the Defects Correction Certificate has been issued the risks of personal injury, death, and loss of or damage to property including without limitation, the Works, Plant, Materials, and Equipment, which are not Procuring Entity's risks are Contractor's risks.

34. Copyright

34.1 The copyright in all drawings, documents, and other materials containing data and information furnished to the Procuring Entity by the Contractor herein shall remain vested in the Contractor, or, if they are furnished to the Procuring Entity directly or through the Contractor by any third party, including Suppliers of materials, the copyright in such materials shall remain vested in such third party.

34.2 The Contractor shall not, except for the purposes of performing the obligations under the Contract, without the written permission of the Procuring Entity disclose or make use of any specification, plan, design and drawing, pattern, sample or information furnished by or on behalf of the Procuring Entity.

35. Limitation of Liability

35.1 Except in cases of criminal negligence or wilful misconduct:

(a) the Contractor shall not be liable to the Procuring Entity, whether in Contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Contractor to pay liquidated damages to the Procuring Entity; and

(b) the aggregate liability of the Contractor to the Procuring Entity, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective Works, or to any obligation of the Contractor to indemnify the Procuring Entity with respect to patent infringement.

36. Insurance

36.1 The Contractor shall provide, in the joint names of the Procuring Entity and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles specified in the **PCC** for the following events which are due to the Contractor's risks:

(a) loss of or damage to the Works, Plant, and Materials;

(b) loss of or damage to Equipment;

(c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and

(d) personal injury or death.

36.2 The Contractor shall deliver policies and certificates of insurance to the Project Manager, for the Project Manager's approval, before the Start Date. All such insurances shall provide for compensation to be payable in the types and proportions required to rectify the loss or damage incurred.

36.3 If the Contractor does not provide any of the policies and certificates required, the Procuring Entity may effect the insurance which the Contractor should have provided and recover the premiums the Procuring Entity has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

36.4 Alterations to the terms of insurance shall not be made without the approval of the Project Manager.

36.5 Both parties shall comply with conditions of the insurance policies.

37. Management and Progress Meetings

37.1 Either the Project Manager or the Contractor may require the other to attend a management and progress meeting. The business of such meeting shall be to review the progress and plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

37.2 The Project Manager shall record the business of the meetings and provide copies of the record to those attending the meeting and to the Procuring Entity. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management and progress meeting or after the meeting, and stated in writing to all concerned.

38. Corrupt, Fraudulent, Collusive, Coercive(and Obstructive in case of Development Partner) Practices

38.1 The Government and the Development Partner requires that the Procuring Entity as well as the Contractor (including sub-contractors, agents, personnel, consultants and service providers), shall observe the highest standard of ethics during the implementation of procurement proceedings and the execution of contracts under public funds.

38.2 The Contractor (including sub-contractors, agents, personnel, consultants and service providers) shall permit the Government and/or the Development Partner to inspect the Contractor's accounts and records and other documents relating to the submission of Tender and contract performance, and to have them audited by auditors appointed by the Government and/or the Development Partner, if so required.

38.3 For the purposes of GCC Sub Clause 38.4, the terms set forth below as follows:

(a) "corrupt practice" means offering, giving or promising to give, receiving, or soliciting either directly or indirectly, to any officer or employee of a Procuring Entity or other public or private authority or individual, a gratuity in any form; employment or any other thing or service of value as an inducement with respect to an act or decision or method followed by a Procuring Entity in connection with a Procurement proceeding or Contract execution;

(b) "fraudulent practice" means the misrepresentation or omission of facts in order to influence a decision to be taken in a Procurement proceeding or Contract execution;

(c) “collusive practice” means a scheme or arrangement between two (2) or more Persons, with or without the knowledge of the Procuring Entity, that is designed to arbitrarily reduce the number of Tenders submitted or fix Tender prices at artificial, non-competitive levels, thereby denying a Procuring Entity the benefits of competitive price arising from genuine and open competition;

(d) “coercive practice” means harming or threatening to harm, directly or indirectly, Persons or their property to influence a decision to be taken in the Procurement proceeding or the execution of the Contract, and this will include creating obstructions in the normal submission process used for Tenders; or

(e) “Obstructive practice” (applicable in case of Development Partner) means deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and /or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation.

38.4 Should any corrupt, fraudulent, collusive, coercive practice (or obstructive practice in case of Development Partner) of any kind, in competing for or in executing the Contract, is determined by the Procuring Entity, then the Procuring Entity may, upon giving 28 days’ notice to the Contractor, terminate the Contractor’s employment under the Contract and the provisions of Clause 87 shall apply as if such expulsion had been made under sub-clause 87.1 (Termination for Default).

38.5 If corrupt, fraudulent, collusive or coercive (or obstructive in case of Development Partners) practices of any kind determined by the Procuring Entity or the Development Partner against the Contractor alleged to have carried out such practices, the Procuring Entity and/or the Development Partner shall:

(a) exclude the Contractor from further participation in the particular Procurement proceeding; or

(b) declare, at its discretion, the Contractor to be ineligible to participate in further Procurement proceedings, either indefinitely or for a specific period of time; or

(c) PE can debar the Contractor for a period of 1 (one) to 2 (two) years for the procurement of all procuring entities due to fundamental breach of contract.

38.6 The Contractor shall be aware of the provisions on corruption, fraudulence, collusion and coercion in Section 64 of the Public Procurement Act, 2006 and Rule 127 of the Public Procurement Rules, 2008 and in case of Development Partner financed contract, the Procurement Guidelines of the Development Partner.

B. Time Control

39. Commencement of Works

39.1 Except otherwise specified in the **PCC** , the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Project Manager's instruction recording the agreement of both Parties on such fulfilment and instructing to commence the Works is received by the Contractor:

(a) signing of the Contract Agreement by both parties upon approval of the by relevant authorities;

(b) possession of the Site given to the Contractor as required for the commencement of the Works; and

(c) receipt by the Contractor of the Advance Payment under GCC Clause 73 provided that the corresponding Bank Guarantee has been delivered by the Contractor, if any.

39.2 The Contractor shall commence the execution of the Works as soon as is reasonably practicable by the **Start Date** as specified in the GCC Sub Clause **1.1(oo)** after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

40. Completion of Works

40.1 The Contractor shall carry out the Works in accordance with the Programme of Works submitted by the Contractor and as updated with the approval of the Project Manager as stated under GCC Clause 41 to complete them in all respects by the Intended Completion Date, as specified in the **PCC**.

41. Programme of Works

41.1 Within the time stated in the **PCC**, the Contractor shall submit to the Project Manager for approval a Programme of Works showing the general methods, arrangements, order, and timing for all the activities in the Works. The programme may be in the form of an Implementation Schedule prepared in any software or other form acceptable to the Project Manager.

41.2 The Contractor shall submit to the Project Manager for approval of an updated Programme at intervals no longer than the period stated in the **PCC**. An update of the Programme shall be a Programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.

41.3 If the Contractor does not submit an updated Programme of Works at the intervals as stated under GCC Sub Clause 41.2, the Project Manager may withhold an amount as stated in the **PCC** from the next payment certificate and continue to withhold this amount until the next due payment after the date on which the overdue Programme of Works has been submitted.

41.4 The Project Manager's approval of the Programme of Works shall not alter the Contractor's obligations. The Contractor may revise the Programme and submit it to the Project Manager again at any time for approval. A revised Programme shall show the effect of Variations and Compensation Events.

42. Pro Rata

42.1 The Contractor shall maintain Pro Rata progress of the Works.

Progress

Progress to be achieved shall be pursuant to GCC Clause 41 and shall be determined in terms of the value of the works done.

43. Early Warning

43.1 If at any time during performance of the Contract, the Contractor or its Subcontractors should encounter events, circumstances, conditions that may adversely affect the quality of the work, increase the original Contract Price or delay the execution of the Works, the Contractor shall promptly notify the Project Manager in writing of the delay, its likely duration, and its cause. As soon as practicable after receipt of the Contractor's notice, the Project Manager shall evaluate the situation, and the Contractor shall cooperate with the Project Manager in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced.

43.2 The Project Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the original Contract Price and Completion Date. The Contractor shall provide the estimate and the Project Manager shall further proceed as soon as reasonably possible.

44. Extension of Intended Completion Date

44.1 The Contractor shall be entitled to an extension of the Intended Completion Date, if and to the extent that completion of the Works or any part thereof is or will be delayed by Compensation Events or a Variation or Extra Work Order.

44.2 If the Contractor considers itself to be entitled to an extension of the execution period as stated under GCC Sub Clause 44.1, the Contractor shall give notice, not later than twenty-eight (28) days after the Contractor became aware or should have become aware of the event or circumstance, to the Project Manager.

44.3 The Project Manager shall decide whether and by how much to extend the Intended Completion Date within twenty-one (21) days of the Contractor asking the Project Manager for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the extension of Intended Completion Date.

44.4 The Project Manager may extend the Intended Completion Date by twenty (20) percent of the original Contract time as stated under GCC Sub Clause 44.1, if a Compensation Event occurs or Variation Order or extra work Order issued.which does not make it possible to complete the execution of works without incurring additional cost.

44.5 In the case an extension of the Intended Completion Date required under GCC Sub Clause 44.3 is or will be more than twenty (20) percent of the original Contract time, approval of the Head of the Procuring Entity or an officer authorized by him or her for the same shall be required to be obtained.

44.6 Except in case of Force Majeure, as provided under GCC Clause 83, a delay by the Contractor in the execution Works shall render the Contractor liable to the imposition of Liquidated Damages pursuant to GCC Clause 71, unless an extension of the Intended

Completion Date is agreed upon, pursuant to GCC Clause 44.3.

45. Delays Caused by Authorities

45.1 If the following conditions apply, namely:

(a) the Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities,

(b) these public authorities delay or disrupt the Contractor's work, and

(c) the delay or disruption was unforeseeable;

then this delay or disruption will be considered as a cause of delay under GCC Sub Clause 44.1.

45.2 The Project Manager shall notify the Contractor accordingly keeping the Procuring Entity posted.

46. Acceleration

46.1 When the Procuring Entity wants the Contractor to finish the Works before the Intended Completion Date, the Project Manager will obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Procuring Entity accepts these proposals, the Intended Completion Date will be advanced accordingly and confirmed by both the Procuring Entity and the Contractor.

46.2 If the Procuring Entity accepts the Contractor's priced proposals for acceleration, they will be incorporated in the Contract Price and treated as a **Variation** under GCC Clause 61.

47. Delays Ordered by the Project Manager

47.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.

48. Suspension of Work

48.1 The Project Manager may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

49. Consequences of Suspension

49.1 If the Contractor suffers delay and/or incurs Cost from complying with the Project Manager's instructions under GCC Clause 48 and/or from resuming the work, the Contractor shall give notice to the Project Manager and shall be entitled subject to GCC Clause 91 to:

(a) an extension of time for any such delay, if Completion is or will be delayed and

(b) payment of any such cost, which shall be included in the Contract Price.

49.2 After receiving this notice, the Project Manager shall proceed to agree or determine these matters.

49.3 The Contractor shall not be entitled to any extension of time for, or to any payment of the cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with GCC Clause 48.

C. Quality Control

50. Execution of Works

50.1 The Contractor shall construct, install and carry out the Works and physical services in accordance with the Specifications and Drawings as scheduled in GCC Clause6.

51. Examination of Works before covering up

51.1 All works under the Contract shall at all times be open to examination, inspection, measurements, testing and supervision of the Project Manager, and the Contractor shall ensure presence of its representatives at such actions provided proper advance notice is given by the Project Manager.

51.2 No part of the Works shall be covered up or put out of sight without the approval of the Project Manager. The Contractor shall give notice in writing to the Project Manager whenever any such part of the Works is ready for examination and, the Project Manager shall attend to such examination without unreasonable delay.

52. Identifying Defects

52.1 The Project Manager shall check the works executed by the Contractor and notify the Contractor of any Defects found. Such checking shall not relieve the Contractor from his or her obligations. The Project Manager may also instruct the Contractor to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect.

53. Testing

53.1 If the Project Manager instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event pursuant to GCC Sub Clause 67.

54. Rejection of Works

54.1 If, as a result of an examination, inspection, measurement or testing, of Works it is found to be defective or otherwise not in accordance with the Contract, the Project Manager may reject the Works by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected Works subsequently complies with the Contract.

55. Remedial Work

55.1 Notwithstanding any test or certification, the Project Manager may instruct the Contractor to:

(a) remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,

(b) remove and re-execute any other work which is not in accordance with the Contract, and

(c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.

55.2 The Contractor shall comply with the instruction issued under GCC Sub Clause 55.1 within a reasonable time, which shall be specified in the instruction, or immediately if urgency is specified under GCC Sub Clause 55.1(c).

55.3 If the Contractor fails to comply with the instruction issued under GCC Sub Clause 55.2, the Procuring Entity shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall be liable to pay all such costs arising from this failure.

56. Correction of Defects

56.1 The Project Manager shall give notice to the Contractor, with a copy to the Procuring Entity and others concerned, of any Defects before the end of the Defects Liability Period, which begins at Completion Date, and is defined in the **PCC**. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

56.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Project Manager's notice.

57. Uncorrected Defects

57.1 If the Contractor has not corrected a Defect within the time specified in the Project Manager's notice, the Project Manager shall assess the cost of having the Defect corrected by it, and the Contractor shall remain liable to pay the expenditures incurred on account of correction of such Defect.

D. Cost Control

58. Contract Price

58.1 The Contract Price shall be as specified in the Contract Agreement subject to any additions and adjustments thereto, or deductions therefrom, as may be made pursuant to Contract.

59. Bill of Quantities

59.1 The Bill of Quantities (BOQ) shall contain priced items for the construction, installation, testing, and commissioning work to be done by the Contractor.

59.2 The BOQ is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the BOQ for each item.

59.3 Items of works quantified in the BOQ for which no rates have been quoted shall be deemed covered by the amounts at rates of other items in the Contract and, shall under no circumstances be paid for, by the Procuring Entity.

60. Changes in the Quantities and Unit Rate

60.1 If the final quantity of the work done for any particular item in the BOQ increases by more than twenty-five (25) percent and, such increase in quantity of that particular item alone concurrently causes the original Contract Price to exceed by more than one (1) percent, the Project Manager shall adjust the unit rate of the item to allow for the change.

60.2 If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the BOQ.

61. Issue Variation or Extra Work

61.1 The Project Manager may issue a **Variation Order** to the Contractor to cover increase or decrease in quantities, including

Order

the introduction of new work items (non-Tendered items) that are either due to change of plans, design or alignment to suit actual field conditions, within the general scope and physical boundaries of the contract.

61.2 The Project Manager may issue an **Extra Work Order** to cover the introduction of such new works necessary for the completion, improvement or protection of the original works which were not included in the original contract, on the grounds where there are subsurface or latent physical conditions at the site differing materially from those indicated in the contract, or where there are duly unknown physical conditions at the site of an unusual nature differing materially from those usually encountered and generally recognized as inherent in the work or character provided for in the Contract.

61.3 The Project Manager deems it necessary that a Variation or Extra Work Order should be issued, he or she shall prepare the proposed order, the necessary plans , his or her computations as to the quantities of the additional Works involved per item indicating the specific locations where such Works are needed, the date of his or her inspections and investigations thereon, and the log book thereof, and a detailed estimate of the unit cost of such items of work as stated under GCC Clause 62, together with his or her justifications for the need of such Variation or Extra Work Order, and shall submit the same to the Approving Authority. Any Amend to the contract that happens within the approved BOQ items and doesn't change the contract price shall be approved by the HOPE or delegated officer.

61.4 The Head of the Procuring Entity may, in exceptions to the GCC Sub Clause 61.3 and subject to the availability of funds, in the event of extreme emergency and when time is of the essence, authorize the immediate start of work under any Variation or Extra Work Order; provided that the cumulative increase in the value of Works not yet duly approved exceeded ten (10) percent of the adjusted original Contract Price.

61.5 Increase or decrease in the quantities of any item of work included in the BOQ for the reasons other than those stated under GCC Sub Clause 61.1 and61.2, in particular for field level actual measurements under this contract (admeasurements), not necessarily however, shall constitute a **Variation**.

61.6 All Variations and Extra work orders under the Contract shall be included in the updated Programme of Works produced by the Contractor.

62. Costing of Variations or Extra Orders

62.1 The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the quotation, which shall be given within seven (7) working days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.

62.2 If the item of work in the Variation corresponds to an item of work in the BOQ and if, in the opinion of the Project Manager, the increased quantity and cost of the works of that particular item does not concurrently cause to exceed the limit stated in GCC

Sub Clause 60.1, the same unit rate in the BOQ shall be used to calculate the cost of the Variation. If the item of work in the Variation does not correspond to an item in the BOQ, the unit rates for the new items of works shall be determined based on (i) the direct unit costs used in the original Contract for other items (e.g. unit cost of cement, steel bar, labour rate, equipment rental, etc) as indicated in the Contractor's price breakdown of the cost estimate, if available or (ii) fixed prices acceptable to both, the Procuring Entity and the Contractor, based on market prices. The direct cost of the new work items based on (i) or (ii) stated herein shall then be combined with the mark-up factor (i.e. profit, overhead and VAT) used by the Contractor in its Tender to determine the unit rate of the new items of work.

62.3 If the Contractor's quotation is found to be unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager's own forecast of the effects of the Variation on the Contractor's costs.

62.4 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning under GCC Sub Clause 43.1.

62.5 The time for processing of a Variation and an Extra Work Order from its preparation to approval shall not exceed thirty (30) working days.

63. Cash Flow Forecasts

63.1 When the Programme of Works is updated under GCC Sub Clause 41.2, the Contractor shall provide the Project Manager with an updated cash flow forecast.

64. Payment Certificates

64.1 The basis for payment certificates shall be BOQ used to determine the Contract Price.

64.2 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the works executed less the cumulative amount certified previously.

64.3 The Project Manager shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.

64.4 The value of work executed shall be determined by the Project Manager.

64.5 The value of work executed may also include the valuation of Variations or Extra Work Orders, Certified Dayworks and Compensation Events.

64.6 The Project Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

65. Payments to the Contractor

65.1 Payments shall be adjusted for deductions for advance payments and retention. The Procuring Entity shall pay the Contractor the amounts certified by the Project Manager within twenty-eight (28) days of the date of each certificate after due adjustments for deductions for advance payments, retention and any other additions or deductions which may have become due under the Contract or otherwise, including those under GCC Clause 91.

65.2 Payments for Works under Variation Orders or Extra Work Orders satisfactorily accomplished pursuant to GCC Sub Clause 61 may be made only after approval of the same by the Approving Authority or next higher, as appropriate.

65.3 Payments due to the Contractor in each certificate shall be made into the Bank Account, in any scheduled Bank of Bangladesh, of the legal title of the Contract specified in the **PCC**, nominated by the Contractor in the currency specified in the Contract.

66. Delayed Payment

66.1 If the Procuring Entity makes a late payment, the Contractor shall be paid interest on the late payment in the next payment at the rate as specified in the **PCC**. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made.

66.2 If an amount certified is increased in a subsequent certificate as a result of an award by the Adjudicator or an Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.

67. Compensation Events

67.1 The following shall be Compensation Events:

(a) The Procuring Entity does not give access to or possession of the Site or part of the Site by the Site Possession Date stated in the GCC Sub Clause 13.1;

(b) The Procuring Entity modifies the Schedule of other Contractors in a way that affects the works of the Contractor under the Contract;

(c) The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time;

(d) The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects;

(e) The Project Manager unreasonably does not approve a subcontract to be let, if applicable;

(f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Notification of Award from the information issued to Tenderers (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site; Other Contractors, public authorities, utilities, or the Procuring Entity do not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor;

(g) The advance payment is delayed;

(h) The effects on the Contractor of any of the Procuring Entity's Risks;

(i) The Project Manager unreasonably delays issuing a Completion Certificate;

(j) A situation of Force Majeure has occurred, as defined in GCC Clause 83; and

(k) Other Compensation Events described in the Contract or determined by the Project Manager in the **PCC** shall apply.

67.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended, only on justifiably acceptable grounds duly recorded.

67.3 As soon as the Contractor has provided information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost, the Project Manager shall assess it, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager will assume that the Contractor will react competently and promptly to the event.

67.4 The Contractor shall not be entitled to compensation to the extent that the Procuring Entity's interests are adversely affected by the Contractor not having given early warning or not having cooperated with the Project Manager.

68. Adjustments for Changes in Legislation

68.1 Unless otherwise specified in the Contract, if between the date twenty-eight (28) days before the submission of Tenders for the Contract and the date of the last Completion Certificate, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in Bangladesh (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Completion Date and/or the Contract Price, then such Completion Date and/or Contract Price shall be correspondingly increased or decreased, to the extent that the Contractor has thereby been affected in the performance of any of its obligations under the Contract.

68.2 The Project Manager shall adjust the Contract Price on the basis of the change in the amount of taxes, duties, and other levies payable by the Contractor, provided such changes have not already been accounted for in the price adjustment as defined in GCC Clause 69 and/or reflected in the Contract Price.

69. Price Adjustment

69.1 Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the **PCC**. If so provided, the amounts as certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amount. The formulae indicated below applies:

P= A + B (Im/Io)

where:

P is the adjustment factor

A and **B** are Coefficients specified in the **PCC**, representing the nonadjustable and adjustable portions, respectively, of the Contract; and

Im is the Index during the month the work has been executed and

Io is the Index prevailing twenty-eight (28) days prior to the deadline for submission of Tender.

The Indexes to be used is as published by the Bangladesh Bureau of Statistics (BBS) on a monthly basis. In case not available, then other countries or authorities of the sources mentioned in **Appendix to the Tender** may be used.

70. Retention Money

70.1 The Procuring Entity may retain from each progressive payment due to the Contractor at the percentage specified in the **PCC** until completion of the whole of the Works under the Contract.

70.2 On completion of the whole of the Works, the first half of the total amount retained under GCC Sub Clause 70.1 shall be returned to the Contractor and the remaining second half after the Defects Liability Period has passed and the Project Manager has certified in the form of **Defects Corrections Certificate.**.

70.3 On completion of the whole of the Works, the Contractor may substitute an irrevocable unconditional Bank Guarantee from any scheduled Bank of Bangladesh, in the format as specified (**Form PW3-12**), without any alteration, acceptable to the Procuring Entity for the second half of the retention money as stated under GCC Sub Clause 70.2.

71. Liquidated Damages

71.1 Except as provided under GCC Sub Clause 83, if the Contractor fails to complete the Works and physical services within the Intended Completion Date or extended Intended Completion Date, the Procuring Entity shall, as Liquidated Damages, deduct from the Contract Price, a sum at the percent-rate per day of delay as specified in the **PCC**, of the contract value of the uncompleted works or part thereof completed after the Intended Completion Date or extended Intended Completion Date, as applicable. The total amount of Liquidated Damages or Delay Damages shall not exceed the amount specified in the **PCC**. The Procuring Entity may deduct Liquidated Damages from payments due to the Contractor. Payment of Liquidated damages shall not affect the Contractor's liabilities.

71.2 If the Intended Completion Date is extended after Liquidated Damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate.

72. Bonus

72.1 The Contractor shall be paid a Bonus calculated at the percent-rate per day **if stated in the PCC** for each day (less any days for which the Contractor is paid for acceleration) that the Completion of the whole of the Works is earlier than the Intended Completion Date. The Project Manager shall require certifying that the Works are complete, although they may not have fallen due to being complete as per approved updated Programme of Works.

73. Advance

73.1 The Procuring Entity shall make advance payment, if so

Payment

specified in the **PCC**, to the Contractor in the amounts and by the dates specified in the **PCC** against an irrevocable unconditional Bank Guarantee issued by any scheduled Bank of Bangladesh in the format as specified (**Form PW3-11**), without alteration, and acceptable to the Procuring Entity of an amount equal to the advance payment. The Guarantee shall remain effective until the advance payment has been amortized, but the amount of the Guarantee shall be progressively reduced by the amounts amortized by the Contractor. Interest will not be charged on the advance payment.

73.2 The Contractor shall 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 for such specific purposes by supplying copies of invoices or other documents to the Project Manager.

73.3 The advance payment shall be amortized by deducting at proportionate rate from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works as specified in the **PCC**. No account shall be taken of the advance payment or its amortization in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages.

73.4 If the amortization of advance payment has not been completed by twenty-eight (28) days prior to the expiry date of the Guarantee stated under GCC Sub Clause 73.1, the Contractor shall correspondingly extend the validity of the Guarantee for a period so long the advance payment is fully amortized. The Bank Guarantee for advance payment shall be released when the same has been fully amortized.

74. Performance Security

74.1 The Procuring Entity shall notify the Contractor of any claim made against the Bank issuing the Performance Security.

74.2 The Procuring Entity may claim against the security if any of the following events occurs for fourteen (14) days or more.

(a) The Contractor is in breach of the Contract and the Procuring Entity has duly notified him or her ; and

(b) The Contractor has not paid an amount due to the Procuring Entity and the Procuring Entity has duly notified him or her.

74.3 In the event as stated under GCC Sub Clause 74.2, the Contractor is liable to pay compensation under the Contract amounting to the full value of the security or more, the Procuring Entity may call the full amount of the security.

74.4 The Performance Security furnished at the time of signing of the Contract Agreement shall be substituted, after the issuance of certificate of Completion of works by the Project Manager, by a new Security covering fifty (50) percent amount of the Performance Security to cover the Defects Liability Period.

74.5 If there is no reason to call the security, the security shall be discharged by the Procuring Entity and returned to the Contractor after the Defects Liability period has passed and the

Project Manager has certified in the form of Defects Corrections Certificates and the Procuring Entity shall not make any claim under the security, except for amounts to which the Procuring Entity is entitled under this Contract. In the event this Contract is significantly below the updated official estimated cost or unbalanced as a result of front loading, the Procuring Entity shall call the full amount of the security in the circumstances stated under GCC Sub Clause 74.3.

75. Provisional Sums

75.1 Provisional Sums shall only be used, in whole or in part, in accordance with the Project Manager's instructions.

75.2 Plants, Materials or Services to be purchased by the Contractor under the provisions of GCC Sub Clause 75.1 from Nominated Subcontractor(s) or for meeting the other expenditures under the Contract, and for which there shall be included in the Contract price, the actual amounts paid or due to be paid by the Contractor, and a sum for profit, overhead and VAT, as applicable, calculated as a percentage of these actual amounts by applying the relevant percentage rate as specified in the **PCC.**

76. Dayworks

76.1 If applicable, the Dayworks rates in the Contractor's Tender shall be used for small additional amounts of work only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.

76.2 All works to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the Project Manager. Each completed form shall be certified and signed by the Project Manager within seven (7) days of the works being done.

76.3 The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

77. Cost of Repairs to Loss or Damages

77.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Liability Period shall be remedied by the Contractor at the Contractor's own cost, if the loss or damage arises from the Contractor's acts or omissions.

E. Completion of the Contract

78. Completion

78.1 The Contractor shall apply by notice to the Project Manager for issuing a Completion Certificate of the Works, and the Project Manager shall do so upon deciding that the work is completed.

79. Taking Over

79.1 The Procuring Entity shall take over the Site and the Works within seven (7) days of the Project Manager's issuing a certificate of Completion.

80. Amendment to Contract

80.1 The amendment to Contract shall generally include extension of time to the Intended Completion Date, increase or decrease in original Contract Price and any other changes acceptable under the conditions of the Contract.

80.2 The Procuring Entity shall amend the Contract, incorporating the changes approved, in accordance with the Delegation of

Financial Power or Sub-delegation thereof and, introduced to the original terms and conditions of the Contract

81. Final Account

81.1 The Contractor shall submit with a detailed account of the total amount that the Contractor considers payable under the Contract to the Project Manager before the end of the **Defects Liability Period**.

81.2 The Project Manager shall certify the **Final Payment** within fifty six (56) days of receiving the Contractor's account if the payable amount claimed by the Contractor is correct and the corresponding works are completed.

81.3 If it is not, the Project Manager shall issue within fifty six (56) days a **Defects Liability Schedule** that states the scope of the corrections or additions that are necessary.

81.4 If the **Final Account of Works** submitted under GCC Sub Clause 81.1 is unsatisfactory even after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate.

82. As-built Drawings and Manuals

82.1 If "As Built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the **PCC**.

82.2 If the Contractor does not supply the Drawings and/or Manuals by the dates specified in GCC Sub Clause 82.1, or they do not receive the Project Manager's approval, the Project Manager shall withhold a nominal amount specified in the **PCC** from payments due to the Contractor.

83. Force Majeure

83.1 Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind stated below;

(a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies;

(b) rebellion, terrorism, sabotage by persons other than the Contractor's personnel, revolution, insurrection, military or usurped power, or civil war ;

(c) riot, commotion, disorder, strike or lockout by persons other than the Contractor's personnel ;

(d) munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity ; and

(e) natural catastrophes such as fires, floods, epidemics, quarantine restrictions, freight embargoes, cyclone, hurricane, typhoon, tsunami, storm surge, earthquake, hill slides, landslides, and volcanic activities.

83.2 The Head of Procuring Entity decides the existence of a Force Majeure that will be the basis of the issuance of order for suspension of Works as stated under GCC Sub Clause 48.1.

84. Notice of Force

84.1 If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall

Majeure

give notice, within fourteen (14) days after the party became aware, to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented.

84.2 Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

85. Consequences of Force Majeure

85.1 The Contractor shall not be liable for forfeiture of its security, liquidated damages, or termination for default if and to the extent that it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

85.2 If the Contractor is prevented from performing its substantial obligations under the Contract by Force Majeure of which notice has been given under GCC Sub Clause 84, and suffers delay and/or incurs cost by reason of such Force Majeure, the Contractor shall be entitled subject to GCC Sub Clause 91 to:

(a) an extension of time for any such delay, if completion is or will be delayed, under GCC Clause 44, and

(b) if the event or circumstance is of the kind described sub-paragraphs (a) to (e) of GCC Sub Clause 83.1 occurs in the country, payment of any such cost, including the costs of rectifying or replacing the Works and physical services damaged or destructed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in GCC Clause 36.

85.3 After receiving notice under GCC Sub Clause 84.1, the Project Manager shall proceed to determine these matters under the provisions of the Contract.

86. Release from Performance

86.1 Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other party of such event or circumstance:

(a) the Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and

(b) the sum payable by the Procuring Entity to the Contractor shall be the same as would have been payable under GCC Sub Clause 88.3 if the Contract had been terminated under GCC Sub Clause 87.3.

F. Termination and Settlement of Disputes

87. Termination

87.1 **Termination for Default**

(a) The Procuring Entity or the Contractor, without prejudice to any other remedy for breach of Contract, by giving twenty-eight (28) days written notice of default to the other party, may terminate the Contract in whole or in part if the other party causes a fundamental breach of Contract. Fundamental breaches of the Contract shall include, but shall not be limited to, the following:

(i) the Contractor stops work for twenty-eight (28) days when no stoppage of work is shown on the current Programme and the stoppage has not been authorized by the Project Manager;

(ii) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within eighty four (84) days;

(iii) 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;

(iv) the Contractor does not maintain a Security, which is required;

(v) the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of Liquidated Damages can be paid, as specified in GCC Sub Clause 71;

(vi) the Contractor has subcontracted the whole of the Works or has assigned the Contract without the required agreement and without the approval of the Project Manager;

(vii) the Contractor, in the judgment of the Procuring Entity has engaged in corrupt or fraudulent practices, as defined in GCC Sub Clause 38, in competing for or in executing the Contract.

(viii) A payment certified by the Project Manager is not paid by the Procuring Entity to the Contractor within eighty-four (84) days of the date of the Project Manager's certificate.

87.2 **Termination for Insolvency**

The Procuring Entity and the Contractor may at any time terminate the Contract by giving twenty-eight (28) days written notice to the other party if either of the party becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to any party, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the other party.

87.3 **Termination for Convenience**

(a) The Procuring Entity, by giving twenty-eight (28) days written notice sent to the Contractor, may terminate the Contract, in whole or in part, at any time for its

convenience. The notice of termination shall specify that termination is for the Procuring Entity's convenience, the extent to which performance of the Contractor under the Contract is terminated, and the date upon which such termination becomes effective.

(b) The Procuring Entity shall not terminate the contract under GCC Sub Clause 87.3 (a) in order to execute the Works itself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor as stated under GCC Sub Clause 87.1(a).

87.4 In the event the Procuring Entity terminates the Contract in whole or in part, the Procuring Entity shall accept the portion of the Works that are complete and ready for handing over after the Contractor's receipt of notice of termination of the Contract. For the remaining portion of the Works, the Procuring Entity may elect:

(a) to have any portion completed by the Contractor at the Contract terms and prices; and /or

(b) to cancel the remainder and pay to the Contractor an agreed amount for partially completed Works and for materials and parts previously procured by the Contractor, or

(c) except in the case of termination for convenience as stated under GCC Sub Clause 87.3, engage another Contractor to complete the Works, and in that case the Contractor shall be liable to the Procuring Entity for any cost that may be incurred in excess of the sum that would have been paid to the Contractor, if the work would have been executed and completed by him or her.

87.5 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as is reasonably possible.

87.6 The expiration of the Intended Completion Date under GCC Clause 44 and, the initiation of settlement of disputes like amicable or adjudication and arbitration under GCC Clause 92 shall not be deemed a termination of the Contract under GCC Clause 87.

88. Payment upon Termination

88.1 If the Contract is terminated because of a fundamental breach of Contract under GCC Sub Clause 87.1 by the Contractor, the Project Manager shall issue a certificate for the value of the Works done and Plant and Materials ordered less advance payments received up to the date of the issue of the certificate and, further less the amount from percentage to apply to the contract value of the works not completed, as indicated in the **PCC**. If the total amount due to the Procuring Entity exceeds any payment due to the Contractor, the difference shall be a debt payable to the Procuring Entity.

88.2 If the Contract is terminated for the Procuring Entity's convenience or because of a fundamental breach of Contract

by the Procuring Entity, the Project Manager shall issue a payment certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's foreign personnel employed solely on the Works and recruited specifically for 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.

88.3 If the Contract is terminated for reasons of Force Majeure, the Project Manager shall determine the value of the work done and issue a Payment Certificate which shall include:

(a) the amounts payable for any work carried out for which unit rates or prices are stated in the Contract;

(b) the cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Procuring Entity when paid for by the Procuring Entity, and the Contractor shall place the same at the Procuring Entity's disposal;

(c) other costs or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;

(d) the cost of removal of Temporary Works and Contractor's Equipment from the Site; and

(e) the cost of repatriation of the Contractor's staff and labour employed wholly in connection with the Works at the date of termination.

89. Property

89.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Procuring Entity if the Contract is terminated because of the Contractor's default stated under GCC Sub Clause 87.1.

90. Frustration

90.1 If the Contract is frustrated by the occurrence of a situation of Force Majeure as defined in GCC Sub Clause 83, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all works carried out before receiving it and for any work carried out afterwards to which a commitment was made.

G. Claims, Disputes and Arbitration

91. Contractor's Claims

91.1 If the Contractor considers himself to be entitled to any extension of the Completion Time and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Procuring Entity, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as

practicable, and not later than twenty-eight (28) days after the Contractor became aware, or should have become aware, of the event or circumstance.

91.2 If the Contractor fails to give notice of a claim within such period of twenty-eight (28) days, the Intended Completion Date shall not be extended, the Contractor shall not be entitled to additional payment, and the Procuring Entity shall be discharged from all liability in connection with the claim.

91.3 Within forty two (42) days after the Contractor became aware or should have become aware of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Project Manager, the Contractor shall send to the Project Manager a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed, for settlement.

92. Settlement of Disputes

92.1 **Amicable settlement**

The procuring Entity and the Contractor shall use their best efforts to settle amicably all possible disputes arising out of or in connection with this Contract or its interpretation.

92.2 **Adjudication**

(a) If the Contractor believes that a decision taken by the Project Manager was either outside the authority given to the Project Manager by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within fourteen (14) days of notification of the Project Manager's decision in writing.

(b) The Adjudicator named in the **PCC** is jointly appointed by the parties. In case of disagreement between the parties, the Appointing Authority designated in the **PCC** shall appoint the Adjudicator within fourteen (14) days of receipt of a request from either party.

(c) The Adjudicator shall give its decision in writing to both parties within twenty-eight (28) days of a dispute being referred to it.

(d) The Contractor shall make all payments (fees and reimbursable expenses) to the Adjudicator, and the Procuring Entity shall reimburse half of these fees through the regular progress payments.

(e) Should the Adjudicator resign or die, or should the Procuring Entity and the Contractor agree that the Adjudicator is not functioning in accordance with the provisions of the Contract; a new Adjudicator will be jointly appointed by the Procuring Entity and the Contractor. In case of disagreement between the Procuring Entity and the Contractor the Adjudicator shall

be designated by the Appointing Authority within fourteen (14) days of receipt of a request from either party as stated under GCC Sub Clause 92.2 (b)

92.3 **Arbitration**

(a) If the parties are unable to reach a settlement as per GCC Clauses 92.1 and 92.2 within twenty-eight (28) days of the first written correspondence on the matter of disagreement, then either party may give notice to the other party of its intention to commence arbitration in accordance with GCC Sub Clause 94.3(b).

(b) The arbitration shall be conducted in accordance with the Arbitration Act (**Act No 1 of 2001**) of Bangladesh as at present in force and in the place shown in the **PCC**.

Section 4. Particular Conditions of Contract

Instructions for completing the Particular Conditions of Contract are provided in italics in parenthesis for the relevant GCC Clauses.	
GCC Clause	**Amendments of, and Supplements to, Clauses in the General Conditions of Contract**
GCC 1.1(j)	The Contractor is *[Name, address, and name of authorized representative]*
GCC 1.1(ff)	The Procuring Entity is Project Director, RNPL-NORINCO INTL POWER LIMITED (RNPL) Address: Atlanta Trade Center (Level-7), House # 01, Road # 1/A, Sector # 04, Uttara, Dhaka-1230, Bangladesh Telephone No.: +88 02 48956157, +88 02 48956158 e-mail address: pd1320rnpl@gmail.com
GCC 1.1(gg)	The Project Manager is Project Director, RNPL-NORINCO INTL POWER LIMITED (RNPL) Address: Atlanta Trade Center (Level-7), House # 01, Road # 1/A, Sector # 04, Uttara, Dhaka-1230, Bangladesh Telephone No.: +88 02 48956157, +88 02 48956158 e-mail address: pd1320rnpl@gmail.com *[Project Manager may assign anyone else as a representative]*
GCC 1.1 (bb)	The original Contract Price is *[insert the amount in the NOA]*
GCC 1.1(y)	The Intended Completion Date for the whole of the Works shall be: 150 days from the date of site handover.
GCC 1.1(kk)	The Site is located at Dhankhali Union, Kalapara Upazila of Patuakhali District.
GCC 1.1(nn)	The Start Date shall be 07(Seven) days from the commencement date & the commencement date shall be the date of site hand over to the contractor by RNPL.
GCC 1.1(rr)	The Works consist of As mentioned in Section 7, General Specification
GCC 2.5	The Sectional Completion Dates are:N/A
GCC 3.1	The Procuring Entity's address for the purpose of communications under this contract is : Attention: Project Manager Project Director, RNPL-NORINCO INTL POWER LIMITED (RNPL) Address: Atlanta Trade Center (Level-7), House # 01, Road # 1/A, Sector # 04,

	Uttara, Dhaka-1230, Bangladesh Telephone No.: +88 02 48956157, +88 02 48956158 e-mail address: pd1320rnpl@gmail.com *[Project Manager may assign anyone else as a representative]*	
	The Contractor's address for the purpose of communications under this contract is : Contact person: Address: Tel: Fax: e-mail address:	
GCC 6.1 (j)	Other documents forming part of the Contract are; All correspondences between Procuring Entity and Contractor prior to signing of the Contract agreement.	
GCC 9.1	The Contractor or the Subcontractor that is a national of, or registered in, the following countries are not eligible: Israel	
GCC 9.2	Materials, Equipment Plants and supplies shall not have their origin in the following countries: Israel	
GCC 13.1	Possession of the Site or part(s) of the Site, to the Contractor shall be given within 15 (fifteen) days from the date of Contract Sign.	
GCC 19.1	Following Key Personnel to carry out the functions stated in the Schedule shall be employed by the Contractor; *[insert name(s)]*	
GCC 20.3	Nominated Subcontractor(s) named below; None	
GCC 22.1	The Contractual matters between the Procuring Entity and the Contractor shall be decided by *[state only if other than the Project Manager]*	
GCC 36.1	The insurance cover shall be:	
	(a)	The minimum cover for the Works and of Plant and Materials is Tk *[state amount]*. *[the Procuring Entity shall state the amount at the time of preparing **PCC**. Amount could be 110% of the value of the works, plant and materials]*
	(b)	The maximum deductible for insurance of the Works and of Plant and Materials is [*state amount].* *[the Contractor shall state this amount at the time of Contract signing.]*
	(c)	The minimum cover for loss or damage to Equipment is Tk *[state amount]*. *[the Procuring Entity shall state the amount at the time of preparing **PCC**. Amount could be 110% of the replacement value of the equipment]*

<table>
<tr><td></td><td>(d)</td><td>The maximum deductible for insurance of Equipment is [state amount].
[the Contractor shall state this amount at the time of Contract signing.]</td></tr>
<tr><td></td><td>(e)</td><td>The minimum cover for other property is [state amount].
[the Procuring Entity shall state the amount at the time of preparing PCC. Amount could be 10% of the Contract Price]</td></tr>
<tr><td></td><td>(f)</td><td>The maximum deductible for insurance of other property is [state amount].
[the Contractor shall state this amount at the time of Contract signing.]</td></tr>
<tr><td></td><td>(g)</td><td>The minimum cover for personal injury or death:
(i) for the Contractor’s employees is as per the law and common practice in Bangladesh.
(ii) and for third parties is as per the law and common practice in Bangladesh.</td></tr>
<tr><td>GCC 39.1</td><td colspan="2">The commencement date shall be the date of site hand over to the contractor by RNPL</td></tr>
<tr><td>GCC 40.1</td><td colspan="2">The Intended Completion Date of the Works shall be 240 days.</td></tr>
<tr><td>GCC 41.1</td><td colspan="2">The Contractor shall submit a Programme for the Works within 07 days of signing the Contract.</td></tr>
<tr><td>GCC 41.2</td><td colspan="2">The period between Programme updates is monthly.</td></tr>
<tr><td>GCC 41.3</td><td colspan="2">The amount to be withheld for late submission of an updated Programme is TK. 10,000(Ten Thousand Taka)</td></tr>
<tr><td>GCC 56.1</td><td colspan="2">The Defects Liability Period is 12 (Twelve) months</td></tr>
<tr><td>GCC 64.2</td><td colspan="2">Bill payment shall be made as per following 3 phases only:
<table>
<tr><th>Number of Bill statement</th><th>Payment Condition</th></tr>
<tr><td>1st R/A Bill</td><td>After 40% of Total Physical Progress</td></tr>
<tr><td>2nd R/A Bill</td><td>After 70% of Total Physical Progress</td></tr>
<tr><td>Final Bill</td><td>After issuance of Completion Certificate</td></tr>
</table>
No bill application will be accepted without completion of above-mentioned physical Progress.</td></tr>
<tr><td>GCC 65.3</td><td colspan="2">The particulars of the Bank Account nominated are as follows :
Title of the Account : [insert title to whom the Contract awarded]
Name of the Bank : [insert name with code, if any]
Name of the Branch : [insert branch name with code ,if any]</td></tr>
</table>

	Account Number : *[insert number]* Address : *[insert location with district]* Tel : Fax : e-mail address : *[information furnished by the Contractor shall be substantiated by the concerned Bank and authenticated by the Procuring Entity]*
GCC 66.1	N/A
GCC 67.1(m)	The following additional events shall also be the Compensation Events: None
GCC 69.1	The Contract is not subject to price adjustment. N.A
GCC 70.1	The proportion of payments to be retained is **NA**
GCC 71.1	The amount of Liquidated Damages is 0.10 of ONE (1) percent of the contract value of the uncompleted works or any part thereof completed after expiry of the Intended Completion Date or extended Intended Completion Date, as applicable, per day of delay. **Guide to application of GCC Sub Clause 71.1 above** ***[Liquidated damages is equivalent to an amount to be determined in accordance with the following formulae*** T = VxPx n ***Where;*** T = ***Total amount of Liquidated Damages*** V = ***Contract Value of Uncompleted Works*, *completed after the expiry of the Intended Completion Date or extended Intended Completion Date, as applicable*** P = ***Percent-rate at which the Liquidated Damages shall be imposed per day of delay*** n = ***No of days delayed for completion of uncompleted works or part thereof after the* expiry of the Intended Completion Date or extended Intended Completion Date, as applicable.**
GCC 71.1	The maximum amount of Liquidated Damages for the uncompleted Works or any part thereof is **10% (ten percent)** of the final Contract price of the whole of the Works
GCC 72.1	The Bonus for the whole of the Works is **N.A**
GCC 73.1	The Advance Payment shall be ten (10) percent of the final Contract price for the whole of the Works and will be paid within 30 days from the signing of the contract upon submission of application by the contractor along with Advance Payment Guarantee (In the form of irrevocable Bank Guarantee).
GCC 73.4	Advance Payment shall be amortized at the rate of ten (10) percentage from the progressive payments of invoices. The amortization of the Advance Payment shall commence when the progress payments have reached twenty (20) percent of the Contract Price and, be completed when the progress payments have reached eighty (80) percent of the Contract Price

GCC 75.2	**N.A**
GCC 82.1	The date by which "**as-built**" drawings are required within15 (Fifteen) days of completion of works
GCC 82.2	The amount to be withheld for failing to produce "**as-built**" drawings and/or operating and maintenance manuals by the date required is Tk.50,000 (Fifty thousand).
GCC 88.1	The percentage to apply to the contract value of the works not completed, representing the Procuring Entity's additional cost for completing the incomplete Works, is 20% (Twenty percent).
GCC 92.2 (b)	The Adjudicator jointly appointed by the parties is: Name: Executive Director (Engg.), Rural Power Company Limited Address: House#19, Road#1/B, Sector#09, Uttara Model Town, Dhaka-1230 Tel No: 02-48961201 e-mail address: edengg@rpcl.gov.bd
GCC 92.2(b)	In case of disagreement between the parties, the Appointing Authority for the Adjudicator is the President of the Institution of Engineers, Bangladesh (IEB).
GCC 92.3 (b)	The arbitration shall be conducted in **Dhaka, Bangladesh**

Appendix to the Tender

[In Tables below, the Procuring Entity shall indicate the source and base values with dates of Indexes, unless otherwise instructed to be quoted by the Tenderers, for the different Cost Components and mention its Weightings or Coefficients]

Table 1.1: Price Adjustment Data

[ITT Sub Clause 27.10: To be provided by the Procuring Entity]

Index Descriptions	**Base Value**	**Sources of Index**

Note:

1. **The sources of Indexes and its values with dates shall be Bangladesh Bureau of Statistics (BBS) unless otherwise mentioned by the Procuring Entity.**
2. **The Base Value of the Indexes shall be those prevailing twenty-eight (28) days prior to the deadline for submission of the Tenders.**

Table 1.2: Price Adjustment Data

[GCC Clause 69: To be provided by the Procuring Entity]

Item Group	Bill No. if applicable	Index Descriptions	Coefficients or Weightings for non-adjustable Cost Component	Coefficients or Weightings for adjustable Cost Components										Total
				a	b	c	d	e	f	g	h	i	j	
														1
														1
														1
														1
														1
														1

Note:

The Weightings or Coefficients of the Cost Components shall be mentioned by the Procuring Entity based on the proportion of components involved in the work items caused to be impacted by rise and fall in its prices.

Section 5. Tender and Contract Forms

Form	Title
	Tender Forms
PW3 – 1	Tender Submission Letter
PW3 – 2	Tenderer Information
PW3 – 3	JV Partner Information (*if applicable*)
PW3 – 4	Subcontractor Information (*if applicable*)
PW3 – 5	Personnel Information
PW3-5A	Tenderer's Past Performance Information
PW3-5B	Tenderer's Capacity Information
PW3 – 6	Bank Guarantee for Tender Security (*when this option is chosen*)
PW3 - 7	Bank's Letter of Commitment for Line of Credit (*when this option is chosen*)
	Contract Forms
PW3 – 8	Notification of Award
PW3 – 9	Contract Agreement
PW3 – 10	Bank Guarantee for Performance Security (*when this option is chosen*)
PW3 –11	Bank Guarantee for Advance Payment (*if applicable*)
PW3 –12	Bank Guarantee for Retention Money Security (*when this option is chosen*)

Forms **PW3-1** to **PW3 -7** comprises part of the Tender Format and should be completed as stated in ITT Clauses 24.

Forms **PW3-8** to **PW3 -12**comprises part of the Contract as stated in GCC Clause 6.

Tender Submission Letter (Form PW3-1)

[This letter should be completed and signed by the Authorised Signatory on the Letter-Head Pad of the Tenderer]

To: *Project Director* *Patuakhali 1320 (2×660)MW Coal Fired Thermal Power Plant* *RPCL_NORINCO Intl Power Limited (RNPL)* *Atlanta Trade Center (Level-7), House # 01, Road # 1/A, Sector # 04, Uttara, Dhaka-1230, Bangladesh*	Date:
Invitation for Tender No:	*IFT No.* _____
Tender Package No:	*Package No.* _____
Lot No: (*when applicable*)	*Lot No.* _____

We, the undersigned, tender to execute in conformity with the Tender Document, the following Works and physical services, viz:

In accordance with ITT Clause 27and 28, the following price applies to our Tender:

The Tender price is: (ITT Sub Clause 27.4 and 28.1)	Tk._____ *[in figures]* Taka_____ *[in words]*
The advance payment (when applicable) is: *[insert the amount based on percentage of the Tender Price]* (GCC Sub Clause 73.1)	Taka_____ *[in words]* Taka_____ *[in words]*

and we shall accordingly submit an Advance Payment Guarantee in the format shown in Form **PW3–10.**

In accordance with ITT Sub Clauses 27.6, the following discounts shall apply to our Tender:	
The unconditional discount proposed in this package/Lot is:	In Percentage(%).----------
The discount shall be equally applicable on all the items of BOQ after arithmetical correction.	

In signing this letter, and in submitting our Tender, we also confirm that:

(a) our Tender shall be valid for the period stated in the Tender Data Sheet (ITT Sub Clause 33.1) and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(b) a Tender Security is attached in the form of a *[state Pay Order, Bank Draft, Bank Guarantee]* in the amount stated in the Tender Data Sheet (ITT Sub Clause 36.1) and valid for a period of twenty-eight (28) days beyond the Tender Validity date;

(c) if our Tender is accepted, we commit to furnishing a Performance Security within the time stated under ITT Sub Clause 66.2 in the amount stated in the Tender Data Sheet (ITT SubClauses65.1) and in the form specified in the Tender Data Sheet(ITT Sub Clause 66.1) valid for a period of twenty-eight (28) days beyond the date of issue of the Completion Certificate of the Works;

(d) we have examined and have no reservations to the Tender Document, issued by you on *[insert date];*including Addendum to Tender Document No(s) [*state numbers*] , issued in accordance with the Instructions to Tenderers (ITT Clause 11). *[insert the number and issuing date of each addendum; or delete this sentence if no Addendum has been issued];*

(e) we, including as applicable, any JV partner or Subcontractor for any part of the contract resulting from this Tender process, have nationalities from eligible countries, in accordance with ITT Sub Clause 5.1;

(f) we are submitting this Tender as a sole Tenderer in accordance with ITT Sub Clause 40.3

or

we are submitting this Tender as the partners of a JV, comprising the following other partners in accordance with ITT Sub Clause 40.3*;*

	Name of Partner	Location & District of Partner
1		
2		
3		
4		

(g) *we are not a Government owned entity as defined in ITT Sub Clause 5.3*

or

we are a Government owned entity, and we meet the requirements of ITT Sub Clause 5.10;

(h) we, including as applicable any JV partner, declare that we are not associated, nor have been associated in the past, directly or indirectly, with a consultant or any other entity that has prepared the design, specifications and other documents in accordance with ITT Sub Clause 5.6;

(i) we, including as applicable any JV partner or Subcontractor for any part of the contract resulting from this Tender process, have not been declared ineligible by

the Government of Bangladesh on charges of engaging in corrupt, fraudulent, collusive or coercive practices in accordance with ITT Sub Clause 5.7;

(j) furthermore, we are aware of ITT Clause 4 concerning such practices and pledge not to indulge in such practices in competing for or in executing the Contract;

(k) we intend to subcontract an activity or part of the Works, in accordance with ITT Sub Clause 19.1, to the following Subcontractor(s);

Activity or part of the Works	Name of Subcontractor with Location and District

(l) we, including as applicable any JV partner, confirm that we do not have a record of poor performance, such as abandoning the works, not properly completing contracts, inordinate delays, or financial failure as stated in ITT Clause 5.8, and that we do not have, or have had, any litigation against us, other than that stated in the Tenderer Information (**Form PW3-2**);

(m) we are not participating as Tenderer in more than one Tender in this Tendering process. We understand that your written Notification of Award shall constitute the acceptance of our Tender and shall become a binding Contract between us, until a formal Contract is prepared and executed;

(n) we, including as applicable any JV partner, confirm that we do not have a record of insolvency, receivership, bankrupt or being wound up, our business activities were not been suspended, and it was not been the subject of legal proceedings in accordance with ITT Sub Clause 5.9;

(o) we, including as applicable any JV partner, confirm that we have fulfilled our obligations to pay taxes and social security contributions applicable under the relevant national laws and regulations of Bangladesh in accordance with ITT Sub Clause 5.5;

(p) we understand that you reserve the right to reject all the Tenders or annul the Tender proceedings, without incurring any liability to Tenderer, in accordance with ITT Clause 60.

Signature:	*[insert signature of authorised representative of the Tenderer]*
Name:	*[insert full name of signatory with National ID Number]*
In the capacity of:	*[insert capacity of signatory]*
Duly authorised to sign the Tender for and on behalf of the Tenderer	

[If there is more than one (1) signatory, or in the case of a JV, add other boxes and sign accordingly].

Attachment 1:

[ITT Sub Clause 40.3]

Written confirmation authorising the above signatory(ies) to commit the Tenderer

[and, if applicable]

Attachment 2:

[ITT Sub Clause 29.2(b)]

Copy of the JV Agreement / Letter of Intent to form JV with draft proposed Agreement

Tenderer Information (Form PW3-2)

[This Form should be completed only by the Tenderer, preferably on its Letter-Head Pad]

Invitation for Tender No: *IFT No]*

Tender Package No: *[Package No]*

Lot No (*when applicable*) *[Lot No)]*

1.	Eligibility Information of the Tenderer [ITT –Clauses 5& 29]			
1.1	Nationality of individual or country of registration			
1.2	Tenderer's legal title			
1.3	Tenderer's registered address			
1.4	Tenderer's legal status *[complete the relevant box]*			
	Proprietorship			
	Partnership			
	Limited Liability Concern			
	Government-owned Enterprise			
	Others [please describe, if applicable]			
1.5	Tenderer's year of registration			
1.6	Tenderer's authorised representative details			
	Name			
	National ID number			
	Address			
	Telephone / Fax numbers			
	e-mail address			
1.7	Litigation [ITT Cause 13]			
	A. No pending litigation ☐[if no pending litigation put Tick Mark in Box]			
	B. Pending litigation			
	Year	Matter in dispute	Value of Pending Claim	Value of Pending

			in Taka	Claim as Percentage of Net Worth

1.8	Tenderer to attach photocopies of the original documents mentioned aside	[All documents required under ITT Clauses 5 and 29]
The following two information are applicable for National Tenderers		
1.9	Tenderer's Value Added Tax Registration (VAT) Number	
1.10	Tenderer's Tax Identification Number(TIN)	
[The foreign Tenderers, in accordance with ITT Sub Clause 5.1, shall provide evidence by a written declaration to that effect to demonstrate that it meets the criterion]		

2.	Qualification Information of the Tenderer [ITT Clause32]			
2.1	General Experience in Construction Works of Tenderer [State years of experience]			
2.2	Specific Experience in Construction Works of Tenderer Completed Contracts of similar nature, complexity and methods/construction technology			
	Contract No Name of Contract	[insert reference no] of [insert year] [insert name]		
	Role in Contract *[tick relevant box].*	Prime Contractor	Subcontractor	Management Contractor
	Award date Completion date Total Contract Value	[insert date] [insert date] [insert amount]		
	Procuring Entity's Name Address Tel / Fax e-mail Brief description with justifications of the similarity compared to the Procuring Entity's requirements	[state justification in support of its similarity compared to the proposed works]		

2.3	Average annual construction turnover [ITT Sub Clause15.1(a)] *[total certified payments received for contracts in progress or completed under public sector for a period as stated under ITT Sub Clause 15.1(a), using rate of exchange at the end of the period reported]*		
	Year	Currency	Amount Taka or Equivalent Taka

2.4	Liquid assets available to meet the construction cash flow [ITT Sub Clause 15.1(b)]		
	No	Source of Financing	Amount Available
In order to confirm the above statements the Tenderer shall submit , as applicable, the documents mentioned in ITT Sub Clause 32.1(d)			
2.5	Contact Details [ITT Sub Clause 32.1 (h)]		
	Name, address, and other contact details of Tenderer Bankers and other Procuring Entity(s) that may provide references, if contacted by this Procuring Entity		
2.6	Qualifications and experience of key technical and administrative personnel proposed for Contract administration and management [ITT Sub Clause 32.1(f)]		
	Name	Position	Years of General Experience	Years of Specific Experience
[*Tenderer to complete details of as many personnel as are applicable.Each personnel listed above should complete the Personnel Information (Form PW3-5*)]				
2.7	Major Construction Equipment proposed to carry out the Contract [ITT Sub Clause 32.1(g)]			
	Item of Equipment		Condition (new, good, average, poor)	Owned, leased or to be purchased (state owner, lessor or seller)
[Tenderer to list details of each item of major construction equipment, as applicable]				

JV Partner Information (Form PW3-3)

[This Form should be completed by each JV partner].

Invitation for Tender No: *[IFT No]*

Tender Package No: *Package No]*

Lot No. (*when applicable*) *[Lot No)]*

1.	Eligibility Information of the JV Partner [ITT –Clauses 5 & 29]			
1.1	Nationality of individual or country of registration			
1.2	JV Partner's legal title			
1.3	JV Partner's registered address			
1.4	JV Partner's legal status *[complete the relevant box]*			
	Proprietorship			
	Partnership			
	Limited Liability Concern			
	Government-owned Enterprise			
	Others [please describe, if applicable]			
1.5	JV Partner's year of registration			
1.6	JV Partner's authorised representative details			
	Name			
	National ID number			
	Address			
	Telephone / Fax numbers			
	e-mail address			
1.7	Litigation [ITT Cause 13]			
	A. No pending litigation ☐[if no pending litigation put Tick Mark in Box]			
	B. Pending litigation			
	Year	Matter in dispute	Value of Pending Claim	Value of Pending Claim as

			in Taka	Percentage of Net Worth

1.8	JV Partner to attach photocopies of the original documents mentioned aside	[All documents required under ITT Clauses 5 and 29]
The following two information are applicable for national JV Partners only		
1.9	JV Partner's Value Added Tax Registration (VAT) Number	
1.10	JV Partner's Tax Identification Number(TIN)	
[The foreign JV Partners, in accordance with ITT Sub Clause 5.1, shall provide evidence by a written declaration to that effect to demonstrate that it meets the criterion]		

2. Key Activity(ies) for which it is intended to be joint ventured, if it can be specified [ITT Sub Clause 18.2]

	Elements of Activity	Brief description of Activity

3. Qualification Information of the JV Partners[ITT Clause 32]

3.1	General Experience in Construction Works of JV Partners[State years of experience]			
3.2	Specific Experience in Construction Works of JV Partners Completed Contracts of similar nature, complexity and methods/construction technology			
	Contract No Name of Contract	[insert reference no] of [insert year] [insert name]		
	Role in Contract *[tick relevant box].*	Prime Contractor	Subcontractor	Management Contractor
	Award date Completion date Total Contract Value	[insert date] [insert date] [insert amount]		
	Procuring Entity's Name Address Tel / Fax e-mail Brief description with justifications of the similarity compared to the Procuring Entity's requirements	[state justification in support of its similarity compared to the proposed works]		
3.3	Average annual construction turnover [ITT Sub Clause15.1(a)] *[[total certified payments received for contracts in progress or completed under public sector for a period as stated under ITT Sub Clause 15.1(a), using rate of exchange at the end of the period reported]]*			

	Year	Currency	Amount Taka or Equivalent Taka

3.4	Liquid assets available to meet the construction cash flow [ITT Sub Clause 15.1(b)]		
	No	Source of Financing	Amount Available

In order to confirm the above statements the JV Partners shall submit , as applicable, the documents mentioned in ITT Sub Clause 32.1(d)

3.5	Contact Details [ITT Sub Clause 32.1 (h)]
	Name, address, and other contact details of JV Partner's Bankers and other Procuring Entity(s) that may provide references, if contacted by this Procuring Entity

3.6	Qualifications and experience of key technical and administrative personnel proposed for Contract administration and management [ITT Sub Clause 32.1(f)]			
	Name	Position	Years of General Experience	Years of Specific Experience

[JV Partners *to complete details of as many personnel as are applicable.Each personnel listed above should complete the Personnel Information (Form PW3-5*)]

3.7	Major Construction Equipment proposed to carry out the Contract [ITT Sub Clause 32.1(g)]		
	Item of Equipment	Condition (new, good, average, poor)	Owned, leased or to be purchased (state owner, lessor or seller)

[Tenderer to list details of each item of major construction equipment, as applicable]

Subcontractor Information (Form PW3-4)

[This Form should be completed by each Subcontractor, preferably on its Letter-Head Pad]

Invitation for Tender No: *[IFT No]*

Tender Package No *[Package No]*

Lot No. (*when applicable*) *[Lot No]*

1.	Eligibility Information of the Subcontractor [*ITT –Clauses 5& 29]*	
1.1	Nationality of Individual or country of Registration	
1.2	Subcontractor's legal title	
1.3	Subcontractor's registered address	
1.4	Subcontractor's legal status *[complete the relevant box]*	
	Proprietorship	
	Partnership	
	Limited Liability Concern	
	Government-owned Enterprise	
	Other (please describe)	
1.5	Subcontractor's year of registration	
1.6	Subcontractor's authorised representative details	
	Name	
	Address	
	Telephone / Fax numbers	
	e-mail address	
1.7	Subcontractor to attach copies of the following original documents	All documents to the extent relevant toITT Clause 5 and 29 in support of its qualifications
The following two information are applicable for national Subcontractors		
1.8	Subcontractor's Value Added Tax Registration (VAT) Number	
1.9	Subcontractor's Tax Identification Number(TIN)	
[The foreign Subcontractors , in accordance with ITT sub Clause 5.1, shall provide evidence by a		

written declaration to that effect to demonstrate that it meets the criterion]			
2. Key Activity(ies) for which it is intended to be Subcontracted [ITT Sub Clause 19.1]			
2.1	Elements of Activity	Brief description of Activity	
2.2	List of Similar Contracts in which the proposed Subcontractor had been engaged		
	Name of Contract and Year of Execution		
	Value of Contract		
	Name of Procuring Entity		
	Contact Person and contact details		
	Type of Work performed		

Personnel Information (Form PW3-5)

[This Form should be completed for each person proposed by the Tenderer in Form PW3-2 & PW3-3, where applicable]

Invitation for Tender No:	*[IFT No]*
Tender Package No	*[Package No]*
Lot No. (*when applicable*)	*[Lot No]*

A. Proposed Position (tick the relevant box)		
☐ Construction Project Manager	☐ Prime Candidate	☐ Alternative Candidate
☐ Key Personnel	☐ Prime Candidate	☐ Alternative Candidate
B. Personal Data		
Name		
Date of Birth		
Years overall experience		
National ID Number		
Years of employment with the Tenderer		
Professional Qualifications: 1.		
C. Present Employment *[to be completed only if not employed by the Tenderer]*		
Name of Procuring Entity (working under):		
Address of Procuring Entity (working under):		
Present Job Title:		
Years with present Procuring Entity:		
Tel No:	Fax No:	e-mail address:
Contact *[manager/personnel officer]:*		
D. Professional Experience		
Summarise professional experience over the past twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.		

	From	To	Company / Project / Position / Relevant technical and management experience.
1			
2			

Tenderer's Past Performance Information (Form PW3-5A)

Invitation for Tender No: *IFT No]*

Tender Package No: *[Package No]*

Lot No (*when applicable*) *[Lot No)]*

Date of IFT Publication:

Name of the Tenderer:

[Note: If the Tenderer is a JV, each partners of the JV (Lead & Others) have to fill the form separately]

Name of JV Partner (If the tender is JV):

Business Share of JV Partner:

Role in JV [Lead/other]:

(A) List of Successfully Completed Contract during the last 5 years from IFT Date under the organization of the Procuring Entity inviting tender:

SL No	Name of Works Contract	Value of works Contract	Date of actual completion
1			
2			
3			

(B) List of On-Going Works / Current Commitment Under any Organization:

SL No	Name of On-Going Works and Current Commitments	Value of the work	Date of Signing Contract	Date of completion of contract	Name of Organization
1					
2					
3					

Tenderer's Capacity Information (Form PW3-5B)

Invitation for Tender No: *IFT No]*

Tender Package No: *[Package No]*

Lot No (*when applicable*) *[Lot No)]*

Date of IFT Publication:

Name of the Tenderer:

[Note: If the Tenderer is a JV, each partners of the JV (Lead & Others) have to fill the form separately]

Name of JV Partner (If the tender is JV):

Business Share of JV Partner:

Role in JV [Lead/other]:

List of certified payment for ongoing or Completed Contract under any government Organization for the year in which maximum value of work performed within 5 years from IFT Date.

SL No	Name of Works contract	Value of Contract	Date of Signing Contract	Date of completion of contract
1				
2				
3				
4				

Bank Guarantee for Tender Security (Form PW3-6)

[This is the format for the Tender Security to be issued by any scheduled Bank of Bangladesh in accordance with ITT Clause 35 & 36]

Invitation for Tender No: Date:

Tender Package No:

Lot No (*when applicable*)
To:

[Name and address of the Procuring Entity**]**

TENDER GUARANTEE No: [insert number**]**

We have been informed that *[name of Tenderer]* (hereinafter called "the Tenderer") intends to submit to you its Tender dated *[date of Tender]* (hereinafter called "the Tender") for the execution of the Works of *[description of works]* under the above Invitation for Tenders (hereinafter called "the IFT").

Furthermore, we understand that, according to your conditions, the Tender must be supported by a Bank Guarantee for Tender Security.

At the request of the Tenderer, we *[name of Bank]* hereby irrevocably unconditionally undertake to pay you, without cavil or argument, any sum or sums not exceeding in total an amount of Tk *[insert amount in figures and words]* upon receipt by us of your first written demand accompanied by a written statement that the Tenderer is in breach of its obligation(s) under the Tender conditions, because the Tenderer:

a. has withdrawn its Tender after opening of Tenders but within the validity of the Tender Security; or
b. refused to accept the Notification of Award (NOA) within the period as stated under ITT; or
c. failed to furnish Performance Security within the period stipulated in the NOA; or
d. refused to sign the Contract Agreement by the time specified in the NOA; or
e. did not accept the correction of the Tender price following the correction of the arithmetic errors as stated under ITT.

This guarantee will expire

(a) if the Tenderer is the successful Tenderer, upon our receipt of a copy of the Contract Agreement signed by the Tenderer or a copy of the Performance Security issued to you in accordance with the ITT; or
(b) if the Tenderer is not the successful Tenderer, twenty-eight (28) days after the expiration of the Tenderer's Tender Validity period, being *[date of expiration of the Tender Validity plus twenty-eight (28) days].*

Consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Signature Signature

Letter of Commitment for Bank's Undertaking for Line of Credit (Form PW3-7)

[This is the format for the Credit Line to be issued by any scheduled Bank of Bangladesh in accordance with ITT Clause 32.1(d)]

Invitation for Tender No: Date:

Tender Package No:

Lot No (*when applicable*)
To:

[*Name and address of the Procuring Entity*]

CREDIT COMMITTMENT No: [insert number]

We have been informed that *[name of Tenderer]* (hereinafter called "the Tenderer") intends to submit to you its Tender (hereinafter called "the Tender") for the execution of the Works of *[description of works]* under the above Invitation for Tenders (hereinafter called "the IFT").

Furthermore, we understand that, according to your conditions, the Tenderer's Financial Capacity i.e. Liquid Asset must be substantiated by a Letter of Commitment of Bank's Undertaking for Line of Credit.

At the request of, and arrangement with, the Tenderer, we *[name and address of the Bank]* do hereby agree and undertake that [*name and address of the Tenderer*] will be provided by us with a revolving line of credit, in case awarded the Contract, for execution of the Works viz.[*insert name of works*], for an amount not less than BDT[*in figure*] (*in words*) for the sole purpose of the execution of the above Contract. This Revolving Line of Credit will be maintained by us until issuance of "**Taking-Over Certificate**" by the Procuring Entity.

In witness whereof, authorised representative of the Bank has hereunto signed and sealed this Letter of Commitment.

Signature Signature

Notification of Award (Form PW3-8)

Contract No: Date:
To:

[Name of Contractor]

This is to notify you that your Tender dated *[insert date]* for the execution of the Works for *[name of project/Contract]* for the Contract Price of Tk *[state amount in figures and in words]*, as corrected and modified in accordance with the Instructions to Tenderers, has been approved by *[name of Procuring Entity].*

You are thus requested to take following actions:

i. accept in writing the Notification of Award within seven (7) working days of its issuance in accordance with ITT Clause 64

ii. furnish a Performance Security in the form as specified and in the amount of Tk *[state amount in figures and words]* ,within fourteen (14) days of acceptance of this Notification of Award but not later than *(specify date),* in accordance with ITT Clause 65 & 66.

iii. sign the Contract within twenty-eight (28)days of issuance of this Notification of Award but not later than *(specify date),* in accordance with ITT Clause 70.

You may proceed with the execution of the Works only upon completion of the above tasks. You may also please note that this Notification of Award shall constitute the formation of this Contract which shall become binding upon you.

We attach the draft Contract and all other documents for your perusal and signature.

Signed

Duly authorised to sign for and on behalf of *[name of Procuring Entity]*

Date:

Contract Agreement (Form PW3-9)

THIS AGREEMENT made the *[day]* day of *[month][year]* between *[name and address of Procuring Entity]* (hereinafter called "the Procuring Entity") of the one part and *[name and address of Contractor]* (hereinafter called "the Contractor") of the other part:

WHEREAS the Procuring Entity invited Tenders for certain works, viz, *[brief description of works]* and has accepted a Tender by the Contractor for the execution of those works in the sum of Taka *[Contract Price in figures and in words]* (hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract hereafter referred to.

2. The documents forming the Contract shall be interpreted in the following order of priority:

   (a) the signed Contract Agreement
   (b) the Notification of Award
   (c) the completed Tender and the Appendix to the Tender
   (d) the Particular Conditions of Contract
   (e) the General Conditions of Contract
   (f) the Technical Specifications
   (g) the General Specifications
   (h) the Drawings
   (i) the priced BOQ and the Schedules
   (j) any other document listed in the **PCC** forming part of the Contract.

3. In consideration of the payments to be made by the Procuring Entity to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Procuring Entity to execute and complete the works and to remedy any defects therein in conformity in all respects with the provisions of the Contract.

4. The Procuring Entity 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 Bangladesh on the day, month and year first written above.

	For the Procuring Entity	For the Contractor
Signature		
Name		
National ID No.		
Title		
In the presence of Name		
Address		

Bank Guarantee for Performance Security (Form PW3-10)

[This is the format for the Performance Security to be issued by any scheduled Bank of Bangladesh in accordance with ITT Clause 65, 66, 67 & 68]

Contract No: [insert reference number] Date: [insert date]

To:

[insert Name and address of Procuring Entity]

PERFORMANCE GUARANTEE No: [insert number]

We have been informed that *[name of Contractor]* (hereinafter called "the Contractor") has undertaken, pursuant to Contract No *[insert reference number of Contract]* dated *[insert date of Contract]* (hereinafter called "the Contract"), the execution of works *[description of works]* under the Contract.

Furthermore, we understand that, according to your conditions, the Contract must be supported by a Bank Guarantee for Performance Security.

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

This guarantee is valid until *[date of validity of guarantee]*, consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Signature Signature

Bank Guarantee for Advance Payment (Form PW3-11)

[This is the format for the Advance Payment Guarantee to be issued by any scheduled Bank of Bangladesh in accordance with GCC Clause 73]

Contract No: [insert reference number] Date: [insert date]

To:

[insert Name and address of the Procuring Entity]

ADVANCE PAYMENT GUARANTEE No: [insert number]

We have been informed that *[name of Contractor]* (hereinafter called "the Contractor") has undertaken, pursuant to Contract No *[insert reference number of Contract]* dated *[insert date of Contract]* (hereinafter called "the Contract"), the execution of works *[description of works]* under the Contract.

Furthermore, we understand that, according to your Conditions of Contract under GCC Clause 75, the Advance Payment on Contract must be supported by a Bank Guarantee.

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

We further agree that no change, addition or other modification of the terms of the Contract to be performed, or of any of the Contract documents which may be made between the Procuring Entity and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee is valid until *[insert date of validity of guarantee]*, consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Signature Signature

Bank Guarantee for Retention Money Security(Form PW3-12)

[This is the format for the Retention Money Guarantee to be issued by any scheduled Bank of Bangladesh in accordance with GCC Clause 70]

Demand Guarantee

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

Beneficiary:[insert Name and Address of the Procuring Entity]

Date: [insert date]

RETENTION MONEY GUARANTEE No.: [insert number]

We have been informed that [insert name of Contractor] (hereinafter called "the Contractor") has entered into Contract Number [insert reference number of the Contract] dated [insert date] with you, 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, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment, payment of Tk. [insert the amount of the second half of the Retention Money] which becomes due after the Defects Liability Period has passed and certified in the form of Defects Correction Certificate, is to be made against a Retention Money Guarantee.

At the request of the Contractor, we [insert name of Bank] hereby irrevocably unconditionally undertake to pay you any sum or sums not exceeding in total an amount of Tk. [insert amount in figures] (Taka [insert 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 failed to properly correct the defects duly notified in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the payment of the second half of the Retention Money referred to above must have been received by the Contractor on its account number[insert A/C no] at [name and address of Bank].

This guarantee is valid until [insert the date of validity of Guarantee that being twenty-eight (28) days beyond the Defects Liability Period]. Consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Signature Signature

Section 6. Bill of Quantities

BoQ for Construction of 6 Storied Dormitory Building at Patuakhali 1320 (2 X 660) MW Coal Fired Thermal Power Plant

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
1	**Sand filling** in foundation trenches and plinth with sand having F.M. 0.5 to 0.8 in 150mm layers including leveling, watering and compaction to achieve minimum dry density of 90% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only etc. all complete and accepted by the Engineer.	cum	95.74			
2	**Site Development/Improvement** by carted/dredged earth or sand (free from any organic, foreign, environmental hazard substances) carried by head or truck or any other meansl in/c cost of cutting/dredging of earth/sand, carrying, placing the earth/sand in the designated area, maintaining slopes, breaking lumps, levelling and dressing in layers up to finished level etc. all complete as per direction and accepted by the engineer in charge.	cum	563.00			
3	**One layer of brick flat soling** in foundation or in floor or where necessary with 1st class or picked jhama bricks including preparation of bed and filling the interstices with local sand, levelling etc. all complete as per specification, drawing and accepted by the Engineer.	sqm	437.63			
4	**Mass concrete (1:3:6) in foundation or floor** with cement, sand (F.M. 1.2) and picked jhama chips including breaking chips, screening, mixing, laying, compacting to levels and curing for at least 7 days including the supply of water, electricity and other charges and costs of tools and plants etc. all complete and accepted by the Engineer.	cum	583.49			
5	**RCC WORKS** **(f'c = 32 MPa, minimum f'cr = 40 MPa in nominal mix 1 : 1.25 : 2.5)** **With Stone Chips and Admixture (high strength concrete) using Steel Shutter** **Reinforced cement concrete works using steel shutter with minimum cement content relates to mix ratio 1:1.25:2.5** having minimum f'cr = 40 Mpa, and satisfying a specified compressive strength **f'c = 32** Mpa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM & Cement conforming to BDS EN-197-1-CEM 1 (32.5 to 52.5 N) / ASTM-C 150 Type – I, with approved high range admixture, best quality coarse sand [Sylhet sand or coarse sand of equivalent F.M. 2.2], 20 mm down well graded crushed stone chips conforming to ASTM C-33, including breaking chips and screening through proper sieves, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hoper and fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering including cost of water, electricity, testing and other charges etc. all complete approved and accepted by the Engineer.(Dose of admixture in the mix to be fixed by mix design) [Rate is excluding the cost of reinforcement and its fabrication, binding, welding and placing, admixture and mix design] Individual Concrete	cum	21.62			
6	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	40.65			
7	**Padestals, column, column capitals below plinth level** Concrete	cum	26.50			
8	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	201.13			
9	**Ground floor beam/Grade beam at plinth level** Concrete	cum	0.55			
10	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	6.91			
11	**Ground floor slab at plinth level** Concrete	cum	87.00			
12	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	45.00			
13	**Stair case slab, steps and ramp etc.(Below PL)** Concrete	cum	2.00			
14	Formwork /shuttering, prop and necessary supports etc. (Steel)	sqm	14.00			
15	Supplying, fabrication and fixing **ribbed or deformed bar reinforcement** of required size and length in concrete in accordance with specification clause 2.6, including straightening the bar, removing rusts, cleaning , cutting, bending, binding in position with supply of 22 B.W.G G.I wire including lapping, supporting with precast concrete blocks (1:1), metal chair, hangers etc. complete including cost of all materials, labour, local handling, laboratory test, incidental necessary to complete the work in all respects as per specification, drawing and direction of the Engineer. Before commencing of fabrication of re-bar, Contractor shall submit bar bending schedule to the Engineer for approval. **60-grade** ribbed or deformed bar	tonne	13.10			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
16	Supplying and mixing specified type **chemical admixture** delivered from an authorized local agent or manufacturer, comply with the ASTM C-494 requirements, confirming the current compliance of the admixture to specification requirements like physical properties, uniformity and equivalence in composition etc., performance (water content, fresh concrete setting time and compressive strength) requirements, delivered in sealed water-tight containers having and confirming plainly marked the proprietary name of the admixture type under this specification, net weight and /or volume, manufacturing and expiry date, non aggressiveness to environment, aggregates and metals in concrete etc. and mixing the admixture in non pre-stressed cement concrete mixture in the field under the strict accordance with manufacturers recommendation and instruction, providing safety provisions in all respects etc. all complete as per instruction and approved by the Engineer. Dose (quantity in milliliters per 50 kg bag cement) and brand/origin/ manufacturer with respect to particular brand of cement and particular stock of aggregates and method of use to be determined by mix design / trial mix at the cost borne by the Contractor and approved by the Engineer. Supply and use of **water-reducing high range and retarding chemical admixture** ASTM C-494 Type -G of approved brand / origin / manufacturer in concrete: The admixture required to produce concrete of consistency by 12% or greater (flowing concrete) and for higher strength of concrete and intend to retard setting time of concrete.	Liter	120.14			
17	**Brick works with first class bricks** in cement sand (F.M. of sand 1.2) mortar (1:6) in foundation and plinth, filling the joints/interstices fully with mortar, racking out the joints, cleaning and soaking the bricks at least for 24 hours before use and curing at least for 7 days etc. all complete including cost of water, electricity and other charges and accepted by the Engineer.	cum	26.98			
18	**125 mm thick brick works** with first class bricks in cement sand (F.M. 1.2) mortar (1:4) and making bond with connected walls including necessary scaffolding, racking out joints, cleaning and soaking the bricks for at least 24 hours before use and washing of sand, curing at least for 7 days in all floors and where necessary including cost of water, electricity and other charges etc. all complete as per specification, drawing and accepted by the Engineer.	Sqm	141.00			
19	**38 mm thick artificial patent stone** (1:2:4) flooring with cement, best quality coarse sand (50% quantity of Sylhet sand or coarse sand of equivalent F.M. 2.2 and 50% best local sand of FM 1.2) and 12 mm down well graded **brick chips** including breaking chips, screening, laying the concrete in alternate panels, compacting and finishing the top with neat cement and curing at least 7 days in all floors including cost of water, electricity and other charges etc. all complete and accepted by the Engineer. In ground floor Parking area at plinth level	sqm	87.00			
20	Minimum **12 mm thick cement sand (F.M. 1.2) plaster with neat cement finishing to plinth wall (1:4)** with cement up to 150 mm below ground level with neat cement finishing including washing of sand, finishing the edges and corners and curing at least for 7 days, cost of water, electricity and other charges etc. all complete in all respect as per drawing and accepted by the Engineer.	sqm	74.00			
21	Supplying, fitting and fixing **PVC water stopper** in 10" wide horizontal construction joint of RCC basement slab with 1.5" x 2.5" wooden batten at the top and bottom, binding with GI wire etc. Size 250 x 9 mm in Lift core wall	rm	`12			
22	**Super-structure (Above Plinth Level) Reinforced Cement Concrete (RCC) Works** **RCC WORKS (f'c = 32 MPa, minimum f'cr = 40 MPa in nominal mix 1 : 1.25 : 2.5)** **With Stone Chips and Admixture (high strength concrete) using Steel Shutter** **Reinforced cement concrete works using steel shutter with minimum cement content relates to mix ratio 1:1.25:2.5** having minimum f'cr = 40 Mpa, and satisfying a specified compressive strength **f'c = 32 Mpa** at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM & Cement conforming to BDS EN-197-1-CEM 1 (32.5 to 52.5 N) / ASTM-C 150 Type – I, with approved high range admixture, best quality coarse sand [Sylhet sand or coarse sand of equivalent F.M. 2.2], 20 mm down well graded crushed stone chips conforming to ASTM C-33, including breaking chips and screening through proper sieves, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hoper and fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering including cost of water, electricity, testing and other charges etc. all complete approved and accepted by the Engineer.(Dose of admixture in the mix to be fixed by mix design) [Rate is excluding the cost of reinforcement and its fabrication, binding, welding and placing, admixture and mix design] **In ground floor** Concrete	cum	27.00			
23	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	237.00			
24	**In 1st floor** Concrete	cum	27.00			
25	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	237.00			
26	**In 2nd floor** Concrete	cum	26.00			
27	**In 3rd floor** Concrete	cum	26.00			
28	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	234.00			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
29	**In 4th floor** Concrete	cum	26.00			
30	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	234.00			
31	**In 5th floor** Concrete	cum	26.00			
32	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	234.00			
33	**In Roof floor** Concrete	cum	10.00			
34	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	106.00			
35	**Rectangular beams etc.** **In ground floor** Concrete	cum	35.00			
36	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	314.00			
37	**In 1st floor** Concrete	cum	35.00			
38	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	314.00			
39	**In 2nd floor** Concrete	cum	35.00			
40	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	314.00			
41	**In 3rd floor** Concrete	cum	35.00			
42	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	314.00			
43	**In 4th floor** Concrete	cum	35.00			
44	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	314.00			
45	**In 5th floor** Concrete	cum	35.00			
46	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	314.00			
47	**In Roof floor** Concrete	cum	9.00			
48	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	82.00			
49	**In floor and roof slabs** **In ground floor** Concrete	cum	66.00			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
50	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	474.00			
51	**In 1st floor** Concrete	cum	66.00			
52	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	474.00			
53	**In 2nd floor** Concrete	cum	66.00			
54	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	474.00			
55	**In 3rd floor** Concrete	cum	64.00			
56	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	457.00			
57	**In 4th floor** Concrete	cum	64.00			
58	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	457.00			
59	**In 5th floor** Concrete	cum	64.00			
60	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	457.00			
61	**In Roof floor** Concrete	cum	15.00			
62	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	76.00			
63	**Stair case slab, steps and ramp etc.** **In ground floor** Concrete	cum	4.00			
64	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	35.00			
65	**In 1st floor** Concrete	cum	4.00			
66	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	35.00			
67	**In 2nd floor** Concrete	cum	4.00			
68	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	35.00			
69	**In 3rd floor** Concrete	cum	4.00			
70	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	35.00			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
71	**In 4th floor** Concrete	cum	4.00			
72	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	35.00			
73	**In 5th floor** Concrete	cum	4.00			
74	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	35.00			
75	**Tie beam and lintels** **In ground floor** Concrete	cum	13.00			
76	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	151.00			
77	**In 1st floor** Concrete	cum	10.10			
78	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	126.00			
79	**In 2nd floor** Concrete	cum	12.00			
80	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	143.00			
81	**In 3rd floor** Concrete	cum	12.00			
82	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	143.00			
83	**In 4th floor** Concrete	cum	12.00			
84	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	143.00			
85	**In 5th floor** Concrete	cum	12.00			
86	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	143.00			
87	**In Roof floor** Concrete	cum	3.00			
88	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	28.00			
89	**In railing, drop wall, louver, fins, parapet, window sill & frame etc. including making necessary groove on concrete surface.** **In ground floor** Concrete	cum	4.70			
90	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	84.00			
91	**In 1st floor** Concrete	cum	17.20			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
92	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	308.00			
93	**In 2nd floor** Concrete	cum	17.20			
94	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	308.00			
95	**In 3rd floor** Concrete	cum	15.60			
96	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	279.00			
97	**In 4th floor** Concrete	cum	15.60			
98	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	279.00			
99	**In 5th floor** Concrete	cum	15.60			
100	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	279.00			
101	**In On Roof floor** Concrete	cum	7.50			
102	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	135.00			
103	**false ceiling** **In ground floor** Concrete	cum	9.00			
104	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	66.00			
105	**In 1st floor** Concrete	cum	4.00			
106	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	63.00			
107	**In 2nd floor** Concrete	cum	4.00			
108	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	63.00			
109	**In 3rd floor** Concrete	cum	5.00			
110	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	70.00			
111	**In 4th floor** Concrete	cum	5.00			
112	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	70.00			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
113	**In 5th floor** Concrete	cum	5.00			
114	Formwork/shuttering, prop and necessary supports etc. (steel)	Sqm	70.00			
115	Supplying and mixing specified type **chemical admixture** delivered from an authorized local agent or manufacturer, comply with the ASTM C-494 requirements, confirming the current compliance of the admixture to specification requirements like physical properties, uniformity and equivalence in composition etc., performance (water content, fresh concrete setting time and compressive strength) requirements, delivered in sealed water-tight containers having and confirming plainly marked the proprietary name of the admixture type under this specification, net weight and /or volume, manufacturing and expiry date, non aggressiveness to environment, aggregates and metals in concrete etc. and mixing the admixture in non pre-stressed cement concrete mixture in the field under the strict accordance with manufacturers recommendation and instruction, providing safety provisions in all respects etc. all complete as per instruction and approved by the Engineer. Dose (quantity in milliliters per 50 kg bag cement) and brand/origin/ manufacturer with respect to particular brand of cement and particular stock of aggregates and method of use to be determined by mix design / trial mix at the cost borne by the Contractor and approved by the Engineer. Supply and use of **water-reducing high range and retarding chemical admixture** ASTM C-494 Type -G of approved brand / origin / manufacturer in concrete: The admixture required to produce concrete of consistency by 12% or greater (flowing concrete) and for higher strength of concrete and intend to retard setting time of concrete.	Liter	589.00			
116	Supplying, fabrication and fixing **ribbed or deformed bar reinforcement** of required size and length in concrete in accordance with specification clause 2.6, including straightening the bar, removing rusts, cleaning , cutting, bending, binding in position with supply of 22 B.W.G G.I wire including lapping, supporting with precast concrete blocks (1:1), metal chair etc. complete including cost of all materials, labour, local handling, laboratory test, incidental necessary to complete the work in all respects as per specification, drawing and direction of the Engineer. Before commencing of fabrication of re-bar, Contractor shall submit bar bending schedule to the Engineer for approval. **Grade 400 (RB 400 / 400W**: complying BDS ISO 6935-2:2006) ribbed or deformed bar	tonne	90.00			
117	**Brick Works,** **Brick works with first class bricks** in cement sand (F.M. 1.2) mortar **(1:4) in exterior walls** including filling the interstices with mortar, raking out joints, cleaning and socking the bricks at least for 24 hours before use and washing of sand, necessary scaffolding, curing at least for 7 days etc. all complete including cost of water, electricity and other charges (measurement to given as 250 mm width for one brick length and 375 mm for one brick and a half brick length) accepted by the Engineer. In ground floor	cum	5.00			
118	In 1st floor	cum	5.00			
119	In 2nd floor	cum	5.00			
120	In 3rd floor	cum	5.00			
121	In 4th floor	cum	5.00			
122	In 5th floor	cum	5.00			
123	In Roof floor	cum	27.00			
124	**125 mm thick brick works** with first class bricks in cement sand (F.M. 1.2) mortar (1:4) and making bond with connected walls including necessary scaffolding, racking out joints, cleaning and soaking the bricks for at least 24 hours before use and washing of sand, curing at least for 7 days in all floors and where necessary including cost of water, electricity and other charges etc. all complete as per specification, drawing and accepted by the Engineer. In ground floor	sqm	551.00			
125	In 1st floor	sqm	272.00			
126	In 2nd floor	sqm	272.00			
127	In 3rd floor	sqm	558.00			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
128	In 4th floor	sqm	558.00			
129	In 5th floor	sqm	558.00			
130	In Roof floor	sqm	143.00			
131	**Minimum 12mm thick** cement sand (F.M. 1.2) plaster (1:4) with fresh cement to wall both inner and outer surfaces, finishing the corner and edges including washing of sand, cleaning the surface, scaffolding and curing at least for 7 days, cost of water, electricity and other charges etc. all complete as per specification, drawing and accepted by the Engineer. In ground floor	sqm	1279.00			
132	In 1st floor	sqm	650.00			
133	In 2nd floor	sqm	650.00			
134	In 3rd floor	sqm	1295.00			
135	In 4th floor	sqm	1295.00			
136	In 5th floor	sqm	1295.00			
137	In Roof floor	sqm	563.00			
138	Minimum **12 mm thick cement sand (F.M. 1.2) plaster with neat cement finishing to dado (1:4)** with cement up to 150 mm below ground level with neat cement finishing including washing of sand, finishing the edges and corners and curing at least for 7 days, cost of water, electricity and other charges etc. all complete in all respect as per drawing and accepted by the Engineer.	sqm	34.00			
139	Minimum **6 mm thick cement sand (F.M. 1.2) plaster** (1:4) with fresh cement to RCC **ceiling, columns, beams, surface of stair case, sunshades, cornices, railings, drop wall, louvers, parapet, fins** and finishing the corners, grooves and edges including washing of sand, cleaning the surface, scaffolding and curing at least for 7 days cost of water, electricity and other charges etc. all complete as per specification, drawing and accepted by the Engineer. In ground floor	sqm	1359.00			
140	In 1st floor	sqm	1556.00			
141	In 2nd floor	sqm	1556.00			
142	In 3rd floor	sqm	1524.00			
143	In 4th floor	sqm	1528.00			
144	In 5th floor	sqm	1147.00			
145	In Roof floor	sqm	235.00			
146	**38 mm thick artificial patent stone** (1:2:4) flooring with cement, best quality coarse sand (50% quantity of Sylhet sand or coarse sand of equivalent F.M. 2.2 and 50% best local sand of FM 1.2) and 12 mm down well graded **brick chips** including breaking chips, screening, laying the concrete in alternate panels, compacting and finishing the top with neat cement and curing at least 7 days in all floors including cost of water, electricity and other charges etc. all complete and accepted by the Engineer.	sqm	69.00			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
147	Supplying, fitting and fixing country made **glazed wall tiles** ,irrespective of color &/or design, with on 20 mm thick cement sand (F.M. 1.2) mortar (1:3) base and raking out the joints with repective joint filler & binder including cutting, laying and hire charge of machine and finishing with care etc. including water, electricity and other charges complete all respect accepted by the Engineer. **Coloured** glazed wall tiles of different sizes In ground floor	sqm	31.00			
148	In 1st floor	sqm	63.00			
149	In 2nd floor	sqm	63.00			
150	In 3rd floor	sqm	71.00			
151	In 4th floor	sqm	71.00			
152	In 5th floor	sqm	71.00			
153	Supplying, fitting and fixing country made GP(Gress Porcellanto) - **glazed or unglazed homogeneous floor tiles complying BDS ISO 13006: 2015, water absorbtion ≤ 0.5%, modulus of rupture (MOR) ≥ 27 N/mm^2 irrespective of color &/or design,** with cement sand (F.M. 1.2) mortar (1:4) base and raking out the joints with white cement including cutting and laying the tiles in proper way and finishing with care etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/A-M). In ground floor(600x600)	sqm	393.00			
154	In 1st floor	sqm	353.00			
155	In 2nd floor	sqm	340.00			
156	In 3rd floor	sqm	246.00			
157	In 4th floor	sqm	325.00			
158	In 5th floor	sqm	325.00			
159	Supplying, fitting and fixing **GP homogeneous stair tiles (local made)** with cement sand (F.M. 1.2) mortar (1:4) base and raking out the joints with white cement including cutting and laying the tiles in proper way and finishing with care etc. all complete and accepted by the Engineer. (Cement: CEM-II/A-M) In ground floor	sqm	21.00			
160	In 1st floor	sqm	21.00			
161	In 2nd floor	sqm	21.00			
162	In 3rd floor	sqm	21.00			
163	In 4th floor	sqm	21.00			
164	In 5th floor	sqm	21.00			
165	**Door frames, shutter, Metal Works** Supplying and making door and window frames (Chowkat) for all floors with matured natural seasoned wood of required size including painting two coats of coal tar to the surface in contact with wall, fitting and fixing in position etc. complete and accepted by the Engineer (All sizes of wood are finished). Garjan/ Jam/ Local sal	Cum	4.00			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
166	Supplying, fitting and fixing 38 mm thick well matured, natural seasoned (min 10" wide plank) **solid wood single leaf flush door shutter** having a frame of top lock and bottom rail of sections 100 mm x 12 mm styles 100 mm x 38 mm covered with 100 mm x 12 mm plank, screwed to each face and provided with best quality 4 Nos. 100 mm iron hinges, 2 (two) Nos. best quality 12 mm dia 300 mm and 200 mm long iron tower and socket bolts, 2 (two) Nos. heavy type nickel plated handles, hinged cleats, buffer blocks and finished by sand papering etc. all complete in all floors and accepted by the Engineer. (All sizes of wood are finished) Teak Chambal	Sqm	131.00			
167	Supplying, fitting and fixing **M.S. door shutter** made with 1.5" x 1.5" x ¼" angle outer frame, inner member 1" x ¼" F.I. bar, cladding with 16 BWG M.S. sheet, hinged with 2" x 2" x ¼" M.S. angle Chowkat.	Sqm	5.00			
168	Supplying, fitting and fixing **M.S. flat bar clamp** 150 x 38 x 6 mm size having bifurcated ends to door and window frames with rowel plug, necessary screws etc. including cutting groove in Chowkat if necessary etc. complete in all respect accepted by the Engineer.	each	372.00			
169	Supplying, fitting and fixing best quality heavy type 19 mm dia and to 300 mm long brass **hasp bolt** including cutting grooves in door shutter and frames, screws etc. all complete approved and accepted by the Engineer.	each	62.00			
170	Supplying, fitting and fixing **Rim/ round door lock** approved and accepted by the Engineer.	each	62.00			
171	Supplying fitting, fixing of **uPVC plastic door or window frame** having specific gravity 1.35 - 1.45, and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards or ASTM, BS/ISO/IS standards fitted and fixed in brick wall/ R.C.C wall with 6 Nos. GI clamp, 4Nos inner joint GI clamp, 2 Nos. outer GI joint clamp, 16 Nos. rivet making necessary grooves and mending good the damages, finishing, curing, carriage etc complete in all respect accepted by the Engineer.	Rm	372.00			
172	Supplying, fitting, fixing of **uPVC hollow plastic door shutter** having specific gravity 1.35 - 1.45, thickness 1.7 mm-2.2 mm, and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards or ASTM, BS/ISO/IS standards of different sizes fitted fixed with uPVC plastic door frame weighing 5.82 kg/m2 with at least 3 Nos. SS hinges by min 64 Nos. Ø 3.17 mm and 3.97 mm 12.7 mm long rivets, 12 Nos. 25.4 mm SS screws, Ø 9.38 mm, 150 mm long SS tower bolts 2 Nos., 146 mm SS handle by rivet 2 Nos., G.I inner joint 234.95 mm x 127 mm clamp, 76.2 mm x 57.15 mm, 25 mm dia 1 no SS haspbolt, special type round lock, carrying the same to the site and local carriage etc. complete in all respect accepted by the Engineer	each	75.00			
173	Supplying, fitting and fixing **window grills of any design made with 20 mm x 5 mm F.I. bar @ 100 mm c/c as inner and outer section**; including fabricating, welding, cost of electricity and tools and plants, finished with anti-corrosive painting (Red-Oxide), carriage, cutting grooves, mending good the damages etc. complete for all floors accepted by the Engineer-in-charge. (Total weight per sqm should be approx. 11 kg. and add or deduct. @ Tk. 100.00 for each kg/sqm excess or less respectively)	sqm	152.00			
174	Manufacturing, supplying, fitting and fixing **stair railing** of any standard height of any design and shape with square box (2 Nos. in each tread) made by thorough welding of 2 Nos. 19 x 19 x 3 mm M.S. angle to provide hand-rail, engraving each box 150 mm in the concrete by 50 x 50 x 6 mm anchor plate at base welding 38 mm x 6 mm F.I. bar inclined plain with the top of the box to fit in the grooved wooden rail by necessary screws including cutting grooves in concrete, mending good the damages with cement concrete (1:2:4), applying first class polish to hand rail, 2 (two) coats of synthetic enamel paint of approved quality over a prime coat etc. finished in all respect for all floors and accepted by the Engineer.(Exposed area of railing will be considered for measurement, rate is excluding cost of hand-rail and cost of painting).	sqm	20.00			
175	Supplying, fitting and fixing **stainless steel (SS) stair railing** of standard height with 2 mm thick 2.5" dia pipe for hand-rail as per drawing and accepted by the Engineer.	Sqm	342.00			
176	**Aluminium sliding door, Sliding window,** Supplying, fitting and fixing of Aluminium fixed composite window as per the U.S. Architectural Aluminium Manufacturer's Association (AAMA) standard specification having 1.2 mm thick outer bottom (size 75.50 mm, 32 mm, 0.695 kg/m), 1.2 mm thick outer top (size 75.50mm, 26.80 mm, 0.78 kg/m), 1.2 mm thick shutter top (size 33 mm, 26.80 mm, 0.536 kg/m), 1.25 mm thick shutter bottom (size 60 mm, 24.40 mm, 0.736 kg/m), 1.2 mm thick outer side (size 75.50 mm, 19.90 mm, 0.616 kg/m), 1.2 mm thick sliding fixed side (size 31 mm, 26 mm, 0.422 kg/m), 1.2 mm thick shutter lock (size 49.20 mm, 26.20 mm, 0.661 kg/m), 1.2 mm thick inter lock (size 34.40 mm, 32.10 mm 0.665 kg/m) 1.2 mm thick bottom cover (size 37.78 mm, 31.78 mm 0.313 kg/m), 1.2 mm thick grouve cover (76.20 mm, 38.10 mm, 0.912 kg/m), 1.2 mm thick grouve cover (size 57.15 mm, 15.80 mm, 0.452 kg/m) and 1.2 mm thick top and side (size 76.20 mm, 38.10 mm, 0.3 kg/m) sections all aluminium members (total weight 12.297 kg) will be anodized aluminium bronze/silver colour with a coat not less than 15 micron in thickness and density of 4 mg per square cm etc. including all accessories like sliding door key lock, sliding door wheel, sliding door mohiar, sliding door neoprene, bolts and nuts including sealants, keeping provision for fitting 5 mm thick glass including labour charge for fitting of accessories, making grooves and mending good damages, carriage, and electricity complete in all respect as per drawing and accepted by the Engineer. Silver colour	sqm	50.00			
177	Supplying, fitting and fixing in Aluminium door frames, windows, partitions and curtain wall **distortion free glass** of approved quality and shade including cost of fitting fixing all necessary accessories etc. complete in all respect as per drawing and accepted by the Engineer. 5 mm thick clear glass	Sqm	454.00			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
178	Supplying fitting and fixing of **Aluminium fixed louver** as per the U.S. Architectural Aluminium Manufacturer's Association (AAMA) standard specification having 1.2mm thick wall frame (size 76.20 mm, 38.10 mm, 0.707 kg/m), 5 mm thick louver section (size 55.02 mm, 37.39 mm, 0.22kg/m) and 2.50 mm thick louver outer section (size 39.67 mm, 15.06 mm, 0.265 kg/m) and inner inclined aluminium louver section fixed with above mentioned frame and all aluminium members (total weight 7.992 kg) will be anodized to aluminium bronze/silver colour with a coat not less than 15 micron in thickness and density of 4 mg per square cm etc. including all accessories, neoprene, sealant, nuts and bolts etc. complete in all respect as per drawing and accepted by the Engineer. Silver colour	Sqm	7.00			
179	Supplying, fitting and fixing of **Aluminium sliding doors** as per the U.S. Architectural Aluminium Manufacturer's Association (AAMA) standard specification having 1.2 mm thick outer bottom (size 75.50 mm, 17.79 mm, 0.528 kg/m), 1.2 mm thick outer top (size 75.50 mm, 26.80 mm, 0.78 kg/m) 1.2 mm thick shutter top (size 33 mm, 26.80 mm, 0.536 kg/m), 1.2 mm shutter bottom (size 60 mm, 24 mm, 0.736 kg/m), 1.2 mm thick outer side(size 75.50 mm, 19.90 mm, 0.616 kg/m) 1.5 mm thick shutter lock (size 49.20 mm, 26.20 mm, 0.661 kg/m), 1.2 mm thick inter lock (size 34.40 mm, 32.10 mm, 0.665 kg/m) 1.2 mm thick shutter divider (size 31.75 mm, 0.535 kg/m) sections all aluminium members (Total weight 14.789 kg) will be anodized to aluminium bronze/silver colour with a coat not less than 15 microns in thickness and density of 4 mg per square cm etc. including all accessories like handle, sliding door key lock , sliding door wheel, sliding door mohiar, sliding door neoprene, bolts and nuts including sealants, keeping provision for fitting 5mm thick glass including labour charge for fitting of accessories, making grooves and mending good damages, carriage, and electricity complete in all respect as per drawing and accepted by the Engineer. Size up to: 2100 mm x 2100 mm	sqm	238.00			
180	Supplying fitting and fixing of Aluminium **swing door with fixed partition** as per the U.S. Architectural Aluminium Manufacturer's Association (AAMA) standard specification having 1.8 mm thick wall frame size 101.60 mm. 44.45 mm. 83.21 mm). 2.33 mm thick shutter size (54 mm, 46 mm), 0.99 mm thick door glass bit (size 16.54 mm. 14.49 mm 0.115 kg/m), 2.5 mm thick clousure section (size 101.60 mm, 42.93 mm 1.2 mm), 106.60 mm clousure cover (0.45 kg/m), 4 mm thick floor bottom (size 101.60 mm. 12.70 mm 1 kg/m), 1.8 mm thick shutter bottom (size 82.6 mm, 43.99 mm, 0.60 kg/m), 1.8 mm thick shutter top (size 51 mm, 43.99 mm, 1.88 kg/m) and 2.3 mm to 4.01 mm thick handle (size 101.60 mm, 38.10 mm, 25.40 mm short, 1.35 kg/m) section of all aluminum members will be anodized to aluminium bronze/silver colour with a coat not less than 15 microns in thickness and density of 4 mg per square cm etc. including all accessories like swing door clousure, swing door lock, swing door mohiar, labour charge, fabrication, fitting fixing in position, carriage and electricity charge keeping provision for fitting 5 mm thick glass including neoprene sealant etc. complete in all respect as per drawing and accepted by the Engineer. (Total weight min 23 kg/m2)	sqm	16.00			
181	**Painting Works** Plastic emulsion paint of approved best quality and colour delivered from authorized local agent of the manufacturer in a sealed container, applying to wall and ceiling in two coats over a coat of brand specified primer or sealer elapsing specified time for drying or recoating including cleaning drying, making free from dirt, grease, wax, removing all chalked and scaled materials, fungus, mending good the surface defects, sand papering the surface and necessary scaffolding, spreading by brush/ roller/spray etc. all complete in all floors accepted by the Engineer. On exterior surface applying as per manufacturer instructions 3 coat of **weather coat** of approved quality and colour delivered from authorized local agent of the manufacturer in a sealed container complete in all respect in all floors and accepted by the Engineer.	sqm	22846.00			
182	On exterior surface applying as per manufacturer instructions 3 coat of weather coat of approved quality and colour delivered from authorized local agent of the manufacturer in a sealed container complete in all respect in all floors and accepted by the Engineer.	sqm	3861.00			
183	Painting to **door and window frames and shutters** in 2 (two) coats with approved best quality and colour of **synthetic enamel paint** delivered from authorized local agent of the manufacturer in a sealed container, having highly water resistant, high bondibility, flexible, using specific brand thinner applied by brush / roller / spray over a coat of priming elapsing time for drying including surface cleaning from dust, oil or dirt, smoothening, finishing and polishing with sand paper and necessary tools, scaffolding etc. all complete in all floors approved and accepted by the Engineer.	sqm	181.00			
184	**French polishing** to door and window frames and shutters three coats over a coat of priming including putty, cleaning finishing and polishing with sand paper etc. all complete in all floors accepted by the Engineer.	sqm	295.00			
185	**Lime Terracing** Average 100 mm thick finished lime terracing with 20 mm down graded first class brick chips (Khoa), surki from 1st class bricks and lime (stone lime brought at site, not being powdered in open air and to be slaked in presence of engineer-in-charge and to be measured in volume three days after slaking for using in the mix) in the proportion 7:2:2 (brick chips : surki : lime) including preparation of the mix on the ground by making a suitable platform under proper polythene cover. Cutting the mix twice daily with limewater (1:10) at least for 7 days until the mix attain desirable consistency. Laying the mix in proper slope, beating the same with standard 'koppa' for minimum 7 days to gain maximum consolidation, making ghoondy and neat finishing with lime Surki mortar (1:2) and curing for 21 days providing polythene cover after each day work and cleaning etc. complete in all respect accepted by the Engineer.	cum	52.00			
186	**CONCEALED POINT WIRING** Concealed conduit wiring for following point looping at the switch board with earth terminal with IC-2x1.5 sq.mm PVC insulated cable (BYA) & same size PVC insulated green/white coloured ECC wire (BYA) including circuit wiring with 1C-2x2.5 sq.mm PVC insulated cable (BYA) & same size PVC insulated green/white coloured ECC wire (BYA) through PVC conduit of reputed manufacturer) of minimum 25 mm dia & 1.5 mm wall thickness complete with 18 SWG GP sheet, pull box with 3mm thick ebonite sheet cover, ceiling rose, fixing materials etc.(without switch & switchboard) as required including mending the damages good. All electrical contacts shall be of brass/copper connected through connector or soldering (no twisting shall be allowed) and cables shall be manufactured and tested according to relavent IEC/BDS/BS/VDE standards and as per detailed specification mentioned in Annexure-A. The work shall be carried out as per direction/approval/acceptance of the Engineer. Cables manufactured by Paradise / BRB or any other company(s) having valid test certificate from Internationally accredited Laboratory accepted/approved by the Engineer. Light/Exhaust fan point	point	552			
187	Fan point	point	75			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
188	**CONCEALED CONDUIT WIRING** Concealed conduit wiring with the following PVC insulated stranded cable (BYA) & PVC insulated green/white coloured ECC wire (BYA) through PVC conduit of reputed manufacturer) complete with 18 SWG GP sheet pull box with 3mm thick ebonite sheet cover, fixing materials, other accessories etc. as required including mending the damages good. All electrical contacts shall be of brass/copper connected through connector or soldering (no twisting shall be allowed) and cables shall be manufactured and tested according to relavent IEC/BDS/BS/VDE standards and as per detailed specification mentioned in Annexure-A. The work shall be carried out as per direction/approval/acceptance of the Engineer.Cables manufactured by Paradise / BRB or any other company(s) having valid test certificate Laboratory accepted/approved by the Engineer. from Internationally accredited. 1C-2 x 2.5 sq.mm (BYA-rm) cable with 2.5 sq.mm (BYA, rm-green colour) ECC wire through PVC pipe of minimum inner dia 16 mm having minimum wall thickness 1.5 mm	meter	3000.00			
189	1C-2x4.0 sqmm (BYA) cable with 4 sqmm (BYA) ECC wire through PVC pipe of minimum inner Dia. 16 mm having wall thickness of 1.5 mm	meter	200.00			
190	1C-4 x 4.0 sq.mm (NYY-rm) cable with 4.0 sq.mm (BYA, rm-green colour) ECC wire through PVC pipe of minimum inner dia 20 mm having minimum wall thickness 1.5 mm	meter	50.00			
191	**PVC CONDUIT WORKS** Providing & laying of following PVC pipe (Lira brand or equivalent product of other reputed manufacturer) embedded in wall/column/ceiling/floor etc. with all accessories, 18 SWG G.P sheet pull box with 3 mm thick ebonite sheet cover, fixing materials etc. as required including mending the damages good. 20mm inner dia and min. wall thickness 1.5mm	meter	870.00			
192	25mm inner dia and min. wall thickness 1.5mm	meter	800.00			
193	**UNDERGROUND CABLE WORKS** Providing & laying of the following PVC insulated & PVC sheathed cable (NYY) with PVC insulated green/white coloured ECC wire (BYA) connecting at both ends, through PVC pipe & accessories in the following manner: All electrical contacts shall be of brass/copper connected through connector or soldering (no twisting shall be allowed) and cables shall be manufactured and tested according to relavent IEC/BDS/ BS/ VDE standards and as per detailed specification mentioned in Annexure-A. The work shall be carried out as per direction/approval/acceptance of the Engineer. (i) In kutcha ground by cutting 45.70 cm width x 91.40 cm depth trench with necessary brick or tile protection and mending the damages good by refilling trench with proper compaction. (ii) In pucca floor through PVC pipe by cutting trench of necessary size and mending the damages good by brick soling, 75 mm (1:2:4) CC work with neat cement finishing etc. Cables manufactured by Paradise / BRB or any other company(s) having valid test certificate from Internationally accredited Laboratory accepted/approved by the Engineer. 1C-4x 6 sq.mm (NYY) with 6 sq.mm (BYA) ECC wire through PVC pipe of minimum inner dia 40 mm having wall thickness of 1.9 mm. In katcha ground	Meter	600			
194	In pucca ground	Meter	400			
195	1C-4x 120 sq.mm (NYY) with 50 sq.mm (BYA) ECC wire through PVC pipe of minimum inner dia 40 mm having wall thickness of 1.9 mm. In katcha ground	Meter	100			
196	In pucca ground	Meter	50			
197	**SOCKET OUTLETS** Providing & fixing 250 volt, single phase, 3-pin, 13 amps. Combined switch socket outlet (concealed type) manufactured and tested in accordance with relevant IEC/ VDE/NEMA/BS/JIS standards.mounted on required size 18 SWG galvanized plain sheet board of 76.2 mm. (3") depth. (Type Q). Socket Outlets of MK / MEM / HAGER / Legrand / Schneider / ABB or equivalent brand accepted/approved by the Engineer.	each	125			
198	Providing & fixing 250 volt, single phase, 3-pin, 15 amps. Combined switch socket outlet (concealed type) manufactured and tested in accordance with relevant IEC/ VDE/NEMA/BS/JIS standards.mounted on required size 18 SWG galvanized plain sheet board of 76.2 mm. (3") depth. (Type-T). Socket Outlets of MK//MEM/HAGER/ Legrand/ Schneider/ABB or equivalent brand accepted/approved by the Engineer.	each	2			
199	**GANG SWITCH** Providing & fixing 250 volts. 5/6 amps. (minimum) concealed type following switch / switch socket manufactured and tested in accordance with relevant IEC/ VDE/NEMA/BS/JIS standards mounted on required size 18 SWG galvanized plain sheet board of 76.2 mm (3") depth. All electrical contacts shall be of brass/copper Gang Switch of Made in HONGKONG / MALAYSIA / SINGAPORE / S KOREA / THAILAND or equivalent brand accepted/approved by the Engineer. One gang switch	each	169			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
200	Two gang switch	each	107			
201	Three gang switch	each	76			
202	One gang switch & one 5 amps. 2-pin socket combined. (Type P).	each	141			
203	**FAN** FAN CLAMP	each	75			
204	**EXHAUST FAN** Providing and fixing of following axial flow A.C capacitor type wall mounted exhaust fan complete with blade, steel frame standard wall louver shutter, PVC insulated connecting wire etc complete as required including cutting wall and mending good the damages as per direction of the Engineer. 8" Exhaust fan plastic body (Foreign made accepted/approved by the Engineer.)	each	7			
205	**LIGHT FITTINGS** Supply & complete installation of light fixture of following types complete with lamp of approved type, electronic control gear, earthing block and all other accessories as per specification, drawing and direction of the Engineer-in-Charge. Providing & fixing the fancy bracket light fitting of the following manufacturer's model & catalogue number with carrier, brass holder, earth terminal, necessary wiring with 2 x 0.4 sq.mm stranded PVC insulated flexible FR cable etc. Suitable for use CFL & LED lamp (except lamp) complete sample accepted / approved by the Engineer.ENERGY+ cat. no. EPWB 3003 / 1 W or equivalent product of GLORIA / SUNKO / CRESCENT / SHWASH / ASHA etc.	each	145			
206	Providing & fixing the 1 x 4' x 40 watt fluorescent tube light fitting of following manufacturers model & catalogue number with superior quality electronic ballast of one year guarantee, holder, necessary wiring with 2 X 0.4 sq. mm PVC insulated (stranded) flexible FR wire, earth terminal etc. (except lamp) complete sample accepted / approved by the Engineer.GLORIA cat no. GTF.755x1x40 watt Dgn. or equivalent product of ENERGY+,CRESCENT / SHWASH / ASHA.	each	5			
207	Surface type LED light fixture inside toilet similar to Gloria model LT8-2-10-AF/LT5-2-14-AF with 9W LED lamp or approved equivalent (Type-E)	each	18			
208	LED Down light fitting similar to Gloria Model GCDL 309 with 10W LED lamp or approved equivalent (Type-D)	each	10			
209	Supply and installation of security light fitting similar to Gloria model GLST 1201 with 80W LED lamp or approved equivalent. The rate includes 7500mm height 4" dia G.I. pole, pole foundation and pole accessories (Type-SL)	each	4			
210	Surface Mounted 300mm X 300mm 18W LED Panel Light Similar to Gloria model GPL701-24 or Approved equvalent from other manufacturer (Type-B)	each	60			
211	Providing & fixing the 1 x 4' x 40 watt fluorescent tube light fitting of following manufacturers model & catalogue number with superior quality electronic ballast of one year guarantee, holder, necessary wiring with 2 X 0.4 sq. mm PVC insulated (stranded) flexible FR wire, earth terminal etc. (except lamp) complete sample accepted / approved by the Engineer.GLORIA cat no. GTF.755x1x40 watt Dgn. or equivalent product of ENERGY+, CRESCENT / SHWASH / ASHA.	each	98			
212	Providing & fixing **round fluorescent tube light fitting** of the following manufacturers consisting of powder coated aluminium carrier, acrylic semicircular cover, holder, ballast, starter, earth terminal, necessary wiring with 2 x 0.4 sq.mm stranded PVC insulated flexible cable etc. complete (except lamp) of following model & as per sample approved by the Engineer-in-charge. Gloria cat No.GCF 801 1x22watt (Type-TL)	each	186			
213	Providing & fixing the bath-room light fitting of the following manufacturer's model[as per picture No. 6A.4.(i).(a)] & catalogue number consisting of oxidized or golden or chromium plated brass base with carrier, brass holder , earth terminal, necessary wiring with 2 x 0.4 sq.mm stranded PVC insulated flexible FR cable etc. Suitable for use CFL or LED lamp (except lamp) as per complete sample accepted / approved by the Engineer. GLORIA cat. no. GBB-959-2105-FR or equivalent product of SHWASH / CRESCENT / ENERGY+ / ASHA etc.	each	58			
214	**DISTRIBUTIONBOARD,MCB/MCCB** Providing & fixing 250V/415V, 50 Hz grade following concealed type Distribution board made of 18-SWG MS sheet complete with hinged type door, built-in type locking arrangement, one no. 200A/120 A /80A TP capacity bus-bar with required no. of holes thereon on insulators at both ends, copper blocks for neutral and earth terminal, SP/TPMCBs manufactured and tested in accordance with relevant IEC/VDE/NEMA/BS/JIS standard having minimum breaking capacity 6/10-KA with thermal over current and instantaneous electromagnetic short ckt. release, necessary arrangement for fixing of MCBs in/c stove enamel/gray hammer painting of board etc. With SP/TPMCB's of ABB / Legrand / Merlin Gerin / Kawamura or equivalent brand accepted / approved by the Engineer incharge. 16-ways TPN&E DB	set	25			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
215	24-ways TPN&E DB/MDB	set	2			
216	**CIRCUIT BREAKER** SP MCB Providing & fixing on a prepared board 250 volt grade following single pole miniature circuit Breaker (SP MCBS) having minimum breaking capacity 6-KA with thermal over-current and instantaneous electromagnetic short circuit release provision. SP MCBS of DORMAN SMITH / MEM / SIEMENS/Schneider or equivalent brand accepted/approved by the Engineer. 10A-32A SP MCB	each	210			
217	32A TP MCB	each	48			
218	63A TP MCCB	each	2			
219	250A TP MCCB	each	2			
220	100A TP MCCB	each	1			
221	**TELEPHONE SYSTEM** Supply & installation of concealed combined telephone outlets of MK/MEM/Legrand/ Schneider/ABB or approved equivalent complete with 16 SWG sheet steel box and with plug as per specification & direction of the Engineer-in-Charge. i) Telephone outlet	each	60			
222	Supply and installation of followings telephone distibution board made of epoxy powder coated 16 SWG sheet steel complete with required number of solderless, nonscrew type conectors suitable for termination / disconnection of cable by using insertion / disconnection tool, complete with, lock & handle for the box, as per specification and direction of the Engineer. 16+64 pair connectors (MDF) complete with 1 set of insertion /disconnection tool & test cords.	each	1			
223	10 pair connectors (TDB)	each	10			
224	Supply and installation including termination of PE/PVC insulated and PVC sheathed telephone cables of M/S BRB/Paradise/Poly/Citizen/ Supersign/BBS Cables Ltd of following sizes in pre-laid pipe or on ladder/tray using approval type nut, bolts, tie etc. as required and as per specification, drawing and direction of the Engineer. The cable shall meet the requirement/have approval of BTTB. 2 pair cable (1C-4x0.282 sqmm)	meter	1600			
225	10 pair cable 1C-20x0.282 sqmm	meter	300			
226	Supply, installation, testing and commissioning of approved type armoured under ground telephone distribution multicore cable of M/S BRB/Supersign Cables Ltd including underground PVC pipe with necessary trench cutting, back filling with proper compaction, brick or tile protection. The rate also includes necessary G.I. pipe for road crossing etc. where required and mending the damages good and as per direction of the Engineer in charge. 50 pair cable (Main incoming cable)	meter	100			
227	**PABX/INTERCOM** Supply and installation of PABX (intercom) system for 16+64 lines including wall mounting type telephone hand sets and voltage stabilizer cum UPS and accessories as required.	Set	1			
228	Supply installation testing & commissioning of single line telephone set for normal use with provision volume up down, redial, flash etc. complete.Suitable for use in tropical country like BANGLADESH complete with required accessories and in conformity to specified codes & specification of international standards & CE / UL / CSA certified.Model & sample to be approved by the Engineer.**(Normal telephone set)**	pcs.	58			
229	Supply installation testing & commissioning of single line telephone set for executive use with provision volume up+ down, redial, flash etc. including display with CID system complete. Suitable for use in tropical country like BANGLADESH complete with required accessories and in conformity to specified codes & specification of international standards & CE / UL / CSA certified.Model & sample to be approved by the Engineer.**(Executive telephone set)**	pcs.	2			
230	**DISH ANTENNA SYSTEM** Supplying & drawing of following sizes PVC insulated & sheathed 75 ohm impedance co-axial cables through pre-laid pipes. Cable manufacturer(s) must have valid test certificate from internationally accredited laboratory (like CPRI, KEMA etc.) approved / accepted by the Engineer. By cable RG-11 of approved brand	meter	100			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
231	Dish Antenna Point wiring Dish Antena outlet wiring from dish antenna distribution board/junction box (DDB) to each Dish Antenna outlet in every floor by RG-6, through pre-laid PVC conduit (max. 3 cables in one 19 mm dia conduit) and all other acessories as per design, specification and direction of the Engineer.	meter	75			
232	Dish Antenna Distribution Board/Junction box (DDB) : Supply and installation of Dish Antenna distribution board or junction box made of 18 SWG sheet epoxy polyster powder finish with necessary foreign made splitter/tap-off splitter, amplifier where required to make minimum loss and all other accessories as required as per design, specification & direction of the Engineer. 300mmx350mmx100mm	each	5			
233	Dish Antenna Outlet: Supply & installation of Dish antenna outlet of MK / MEM / Legrand / Schneider / ABB or approved equivalent complete with 16 SWG sheet steel box and with plug and as per direction of the Engineer-in-Charge. Single Dish antenna outlet	each	3			
234	**LIGHTNING PROTECTION & EARTHING SYSTEM** Providing & fixing 25.4 mm. (1") dia 457 mm. (1.5 ft) long solid copper rod with sharp top end for arresting lightning securedly bonded with 6.6 mm. thick 150 mm. X 150 mm. Copper base plate to be recessed in wall complete with nuts, bolts, CC work etc.	each	16			
235	Supply & installation of 20mm x 3mm roof conductor complete with necessary hole making connecting to brass plate base of air terminal and fixing on the top of the parapet wall as per drawing & direction of the Engineer.	meter	225			
236	Supply & installation of 2 SWG copper wire down conductor through pre-laid pipe and making necessary connection at test point box, air terminal, earthing electrode in inspection pit as per specification, drawing & direction of the Engineer.	meter	110			
237	Supply & installation of test point box of size 225mm x 125mm x 100mm made of sheet steel of 16 SWG having copper bar of size 115mm x 38mm x 6mm as per specification, drawing & direction of the Engineer.	sets	4			
238	Earthing the electrical installation with 40 mm (1.5") Dia. G.I. pipe (earth electrode) having 6.35 mm. Dia. hole across the pipe at 305 mm. interval securely bonded by soldering with 2 nos. of No-2 SWG HDBC earth leads (at the top of the electrode) with its protection by 20 mm. (3/4") Dia. G.I. pipe up-to plinth level run at a depth of 609.6 mm (2 ft..) below G.L up-to main board to be earthed including necessary connecting copper sockets, bolts, nuts, etc. complete for maintaining earth resistance within 1 ohm Depth of bottom of main electrode at 31242 mm. (102.5 ft) from GL & length of electrode 30480 mm. (100 ft).	sets	2			
239	Depth of bottom of main electrode at 19050 mm. (62.5 ft) from GL & length of electrode 18288 mm. (60 ft).	sets	4			
240	Providing and drawing No.2 SWG HDBC wire through 20mm (3/4") dia G.I. pipe including fitting, fixing the G.I. pipe in wall or column complete as required.	meter	60			
241	Construction of earth inspection pit inside measurement 600mm x600mm with 250mm thick brick in cement morter (1:4) with 100mm thick RCC top slab (1:2:4) with 1% re-inforcement 450mm dia water sealed CI man hole cover with locking arrangement including necessary earth works,site filling and one brick flat soling 75mm thick (1:3:6) base concereate for making inlet channel & 12mm thick (1:2) cement plaster with neat finishing etc. all complete up to a depth of 0.75 meter.	sets	6			
242	Supplying, fitting and fixing European type **glazed porcelain commode "S" type** 465 x 340 x 415 mm in size, approximately 14 kg by weight, plastic seat cover and preparing the base with cement concrete and with wire mesh or rods, if necessary, in all floors including making holes wherever required and mending good the damages and fitting, fixing finishing etc. complete with all necessary fittings and connection approved and accepted by the Engineer. White	Each	40			
243	Supplying of **white glazed vitreous W/H wash basin including pedastal** and fitting, fixing the same in position with heavy type C.I. brackets, 32 mm dia PVC waste water pipe with brass coupling (not exceeding 750 mm in length), 32 mm dia C.P. basin waste with chain plug, bracket including making holes in walls and floors and fitting with wooden blocks, screws and mending good the damages with cement mortar (1:4), etc. all complete approved and accepted by the Engineer- in- charge.(665 mm x 490 mm x 840 mm in size, 29.5 kg of weight) Light Colored (Ivory/ Alpine White/ Grey/ Pink/ Blue/ Aqua Verde)	Each	50			
244	Supplying, fitting and fixing of **glazed vitreous standing bowl urinal** , fitting, fixing the same in position after making holes in walls and floors, providing 32 mm dia plastic waste pipe with brass coupling up to grading below, 12 mm dia plastic connection pipe with brass coupling, 12 mm dia brass stop cock including mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer- in- charge.(445 mm x 355 mm x 330 mm size, 11.5kg of weight) Light Colored	Each	12			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
245	Supplying, fitting and fixing **double bowl stainless steel sink with sink tray** with heavy type CI or steel brackets 12 mm dia C.P. chain plug. 40 mm dia C.P. waste, 40 mm dia PVC waste pipe with brass coupling (750 mm length) including making hole in walls and floors and mending good the damages, finishing etc. all complete approved and accepted by the Engineer. (Malaysia / Singapore / Thailand made or equivalent)	Each	1			
246	Supplying, fitting and fixing of **450 x 600 mm size and 5 mm thick unframed super quality mirror** with hard boards at the back with all necessary fitting including making holes in walls and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer. (Made in Japan or equivalent)	Each	50			
247	Supplying, fitting and fixing super quality 600 x 125 mm **white glass (plate) shelf** having 5 mm thickness with fancy C.P. brackets, screws and frames including making holes in walls and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer.	Each	50			
248	Supplying, fitting and fixing **medium quality C.P. Towel rail** of 600 mm long and 20 mm in dia with C.P. holder including making holes in walls and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer.	Each	45			
249	Supplying, fitting and fixing **toilet paper holder** of 150 x 150 x 126 mm size including making holes in walls and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer.	Each	40			
250	Supplying, fitting and fixing standard size **soap tray** including making holes in walls and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer. C.P. soap tray	Each	45			
251	Supplying, fitting and fixing **125 mm dia stainless steel floor grating** in traps or in drains including making holes in walls/floors and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer.	Each	60			
252	Supplying 100 mm inside diameter best quality **uPVC rain water down pipe** fitting, fixed in position with head and shoes, bends, min.20 mm width F.I. Bar clamp and nails, and including all accessories such as round grating/domed roof grating bands, sockets approved and accepted by the Engineer.	rm	145			
253	Supplying 150 mm inside diameter best quality **uPVC rain water down pipe** fitting, fixed in position with head and shoes, bends, min.20 mm width F.I. Bar clamp and nails, and including all accessories such as round grating/domed roof grating bands, sockets approved and accepted by the Engineer.	rm	40			
254	**Supplying 25mm to 200mm dia (inside) best quality uPVC pipes** having specific gravity 1.35-1.45, and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards or ASTM, BS/ISO/IS standards fitted and fixed in position with sockets head and shoes, bends, clamps and nails etc. all complete in all floors as per direction of the E-I-C. Minimum inner dia 38mm and minimum wall thickness 2.2mm	rm	40.00			
255	Supplying **100 mm inside dia** best quality **uPVC soil, waste and ventilation pipe** having specific gravity 1.35-1.45, wall thickness 3.4- 4.0 mm, and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards or ASTM, BS/ISO/IS standards fitted and fixed in position with sockets, bends, with all accessories such as Round grating/domed roof grating bands, sockets etc. approved and accepted by the Engineer (length: 6000 mm each).	rm	515.00			
256	Supplying **150 mm inside dia** best quality **uPVC soil, waste and ventilation pipe** having specific gravity 1.35 - 1.45, wall thickness 4.5 mm - 5.2 mm, and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards or ASTM, BS/ISO/IS standards fitted and fixed in position with sockets, bends, with all accessories such as Round grating/domed roof grating bands, sockets etc. approved and accepted by the Engineer (length: 6000 mm each).	rm	155.00			
257	Supplying, fitting and fixing **G.I. pipe** with all special fittings, such as bends, elbows, sockets, reducing sockets, Tee, unions, jam-nuts etc. including cutting trenches where necessary and fitting the same with earth duly rammed and fixing in walls with holder bats and making hole in floors, walls and consequent mending good the damages etc. all complete in all respects approved and accepted by the Engineer. 12.5 mm dia G.I. pipe with wall thickness 3.25 mm	rm	30.00			
258	20 mm dia G.I. Pipe with wall thickness 3.25 mm	rm	40.00			
259	25 mm dia G.I. Pipe with wall thickness 4.05 mm	rm	59.00			
260	32 mm dia G.I. Pipe with wall thickness 4.05 mm	rm	79.00			
261	40 mm dia G.I. Pipe with wall thickness 4.05 mm	rm	27.00			
262	50 mm dia G.I. Pipe with wall thickness 4.50 mm	rm	32.00			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
263	Supplying, fitting and fixing approved quality **G.I. gate valve** with sealant etc. complete approved and accepted by the Engineer. 20 mm brass gate valve	Each	12			
264	25 mm brass gate valve	Each	2			
265	32 mm brass gate valve	Each	9			
266	40 mm brass gate valve	Each	4			
267	50 mm brass gate valve	Each	7			
268	Supplying, fitting **G.I. Union** with sealant etc. complete in all respects approved and accepted by the Engineer. 20 mm G.I. Union	Each	12			
269	25 mm G.I. Union	Each	2			
270	32 mm G.I. Union	Each	9			
271	40 mm G.I. Union	Each	4			
272	50 mm G.I. Union	Each	7			
273	Supplying different inside dia best quality **uPVC pressure waste pipe** having specific gravity 1.35 -1.45, wall thickness 2.7 mm - 3.4 mm, and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards or ASTM, BS/ISO/IS standards, fitted and fixed in position with sockets, bends, with all accessories such as Round grating/domed roof grating bands, sockets etc. complete approved and accepted by the Engineer. 100 mm dia uPVC 'P' or 'S' trap	Each	60			
274	Supplying, fitting and fixing best quality **faucets** etc. complete approved and accepted by the Engineer 12 mm CP bib cock	Each	10			
275	Supplying, fitting and fixing **CP Shower Mixture including Shower Head only** with all necessary hardware and consumables approved and accepted by the Engineer.	Each	45			
276	Supplying, fitting and fixing Special/Fancy quality **C.P. concealed/ surface stop cock** with all necessary hardware and consumables approved and accepted by the Engineer. Special concealed heavy type angle stop cock	Each	143			
277	Supplying, fitting and fixing Special/Fancy quality **C.P. concealed/ surface stop cock** with all necessary hardware and consumables approved and accepted by the Engineer. 12 mm CP Stop Cock for Surface Mount (medium quality)	Each	45			
278	Supplying, fitting and fixing best quality **concealed fixed sink cock** etc. complete approved and accepted by the Engineer 12 mm CP Concealed fixed cock	Each	1			
279	Construction of masonry **inspection pits** up to a depth of 700 mm with 250 mm thick brick work in cement mortar (1:4) **including 100 mm thick R.C.C. top slab (1:2:4) with 1% reinforcement**, man-hole cover with locking arrangement including necessary earth work, side filling and one brick flat soling. 75 mm thick (1:3:6) base concrete for making invert channel and 12 mm thick (1:2) cement plaster with neat finishing etc. all complete approved and accepted by the Engineer. Clear 450 x 450 mm and depth 450 to 600 mm, average 525 mm for single 150 mm dia R.C.C. pipes and 400 mm PVC pipe with pit cover and 450 mm dia C.I. man-hole cover.	Each	36			
280	Supplying, fitting and fixing 12 mm dia, **450 mm long Plastic flexible lead (connection) pipe** approved and accepted by the Engineer.	Each	143			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
281	Providing & fixing single stage 2800-2900 RPM Centrifugal water Pump Motor Set monobloc type manufactured according to DIN/NEMA/IEC/BS/VDE/JIS & ISO 9001 standard of following capacity suitable for operation at 3-phase, 400V ± 5% 50Hz A.C having Insulation: Class F & Protection: IP44 (Minimum) manufactured by CE certified/UL listed countries as per sample accepted/approved by the Engineer. Head :24-37 meter Discharge :450-100 litre/min. **HP : 0.85** Suction and delivery 50mm x 38mm (1 Working + 1 Stand by)	Set	2			
282	Construction of **septic tank** of different sizes with walls of brick work in cement mortar (1:6) having a lining of minimum 125 mm R.C.C cast against the walls as per approved type plan over a brick flat soling and 150 mm thick reinforced cement concrete flooring (1:2:4) with 125 mm thick walls in partition and 12 mm thick cement plaster (1:4) with N.C.F. to insides of walls on floor and all around outside walls by 18" height at top including supplying fitting and fixing of two R.C.C. Tees and providing 450 mm dia water sealed heavy type C.I. manhole cover with locking/unlocking arrangement and 100 mm thick R.C.C (1:2:4) top slab, including centering, shuttering, fabricating, casting and curing etc. complete up to required depth including necessary earth work in excavation and shoring, bailing out water and side filling including the cost of all materials, operations and incidental charges. etc. all complete as per type plan approved and accepted by the Engineer. (Rate is including cost of reinforcement and its fabrication, binding and placing) For 100 users	Each	1			
283	Supplying, fitting and fixing of **600 mm dia C.I. man hole cover** etc. all complete approved and accepted by the Engineer-in-charge.	Each	5			
284	Supplying, fitting fixing of **food grade plastic overhead water reservoir** tank including all necessary fittings, hardware and consumables etc. all complete approved and accepted by the Engineer. 5000 Liter capacity	Each	2			
285	**Mass concrete (1:3:6) in foundation or floor** with cement, sand (F.M. 1.2) and picked jhama chips including breaking chips, screening, mixing, laying, compacting to levels and curing for at least 7 days including the supply of water, electricity and other charges and costs of tools and plants etc. all complete and accepted by the Engineer.	cum	14			
286	Formwork/shuttering, (steel)	sqm	234			
287	Supplying, fitting and fixing **unglazed homogeneous floor tiles (local made)** with cement sand (F.M. 1.2) mortar (1:4) base and raking out the joints with white cement including cutting and laying the tiles in proper way and finishing with care etc. all complete and accepted by the Engineer. In ground floor(600x600)	sqm	15.00			
288	In 1st floor	sqm	82.00			
289	In 2nd floor	sqm	82.00			
290	In 3rd floor	sqm	37.00			
291	In 4th floor	sqm	37.00			
292	Supplying, fitting and fixing of **Aluminium sliding window** as per the U.S. Architectural Aluminium Manufacturer's Association (AAMA) standard specification having 1.2 mm thick outer bottom (size 75.50 mm, 32mm), 1.2 mm thick outer top (size 75.50 mm, 16.80 mm), 1.2 mm thick shutter top (size 33 mm.26.80, 22 mm), 1.2 mm thick shutter bottom (size 60mm, 24.40 mm), 1.2 mm thick outer side (size 75.50 mm,19.90 mm), 1.2 mm thick sliding fixed side (size 31 mm, 26 mm),1.2 mm thick shutter lock (size 49.20 mm 26.20 mm) and 1.2 mm thick inter lock (size 34.40 mm, 32.10 mm) sections all aluminium members (total weight kg/sqm) will be anodized to aluminium bronze/silver colour with a coat not less than 15 micron in thickness and density of 4 mg per square cm etc. including all accessories like sliding door key lock, sliding door wheel, sliding door mohiar, sliding door neoprene, bolts and nuts including sealants, keeping provision for fitting 5 mm thick glass including labour charge for fitting of accessories, making grooves and mending good damages, carriage, and electricity complete in all respect as per drawing and accepted by the Engineer.	sqm	152.00			

Item No.	Description	Unit	Quantity	Unit Price (BDT)		Total Amount (BDT)
				In Figure	In Words	
293	**CEILING FAN** Supplying & fixing AC capacitor type ceiling fan (without regulator) of following specifications and sizes complete with minimum 305 mm (1 ft.) long and 0.75 -1.0" dia, 2.3 mm thickness MS pipe down rod, tempered cast aluminum blades, 2.5 µf 400V AC capacitor, canopy, double Z ball bearing, best quality silicon sheet core, best quality copper made super enamel wire, aluminum alloyed casting body having safety pin with powder coated heat / docu paint as required etc. connecting PVC wire complete as required. Rated voltage : 220 volts Rated frequency : 50 Hz Rated speed : 300 rpm ± 5 % Service value : Minimum 3.5 m3 / min / watt Temperature rise : Maximum 55ºC Class of insulation : Class-E Noise level: 60 db at a distance 1 meter. 1400 mm. (56") Sweep SEC Gold /BRB Lovely /Superstar peimium /Jamuna SuperDeluxe or equivalent brand accepted/approved by the Engineer.-Charge. Input Power : Max 75 watt	each	73.00			
294	Construction of **soak well** of different sizes (medium and large sizes) with 250 mm thick solid brick work and 250 mm honey comb brick work with cement mortar (1:6) as per design over R.C.C. (1:2:4) well curb with 1% reinforcement up to the depth as per drawing with 450 mm dia water sealed heavy type. C.I. manhole cover with locking arrangement, filling the well up to the required depth with graded khoa and sand including supplying and fabricating M.S. Rod, casting, curing including necessary earth work in excavation, side filling and bailing out water including cost of all materials etc. all complete as per drawing, design approved and accepted by the Engineer. (Rate is including cost of reinforcement and its fabrication, binding and placing) For 100 users	Each	1.00			
Total						

Section 7. General Specifications

1.1 SCOPE OF WORKS UNDER THIS CONTRACT

The Contract comprises the construction, completion and maintenance (defect liability period) of all works in accordance with the drawings, specifications, terms and conditions of the Contract, the Schedule of Items and Bill of Quantities (BOQ) including all labour, materials, construction plant, temporary works and everything whether of a temporary or permanent nature required for such construction, completion and maintenance.

The scope of work under this contract shall be the construction of 100 nos. Houses, as per the Design Drawing including all civil works for sub & super-structure with all finishing works, water lifting pump, electrical works, with necessary facilities.

1.2 QUALITY CONTROL OF MATERIALS AND WORK

1.2.1 General

It shall be the responsibility of the Contractor to ensure that the materials incorporated and works carried out satisfy the quality requirements spelt out in the specifications. For this purpose, the Contractor shall carry out all the tests required by the specifications on materials at the laboratories approved by the Engineer. The Contractor should submit the same to the Engineer for his approval. Additional tests may also be conducted where, in the opinion of the Engineer, the need for such test exists. In the absence of clear indications about the frequency of tests for any item, procedures and tests as directed by the Engineer shall be followed. The cost for making any test shall be borne by the Contractor. It shall be clearly understood that no work shall be considered for payment unless it fully satisfies the quality requirements of the specifications in respect of both the materials and work.

1.2.2 Equivalency of Standards and Codes

Wherever reference is made in the contract to specific standards and codes to be met by the materials, plant and other supplies to be furnished, and work performed or tested, the provisions of the latest current edition or revision to the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the contract. Where such standards and codes are national, other authoritative standards that ensure substantial equivalences to the standards and codes specified will be accepted subject to the Engineers prior review and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the Contractor and submitted to the Engineer at least 28 days prior to the date when the Contractor desires the Engineer’s approval. In the event the Engineer determines that such proposed deviations do not ensure substantially equal performance, the Contractor shall comply with the standards specified in the documents.

1.2.3 Inspection and Approval of Material Sources

1.2.3.1 Natural Aggregate and Brick Materials

At least 14 days prior to procurement and haulage of the materials to site, the Contractor shall inform the Engineer in writing of the sources he proposes to use and provide results of tests on representative samples thereof. The Engineer shall have inspected the materials sources, and if so required, the Contractor shall provide samples of the materials at his own cost for enabling the Engineer to have the tests carried out from the approved laboratories.

The materials will be permitted to be hauled to site of works only after approval of the material source by the Engineer. Despite the Engineer's approval, it shall be the responsibility of the Contractor to procure and haul to site materials of approved quality. The materials hauled to site shall be permitted to be incorporated in the works only after their passing the Quality Control Tests.

1.2.3.2 Manufactured Materials

For manufactured materials like cement and steel, the Contractor shall furnish the Engineer the manufacturer's test certificates with each lot of materials delivered to site and these shall be the basis for acceptance. However, in case of any doubt about the quality or where deterioration in quality because of poor storage condition is detected, the Engineer would order the relevant quality tests to be carried out from approved laboratories at the cost of the Contractor. The Engineer's decision in this regard shall be final and binding on the Contractor.

1.2.4 Quality Control of Materials at Site Prior to Incorporation in the Works

For regular and systematic Control over the Quality of the Materials and Work, the Contractor shall send a request to the Engineer’s representative for any inspection, checking and approval. The proforma for making the checking request shall be as approved by the Engineer. The request should be sent to the Engineer’s representative at least 24 hours prior to proposed time for checking.

In case any material is not approved, the Contractor shall promptly remove the same from Site of Works. In case of work, the Contractor should carry out the corrective measures as instructed by the Engineer.

The Contractor shall be allowed to proceed with further stages of work only after the earlier stage has been checked and approved.

1.2.4.1 Natural Aggregate and Brick Materials

The Contractor shall be responsible for properly stacking/storing the construction materials brought to the site in such a manner that these do not get contaminated with mud and organic/deleterious matter. He shall carry out all the necessary quality control tests, to demonstrate that the materials he proposes to incorporate in the works conform to the quality requirements of the specification. All the results of the tests shall be documented on suitable proforma, and the same shall require approval by the Engineer.

1.2.4.2 Checking and Approval of Materials and Work

For regular and systematic Control over the Quality of the Materials and Work, the Contractor shall send a request to the Engineer's representative for any inspection, checking and approval. The proforma for making the checking request shall be as approved by the Engineer. The request should be sent to the Engineer's representative at least 24 hours prior to proposed time for checking.

In case any material is not approved, the Contractor shall promptly remove the same from Site of Works. In case of work, the Contractor should carry out the corrective measures as instructed by the Engineer.

The Contractor shall be allowed to proceed with further stages of work only after the earlier stage has been checked and approved.

1.2.5 Rejected Materials

The Contractor at his own costs shall immediately remove all materials refused or rejected by the Engineer from site.

1.2.6 Removal of Defective and Non-Conforming Work

If any material incorporated or work performed by the Contractor is found to be defective and non-conforming to the specifications, the same shall be removed and replaced by the Contractor as per directions of the Engineer in accordance with the Conditions of Contract.

1.3 Site Safety Requirement

1.3.1 General

The Contractor shall be responsible for providing adequate and necessary safety measures for all persons engaged in the execution of the works against any injury, hazard, accidents etc. and shall take such safety precautions as are generally accepted as good civil engineering practice.

The Contractor is reminded that all necessary safeguards to protect the public, especially officials, need to be implemented. In particular keeping the public out of the site must be a priority, and the Contractors plans to achieve this, at all stages of the works, must be agreed with the Engineer, but will remain the responsibility of the Contractor.

1.3.2 Safety of Workmen

The Contractor shall take all necessary measures and action for the safety of the workmen. Workmen employed on vulnerable operations shall be provided with the following:

- Crash Helmets	- Generally for all workers
- Gum Boots and Gloves and appropriate respiratory protective equipment	- Workmen employed on cement concrete works
- Goggles	- For welders and workmen in dusty areas

1.3.3 Site Precautions

Construction site shall be delineated with adequate safety fences. During the construction period, nylon net shall be put around the building periphery 3 to 4 m below the working level.

1.3.4 Site Amenities

The Contractor shall provide toilet facilities at construction site. If sewer connection is not available, temporary wells shall be used. These wells shall be provided with proper covers.

1.3.5 Excavation Work

To ensure the safety of the workmen, neighbours and adjoining structures during the construction the Contractor shall design temporary works to the satisfaction of the Engineer.

1.3.6 Excavated Material and Surcharges

Excavated materials shall be kept away from the edges of the trench to provide a clear berm of safe width. Where this is not possible, the design of protection for the trenches shall include for the additional load due to the surcharges of excavated materials.

1.3.7 Pile and Deep Foundation

The Contractor shall provide a competent skilled foreman to supervise all piling and deep foundation operation. He shall also be responsible for the precaution measures to be taken.

1.3.8 Fencing, Warning Sign and Watchman

The Contractor shall provide and maintain, at his own cost, adequate barricades/ fencing all around the site. No trespassing shall be allowed. Sufficient number of notice boards, danger signs, flashing lights etc. shall be provided in the area. All such barricades, warning signs and lights shall comply with the relevant by-laws and regulations and shall be to the satisfaction of the Employer and the local authority concerned.

The Contractor shall also provide, at his own cost, necessary watchmen and guards for the proper protection of works, temporary works, materials, plants, equipments until clearance of site.

1.5.9 Adjoining Properties

Where bored piling works are to be carried out in the vicinity of existing structures which are likely to be damaged, tell-tales shall be fixed on such structures to monitor their behaviour while piling is in progress. Timely precautions shall be taken against any adverse effect.

1.3.10 Diversion or Upholding of Existing Services

The Contractor shall divert, at his own cost and to the Approval of the Employer/ Engineer, any power, water, gas or other services encountered during the progress of the works. Where diversion of services are not required in connection with permanent works, the Contractor shall uphold, maintain and keep the same in working order in existing locations.

1.3.11 Protection of Materials, Plants etc.

The Contractor shall arrange security guards for the protection of materials and plant against theft, pilferage etc. The Contractor shall provide temporary fencing and/or watching and lighting deemed necessary for the purpose. Such security shall be in force for the entire period of construction.

1.3.12 Control of Noise, Vibration and Dust Nuisance

To minimize annoyance and provide a healthy environment at the working site as well as to its surroundings, the Contractor shall take appropriate and adequate measures to control noise, vibration and dust nuisance. All noise generating sources shall be identified and provisions to be made for attenuating airborne and structure borne (vibrations) effects. The access roads may need to be periodically watered for control of dust nuisance.

1.3.13 Precaution to Control Pollution

The Contractor shall take necessary precaution to control pollution of the environment. All effluent should be properly treated prior to disposal. Among others care should be taken to control unburnt fuel in the exhaust of engines, proper sanitation and sewage disposal etc.

1.3.14 Safety against Fire at Site

The Contractor shall arrange at site at least 10 (ten) 3kg capacity multipurpose ABCE dry chemical powder stored pressure type fire extinguisher with manometer system. The extinguisher shall be of the type suitable for repeated use complete with wall brackets, discharge valve, hose pipe and easy refilling system.

In addition to that, 5 (five) buckets for sand and 5 (five) buckets for water shall also be provided at site. Proper arrangements shall be made to hang the extinguishers as well as buckets.

1.3.15 Measurement and Payment

Payment for all of the items, materials required and actions taken relating to Site Safety will be deemed to be included by the Contractor in his rates for the Works.

1.4 USABLE WATER ON SITE

The Contractor himself shall make arrangement for procuring, transporting, storing, distributing and applying the water needed for all construction work purposes. No direct payment will be made for providing water, the cost of which shall included in the rates tendered for the various items of work for which water is needed.

Only clean potable water, free from salinity and undesirable concentrations of deleterious materials, shall be used. All water sources used shall be approved by the Engineer. The Contractor shall by no means withdraw ground water to such an extent that tube wells in the neighbourhood fall dry and drinking water facilities are disturbed unless the Contractor guarantees supply to the effected persons.

1.5 SETTING OUT

The Contractor shall layout the building based on the approved site plan and carry over PWD Bench-Mark (BM) at site, property lines, average ground

level (AGL), formation ground level (FGL), plinth levels (PL), setting and marking all pillars, marker, pegs etc. in red paint, showing and maintaining reduced levels (RL) including locating, establishing, protecting all public utilities within the premise of work.

Noseparatepaymentshallbemadeforthesettingoutandforpreparationofdetailedsite layoutplan.

1.6 QUALITY MANAGEMENT SYSTEM

A strategic approach to the implementation mechanism of the project is of vital importance for its successful completion according to design, on time and within budget. The Contractor is responsible for achieving the quality standards specified in the contract and to identify a correct and effective strategy and work plan to analyse the type and extent of works.

The Contractor shall prepare and operate a Quality Management System Plan (QMS) complying with BNBC. The Contractor shall submit his QMS to the Engineer for approval within three weeks of the award of contract. The QMS shall be reviewed, updated and resubmitted for approval as necessary throughout the contract period.

Major components of QMS shall cover Mobilisation Plan, Manning Schedule, Engineering and Administrative Management of the Contract, Implementation Schedule, Procurement Schedule, Cash Flow and Financial Resources Management, Quality Control of Work, detailed Work Plan, Site Safety requirements, Environmental Protection etc. The QMS shall specifically address the procedures for maintaining the project quality requirements with respect to the use of subcontractors, vendors and suppliers. The QMS shall reflect the criticality of the items or materials concerned. The Engineer shall approve the criteria for assessment of criticality. The Contractor's QMS shall also include post-construction activities during the Defects Liability Period.

The Contractor must obtain the approval of the Engineer in writing before commencing each stage of the Works. Approval will be based on satisfactory quality control tests on the preceding stage and other requirements of the specification. On completion of a part of the works they shall be inspected and approved by the Engineer in accordance with the QMS. Only Works approved after inspection will be deemed to be measurable for payment.

The Contractor shall cooperate with the Engineer and provide all necessary access to the works, testing laboratories and records to enable the Engineer to assess the Contractor's Quality System and to audit the implementation of the QMS and the approved procedures.

Production of the document, distribution, training and any other costs associated with the Contractors Quality Management System will be deemed to be included by the Contractor in his rates for the Works.

1.7 Shop Drawings

The Contractor will prepare Shop Drawings for the items of works which have not been explicitly detailed in the construction drawings. The items will include (but not be limited to) steel structure, curtain wall, glass partition wall, doors

and windows, stair railing, auditorium finishing including acoustic treatment, deep tube well and security grill etc. The Contractor will submit the shop drawings to the Engineer for approval. The fabrication work will only commence after approval by the Engineer.

Payment for the shop drawing shall be deemed to be included by the contractor in his **rates for the items of the works.**

1. 7 OFFICE CUM SITE RESIDENCE

1.7.1 Description

The Contractor shall provide and maintain site office during the construction period for the use of Construction Management Unit of Employer and the Consultant. Rest space shall be used for veranda**.**

- The Contractor shall provide necessarychairs andtables for site office as per approval of the Engineer.
- Necessary cleaning, washing, dusting of rooms and toilets shall be done by the Contractor by engaging his own personnel.
- The Contractor shall provide electricity, water, gas, and lighting and ceiling fans, air-condition to the satisfaction of the Engineer. The required number of electric bulb, ceiling fans, A.C. calling bells and electric power points etc. shall be provided.
- The Contractor shall furnish the necessary surveying instruments andequipment at site for the use of the Contractor and Engineer's representative.
- The office, complete with furnishings, fittings, access roads and hardstandings shall be ready for occupation by the Engineer within 28 (twenty eight) days of the date when the Contractor first occupies the site, or as required by the Engineer.
- The Contractor will provide necessary day and night security guards, office peons and cleaners etc.

After completion of the assignment of consultant for the project all materials, equipment and plant, furniture, fittings used for the office will be the property of the Client and the Office cum Residence building will be used by the Client.

1.7.2 Measurement and Payment

Supplying materials for constructing the site office for the Consultant and Engineer's representative including all furniture and fittings, access roads, water supply, electricity and sewerage facilities, surveying equipment, consumables, office peon etc. shall be paid monthly basis.

. Payment shall be made to the Contractor on monthly basis as per item of BOQ.

1.12 SIGN BOARDS

1.12.1 Description

The Contractor shall provide one project profile sign board for each site of the size not exceeding 1 m x 2 m, and maintain them in good condition. All information on the signboards will be written in English and Bengali. The

signboards will be positioned on a steel frame as directed by the Engineer. The Contractor shall submit proposals for the materials of the signboards, the text layout (in English and Bengali) on an approved yellow background and installation of the signboards on Site to the Engineer for approval. Each sign board shall show:

- the name of the Project
- the name of the Employer
- all other details as required by the Engineer

The Contractor shall maintain the sign boards and remove them on completion of the Works or when instructed by the Engineer. Prior installation of sign board, approval for design, size, etc. shall be approved by the Engineer.

1.12.2 Basis of Payment

No extra payment for the provision, maintenance and removal of sign boards shall be made and the related cost shall deem to be included in other pay items.

1.13 AS-BUILT DRAWINGS

The Contractor shall furnish one complete set of As-built drawings on electronic format (on a CD) and three complete sets (A-2 size) of prints of As-built drawings, showing the permanent works as actually constructed, within one month of completion of the Works. Included in the sets of As-built Drawings will be revisions of Tender Drawings and Drawings supplied to the Contractor during the Contract as well as revisions of drawings supplied by the Contractor during the Contract. The As-built drawings submitted by the Contractor will be subject to the approval of the Engineer. The Engineer will supply information required on title blocks.

The Contractor will only be paid on full approval for the drawings from the Engineer.

Payment for As-built drawings shall be made to the Contractor at the Contract unit price.

1.4 CLEARANCE OF SITE ON COMPLETION

On completion of the works the contractor shall clear away and remove from the site all construction plant, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and works clean and in workmanlike conditions to the satisfaction of the Engineer/Consultant at his own cost.

1.5 If the contractor fail to deliver insurance policies and certificates before the start date RNPL will do the insurances from Sadharan Bima Corporation and adjust the cost from the bill.

1.6 All other materials speciation & working procedure which are not mentioned in General Specification & Particular Specification will be as per Bangladesh National Building Code (BNBC) 2020.

Section 8. Particular Specifications

SECTION -(A).

1.0 ***CLEARING AND GRUBBING***

Except for trees directed by Engineer-in-charge to be saved all trees, long, stumps, bush, vegetation, rubbish and other perishable or objectionable matter shall be cleared from the area within the limit of contract. In all areas to be regarded, resurfaced or built upon, remove a layer of soil thick enough to include the grass roots.

Stumps and tree roots shall be removed or out to a depth of at least 2 feet below finished grades under grass and planting areas. Elsewhere they shall be completely removed.

Trees directed by the Engineer-in-charge to be saved shall be protected to the satisfaction of the Engineer-in-charge. No major branches shall be out off without permission.

Spoiled materials shall be removed from the site and deposited within the where directed. Burn no material or debris on site without permission of the Engineer-in-charge. No fires under or near any trees to remain.

SECTION -(B)

EXCAVATION

Earthwork in excavation shall not be commenced before the pillars marking the centre lines of footings and benchmark pillars are constructed and secured at the edges of trenches pits are made and checked by the Engineer-in-charge.

1.0 **General**

Excavate all material encountered within the limit of contract to allow construction of the proposed building structures, utilities and site work as shown on drawing and as herein after specified. Attention is called to "GENERAL NOTES" on drawings and to the requirements contained therein which may affect the work under this section.

Finally 4 inches of excavation under footing and in trench shall be saved during the mass work. This materials shall be removed batch wise in order that the ultimate bottom is firm and not exposed to elements more than 12 hours before being topped by footing or before pipes are laid in trench. All loose material and rubbish shall be removed before casting.

1.1 When excavation has reached the prescribed depths, the Engineer-in-charge shall be notified and will make an inspection of the conditions. After inspection, the contractor will receive approval to proceed if bearing conditions meet design requirements.

Unanticipated soil conditions.

If unsuitable bearing materials are encountered at the required depths the Engineer-in-charge may improve the local deficiency any of the following or other applicable methods.

Sand piling.

Timber piling with required length and dia.

Replacement of the whole mass of poor soil up to required depth with sand of required F.M. or as decided by the competent authority.

Utilities

Excavate all trenches to 3 inch below bottom of pipe. Trenches for sanitary sewers shall have continuous slope in the direction of flow following the specified drawing.

Excess Excavation

If any part of the excavation is carried through error of the contractor beyond the depth and the dimensions indicated on the drawings, the contractor shall fill the additional depth with compacted sand of F.M. 1.2 in layers and cost there of shall have to be borne by the contractor.

1.2 Shoring, sheeting and Bracing

Shore or braced excavations and trenches as required to maintain them secure and to protect adjacent existing structure, remove, shorting as the back filling progresses but only when bakes are safe against caving. Any such shoring, sheeting or bracing shall be at the contractor's expense.

Dewatering from foundation trenches

Provide, maintain and operate pumps and related equipment, including stand by equipment of sufficient capacity to keep excavation free all water at all times and under any all contingencies that may arise until the structures attain their full strength. Notify the Engineer-in-charge and receive approval before discontinuance of pumping.

If ground water seepage from the sides and bottom of the trenches or pits a catch pit shall be excavated at one end and adequate pump equipment shall be provided. If on pumping and exit hydraulic gradient is found to be too steep as evidenced by quick's a bed or graded stone shingle 4" thick or more as directed by the Engineer-in-charge, shall be placed under the footing. Such stone shingle bed will be paid for in quantity approved by the Engineer-in-charge.

Dispose of water through temporary pipelines or ditches with outfall to natural drainage courses. Prevent erosion of surrounding areas Build temporary culverts if required. At completion of dewatering remove temporary facilities and restore sub-grade and damaged areas to conditions existing at start of the work.

The Protection

Excavation within branch spread of trees to remain shall be performed by hand and so as to cause minimum damages to root system.

Disposal of Excess

All excavated materials which in the opinion of the Engineer-In-Charge are not suitable for fill or backfill and disposed of at no cost of the Employer within the Employer's property where directed by the Engineer-in-charge.

Stock piling of spoils

Store where convenient at site so as not to interfere with the general progress of the work all excavated materials suitable and required for re-use.

SECTION -(C)

FILLING AND GRADING

1.0 **FILL MATERIAL**:

1.1 ORDINARY FILL: **Natural inorganic soil approved by the Engineer in-charge and meeting the following requirements:**

1.1.1 It shall be free of organic or other weak or compressible materials and be of such nature and character that it can be compacted to the specified density in a reasonable length of time and with optimum energy.

It shall be free from highly plastic clays, from all materials, subject to decay decomposition or dissolution and from cinders or other material, which will corrode pipes or other metals.

It shall have optimum moisture so as to attain minimum compaction of 90% of AASHTO.

Material from excavation on the site may be used as ordinary fill if it meets the above requirements.

1.2 Sand fill: Fineness modulus not less than 1. 20

Samples: Submit samples of fill materials to Engineer-in-charge for approval before materials are used for fills.

1.3 Placing fills General.

Areas to be filled or backfilled shall free from construction debris, broken bricks, refuse, compressible or decay able materials and standing water.

Notify the Engineer in-charge when excavations are ready for inspection. Filling and backfilling shall not be started until approved by the Engineer-in-charge.

1.4 Furnish approved materials.

Place fill in layers not exceeding 6 inches thickness and compact to a density of at least 90% of AASHTO.

Place 1"x2" grade stakes spaced, as conditions require and painted redone black alternately in 3" graduations to permit checking of fill layers and of sub grade levels.

Before backfilling against walls and piers, the structure must be completed and sufficiently aged to attain strength required to resist backfill pressures without damages. Temporary bracing wall not be permitted except by written permission from the Engineer-in-charge. When filling on both sides of a wall or pier, place fill simultaneously and on all side. Correct any damage to the structure caused by backfilling operations at no cost of the Employer.

Backfill pipe trenches only after pipe has been inspected tested and locations of pipes and appurtenances have been recorded.

1.5 Placing ordinary fill.

1.5.1 Ordinary fill as specified in paragraph 1.1 herein above shall be provided as fill or backfill wherever not specified otherwise.

1.5.2 Place ordinary fill and compact to 90 percent maximum dry density beneath the sand sub-base specified in paragraph 1.6

1.5.3 Place ordinary fill and compact to 85% percent maximum dry density in all other areas where fill is required.

1.5.4 After laying one layer of fill, all lumps and clode shall be beaten into powder by wooden mallets or rammers. Next the fill shall be compacted by a 10 lbs iron rammer. Water shall be sprinkled on the fill if it is dry. Ramming shall be carried out methodically so that every area receives the same number of blows by the rammer. Mechanical compaction should be done.

1.5.5 Each layer after being compacted shall received inspection and approval by the Engineer-in-charge before the next layer is placed. The operation shall be continued layer by layer till the proper sub grade is reached.

1.5.6 Measurement of the work shall be based on compacted thickness.

1.6 Placing sand fill.

1.6.1 Sand fill as specified in paragraph 1.2 herein above shall be provided as a sub-base course under all slabs on grade, either interior or exterior and brick paving for minimum compacted thickness of 6 inches.

1.6.2 For layers exceeding 6" place sand fill in about equal thickness and compact each layer on 90 percent minimum dry density.

1.7 Deficiency of fills materials.

Provide required additional fill material if sufficient quantity of suitable materials is not available from the required excavation of the projects site.

1.8 Sub grade Maintenance.

1.8.1 The work of this section shall provide a sub grade which shall be parallel to the finished grades or elevation shown on the drawings and shall be below finished grades in accordance with various depths.

1.8.2 Upon completion of rough grading operation, remove all debris and rubbish and leave areas ready for subsequent work.

1.8.3 Sub grades specified above shall be maintained until superimposed work begins. Settlement of fills and wash outs shall be corrected by filling and compacting as required.

1.9 Turfing.

Turfing shall be done in selected species of grass, e.g. durba grass. A sample shall be submitted to the Engineer-in-charge for approval before use. The soil to be trufed shall first be loosened up to 1/2" inch depth by wire brushes or other wise and then be well moistened before pads are planted. After planting, the ground shall be watered twice daily till the grass is rooted and grow normally. Any bare spots greater than 4" inches in diameter shall be replant and watered as specified above.

SECTION- D

1.0 CONCRETE WORK

1.0 AGGREGATE: STONE CHIPS

Coarse aggregates shall consists of crushed stone chips grades from 3/16" to 3/4" with 33% passing 3/8" sieve unless other wise determined from laboratory 'Trial Mixes' for the specified ultimate strength of concrete or as directed by the Engineer in-charge. Crushed stone should be made at side from boulders; Minimum Size of boulder must not be less than 6" in diameter.

All coarse aggregates shall be made from boulder of size 6" (Six) and above and shall be cleaned and made free from dust and other impurities by screening and washing in clean water immediately before use. Crushed stone is to be tested for ACV test from BUET at contractor's own cost and must suffice the minimum requirement.

AGGREGATE: BRICK CHIPS

Coarse aggregates shall consists of crushed bricks must be made of first class picked jhama bricks from 3/16" to 3/4" with 33% passing 3/8" sieve unless other wise determined from laboratory 'Trial Mixes' for the specified ultimate strength of concrete or as directed by the Engineer in-charge.

Khoa (Brick chips)

Khoa made from bricks shall conform to the following requirements:

It must be made of first class and picked jhama bricks.

Nominal size: The grading shall be within the following limits (for 19 mm down graded).

Size/Sieves	19 mm	9 mm	No. 4	No. 8
% Passing	95-100	25-55	0-10	0-5

Appearance: shall be completely non-plastic and shall be completely free from all organic and other dexterous materials.

Unit weight: unit weight shall not be less than 1100 kg/ cum.

Water absorption: as a percentage of the dry weight shall not exceed 14%.

In length not more than 6 mm.

In breadth not more than 5 mm

In height not more than 1.5 mm

Unit weight of bricks shall be 1100 kg/ cum

Halved bricks mean of 12 bricks: 28 MPa (4000 psi)

Minimum for individual bricks: 21.1 MPa (3000 Psi)

Range of efflorescence for a first class bricks shall be slight to nil.

1.2.3 AGGREGATE: SAND

Should conform to the following requirements and BDS 243: 1963, ASTMC 40-92, C 87-83(1990)

Organic materials content shall not exceed 5%

Silt and other fine materials content shall not exceed 6%

the grading shall be within the range

Sieves	No. 8	No. 16	No. 30	No. 50	No. 100
% Passing	100-92	74-90	45-74	30-50	0-6

the fineness modulus of sand shall be :

Type of works.	Minimum F.M
Concrete	1.8
Mortar	1.5
Filling sand	0.8

Fine aggregate shall have combined fineness modulus of not less than 2.5. Proportion of coarse sand and local sand to attain F.M 2.5 for all RCC works shall be as specified by the Engineer-in-charge.

Fine aggregate shall be free form organic and in-organic impurities. If necessary it shall be screened and washed in clean water immediately before use.

2.0 CEMENT

Brand: Scan/Holcim/Shah/Bashundhara

Specification of Portland Cement BS 12 or ASTM C-150 BDS232 1993BDS 612 BNBC 2.4.7. 5.2.1 BDS 232 or its equivalent must conform to the following requirements.

- Water for normal consistency	: 26% - 33%	
- Fineness.	: 280 Sq.m /Kg. (By Air permeability method)	
a) Initial setting time	: Not less than 45 minutes.	
b) Final setting time	: Not more than 8 hours.	
- Compressive strength (standard mortar Cube 50 mm size)		
a) 3 days	= 13 MN/sq. m	(1800 Psi)

b) 7 days	= 19 MN/Sq. m.	(2800 Psi)
c) 28 days	= 29 MN/ Sq.m.	(4000 Psi)
- Tensile strength (standard mortar briquette)		
a) 3 days	= 1.00 MN/Sq. m.	(150 Psi)
b) 7 days	= 1.9 MN/Sq. m.	(275 Psi)
c) 28 days	= 2.4 MN/Sq. m	(360 Psi)

No cement shall be allowed for casting before test result obtained from the BUET laboratory. For major casting the name of the brand to be mentioned for which the test result confirm so required.

3.0 WATER

Water used in mixing concrete shall be clean and free form soil, acid, alkali, salt, organic materials or other substances that may be deterious to concrete or steel. Mortar cubes made with non-potable mixing water shall have 7 days and 28 days strength equal to the strength of similar specimens made with potable water.

4.0 REINFORCING STEEL

Brand: BSRM/KSRM/AKS

Mild steel reinforcing bar shall be structural grade plain or deformed bar specified as per ASTM A615 or BDS 1313 and shall meet the following strength test requirements.

Properties	Mild steel plain and deformed bar	Mild strength Deformed bar
Minimum yield strength	2800 kg/Cm² (276 mpa)	4200 Kg/ Cm² (415 mpa)
Minimum Ultimate tensile strength.	4000 Kg/ Cm²	6000 Kg/ Cm²
Minimum Elongation in		
200 mm (8") up to 18 mm dia	24%	11%
20 mm to 22 mm dia	23%	10%
25 mm dia	22%	9%
30 mm dia	20%	7%
Bend test All sizes	180 Bend	90 Bend
Dia, of pin around which the specimen is bent and dia of Specimen bar	d=4t	Up to 16 mm d=4t 18-25 mm d=5t 30 mm d= 6t
Dimensional requirements for deformed bar both mild steel and high strength.		
Bar size dia	Weight kg/m	X-area Cm²
6 mm	0.222	0.283
8 mm	0.395	0.503

Reinforcement shall be of rolled steel barsmanufactured from billets and not from scraps. The contractor shall arrange for weighment of steel at his cost to

satisfy himself. Prior to use, the contractor shall be responsible to see that reinforcement is free from pitting, loose rust, mill scale, paint, oil, grease, adhering earth or any other materials that may impair the bond between the concrete and the reinforcement or that may cause corrosion of the reinforcement or disintegration of the concrete. Adhering lime wash or cement grout may be permitted.

One certificate from the manufacturers that the MS bar is properly manufactured from billet bars is to be supplied by the contractors during the delivery of MS rod at the site. Frog mark in every metre must showing company and grade as per ASTM.

5.0 CONCRETE MIX

In order to obtain economical or practical proportion of materials and workability producing the average strength in compression concrete mix shall be designed by the contractor by trial mixes to be prepared and tested under the supervision and direction of the Engineer in-charge.

Concrete trial mixes having proportion and consistency suitable for the work shall be made using at least the different water cement ratios which will produce a range of strength encompassing these required for the work.

These tests shall be made in accordance with the procedure given in the Appendix to RECOMMENDED PRACTICE' For each water-cement ratio at least 3 (three) specimen for each age to be tested shall be made and cured in accordance with method of making and curing concrete compression and flexural Test Specimen in the Laboratory 9ASTM C-192 and tested for strength of method concrete Cylinder 9ASTM C-39.

The strength tests shall be made of 28 days. A cylinder crushing strength shall be established showing the relationship between water cement ratio and compressive strength. The maximum permissible water-cement ratio and the leanest mix for the concrete to be used in the structure shall be that shown by the cylinder to produce of average strength 25 percent greater than the specified strength hereinafter stated.

Where different materials or proportion are to be used for different portions of the work each combination shall be evaluated separately.

If test results from samples taken during the execution of the work, fall below the average required strength, the Engineer -in-charge may order to replace these members without compensation.

Cost of design of concrete mix materials required for this purpose and all testing shall be borne by the contractor.

6, MIXING OF CONCRETE

Weigh mixing plant must be used in mixing complete. No concrete mixed other than weigh-mixing plant shall be allowed to be allowed to be used. Every batch shall be prepared in accordance with the specification and shall be subject to

rejection by the Engineer-in-charge if not conforming to specification or if otherwise unsatisfactory.

Containers for measuring aggregates, sand, water, cement and additives, if used, shall be approved by the Engineer-in-charge.

Every batch shall be mixed until a uniform consistency of the mixture is obtained. The entire contents of the mixing drum shall be cleaned at regular intervals. The volume of concrete mixed with each batch shall not exceed the manufactures rated capacity. Remixing of concrete is not permitted and any concrete mixed and not used within 30 minutes mix be discarded. Mixes which have been taken initial set must also be discarded. The maximum water cement ratio permitted shall not exceed 0.38 or 6 gallons of water per bag cement of 1cwt.

7.0 ADMIXTURES TO CONCRETE

Admixtures to concrete as wetting, curing and accelerating agents may be used with the written approval of the Engineer-in-charge.

8. DEPOSITING OF CONCRETE

No depositing of concrete shall be done before reinforcement and forms have been inspected and approved by the Engineer-in-charge.

Before concrete is placed, all equipment for mixing and transporting the concrete shall be cleaned, all debris shall be removed from the space to be occupied by the cleaned all debris shall be removed from the space to be occupied by the concrete forms shall be thoroughly wetted or sealed, masonry filler units that will be in contact with concrete shall be dense and the reinforcement shall be thoroughly cleaned of distortions coating. Water shall be removed from the place of deposit before concrete is placed.

Concrete shall be transferred from mixer to place of final deposit as readily as practical by methods which prevent separation of the ingredients and displacement of reinforcement and which avoid rehanding. Deposit no partially hardened concrete.

Concrete shall be deposited continuously in layers of such thickness that on concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes or weakness the section.

In order to secure full bond at construction joints, the surface of the concrete already placed, including vertical and inclined surfaces, shall be thoroughly cleaned of foreign materials and laitance and slightly roughened. Shortly before the new concrete is deposited the joints shall be saturated with water. After free water disappears, the joints shall be given a thorough coating of neat cement slurry to the consistency of a heavy paste. New concrete shall be deposited before the neat cement dries.

Where concrete is to be deposited within masonry, the masonry shall be used as formwork and concrete shall be placed and adequate compacted within this shell. Masonry work to be braced during placement and compaction to avoid a

breaking of bond between mortar and bricks. Surface of previously cast concrete shall be treated specified in section 8.5 of these specifications.

9. COMPACTING OF CONCRETE

No concrete shall be dropped from a vertical height of more than 5'-0". All concrete during and immediately after depositing shall be thoroughly compacted by means of internal type mechanical vibrators.

Within 10 minutes after placing concrete shall be worked under and around the reinforcing bars and into corners of forms with the use of vibrators or proper rodding and tamping. Concrete shall be poured and compacted in presence of supervising Engineer or his staff and as directed.

The concreting shall be carried at such a rate that concrete is all times plastic and flows readily into all the spaces between the rates and formwork.

10.0 JOINTS

Definition: Joints caused by stopping of casting are construction joints. Joints necessary to separate structures or to provide for expansion and construction are structural or expansion joints.

Construction joints: Location, number and distance between construction joints to be determined by contractor and to be checked and approved in writing by the Engineer-in-charge. Concrete placement between construction joints shall be without interruption and as rapidly as possible. Provide a key and continue all reinforcement through the construction joint into the adjacent concrete. Before concrete is placed in the area adjacent to an already cast area, the existing joint surface must be cleaned and thoroughly wetted.

Structural or expansion joints shall be carried out in accordance with the Architectural and structural detailing.

11. CURING

Concrete shall be maintained continuously moist for 21(twenty one) days after casting.

12.0 EMBEDMENT OF PIPES AND OTHER INSERTS

The contractor shall co-ordinate with all mechanical trades, the placement of pipes and other installations and to provide the necessary openings in the concrete slabs and not to cast concrete before placement of pipes and other installations are approved by the Engineer-in-charge.

The piping shall be so fabricated and installed that it will not require any cutting, bending or displacement of the reinforcement from its proper location.

13.0 FINISHING OF CONCRETE

Finishing of concrete shall be according to finish schedule shown on the drawing protect fresh concrete slabs from rain or from men walking over it.

Steel trowel finish for exposed floor slabs and roof slabs without lime concrete.

Wooden float finish for all slabs to receive time concrete and brick paving

Broom finish for all slabs to receive artificial stone and tile flooring.

All other concrete exposed to view shall be as-cast finish and shall not be rubbed or repaired without the agreement and direction of the Engineer-in-charge.

Appearance of 'as-cast' concrete: Formwork design shall conform to the drawing and concrete shall be free from honeycomb. A full size nock up, or a small pre-selected and approved part of the structure, shall be poured as a sample for each type of beam, beam intersection and slab and the sample shall meet the approval of the Engineer-in-charge before the contractor proceeds with the work. All form including column, beam etc.

14.0 FORMWORK

Formwork of all RCC work may be any shape round square, rectangular, circular, semicircular or any other shape, arch, ornamental works, for which no extra claim will be entertained. Before any Major casting, approval on the formwork is to be taken from the Engineer-in-charge/ Design Engineer and a better consent in this respect is to be given by contractor during the signing of contract.

DESIGN OF FORMWORK

Design of steel/timber forms shall have to be prepared considering the following factors.

As-cast finish.

Rate and method of placing concrete.

Loads including live, dead, lateral and impact load.

Selection of materials and stresses.

Deflection, camber, eccentricity and uplift.

Shore splices.

Horizontal and diagonal shore bracing.

Loads on ground or a previously placed structures.

For sheet, the centering for RCC Work shall be made steel conform true to the shape limits, lines and dimensions as shown in the drawing. Joints in form shall

be smooth and water tight. Forms shall be supported or fixed by wedges or similar means so that it can be removed without hammering, knocking or prying, steel shutters subject to deformation and warping shall not be used in form works. In all cases surface of contact of form work with concrete shall conform to true plane.

The inside of all forms (except otherwise directed) shall be coated with oil. The oil used must be non-staring and have no adverse effect on paint or any other finish. Form oil must be applied before the reinforcement is placed. All forms shall be sufficiently watertight and shall be supported strongly be adjustable steel props with adequate shores. No timber shuttering and bamboo props will be allowed formworks must be got approved better laying in places bracing and bearing bases, etc. Forms must not yield or buckle under weight of concrete, materials and men working on it.

No concrete shall be poured in or on forms, until approved by the Engineer-in-charge. The Engineer -in-charge shall have the right to condemn unsafe or incorrectly built forms and direct their replacement at the cost of the contractor. The contractor is solely responsible for quality and workmanship as well as safety of structures, men and materials those will be supported on formwork.

Steel forms are to be smooth finish on surface as indicated on the drawings or instructed by the Engineer-in-charge.

Forms shall not be removed without prior permission of the Engineer-in-charge. Contractor is responsible for any injury done to the structures during removal of form.

All forms shall be cleaned before reuse. All surfaces to be in contact with concrete shall be repaired of any damage and all nails with drawn.

Design of formwork: Design of formwork shall include consideration of the following factors:

As-cast finish.

Rate and method of placing concrete.

Loads including live, dead, lateral and impact load.

Selection of materials and stresses.

Deflection, camber, eccentricity and uplift.

Shore splices.

Horizontal and diagonal shore bracing.

Loads on ground or a previously placed structures.

15.0 REMOVAL OF FORMS

No construction loads exceeding the structural design loads shall be supported upon any unshored portion of the structure under construction. No construction load shall be supported upon not any shoring removed from any part of the structure under construction until that portion of the structure has attained sufficient strength to support safely its weight and the loads placed there on. This strength may be demonstrated by job cured test specimens and by a

structural analysis considering the proposed loads in relation to these test strengths. Such analysis and test data shall be furnished by contractor to the Engineer-in-charge.

Forms shall be removed in such a manner as to insure the complete safety of the structure. Where to structure as a whole is adequate supported on shores, the vertical sides of beams girders and columns and similar vertical forms may be removed after 48 hours provided that the concrete is sufficiently strength not be injured there by and that care is taken not to injure, chip off or otherwise deface the concrete.

16.0 SCHEDULE OF STRIPPING TIME FOR FORMWORK

MEMBER	Time
Side of columns, beams, pedestals, footing	2 days
Bottom of slabs.	15 days
Bottom of beams and girders	21 days

17.0 CONCRETE STRENGTH

Concrete cylinder strength shall confirm the strength specified in drawings and in the schedule of items.

The following slumps shall be used for different members.

	Minimum	Maximum
# Foundation, Footing, Pedestal	1 inch	2 inches
# Grade beams	1 inch	2.5 inches
# Columns, beams and lintels	1 inch	2.5 inches
# Flat slabs	1 inch	2.5 inches
# Parapets and Railing	1.5 inch	3 inches

18.0 REINFORCEMENTS

Reinforcement free of loose scales or rust shall be accurately fabricated to the dimensions and positions indicated in drawings and as directed. Reinforcement shall be carefully positioned and spaced against displacements by tying with soft iron No 26 gauge black wire and shall be supported in position concrete blocks. M.S. chairs, spacers or hangers keeping clearance with the forms as shown in drawings or as directed. Unless other wise indicated in the drawings or specified hooks, radius of bends, stirrups and cranks shall satisfy the requirement of latest "ACI Building Code"

Laps in the position of maximum shear stressed will as far as practicable be avoided unless other wise specified. Laps shall be provided meeting the requirements of latest ACI Building Code version 2002 for splices. : Laps in reinforcement are subject to the approval of the Engineer-in-charge.

Covering from all concrete members, minimum and maximum spacing of reinforcement, standard hooks, bends and cranks and their locations shall conform to (Unless other wise mentioned) Latest ACI Building Code or following the drawing.

19.0 TESTS

Following tests shall be carried out by the contractor at his own expense in a testing Laboratory selected by the Engineer-in-charge to establish the basis of design.

Test of cement for conformance with specification.

Aggregates for conformance with specification.

Ultimate cylinder strength of concrete of 7 and 28 days as per ASTM.

Slump test as per ASTMC-143.

Materials and design mix samples shall be submitted to the testing Laboratory at well in advance of proposed first use in the structure.

During the course of the work the following cheek tests shall be made in the Testing Laboratory as per ASTM to assure compatibility with the originally approved mix.

6" diameter X 12" high cylinder test: 3 for each days major casting or per 4,000 Cft concrete, whichever is less.

Slump test: Minimum of one per each 30 batches of concrete mixes or per 200 Cft concrete whichever is less.

Such tests shall also be at the expense of the contractor.

The contractor shall co-operate with the Engineer-in-charge and the Laboratory in the taking and curing of all samples for the tests and shall provide the materials to be tested at the cost of contractor.

The Engineer -in-charge reserves the right to make load tests or any other tests if there is a reasonable doubt by the Engineer-in-charge as to conformance of the concrete work with the requirements of the contract documents.

The cost of any such test shall be borne by the Contractor if the test shows the workmanship or material not to be in accordance with the provisions of the contract documents.

If the tests show the workmanship of materials not be in accordance with the provisions of the contract documents. The Contractor shall be required to remove and reconstruct any such defective work at his own expense.

Use of concrete mixing plant must be binding upon the contractor.

SECTION -E

MANSONARY WORK

1.0 BRICK

Bricks work of walls, piers, boundary walls and paving.

Bricks for the exposed faces of all exterior and interior exposed bricks work of walls and piers in building having template laid recessed joints, where shown on drawings, shall be 3, 10 or 17 hole machine made, well burnt ceramic brick of uniform colour, verification and size: 9.5'' x 2.25'' Bricks for all exterior and interior exposed brick work of walls and piers in buildings having flush/ ruled pointing where shown on drawings, shall be hand picked, pug-mill moulded, trenchkliu burnt first class bricks of uniform colour verification and size: 9.5'' x 4.5'' x 2.75''.

Bricks for the exposed course of all bricks pavement in the buildings including stair treads and rescrs, when shown on drawings, shall be 3, 10 or 17 hole machine made, oil burnt ceramic brick of uniform colour verification and size: 9.5''x4.5'' x 2.75''

Bricks for exposed course of all external brick pavement where shown on drawings shall be machine made first class klinker pavement brick in 8'' x 4''x 2'' size.

Bricks for exposed brickwork shall have true and square corners and shall be free from cracks or other structural defects.

The bricks proposed to be used in the exposed work shall be hand picked and stacked separately according to use at least one day before use. Only

after the stacks are approved by the Engineer in-charge the bricks be used for exposed work.

Unexposed brick work Bricks for foundation walls, footings, soling and all other unexposed brick work as shown in drawings shall be pug mill moulded. Trench-kiln burnt first class bricks of uniform verification and free from cracks or structural defects in size. 9.5''x4.5''x2.75''.

2.0 MORTAR MATERIALS

2.1. Portland cement shall conform to ASTM specification C-150, Type 1 or for Portland cement (ordinary) No. 12.1947 as amended to date.

2.2. Sand for use in measuring mortar shall have fineness modulus 1.6 plus/minus O.10. It shall be free from injurious organic and inorganic impurities.

2.3. Water shall be clean and free from oils, acids, alkalis or other injurious materials.

3.0 DELIVERY AND STORAGE

All materials shall be delivered, stored and handled so as to protect them from wetting, staining, chipping or any other damage. Store cement and similar perishable materials in watertight sheds on floors with suitable dunnage as approved by the Engineer-in-charge.

4. 0 TESTING AND INSPECTION

4.1 Following test shall be carried out by the contractor at his own expense in a testing laboratory selected by the Engineer in-charge to establish the basic mix of mortar.

Test of cement for conformance with specification.

Test of sand for conformance with specification.

Test of mortar Type for conformance with ASTM C-270 (Water retention and compressive strength test) Materials shall be submitted to the Testing Laboratory well in advance of proposed first use in the structure.

4.2 During the course of work, the testing laboratory shall make check test of mortar as per foregoing Sub- paragraph 4.1.3 to assure compatibility with the originally approved mix. Such test shall also be at the expense of the Contractor and be performed at random when directed by the Engineer-in-charge.

4.3 Failure of any test to meet the specified strengths will result in rejection of work from which sample was taken and contractor will be required to remove and reconstruct any such condemned work at his own expense.

5.0 SAMPLE PANELS

Erect at the job site samples of brickwork as shown in drawings. Upon approval execute masonry as per sample.

6.0 MORTAR

General.
The method of measuring materials shall be such that the specified proportions of the materials can be controlled and accurately maintained. Shovel measurement will not be allowed. The size of the measuring boxes used shall be such that an integral number of measures shall give the stated mix.

All combination materials and aggregate shall be mixed with the proper amount of water add to produce a workable consistency.

Mortar which was began to set or is not used within 1-1/2 hours after initial mixing shall be discarded. Mortar which has stiffened due to evaporation within the 1-1/2 hours period may be retempered once (only) to restore its workability.

Mortar Mix
Mortar proportions by volume for all type of brickwork and brick paving shall be as specified in the schedule of items of works.

7.0 BRICK WALLS AND PIERS

All masonry work shall be laid by skilled workmen with adequate supervision and shall be laid true to lines and levels with joints of uniform thickness all surfaces true and corner straight and plumb.

Before use brick shall be cleaned and if necessary scrubbed. Then they shall be soaked in clean water for at least 8 hours. Soaking shall be discontinued 2 hours before use.

Soaked bricks placed in full mortar bed with vertical and horizontal joints completely filled and laid without slushing. The bond shall be as indicated on drawings. Unless otherwise specified vertical joints in alternate course shall come directly over one another.

Lay exposed brick in courses accurately spaced by means of wooden template of 1.5'' X 4'' batten 30'' long having a longitudinal Tongue 0.25'' X 0.25''. The Tongue shall be perfectly straight and true. The thickness of bed joints shall be 0.25''. The thickness of the vertical joints shall be as small as possible but not exceed 1/8''. The recess of 0.25'' in joints on the pointed face shall be carefully preserved.

Keep cavity all spaces free of mortar drippings by a suitable means.

Provide weep holes in the exterior 5'' wall (skin walls) of the cavity walls by omitting mortar from every 4th vertical joints in the course immediately above

to "Through- wall-flashing" (D.P.C) unless otherwise shown on drawings or instructed by the Engineer in-charge.

Care shall be taken that expose bricks are not stained as the work proceeds. No rubbing of the faces will be allowed to remove smears and stains.

As the work progresses, set all anchors, hold-fasts, sub-frames and other items of the various trades required to be built-in with the masonry. No cutting and patching of completed masonry work will be permitted except as approved by the Engineer in-charge. Hold-fasts and similar fixtures shall be build in surrounding brickwork in 1:3 cement mortar without disturbing the joint pattern.

Flush Pointing: During brick laying the joints on the exposed surface shall be carefully racked to a depth of 3/8 inch to 1/2 inch pointing shall follow after the masonry' as cured for one week. Masonry surface and joints shall first be thoroughly scrubbed and cleaned with clean water. When the wall surface is dry, pointing mortar with a cement sand ratio of 1:2 shall be applied with small steel trowels to fill the joints. Extreme care shall be taken that the mortar does not spread over the edges of the brick. The mortar shall be compacted by pressing the trowel hard against the joint and finished by drawing the trowel with a steady, firm tangential motion over the surface. The mortar consistency shall be neither too loan but must be of a consistency to take a polish at the time of finishing. The surface of the finished mortar shall be finish with the brick surface and shall not be ruled.

Ruled Pointing: The process shall be same as above with cement mortar of 1:2 proportion laid carefully and finished with steel template without spilling mortar on brick surface. The groove of pointing should be straight of uniform thickness all through as shown in the drawing.

All masonry shall receive at least seven days of moist curing such curing shall be provided by frequent spraying of water after the first 24 hours of setting.

Provide complete protection against breakage, staining and weather damage to masonry. Masonry, when not roofed over shall positively be protected with no staining waterproof coverings. Properly wetted whenever masons are not working on the walls.

8. BRICK PAVINGS

8.1 Two layer brick paving on sand fill sub-grade.

8.1 Brick paving shall be installed in two layers as shown in drawing on sand fill sub-grade prepared as specified in Section 10-FILLING & GRADING. If the sub-grade is dry it shall be lightly moistened before commencing the lying of paving.

8.2

8.3 A layer of slightly over burnt pug-mill moulded first class brick shall be laid as shown on drawing in transverse direction with the topping layer. The joints shall not be more than 0.25" thick and shall be solidly filled to the full depth by cement sand mortar (1:4). It shall receive at least 7 days moist curing.

8.4

Next a layer of machine made ceramic brick or klinker pavement brick as the case may be, shall be laid as per drawing in a full bed of cement sand mortar (1:4). The joints shall not be more than 0.25" thick and shall be solidly filled to the full depth by cement and sand mortar (1:4.). It shall receive at least **7 (seven) days** moist curing.

9. CLEANING

At completion of work all exposed brick walls and piers shall be thoroughly cleaned with clean water using stiff fiber brushes.

This should be followed by an application of Turmeric acid solution in consultation as approved by Engineer in-charge. After a week of this application, the surface shall again be thoroughly washed with clean water.

SECTION- F

MISCELLANEOUS METAL

1.0 GENERAL REQUIREMENTS

The work of this section consists of furnishing unless otherwise mentioned and installing all miscellaneous metal work shown on drawings and specifically required to be provided under other sections of the specification.

All materials shall be new stock, free from defects impairing strength durability of appearance and of best commercial quality for the purpose specified.

All anchors, bolts and other parts required for securing each item of work to they construction shall be included.

The contractor shall take and verify all measurements at the building as may be necessary or required. He shall be responsible for all field dimensions, all fittings and the proper attachment of all work included herein.

2. MATERIALS

All structural shapes including beams, channels, angles, plates and rivets shall confirm to the latest revision of ASTM standard specification of structural steel for building.

Brass shall be Rod Brass conforming to ASTM specifications Designation B36 amended.

3. SHOP COATINGS

All work shall be as detailed and except for galvanized metal, brass or bronze, be furnished to the site with one shop coat of red lead oxide unless otherwise required by the Engineer-in-charge.

Before painting, all rust, loose mill scales, dirt, weld flux, weld spatter and other foreign materials shall be removed with wire brush or steel scrapers. All greased and oil shall be removed by solvent recommended by paint of manufacturer. Surfaces shall be dry when painted.

Dissimilar metals shall be insulated from each other with one heavy coat of asphalt paint on contact surfaces in addition to the shop coat specified above.

Paint shall be thoroughly and evenly applied and shall be well worked into corners and joints taking care to avoid sags and runs. Bolts which are to remain permanently in the work shall be dipped in paint to cover the entire bolt.

Omit paint from surfaces to be embedded in concrete or masonry. Also omit paint from surfaces to be welded in the field, except where the primer used can be conclusively shown to have no adverse effect on the weld.

4. ERECTION

All materials shall be carefully handled and stacked to prevent deformation and damage. Care shall be taken to prevent damage to the shop coat of paint and to prevent the accumulation of mud, dirt, or other foreign matter on the metal work. All connections which will be exposed shall be welded and ground smooth unless otherwise shown.

All anchorage and other members to be set in concrete or masonry shall be built in as the work progresses. Later cutting or drilling shall be avoided as far as is practicable.

After erection, retouch all portions of the shop coat chipped or damaged during erection and all field welds and connection with the same paint used for the shop coat.

Welded field connections in galvanized work shall be hot zinc, coated in the field with Gal alloy galvanizing, compound or approved equal applied in accordance with manufacture's directions.

5.0 STEEL ROLLING DOOR

5.1 Steel Rolling Doors shall be fabricated as detailed in the drawings. All anchorage's hold-fasts and fittings shall be heavy duty type and properly secured. Erection shall be truly plumb and level to insure smooth running. Rollers shall be adequately lubricated after erection. Shutters and frames shall have finish and colour as selected by the Engineer-in-charge.

6.0 STEEL WINDOW AND GRILLS

6.1 Grills shall be M.S. materials as detailed in the drawings.

6.2 Fabrication shall be truly rectangular and joints shall be neat and clean and free of welding fluxes. All blisters and welding joints shall be filled plane erection.

Steel window and grills shall have finish and colour as approved by the Engineer in-charge.

SECTION- G

WOOD WORK

1.0 GENERAL REQUIREMENTS

The work of this section consists of furnishing and installing all rough and finishes woodwork, including door, window opening frames and all partition wall, case and cabinetwork shown on the drawings and specified herein.

Woodwork shall be performed by skilled carpenters adequately equipped with tools and machinery required for the type of work shown.

2.0 MATERISLS

Rough Hardware.

Include in the scope of work of this section all nails, screws, hold-fasts and other similar rough hardware items required for assembling and securing

woodwork. Straps and hold-fasts shall receive one coat red lead primer; omit paint from surfaces embedded in mortar and concrete.

Timber

Timber logs before reduction sizes shall have to receive inspection and approval of the Engineer-in-charge. No log producing timber of cross section less than 18'' X 18'' shall be used. Small pieces of the logs shall be prepared for inspection of the Engineer-in-charge to see the grain and colour of the timber.

The timber shall be of species, class and origin as specified in the drawing and schedule of items of works shall be straight, grained free from knots, cracks and other defects, All timber must be mechanically seasoned and a certificate of mechanical seasoning from the competent seasoning plant is to be incorporated/ supplied by the contractor during the delivery of timber at site.

Timber for mailers and sub-frames in brick walls, blocking and other unexposed work shall be well seasoned nature hard wood of approved quality.

All timber for exposed work shall be as specified in the schedule of items of works or as approved by the Engineer-in-charge.

SAMPLES

Samples of finished doors, windows, partitions, cabinets, etc. and of any other item required shall be submitted to the Engineer-in-charge for approval of workmanship and finishing before fabrication of other similar items are started.

GENERAL CONSTRUCTION

All woodwork shall be neatly fabricated and finished as detailed and to the exact dimensions require.

Unless otherwise detailed all joints shall be simple tenon and mortice joints. All mortice and tenon joints or scarf joints shall fit truly and fully without filling materials and shall be glued with plastic glue.

All nails in finished work shall be nailed wherever possible and surface nails shall be set slightly below the surface with a nail punch. No exposed wooden pins will be allowed.

Finishing of the work shall be done by rubbing with sand paper of coarseness in the sequences of No. (2), No (1) No, (0) and No. (00). This shall be followed by hand rubbing with wooden peg.

3 INSTALLATION

All work shall be installed true, level close jointed and neatly scribed to adjoining surfaces.

All work shall be sand papered at field points and where required by installation.

The frames shall be perfectly level and plumb and the corners shall be perfectly at right angles. The angles of the rebates shall also be perfectly square. The depth of the rebates shall be 1/6'' more than the thickness of the doors received by them. The doors shall be 1/4'' clear from the finished floor level or from the sill.

After doors have been fitted, painter shall be remove them to permit sealing of top and bottom edges by painter. They shall then be re hung and left in proper working condition, without binding, sticking or wrapping.

Install all finish hardwares and accessories specified to be furnish and delivered to the site under Section 8A of FINISH HARDWARE AND ACCESSRIES. All items shall be carefully fitted and adjusted. Before charge shall go over the entire project and check that each item of finish hardware and accessories are undamaged and in perfect operating condition and that the proper key for each lock is identified and delivered.

4.0 BACKPAINTING

All mailers and blocking set in or against masonry and concrete shall be given a brush coat of earth oil on all sides prior to installation.

Finish woodwork shall be sealed prior to installation on the back and all surfaces. Which will be concealed after erection as specified in Section 90 of PAINTING.

5.0 COMPLETION

At completion of work under this section, the contractor shall with the Engineer-in-charge inspect all portions of the woodwork. The contractor shall make any required adjustments or corrections to the work, leaving all operable portions in perfect operating conditions, all jointing adjacent materials tight and all surfaces without blemishes. Any defects or damaged work shall be corrected.

SECTION- H

DAMP-PROOFING, FLASHING AND SEALANTS

1.0 DAMP-PROFING UNDER SLABS ON GRADE

All slabs on grade shall have a damp-proofing course of one layer PVC transparent sheet, 0.05 mm thick underneath as detailed in the drawings.

PVC sheets shall be laid on interstices filled brick soling over lapping each other by at least 6''. It shall be raised at all edges up to a height approximately equal to the slab thickness and shall be placed behind the flashing overlap as detailed in the drawings.

2.0 FLASHING (DPC)

2.1 Flashing shall consist of 0.3 mm transparent P.V.C sheet.

2.2 Furnish and install flashing in interior and exterior brick walls at plinth level and wherever drawings call for ''thru wall flushing''.

Flashing shall be laid in between two 0.25'' layers of cement sand mortar in 1.4 proportions as per drawings. Laps shall not be less than 6 inches and shall be joined together using. ''Aica Aibon'' or approved equal adhesive.

Flashing shall be held back at least 0.25'' inch from the outer face of the brick. At plinth level, the finishing shall hang vertically equal to floor slab thickness in the interior side as detailed in drawings. Greatest care shall be given not to stain any portion of the exposed work.

3.0 SEALANTS

Sealing of exterior side of door and window frames.

Furnish and install sealants wherever shown on drawings. All sealants shall be as approved by the Engineer-in-charge. Surfaces to be sealed shall be clean, dry, and free from dust, oil, grease, loose mortar or other foreign matter. All beds shall be tooted immediately to insure firm full contact with inner faces of joint. Excess materials and smears shall be removed as the work progresses.

Expansion joint at floor.

3/16'' mild steel sheet of required size shall be placed over expansion gaps in floor as detailed in drawings.

The M.S. sheet shall be fixed in position with the help of 1.5" wood screws and hard wooden blocks anchored in floor @ 12" c/c as detailed in architectural drawings.

Expansion Joint at Roof slab.

The expansion gap in flat roof slab shall be converted R.C,C cast-in-situ cover slab of thickness and proportion as mentioned in drawing using 3/8" down graded stone shingles or Jhama chips over the following layers.

Two layers of transparent polythene sheet o.3 mm thick shall be placed over the upturned edges of the expansion joints as detailed in the drawings.

A layer of 16 gauges G.P. sheet of required width shall be placed over the polythene sheet.

The RCC cover shall have steel trowel finish and shall be cured adequately.

SECTION -I

LIME CONCRETE ROOFING

1.0 MATERIALS

Lime concrete shall be mixed using lime, surki and brick aggregate as herein specified.
Lime shall not contain more than 5 percent of foreign impurities. It shall dissolve in soft water when this is added in sufficient quantity. Stone lime may be used. Lime shall first be slaked for 48 hours then strained through a sieve of 64 meshes to the square inch.

Surki shall be made only from well burnt but not vitrified brickbats of class one or two. Surki made from under-burnt bricks shall not be used. Surki shall be perfectly, free from admixture of dust, sand or any other particles and shall be ground to such fineness as would pass a sieve of 64 meshes to the square inch.

Brick aggregate shall be from well burnt but not vitrified bricks and shall be below 1 inch size Brick aggregate shall be continuously soaked for 2 days before use.

2.0 MIXING

The approximate proportions of the mixture shall be 2 parts lime to 2 parts surki to 7 part brick aggregate.

The lime and surki shall be mixed dry and laid on top of stack of brick aggregates. While mixing small quantities of water shall be added as required. Once the materials are mixed the mixture shall be left to temper itself for 24 hours, after which it is remixed my spreading, followed by another spreading

after 24 hours. The procedure shall be repeated till the mixture is ready for laying.

3.0 INSTALLATION

The roof deck on which the mixture will be laid shall be cleaned and washed accompanied by scrubbing if necessary. The mixture shall be laid 1 inch more than the beaten thickness according to the grades and slopes on the drawings. Before beating commences, grouting of lime shall be sprinkled on the surface and allowed to soak well.

Beating shall be done by two rows of workers sitting in a row who will traverse the length of the roof backwards and forwards beating with wooden mallets. Beating shall continue until the mixture has almost set and the mallets rebound from the surface. Beating shall usually be continued for 5 or 6 days. Lime water to which molasses are added @ 1/4 seer to a gallon shall be sprinkled at intervals to keep the lime concrete wet while being beaten. The surface shall never be allowed to dry. No plaster shall be given to the surface.
Where lime concrete roofing cannot be placed all in one day, terminate each day's work on a straight line with a 1:2 slope. Joining of new work to previous day's work shall be accomplished by applying a bounding paste of lime surki mortar 1:1 to the slope before placing the new lime concrete.
Provide turn-up along parapet as shown. Install and finish in manner similar to decks.
The surface shall be brought to a very fine polish by rubbing with a fine small trowel and to assist in this fine lime putty ay be used sparingly.

Next the work shall be cured for 2 weeks by covering with a 2'' layer of moist earth mixed with 3% straw or hay. This layer shall be moistened from time to time as required. At completion of the curing period the layer of earth shall be removed and the entire roof area swept clean. Greatest care shall be taken not to clog roof drains.

SECTION - J

GLASS AND GLAZING

8(J).1.0 GLASS

All glass shall be sheet glass except otherwise specified or approve quality and shall be of the following weights/sft for the various sizes mentioned below: -

a) Not exceeding 12"x14" 21 ozs

b) Not exceeding 24"x24" 26 ozs

c) Not exceeding 30"x30" 32 ozs

d) Not exceeding 36"x36" 3/16" thick

e) Exceeding (d) 0.25" thick plate glass

All glass shall be free from bubbles, distortion and flaws of every kind.

Each piece of glass shall bear a label indicating the name of manufacturer, the thickness and type of glass. Level shall remain on glass until final cleaning.

2.0 SAMPLES

Submit sample of following items for Engineer-in-charge approval.
Samples of each type of glass, size 3 inch by 4 inch bearing the name of manufacture, thickness, type of glass.

3.0 GLAZING -GENERAL REQUIRMENTS

All glazing work shall be performed in accordance with the typical glazing details shown on drawings.

Joints and spaces to be sealed shall be thoroughly dry and free from dust or other foreign materials before glazing.

All glass shall be set with proper clearance recommended by manufacturer at all edges. Glass with nipped or damaged edges shall not be installed.

Adjacent materials which have been solid shall be cleaned immediately before the sealant and compound hardens or stains the adjoining surfaces.

4.0 GLAZING OF WOOD AND METAL WINDOWS

Apply a thin layer of scalant to fixed (inside) stop.
Set glass, taking care to control with equal clearance at jambs between glass and frame.

Press glass firmly into place against scalant.

Lay bead of sealant into space between glass and frame. Apply sufficient sealant so that when stop is put in place the scalant will be forced between glasses and stop and completely fill the space between frame glass and stop.
Install outside stop.

Completely fill the remaining space between outside face of glass and stop with sealant.

5.0 MIRRORS

Mirrors shall be imported and shall be 0.25'' thick No.1 quality polished plate glass blue labelled. They shall have a silver coating hermetically sealed with uniform coating of electrolytic copper plating and the copper protected by a coat of mineral oxide, oil base paint. Dressing room mirrors shall be fixed in position in accordance with the architectural detailing.

6. DEFECTS AND BREAKAGE

The contractor shall replace all glass which does not comply with these specifications or having defects not permitted by the manufacturer's grading rules.

The contractor shall replace all glass which is broken, cracked or chipped by his own men or due to faulty installation.

The contractor shall replace all glass broken creaked or chipped by any other cause, so that all glass is in perfect condition at the time of acceptance of the building.

7.0 CLEANING

No glazing shall be considered complete until and unless paints and other stains have been removed from the surface of the glass. Glass must be cleaned and polished with pads of damp cloth and then with clean dry soft cloths. It will have to be finally finished with appropriate glass cleaning fluid and made absolutely free of foreign materials.

SECTION -K

FINISHING HARDWARE AND ACCESSORIES

1.0 GENERAL REQUIRMENTS

The work under this section consists of furnishing and delivering to the job site all FINISH HARDWARE AND ACCESSORIES required in accordance with the detail drawings.

All hardware shall be delivered in the manufacture's original packages, complete with all required fastening and trimmings.

All hardware shall conform to the requirements specified hereinafter. No substitution shall be made for the sample submitted without the approval of the Engineer-in-charge.

Submit required templates for proper installation. Hardware furnished under this section is specified to be installed under section 5A

2.0 SAMPLES

Before materials is ordered, the contractor shall submit in duplicate to the Engineer-in-charge for his approval a complete line of samples. Sample shall be plainly marked giving the manufacture's numbers, types and sizes. Samples will remain with the Engineer-in-charge until delivery of all hardware to the project site is complete, then they shall be used in the work

3.0 SCHEDULES

Two sets of complete lists of all hardware to be furnished under this section shall be submitted to the Engineer -in-charge for approval. The list shall indicate the manufacture's name and hardware designation, type, size and installation location. Hardware shall not be ordered until the list has been approved.

4.0 FISNISH AND MATERIAL

All finish and material shall be as approved by the Engineer-in-charge.

5. FASTENINGS

All hardware shall be supplied with screws, bolts, nuts and other fastenings for attaching hardware. These shall be of the same finish as the material which they attach and shall be of types standard with the manufacturer.

6. RECEVING AND STORING

The contractor shall provide adequate locked storage space, lost or damaged hardware shall be replaced at no cost to the Engineer-in-charge.

7. BUTTS AND HINGES

Butts, Hinges shall be steel or best quality as available in the market for al doors and windows.

The size and numbers of the butts and hinges shall be as detailed in the drawings.

8.0 LOCK SETS

8.1 All locksets shall be the mortice type and shall be building with an extra heavy internal spring to ensure non-sagging of lever handles.

Strikes shall have extended lips where required to protect firm from being marred by latch bolt. All cylinders shall have at least five pins.

8.3 All keying shall be as directed by the Engineer-in-charge. Furnish two keys per lock. All locks shall be furnished with a construction key cylinder system. All permanent keys shall be turned over the Engineer-in-charge at the time of completion and discontinuance of the construction.

SECTION - L

8(C).1.0 ARTIFICIAL PATENT STONE FLOORING

Materials shall be as follows:

Cement	: Portland cement conforming to ASTM Specification 0150 Type I and II
Sand	: Clean of minimum fineness modulus of 1.80
Coarse Aggregate	: Clean twice washed 3/8" down graded stone/ Pea gravel or picked jhama chips as specified.

Submit samples of sand and coarse aggregates to Engineer in-charge for approval.

Before proceeding with the work a sample panel of flooring as specified shall be prepared for approval by the Engineer in-charge.

The sub floors over which the artificial stone flooring will be laid shall be thoroughly placed and washed clean of laitance dust, dirt and other foreign matter to the satisfaction of the Engineer in-charge.

Following the preparatory work, the slabs shall be thoroughly wetted with clean water by pounding at least ever right prior to the application of the flooring. All excess water shall be removed ahead of the application of the bonding slurry so that the concrete surface is uniformly damp but not glistering wet.

A creamy bonding slurry of neat cement shall be applied and well scrubbed into the surface with stiff bristle brushes. Only as much bonding slurry shall be mixed and applied as will be covered by the succeeding coat before the slurry dries out.

In general not over 100-sq. ft shall be slurred at one time in order to maintain at " live glue " for bonding. Apply and brush in the slurry in small areas not exceeding 5 feet square. Excess or dad slurry shall be constantly removed from the base by broom.

Concrete mixed in the proportion 1 part Portland cement, 1.25 parts sand, 2.5 parts coarse aggregate shall be applied promptly after slurring before the paste has hardened or dried in specified thickness.

The method of measuring materials shall be such that the specified proportions of the materials can be controlled and accurately maintained. Shovel measurement will not be allowed. All constituents shall be thoroughly mixed. No retempered materials and no material which as partially set shall be used in the work.

The mixture shall be thoroughly tempted by steel trowel. The compaction shall be followed by steel trowelling to bring the finish to smooth, hard surface free from marks and imperfections of any kind.

The temporary dividers may be of metal strops of wooden battens of true line and shape. The top of the dividers shall be perfectly level with level of the finished floor desired.

The sequence of filling in the panels shall be on checkerboard plan. The casting of the complementary set shall be done at least 48 hours after the first set is cast and dividers removed.

The top shall be moist cured for at least 7 days. The following shall not be subjected to moderate use before 14 days and to servers use before 28 days.

SECTION -M

TERRAZZO WORK

1.0MACHINE PRESSED TERRAZZO FLOORING

Machine pressed terrazzo flooring shall be made of white marble chips marble dust, white cement white and grey cement marble chips shall be of the best variety and shall require approval of the Engineer-in -charge. White cement shall be snowcem brand or have approved quality.

The composition shall be as follows. One part of 10 mm down graded marble chips and one part of mixture containing white cement and grey cement in proportion (9:1). The terrazzo work shall be polished by pumice stone (No. 40, No 80, No. 120) and finished with oxalic acid including screening washing etc. complete.

Sample terrazzo work must be approved by the Engineer-in-charge before starting full-scale execution. The design of floor layout shall be as per plan and instruction of the Engineer-in-charge.

The thickness of terrazzo topping shall be at least 0.25''. The setting bed shall be 1.25'' thick cement concrete in 1:2:4 mix consisting of ordinary cement, coarse sand and 3/8'' down graded picked/ Jhama chips / pea gravels or stone ships as specified for artificial patent stone flooring.

The sub- floors over which the terrazzo flooring will be laid shall be prepared same as for artificial patent stone flooring.
Following the preparatory work creamy bonding slurry of neat cement (ordinary cement) shall be applied and scrubbed into the surface with stiff bristles brushes not exceeding an area of about 4 square feet. In general materials sufficient enough for not over 100 sq. ft. shall be slurred to maintain live-glue for bonding.

Next the concrete setting bed as specified above shall be laid in 1.25'' thickness over the live bonding slurry and shall be compacted by wooden float to be required level. Excess or dead slurry shall be constantly removed from the base by brooms.
The terrazzo topping layer then shall be well trawled and compacted into the setting bed in 0.25'' thickness with desired level and slope.

A layer of white cement shall be well trawled next leaving a smooth surface.

After the terrazzo topping has hardened enough to with stand dislodgment, it shall be grounded with an approved type of grinding machine shod with rapid carborundum stone of 80 grits to expose the marble chips. Hand grinding in case may be allowed.

The floors shall be kept wet during grinding. All ground -off materials shall be removed by sweeping and flushing with clean water.

Air holes, pits and other blemishes shall then be filled with a thin grout of whitecement.

On hardening of patch fillers, the floor shall receive a second or final grinding with carborundum stone of 240 grit it shall then be cleaned and washed of all surplus materials.

The floor shall be kept undisturbed for a period of 2 weeks on even exposure of marble chips. On expiry of this period the floor shall be cleaned of dirt and dust by rubbing gently with pumic stone using sufficient water. It shall be washed with washing soda if required.

The surface shall receive bees wax polishing on drying.

The method of measuring materials shall be similar to that of mortar. All materials shall be mixed in dry state and shall be protected from harmful effects of moisture. Water shall be added by only such amounts as may be consumed in less than 30 minutes, in quantities required to produce workability. Mixing shall be done on watertight platform.

2.0 TERRAZZO TILE FLOORING

Terrazzo tile shall be manufactured from marble dust and cement (grey and white), white cement. Marble chips shall be of the best variety and shall be approved by the Engineer in -charge. White cement shall be snowcem brand or any other brand of equivalent quality.

The proportion of black chips to white chips shall be according to the instructions of the Engineer in-charge. Ratio of marble chips, marble dust white and grey cement shall be similar to as specified under " SITU TERRAZZO FLOOR" mentioned herein above under this section.

Sample terrazzo tiles must be approved by the Engineer-in -charge before full- scale manufacture is undertaken. The design of floor layout and colours shall be as per plan and instruction of the Engineer in-charge.

The thickness of terrazzo tile topping shall be at least o'25" bonded to at least 0.75" thick mortar in ordinary setting cement and sand in 1:2 proportion. The tiles shall be laid on bed mixed in proportion of 1 part Portland cement, 1 part lime, and 3 parts surki. The tiles shall be polished by carborundum stone of 80 grit followed by 240 grit.

Pitch floors to drains as shown. Pitch must be continuous and uniform leaving no depressions to accumulate water. Setting bed shall be minimum 0.50" thick at lowest point.

3.0 CERAMIC TILE WORKS

Glazed ceramic tile for walls shall be imported best quality. Square edged, matte finish white, size approximately 4" by 4" by 5/16". Provided matching 4" high coved base, 4" high bullnose top and all other required firm pieces. All

internal corners shall be square, all external corners rounded. Submit samples to Engineer in-charge for approval.

Mixes.

Scratch coat shall be mixed approximately in the proportion of 1 part Portland cement, 3 part dry sand, 1/5 part hydrated lime by volume.

Setting bed shall be mixed approximately in the proportion of 1 part Portland cement. 3 part dry sand, 1/2 part hydrated time by volume.

Skim coat shall be Portland cement mixed with water to creamy consistency.

Grout shall be white cement mixed with water to creamy consistency.

Application:

Apply scratch coat to properly cleaned masonry surfaces. Allow scratch coat to cure for at least 24 hours before applying mortal setting bed.

Setting bed shall provide a plumb and true surface. Thickness of setting bed shall be not more than 2/4 inch.

Seak tile at least 1/2 hour in clean water and drain off excess water.

Trowel a skim coat of 1/32 inch to 1/16 inch thickness of neat Portland cement paste over the still plastic setting bed.

Press tile firmly into the bed. Fill joints thoroughly with grout and finish grout flush with surface of tile. Joints shall be straight line and of uniform width.

Do all cutting and fitting of tile work as required by work of other trades and for installation of accessories. In cutting and fitting tile, the edges shall be carefully cut and ground a perfect fit, so that collars or escutcheons, where used will overlap the tile.

After tile work has completely set sponge and wash till thoroughly. Finally, polish with clean, dry cloths. No acid solutions shall be used.

SECTION- N

PAINTING

1.0 MATERLALS

Manufacturer's dated catalogue or specification sheets in triplicate for materials proposed shall be submitted to the Engineer in-charge with the list of list of brands and types. No materials shall be used without approval of the Engineer in-charge.

All painting materials shall be of the best quality and be delivered to the site in unopened original container bearing manufacturer's labels.

Materials to be used in the work shall conform to reputed Manufacturer's specifications and to the satisfaction of the Engineer -in-charge.

2.0 STORAGE OF MATERAILS

Materials and tools shall be stored in a single place at the site as designated by the Engineer in-charge.

Storage area shall be maintained in a neat clean condition, with surroundings protected from damage.

Inflammable materials shall be stored in sealed containers waste shall be removed from the premises at the end of each day every precaution shall be taken to prevent fire.

Storage area shall be accessible to the Engineer in-charge at all times.

3.0 COLOURS AND SAMPLES

Colour scheme shall be a directed by the Engineer in-charge and all tinting and matching shall be to the satisfaction of the Engineer in-charge.

For all natural or stained wood finished, samples shall be prepared as directed on pieces of the same kind of wood at least 6 inch by 12 inch until the finish is approved.

For painted finish samples shall be prepared as directed on the surface to be painted until the finish in approved.

4.0 PROTECTION

Furnish and lay drop cloths or other approved protection in all areas where painting and finishing is being done so as to adequate protect flooring and other work from all damage during the execution of the painting work.

5.0 SURFACE PREPERATION

Concrete and Masonry.

All surfaces to be painted shall be thoroughly cleaned of all grit, grease dirt, loose materials, mortar drippings and the like.

Wood to be clear finished.

Sand smooth and free of marks before applying the first coat.

Fill voids and holes after first coat in dry, using transparent filler compatible with the finishing specified and tinted to camouflage repairs.

Forreus Metal:

Wire brush or sand to remove all rust, dirt, weld spatter, and other foreign matter.

Rove grease and oil films with solvent, using a fine steel wood pad or a coarse cloth.

Galvanized Metal:

Galvanized metal shall be clean and dry remove grease and oil films with a solvent, using a fine steel wood pad or a coarse cloth, follow instructions of primer manufacturer.

6.0 APPLICATION

No work shall be done under conditions which are unsuitable for the production of good results. All spaces shall be broom clean before painting or finishing is starte

The workmanship shall be the best. All paint shall be applied with brushes under adequate illumination evenly spread, smoothly flowed on without runs or sage. Paint shall be worked into all corners and crevices.

Materials shall be applied in strict accordance eight the manufacture's directions and in particular, no prepared paint shall be thinned in any way

except as directed by manufacturer. All paint shall be thoroughly mixed before being used.

Each coat applied must be inspected and approved by the Engineer in-charge before the application of the succeeding coat. Otherwise no credit for the coat applied will be given and the contractor may have to repute the work in question at his own expense. The contractor shall notify the Engineer in-charge when each coat is ready for inspection.

No exterior painting shall be done in rainy, damp weather until the surface is thoroughly dry.

Minimum drying time shall not be less them 72 hours between coats for exterior paints and 48 hours for interior paints. Each coat shall be thoroughly dry before application of subsequent coat.

All natural finished woodwork, painted woodwork and painted metal shall be lightly sanded between coats using sand paper.

Natural finished woodwork only shall be ribbed with fine steel wood after last coat. Rub to desired finish as per approved sample.

All woodwork for natural finish shall be seated on the back and all surfaces which will be concealed after erection with the two coats of any approved transparent sealer prior to installation.

After being fitted by the carpenter, all edges of doors shall be finished it same as to faces.

Suction spots in plaster, masonry or concrete showing after application of first coat shall be repainted before application of next coat.

All exposed piping (except PVC) shall be painted to match the adjoining wall surface where such wall surface is either glazed tile or painted.

Painting around Finish Hardware of other removable items already in place will not be allowed.

Any damage to adjacent work caused by paints or painting operations shall be rectified by the contractor at his own expense.

7.0 COMPLETION

At completion of painting work, the contractor shall remove any paint spots and stains caused by work under this section from floors, walls, glass, hardware, equipment and other surfaces leaving these surfaces in perfect condition.

The Engineer in-charge will conduct a final inspection of all work under this section and the contractor shall repaint or retouch as directed by the Engineer in-charge, any surfaces which do not comply with the requirements of these specifications or which have been damaged during construction work. All surfaces finished under this section shall be left in perfect condition, free of defects and blemishes.

Remove all rubbish and accumulated painting materials from the premises.

8.0 EXTERIOR WORK

Exterior surfaces if required to be painted shall be painted as follows:

8.1 **Concrete**: Two coats of latex masonry paint.

Brick wall: Two coats of latex masonry paint.

Plaster Surface: Paint all surfaces as directed.

Galvanized Metal: (Paint all galvanized metal except as otherwise noted).

Wood Work: (Paint all exposed wood surfaces except as otherwise noted). Two coats of specified polish over a coat of priming.

9.0 INTERIOR WORK

Interior surfaces if required to be painted shall be painted as follows:

9.1. **Concrete:** Two coats of latex masonry paint.

Bricks wall: Two coats of latex masonry paint.

Plaster surfaces: Paint all plaster surfaces as directed.

Iron, Cast Iron and Steel: (Paint all Iron and Steel, except otherwise noted).

One coat red lead primer.

Two coats gloss enamel.

9.2 Galvanized Metal (Piping, Conduits).

One coat zinc dust primer.

Two coats gloss enamel.

Wood work: (Natural Finish)- Apply in all exposed surfaces, Two coats of specified polish over a coat of priming.

SECTION-O

CHALK WASHING

8(O). MATERIALS

1.

Quick or stone lime

Shell time

#Gum Arabic

Robin Blue

Colour pigments

Water.

2.0 MIXING

2.1 Two parts fresh stone lime and one part shell lime shall be slaked on the spot.

2.2 The slaked lime mixture shall then be placed in a sub containing clean water. It shall be mixed and stirred until attains the consistency of thin cream.

2.3 When sufficiently mixed, it shall be strained into a separate container through coarse cloth.

2.4 Gum Arabic in the proportion of 2 chatak to thirty seers or 1 Cft of lime shall be added and dissolved in the stained wash.

2.5 Colour pigments or Robin blue dissolved in water shall then be added according to Engineer-in-charge's instructions. It shall be stirred sufficiently to ensure uniform mixing. It will then be ready for used.

3.0 SURFACE PREPARATION

3.1 The surface to receive chalk wash shall be thoroughly cleaned down with clean water and free form all foreign matters. Defects shall be repaired accordingly. It shall be rubbed with sand paper.

4.0 APPLICATION

4.1 Chalk wash shall be laid on surfaces in two coats over a priming coat. It shall be laid vertically and horizontally alternately. The final coat shall be applied vertically.

4.2 Each coat shall be perfectly dry before the succeeding one is laid over it.

4.3 In case of coloured chalk wash, priming coat shall be white.

4.4 Wherever scaffolding is necessary, it shall be free standing so as not to damage or scratch the painted surface.

SECTION –P

PASTIC EMULSION PAINTING

1. MATERIALS

1.1 Plastic emulsion paint if used shall be of snowcem brand or approved equivalent.

2.0 MIXING

2.1 The paint shall be mixed or thinned in accordance with manufacturer's instructions.

3.0 SURFACE PREPARATION

3.1 The surface to receive chalk wash shall be thoroughly cleaned down with clean water and free form all foreign matters. Defects shall be repaired accordingly. It shall be rubbed with sand paper.

4.0 APPLICATION

4.1 It shall then be sized with a priming coat as recommended by the manufacturer.

4.2 Suction spots appearing on the surface shall be repainted before applying the next coat.

4.3 No of coats shall be as mentioned in the Schedule of items of works. Colour scheme shall be as directed by the Engineer-in-charge.

4.4 A sample panel shall have to be prepared for Engineer-in-charge's approval prior to taking up full -scale work.

4.5 The paint shall be applied strictly in accordance with manufacture's specifications.

4.6 Apply paint quickly and boldly with camel hair, stiff, board brushes 4" to 6" long.

4.7 Dip the brush and make crosswise stroke following it with up and down stroke.

4.8 The edges shall be kept " Alive" to prevent forming lap marks.

4.9 Each coat shall receive the inspection of the Engineer -in-charge failing which no credit shall be given and the contractor may have to be re-do it at his own cost.

4.10 No painting shall be done in rainy season or damp weather.

SECTION –Q

PLUMBING AND PIPING

1 **SCOPE**

This section covers all items in connection with installing an efficient plumbing system ensuring water supply and sanitary arrangement to the different components of the project items and connecting as per drawing and direction of the Engineer-in-charge. All work shall be complete in all respect.

2.0 GENERAL REQUIREMENTS

The drawings indicate the general arrangement of the plumbing and piping Details of proposed departures due to actual field conditions or other causes shall be submitted to the Engineer-in-charge for approval. The contractor shall carefully examine the drawings and shall be responsible for the proper quality and fitting of materials and equipment in each unit as indicated without substantial alternation.

2.1 Specification: Materials required which are not covered by the detailed specifications shall be as recommended by the equipment manufacturer, or consistent with good practice and as approved by the Engineer-in-charge.

2.2 Drawings: The drawings show the general arrangement of all piping: however, where local conditions necessitate a re-arrangement, the contractor shall prepare and submit for approval drawings of the proposed rearrangement. Because of the small seal of the drawings it is not possible to indicate all offsets, fitting and accessories which may be required. The Contractor shall carefully investigate the structural and finish conditions affecting all of his work and shall arrange such work accordingly, furnishing such fittings traps, valves and accessories as may be to meet such conditions. The plumbing contractor shall be prepare a shop drawing indicating the exact location of pipes for approval by the Engineer-in-charge prior to construction.

2.3 Cutting and Repairing: The work shall be carefully laid out in advance and any cutting of construction shall be done only with the written permission of the Engineer-in-charge. Cutting shall be carefully done and damage to the buildings, piping, wiring or equipment as a result of cutting for installation shall be repaired by skilled mechanic of the trade involved, at no additional expense to the Employer.

2.4 Protection of fixtures, materials and equipment. Pipe openings shall be closed with caps or plugs during installation Fixtures and equipment shall be tightly covered and protected against dirty water and chemical or mechanical injury. At the completion of the work fixture, materials and equipment shall be thoroughly cleaned and delivered in a condition satisfactory to the Engineer-in-charge.

3.0 APPROVAL AND LIST OF MATERIALS, FIXTURES AND EQUIPMENT

As soon as practicable after execution of contract and before any materials fixture or equipment are purchased, the contractor shall submit to the Engineer-in-charge for approval a complete list in triplicate, of materials, fixtures and equipment to be used in the work, with their brand and manufacture. Any materials, fixtures and equipment listed which is not accordance with the specification requirements may be rejected.

4.0 EXCAVATING, TRENCHING AND BACK FILLING

Excavating trenching and back filling is specified under Section IB & IC - EXCAVATING AND FILLING AND GRADING

5.0 MATERIALS AND EQUIPMENT

5.1 Soil, Waste, Rain Water and vent piping.

5.1.1. All soil, waste, rainwater pipes shall be cast iron, reinforced concrete. PVC or cement asbestos pipes as mentioned in the drawings. Schedule of item of works or as directed by the Engineer-in-charge.

- # Cast iron pipes 2 " and above shall be heavy duty type (HCI) with spigot and socket joints having projecting ears .All fitting shall similar to the pipe.
- # Reinforced concrete pipes shall be centrifugal spun. All fitting shall be similar to the pipe.
- # PVC pipes shall be of approved size and shade with fittings similar to the pipe.
- # Cement Asbestos pipe shall be of approved size and quality with fittings similar to the pipe.

5.2 Water supply piping.

5.2.1 Water pipes shall be galvanized iron (Pressure 400 ft of water) suitable for threaded jointing sampling with BS 21:1938, pipe threads part I, 'Basic sizes and Tolerance'. All fittings shall be similar to the pipe.

5.3. Fixtures and fittings.

5.3.1 W.C. Flushing cisterns, toilets, urinal and lavatory basins, etc. shall be made of white vitreous china of the highest quality available in the market. Samples shall have to be got approved by the Engineer -in-charge.

5.3.2 All fittings such as bib, pillar, elbows and stop cocks, toilet paper holder, towel rail, shower head, soap tray, guard rail and brackets, etc. shall be of best quality available in the market. Fittings shall be chromium plated except other wise specified or instructed by the Engineer-in-charge. Sample shall have to be got approved by the Engineer in-charge.

5.4 Fixture setting compound and jointing materials.

5.4.1 Roofing pitch, tarred gasket and cement sand mortar of approved quality shall be used for jointing RCC Pipes and W.C into sockets.

5.4.2 Hemp yarn, jute packing and molten lead of approved quality shall be used for jointing CI pipes.

5.4.3 Graphite and oil or an approved graphite commit and shall be used in threaded joints only.

6.0 WATER PIPE, FITTINGS AND CONNECTIONS

6.1 Piping and fittings.

6.1.1 GI Pipes and fittings shall be used for hot/ cold water supply piping

6.2 Installation.

6.2.1 A gate valve and drain valve on the service line shall be installed inside the building. The piping shall be extended to all fixtures outlets and equipment from the gate valve. The water supply system shall be installed with a fall toward the shut-off valve. Bends formed with approved pipe banders are acceptable.

6.2.2 Install a capped tee below the shut off valve on water service riser in each building.

6.2.3 Mains, Branches and Runout: Piping shall be installed as indicated on the drawings. Pipe shall be out accurately to measurements established at the building by the Contractor and shall be worked into place without springing by the or for. Care shall be taken not to weaken the structural portions of the building. Piping above ground shall be run paralleled with the lines of the building unless otherwise shown or noted on the drawings. Branch pipe from service lines may be taken of top of main, bottom of main, or side of main using such cross- over fillings as may be required by structural or installation conditions. Service pipes, valves and fittings shall be kept a sufficient distance from other work and other services to permit not less than 0.50 inch between finished covering and other and not less than 0/50 inch between finished covering of different services. No water piping shall be buried in floors unless specifically indicated on drawings or approved changes on pipe sizes shall be made with proper sockets. The use of bushings will not be permitted.

6.2.4 Pipe Drains: Indicated on the drawings shall consist of 1/2 inch glove valves with renewable disks and 1/4 inch hose nipples. The water piping shall be installed so that the system may be completely drained. Any trapped water line shall be equipped with a drain cock, a union, a plugged tee, or a nipple and a cap at the lowest point in the trap section.

6.2.5 Expansion and Contraction of piping allowance shall make throughout for expansion and contraction of piping. Horizontal runs of tubing over 50 feet in length shall be anchored to the wall or to the supporting about midway on the run to force expansion, evenly divided toward the ends.

6.3 Joints:

6.3.1 Threaded pipe: After cutting and before threading, pipe shall be reamed and shall have hurries removed. Screw joints shall be made with graphite and oil or with an approved graphite compound applied to make threads only. Threads shall be full-cut and not more then three threads on the pipe shall remain exposed. Calling of threaded joints to stop or prevent leaks will not be permitted Unions shall be provided where required for disconnection.

6.3.2 Tubing: Tubing shall be out square and burrs shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel woods before sweating Care shall be taken to prevent annealing of fittings and hare- drawn tubing when making connections. Installation shall Ben made by competent workmen. Mitered joints for elbows and pipe notching straight runs of pipe for tees will not be permitted. Threaded wing joints shall be provided on all branch connections to mains and risers to provide for expansion and contraction at rubbing.

6.3.3 Sterilization: The entire cold water piping system shall be thoroughly sterilized with a chlorinating material shall be either liquid chlorine, calcium hyper chlorite or chlorinated lime conforming to Public Health Directorate. Specification shall be introduced into the system in manner approved by the Engineer in-charge. The sterilizing solution shall be allowed to remain in the system for a period of 8 hours. During which time all valves and faucets shall be opened and closed several times. After sterilization, the solution shall be flushed from the system with clean water until the residual chlorine content is not greater then 0.2 parts per million, unless otherwise directed.

7.0 SWEPAGE ANDRAIN WATERRIPINGS, FITTINGS AND CONNECTIONS

7.1 Outside Building connection sewer pipes: Sewer lines 5 feet beyond the building line shall be reinforced centrifugally spun concrete pope or as approved. The pipe ends will be plastered lightly with the roofing pitch and butted together snuangly. In this position the space between the colour and pipe will be gently but tightly jammed full of stiff sand and cement made up of two parts of sand and one part of cement. Excavating, trenching and back filling will be as specified under section 1B, 1C- EXCAVATING and FILLING AND GRADING.

7.1.2 Roof Drains: Roof drains shall generally be of non-pressure, cement asbestos pipe (maybe water-cured) of the size designated. Pipe used outside the buildings shall be reinforced concrete pipe. Details of the roof drain itself and its method of flashing shall be as per drawings.

7.2 Installation.

7.2.1 Handling: Pipe and accessories shall be handled in such a manner as to ensure delivery to the point of installation in sound undamaged condition. Particular care shall be taking not to injure the pipe coating if so coated. No other pipe or materials of any kind shall be placed inside a pipe or fitting after the coating has been applied.

7.2.2 . Cutting of pipe: Cutting of pipe shall be done in a neat and workman like manner without damage to the pipe unless otherwise authorized by the Engineer in-charge, cutting shall be done by means of an approved type of mechanical cutter. Wheel cutters shall be used when practicable.

7.2.3 Placing and laying: Before installation the pipe shall be inspected for defects and tapped with a light hammer to detect cracks. Defective, damage or unsound pipe will be rejected. Deflections from a straight line or grade, as required by vertical, horizontal curves or offsets shall not exceed the permissible limits. If the alignment requires deflections in excess of these limits, special bends or a sufficient numbers of shorter lengths or pipe shall be furnished to provided angular deflections within the limit set forth by the Engineer in-charge. After a length of pipe is placed in the trench, the packing material for the joint shall be held around the bottom of the pivot so that the packing will enter the bell as the pipe is pushed into position, or rubber gasket may be inserted in the bell before pushing pipe into place. The pivot shall be centred in the bell and the pipe pushed into position and brought into the required alignment except where necessary in making connection to other lines, or as authorized by the Engineer in-charge. Pipes shall be laid with the bells facing in the direction of laying. Except as closures not less than two lengths of pipe shall be in position ahead of each joint with packing installed and earth fill turned along side the pipe, before the joints is made. Adequate thrust blocking is provided for all pressure mans.

7.3. Joint

7.3.1 Bell and spigots joints: Before jointing bell and spigot pipe, all lumps bliss and excess eating materials shall be removed from the bell and spigot ends of the pipes. All oil or grease shall be removed. The outside of spigot and the inside of the bell shall be wire brushed and wiped clean and dry.

Joints packing shall be carefully placed and tightly caulked a uniform thickness. No loose or frayed ends of fiber shall protrude into the space to be filled with joint filler. Each joint shall be carefully inspected and checked for proper depth before the joint runner is attached.

Lead caulking in joints: The depth of lead in the lead-filled joints shall not be less than 2-1/4 inch back of the faces of the bell. Lead shall be heated in a melting for kept near the joint to be poured, brought to proper temperature, so that when stirred the surface will show a rapid change in colour and when poured into the joint space, will ensure perfect joint. Before lead is poured, scum shall be removed The joint runner shall fill shaggily against the face of the bell and the outside of the pipe and shall be dammed with clay at the poring gate, to assure filling the joint even with the top of the bell. Each joint shall make with one pour completely filling the space, the caulking shall done by competent mechanics, in such a manner as to secure tight joints without over straining the fills. The chalking shall progress toward the joint gate. If packing has been insufficiently caulked, permitting the lead to be driven during chalking to a depth of more than 1/4" inch from the face of the bell at any point, the lead shall be removed and the joint remade.

8.0 WASTE DRAIN PIPES ANDVENT PIPING

8.1. Underground soil, waste and drain piping shall be as specified in the drawing Above ground soil and waste drains over 2 dia shall be heavy duty cast iron pipe spigot and socket joints and fittings. Waste and drain piping above ground shall have recessed drainage fittings. Fittings as dry vents shall be cast-iron.

8.2 Drainage pipes and vent piping: Horizontal soil and waste pipe shall be given a grade of 1/4" inch per foot where possible but in no case shall be less than 1/8" inch per foot unless otherwise noted on the drawings. All mans vertical soil and waste stacks shall be expending full size to end above the roofline as vents except where otherwise specifically indicated. Where practicable two or more vent pipes shall be connected together and extended as one pipe through the roof. Vents through the roof shall not be less than 3 inch size and increaser installed not less than 12 inches below roofline. Vent pipes in roof spaces shall be run as close as possible to the underside of the roof with horizontal piping pitched down to stocks without forming raps in pipes. Vertical vent pipes may be connected into one main vent riser above vented fixtures. Where circuit vent or wet vent connection shall be at least 3 feet above the floor as which the fixtures are located, to prevent the use of any vent line as a wast horizontal waste lines receiving the discharge from two or more fixtures shall be provided with end vents unless separate venting of fixtures is noted.

8.3 Fitting: Change in pipe size on soil, waste and rain lines shall be made with reducing sockets, or recessed reducers. Changes in direction shall be made by the appropriate use of 45 degree wyes. Long sweep 1/4 bends. 1/4, 1/8 or 1/16 bends, except that sanitary tees may be used on vertical stacks and short 1/4 bends or elbows may used in soil and waste lines where the change in direction of flow is from the horizontal to the vertical and on the discharge from water closets. Where it becomes necessary because of space conditions to use shor- radius fittings in any other locating the approval of the Engineer in-charge shall be obtained before they are installed.

8.4 Union connections: Slip joints will be permitted only in trap seal or in the inlet side of the traps. Tucker or hub drainage fitting shall be used for making union connection wherever practicable in connection with dry vents. The use of long screws and bushings is prohibited.

8.5 Joints:

8.5.1 Cast iron pipe joints in hub and spigot cast iron soil waste and vent pipes. Shall be formally packed with hemp and caulked with legatee least one inch deep.

8.5.2 Threaded pipe: Threaded joints shall be with graphite and oil compound to the mal threads only Connections between threaded pipe and soil pipes shall be similar and the threaded pipe shall have a ring or half - coupling screwed on to or a spigot end.

9.0 CLEAN OUT PLUGS AND TEST TEES

Cleanouts shall be the same size as the pipe, except that cleanout plugs large than 4 inches will not be recurred. Test tee with cast iron cleanout plugs shall be installed at the foot of the soil, waste and drain stacks and on each building may be omitted if a cleanout is indicated on building drain immediately inside the building.

10.0 TRAPS

Each fixture and piece of equipment requiring connections to the drainage system shall be equipped with a trap Traps installed on hub and spice pipe shall be extra-heavy cast iron. Traps installed on threaded pipe shall be recess drainage pattern. Plugs shall be accessible inside of access panels if such panels are used.

11.0 PIPE SLEEVES

Sleeves: All sleeves shall be furnished and set and the contractor shall be responsible for their proper and permanent location. Pipe sleeves shall be 26 gauge prime and painted metal, properly secured in place with a space of approximately 1/4" inch between the sleeve and the pipe passing through concrete or masonry walls and floors above the finished grade. Pipe sleeves in concrete beams or bearing walls shall be wrought iron or steel pipe. Where piping is insulating, the insulation shall be continuous through the pipe sleeves a clearance of approximately 1/4" inch between the outside of the passing pipe covering and the pipe sleeves. Where a pipe passes through the pipe sleeves with a clearance of approximately 1/4" inch between the outside of the passing pipe covering and the pipe sleeves. Where a pipe passes through footings of foundations, cast iron or steel pipe sleeve shall be provided, which shall not be less than 4 inches larger in diameter than the pipe for which installed. The joint between and pipes passing though floors shall be made tight with plastic material. Sleeves passing through floors shall extend not less than one half inch and not more than one inch above finished floor. Where pipe passes through wet tank walls, a centre flange sleeve shall be installed. The space between the sleeve and the pipe shall be made watertight by inserting a packed gasket and filling the remaining space shall be thoroughly lead caulked. Boxing-out will be permitted where indicated on the drawings.

12.0 PIPE HANGERS AND FIXURES SUPPORTS

12.1 Pipe hangers as true and fixture supports shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

12.2 Pipe Hangers, As true and supports: Horizontal overhead runs of pipe shall be hung with approved heavy adjustable wrought iron or metalled iron pipe hangers, spaced not over ten feet apart, except lad and spigot soil pipe five feet in length or less wherever shall be spaced live feet apart close to the hub of pipe and eight feet apart, close to the hub of pipe and eight feet apart on tubing Vertical runs of pipe shall have heavy wrought-iron clamps or collars for support, spaced not over ten feet apart Hangers and collars for support, spaced not over ten feet apart. Hangers and collars shall be of size proportionate to the weight of the pipe supported. Chain, strap, perforated bar, or wire hangers will not be permitted. Trapeze hangers may be used where directed or as required in lieu of a separate hanger for each pipe. All hangers shall have short turnbuckle or other approved means for adjustment.

12.3 Hangers on different services running parallel with each other and near together shall be line with each other and parallel to the lines of the building. Hangers shall have malleable-iron ring with split adjustable swive nut but the Contractor may use commercial individual type hangers with bask or rods not lighter than these commercially available with malleable-iron hangers, provided they are approved. Hangers shall be of a design which will permit removed and replacement of band and hanger without removing pipe. Inserts shall be cast-iron malleable-iron or prefabricate steel of a type to receive a machine bolt head or nut after installation, shall permit adjustment of the bolt in one horizontal direction and shall be installed before the concrete is poured. Pipe supports shall be installed in an approved manner.

12.4 Fixture Equipment supports and Fastenings- Fixtures and equipment shall be supported and fastened in a satisfactory manner. Where secured the concrete or bricks work walls they shall be fastened with brass bolts or screws in lead- sleeve anchorage units or with brass expansion bolts. Expansion bolts shall be 1/4 inch brass bolts with 20 threads to the inch of sufficient length to extend at least 3 inch into solid concrete or brickwork, fitted with loose tubing or sleeves or proper length to bring expansion sleeves to masonry walls or partition they shall be fastened with 1/4 inch brass toggle or through bolts. Where secured to partitions faced with self-glazed tile, wood inserts shall be installed.

13.0 WALES HYDRANTS

Units shall consist of polished brass rack, valve and accessories equipped with 100 ft. unlined linen hose.

14.0 HOSE BINS

Shall be installed where shown on the drawing and shall be single faucet shoulder type with 3/4" inch hose connection.

15.0 VALVES AND GATES

15.1 Gate Valves:

3 inch and smaller shall be of best quality as available in the market and as approved by the Engineer -in-charge.

Large than 3 inch shall be iron body with flange or bell ends. Valve shall have a clear water way equal to the full nominal dia meter of valves and shall open by turning counter clockwise. Unless otherwise noted on the drawings, all valves shall be equipped with hand wheels.

16.0 UNIONS

On ferrous pipe 2 inches in diameter and small shall be approved quality on water piping 2-1/2 inches in diameter and larger shall be flange pattern and shall be galvanized cast iron. Gasket for flanged unions shall be of the best quality fiber, plastic or leather. Unions shall not reconcealed in walls ceiling or partitions.

17.0 FLOOR ANDAREA DRAINS

Shall be made of high-grade, strong, tough and even -grained metals. Castings shall be free from blowholes, porosity, hard spots excessive shrinkage, cracks, or other injurious defects. They shall be smooth and well cleaned both inside and outside and all fine and roughens shall be removed. Castings shall not be repaired, plugged, brazed or burned in. The wall thickness of iron castings shall be not less than 1/4 inch. The size of the drains shall be determined by the branch sizes indicated on the drawings. When drains are installed with metal shall be clamped, caulked or soldered water tight to the drain. It shall be equipped with removable strainer. The open area of strain shall be at least two third of connection area of the drain line to which it connects.

18.0 TOILET FIXTURES

18.1 General:

Fixtures consist of various types of water closets, lavatory basins, urinals, toilets, etc. These shall be made of white vitreous china of the highest quality available and shall be as specified below and as approved of standard manufactures.

18.2 Western type toilets:

Shall be wash down/ siphon suits comprising white vitreous double seat and with standard fittings and fixture as mentioned in the schedule of items of work and approved by the Engineer -in-charge.

18.3 Squat type toilets:

Shall be wash down suites comprising white vitreous china closet with high level C.I. cistern, raised foot treads, top inlet along with "p" trap in white vitreous china and vent opening. Exposed brass work shall be chromium plated.

18.4 Both squat type toilet and western type toilets will be provided with an approved wall mounted clean water spigot on the left right toward the back of the toilet as indicated on the drawings and about a foot off the floor and directly over an approved floor drain.

18.5 LavatoryBasin:

Shall be white vitreous china wall hung type with concealed painted iron brackets, pillar taps and chain stays.

18.6 Slop sinks:

Shall be white vitreous china complete with hard wood front edge pad and built-in-brackets.

18.7 Wall hung urinals:

Shall be white vitreous china with flush valve directly from the line.

18.8 Squat urinal:

Shall be same as wall hung urinals

18.9 Ritual wash Basins:

Shall be as detailed in the drawings along water supply and drain.

18.10 Showers:

Shall be fitting with chromium plated showerheads approved dia stopcock with wall flange. Floor drain shall fit with in open able strainer. Other fitting will be as shown in the drawing and as approved.

18.11 Mirrors:

Shall be as specified under glass and of size as mentioned there in.

18.12 **Glass shelf:**

Shall be of plate glass with C.P guardrail and brackets of approved quality and size.

19.0 INSPECTION AND TESTS

19.1 **Waste and Vent piping**.

The entire system shall have all necessary openings lugged to permit the entire system to the filled with water to the level of the highest vent stack. The system shall hold this water for 30 minutes without showing a drop greater than fur inches, where a portion of system is to be tested, the test shall be conducted in the same manner as described for the entire system, except that a vertical stack 10 feet above the highest horizontal line to be tested may be installed and filled with water to maintain sufficient pressure, or a pump may be used to supply the required pressure. The pressure shall be maintained for 30 minutes.

Air Test:

If tests are made with air a pressure of not less than 5 pounds per square inch shall be applied with a force pump and maintained at least 15 minutes. A mercury calum gage shall be used in making the air test.

Final Test:

The final test of the completed system will be affected by smoke test. When the smoke test is employed, the smoke shall be produced by a smoke machine and pressure equal to 1 inch after column shall be maintained at least 15 minutes before starting inspection.

19.2 **Defective work:**

If inspection or test shows defects, such defective work or material shall be replaced and inspection and test reposed at the contractor's own cost. Repairs to piping shall be made with new material. Caulking of screwed joints or holes will not be acceptable.

19.3 **Cleaning and adjusting:**

At the completion of the work all part of the installation shall be thoroughly cleaned. All equipment pipe, valves and fittings shall be cleaned of grease and metal cuttings and sludge which may have accumulated by operation of the system fore testing. Any stoppage or discoloration or other damage to parts of the buildings, its finish or finishing's, due the to the contractor's failure to properly clean the piping system, shall be repaired by the contractor without cost to the Employer. Automatic control devices shall re adjust for proper operation.

20.0 GENERAL LOCATION OF PIPES

On the ground floor water and soil pipes will generally be under the concrete floor in the approximate location indicate on the plans. Pipe sleeves will be provided for the crossbeam. Pipe locations shall not interfere with the reinforcing steel in the beams of floor slab. Prior to replacing the pipe a detailed shop drawing as to its location shall be approved in writing by the Engineer-in-charge.

SECTION-R

ELECTRICAL INSTALLATION

1 STANDARD CODES AND REGULATIONS

The installation in general shall be carried out in conformity with the latest addition of wiring rules of the Institute of Engineers" (London), hereinafter referred to as " I. E.E Wiring Rules" and the British Standard Code of practice for the relevant works. But where the under noted specifications differ from these rules and standard, the specifications written here under shall be followed. Any special requirement of the electrical inspector, Government of Bangladesh or the PDB or the T& T Department or any other legal Authority shall also be complied with at no extra cost to the Employer.

2.0 CONSTRUCTION REQUIREMENTS

2.1 **Pipe work/ Batten work.**

a) Materials:

Metal conduits shall confirm to B.S. 4568 part I and II or B S 31:1940 and shall be 18 SWC (minimum) thick either solid drawn or formed round and then welded. In the latter case, the bore shall be free from any burs. The conduit shall be enamel painted or galvanized. The steel shall be such that when bends are formed, the conduit should not break, creak or be deformed, appropriate sample shall be submitted to the Engineer -in-charge prior to installation of conduit.

 # Wooden Batten, Pins and Screws etc:

The batten shall be well seasoned polished teak wood and its thickness shall not be less than 1/2'' The width of the batten shall be sufficient to accommodate all the cables and shall not be less than added diameter of the cables plus 3/8''.

The plastic rowel plugs shall be of approved quality.

All screws shall be countersunk brass wood screws and the link clips shall be tinned brass or other non-corrosive metal with counter sunk holes.

 # Metal Junction Boxes, Pull Boxes, Circular Boxes etc:

Junction Boxes, Pull Boxes and circular Boxes shall be made of 18 SWC (Min) sheet steel galvanized or any other materials as directed by the Engineer in-charge depending on where it is installed, to material with the existing construction in which these are installed. The cover (metallic

or plastic) of the metallic boxes shall be fixed by using counter sunk brass screws or galvanized machined screws. Each box (circular boxes excepted) shall have an earth block of copper or brass of appropriate size (min, for the earthing lead, being 3/8'' x3/8'' black with 3/16'' drilled hold and 1/8'' machine screw tapped for 24 T.P.I) where earth continuity conductors shall be screwed in the circular boxes shall have at least 0.50'' long hub. Appropriate samples shall be submitted to the Engineer-in charge prior to installation of these boxes.

b) Installations

In general, conduits shall have concealed installations and shall be placed over the re-bar as per drawing in the centre of the slab. Conduit system of each circuit shall be completely erected before any of the cables in drawn in The conduit run shall be continuous throughout its length and shall be kept straight as far as possible.

The conduits shall be properly tied with the re-bar 3'-0'' c/c spacing using 20 SWG GI wire and spacers. If the conduits are installed exposed, these shall be placed over 1/8'' spacer bar and clamped with saddles 3'-0'' c/c spacing using plastic rowel plug as per direction of the Engineer-in-charge at no extra cost to the Employer.

All conduit runs shall be kept clear of gas, air and steam pipes of other services. We avoid proximity with or intersection of other service pipes, the conduits shall be either rerouted or set out so that at least 3" separation is maintained with respect to other pipes.

Conduits other than these sated above, if encountered by the Contractor, shall be brought to the notice of the Engineer-in charge for instruction.

Conduits installed in wall shall be placed at the time of construction of the wall. No cutting in brickwork shall be allowed without prior approval.

Wood Battens

Wood battens shall be laid as per instruction of the Engineer-in-charge. Battens shall be fixed on wall or ceiling by flat head tapered brass/ steel screws. The flat and of the plastic plug shall be flush with the surface. The plugs shall be fixed at an interval not exceeding 2'-0". All battens shall be laid true to the horizontal or vertical and never at an angle with either/ Before installations, battens shall be treated with two coats of best quality shellac varnish.

Conduit / GI Pipe bends

Instead of using bends the conduit shall be bent to the required angle using pipe bender. The minimum bending radius shall be such as to allow compliance with article 2.02 b(i) which covers the specifications for bends is cables. Further the inner radius of bends shall not be less than 2.5 times the outside dia of the conduit.

The recommended bending radii are given below:

Dia of conduit	Radius of bends (outer)
0.75 inch	5 inch
1 inch	6 inch
1.25 inch	8 inch
1.50 inch	9 inch
2 inch	10.50 inch
2.50 inch	12 inch
3 inch	14.50 inch

If the situation warrants use of separate bends for conduits, such bends shall be made from 18 SWG steel, enamel painted or galvanized and for GI pipe such bends shall be long radius GI bends and shall have good threading. Aluminium bends shall not be used under any circumstances. Brass bends are acceptable. No inspection bend but steel boxes shall be used at places where inspection is required. Separate beads shall be used only after obtaining express approval of the Engineer.

At the end of a run, the conduit /GI Pipe shall terminate in a metal box galvanized or enamel painted. When a conduit is terminated in a Mattel box (circular boxes excepted), a smooth bore brass /PVC bush or ring bush shall be along with two brass lockouts of the following specifications.

Brass Lockouts

Conduit sizes	Thickness	No of Threads
0.75 inch	3/16 inch	3
1 inch	0.25 inch	3
1.25 inch	3/8 inch	4

Brass Bushing	Width	No of Threads	Length of smooth box at end
0.75 inch	3/8 inch	4	5/64 inch
1 inch	0.50 inch	5	7/64 inch
1.25 inch	0.75 inch	6	1/16 inch

All conduit /GI pipes shall be installed having a slope of 1:100 towards the floor mounted pull box or cable duct so that condense or leakage water drains out easily to the pull box or call duct. For us of more than one conduit in same floor the direction of slope of different conduit shall be decided in such a systematic manner as to ensure a uniform drain out of the leakage. All bends shall be formed using a mechanical bender and all socket joints shall be made watertight. No U-bend in floor shall be installed.

Method of Measurement

Measurement for payment shall be by linear foot of conduit batten in place for vertical and horizontal run as measured from the "As-built" drawings. No measurement shall be made for JB. PB- including their covers, unless such boxes appear as a separate item in the schedule.

Basis of Payment

The quantity of completed and accepted work measured as provided above shall be paid for at the contract unit price, per foot, which payment shall constitute full compensation for furnishing all materials, equipment and labour including storage, transport, cutting, painting and laying of conductors providing all incidental and consumables necessary to complete this item of work.

2.2 Cable work (in conduit)

Materials

 # Single core low voltage cables and conductors conduit

Single core low voltage cables and conductors shall be as per BS 6004, BS 6231 Type B or BS 6346 or equivalent VDE specifications, of copper conductor and PVC insulated of 600/100 volt grade. All sizes over 2.5 sqm shall be standard.

All flexible cables shall be as per BS 6004 unless otherwise specified.

#Cables for batten wiring

These shall be flat twin core cable as per BS 6004, 1969 of copper conductors. PVC insulated and PVC sheathed of 600/1000 V rated voltage and where applicable with earth continuity conductor (ECC)

 # Multi core Cable

Multi core low volt cables shall be PVC insulated PVC sheathed non-armoured direct burial type. Termite proof, made and tested according to VDE 0472m A/e.69 for this type of installation, rated voltage being 600/100V.

 # Subscriber cables (Telephones)

The subscriber cables shall be suitable for earth laying and shall be made according to VDE 0816. of 0.6 sq. m/0.8 sqm(as applicable) copper conductors with PE (Poly-othyne) insulated and core wrapping. The cables shall be tested (20º C) at voltage not less than 500V (rms) wire and 2000 V (rms) wire to shield with operating voltage of 150 volts (rms), shall have minimum insulation resistance (tested with min 100 vdc.) of 5000 m, Ohm-kn. and matual capacitance of no more than 50 F/KM (for 0.8 sq. mm.)

 # Installation Cables (Telephone)

The installation cables shall be suitable for exposed or concealed installations of 0.6 sqm copper conductors with PVC insulation and PVC sheath star quad formation, basic unit stranding, and core wrapping, The cables shall be tested at 20° C for voltage not less than 500 V (rms) with operating voltage of 200 V (rms) shall have minimum insulation resistance (tested with min 100 V DC) of 100 M ohm/ Km and mutual capacitance of not more than 130 uF/Km at 800 Hz.

b) Installation:

 # Cable in conduits:

General single core cable (non-sheathed) shall be installed in metal conduits. The conduit sizes shall be as specified in the drawings. It shall be ensured that cables are not scratched/ damaged during pulling For long lengths, pull boxes shall be used even between drawing-in boxes and any single bend shall not be less than 90°.

The internal radius of every bend in a cable shall not less than the appropriate value stated below.

Installation	Finish	Over all Diameter	Factor to be applied to overall dia of cable to determine min. Internal radius of bends.
Rubber of PVC (Circulation copper of Aluminium Stranded conductors)	Non-Armoured	Up to 20 mm²	2
		Above 10 mm² up to 25 mm²	4
		Exceeding 25 mm²	6
	Armoured	Any	6

The cables up to 2.5 mm2 shall be of scald conductor and therefore, jointing of these cables shall be done through porcelain connector and the connector shall be wound with allowed and it in that case, BIB tape before placing in the box. If connectors are not available, twisting shall be allowed and in that case. Every connection shall have at lest 1/2'' twisting (min. 10 twists per inch) and the twisted portion should be bent to place it in parallel to the cable with min. of 2 layers of BIB tape wound ever it for a length of 1.50'' Termination of cables up to 2.5 mm shall be done by making a loop at the end and for higher sizes brass cable terminals shall be used. Tee-off joints in the cable to lighting points, switches etc. shall be made in the switchboards only. All 3-4 core PVC cables shall be terminated using brass cable glands of proper size.

At construction joint crossing, across expansion joint fitting as per drawing shall be installed and the cables shall be run through such fitting.

 # Cable of Batten

Maximum horizontal spacing of link clip shall be 4 inches and vertical spacing 6 inches. One single clip shall not hold more than two twin core cables of 1.5 mm² size. For cables of above 1.5 mm² size, one clip shall hold only on twin core cable.

When wiring passes through floors, it shall pass through GI Pipes of appropriate size up to a minimum height of 6 inches from the floor. On the other hand when wiring passes through walls, it shall pass through PVC pipe of required size up to a length equal to the width of the wall. Cost of such GI pipe as mentioned here shall be deemed to be included in the rate for the appropriate item of schedule of items, and a no extra claim shall be entertained.

 # Cable in trench

The size of trench shall be of minimum 2'-9'' depth and 1'-6'' width for a cable to be laid, Where more than one cable shall be laid in the trench, the width of the trench shall be increased by 6'' for each additional cable.

A cushion of sand of F.M. 1.3.6 thick shall be placed over the bed of the trench over which the cable shall be laid.

After laying the cable, first class brick on edge or flat shall be placed as separator between the cables. After installation of the brick separator, sand filling shall be done up to 6'' from the top of the biggest cable. After sand filling, two layers of first class bricks flat shall be placed along the length and breadth of the trench as a protection and indication that a power cable is laid.

The rest of trench shall be filled-in with earth, watered and rammed in 6" layers. After cables are laid the original ground conditions shall be restored, but if the brick pavement drain, concrete road or bituminous carpeted road are cut across or damaged, those shall be reconstructed and restored to the original condition.

The cable route shall be as direct as possible and shall receive the Engineer-in-charge's approval before excavation.

All cable bends shall have a radius of not less than 2 times the diameter of the cable or 20 times the dia of the cable, whichever is greater.

GI Pipes shall be provided for all roads and drain crossing. These pipes shall be laid direct in the ground without any sand bed, sand layer, brick or cable covers.

Cables shall invariably be laid out into the ground from overhead lines through G.I Pipe of suitable size as decided by the Engineer-in-charge. The vertical length of the pipe shall not be less than 10'-0" No extra cost shall be paid for such pipes. The exposed cut of the pipes shall be sealed using PVC or wooden plugs.

The Contractor shall exercise great care in handing the cable and avoid forming of "KLINKS" The cable drum shall preferably be conveyed on wheeled cable drum carrier and unrolled and laid directly from the drum carrier. Carrying by trailer or trucks is allowed only if proper area is taken during the drums and unrolling is done after placing rolled in the direction as indicated on the drum by the manufacturers.

GI cable markers shall be installed at every turning point of the trench.

After cable is laid, it will be tested by the Engineer-in-charge. If the test is unsatisfactory the cost of all repairs and replacement shall be borne by the contractor.

All casing and passages necessary for lying of cables indoor shall be done by the contractor and the same shall be made good by the contractor, to the satisfaction of the Engineer-in-charge without an extra charge to the Employer.

When trenches are left open overnight, and where road shall be cut the contractor shall exhibit suitable danger signals such as banners, red lights, red flags etc. at his own cost. Temporary arrangement by placing wooden sleepers/ steel sheet etc. across the road cutting for vehicular traffic movement are also to be made by the contractor at no extra cost. The contractor shall be wholly responsible for accident, which may occur due to the negligence of the contractor.

All road excavation: Shall be filled up in layers with local sand and suitably watered and rammed in such a manner that after completion of the work there is no land subsidence. The road to shall be reconstructed to mach the existing road pavements. No trench shall be dug until all cable meant for laying are procured and brought at site store. Cost of any dewatering, shuttering and shoring of trench required to be done shall be borne by the contractor.

 # Connection of Switches

The phase wire shall be connected to the switches and the neutral wire shall be kept solid in all switch connections

 # Cable colour

All cable used shall have colour as stated below:

Two -wire single phase AC system

Red, Yellow or Blue for phase line or switch wire, Black for neutral and Green for earth.

Three-wire Two phase AC system

Red for one Phase, Black for common return yellow for other phase.

Three or Four- wire three phase AC system

Red for first phase. Yellow for second phase, Blue for third phase.

Black for Neutral.

Two-wire DC System

Red for positive or switch wire, Black for negative

For two wire final sub-circuits, whether AC or DC supplying lighting or power circuits, the neutral or "middle" wire shall always be black and the phase or outer wire (no matter witch phase it is connected to) shall always be used from the switch to the light.

 # Insulation test

Insulation test of whole installation shall be carried out using 500 V Meggre, in presence of authorized representative of Engineer-in-charge and result submitted to the Engineer in-charge for approval.

 # Method of Measurement

Measurement for payment shall be linear foot of cables in place for vertical and horizontal run. The lengths shall be rounded to the nearest foot and calculated form the "as built" single line diagram.

 # Basis of Payment

The quantity of completed and accepted work measured as provided above shall be paid for at the contract price, per foot, which payment shall constitute full compensation for furnishing all materials, equipment and labour for cables, providing all accessories preparing " as built" drawings and providing all incidentals and consumable necessary to complete this item of work including the insulation test.

2.03 Light Fittings

 # Materials

The light fittings shall be constructed as per schedule and shall comply with the relevant requirements of applicable BS including BS 4533.

The chokes, if applicable shall comply with the requirements of BS 2818 and shall be Philips thorn, or approved equivalent quality and shall have appropriate power fact reconnection capacitor (250 Volt 2.5 uF for 20 W and 40 W tubes, 5 uF for 65 W tubes and 8 uF for 80 W tubes if used with thorn chocks for other chokes of approved quality the improved P.F shall not be less than 0.90)

All incandescent light fittings except where specifically stated otherwise shall have un switched brass holders for BS 22/25/26 tamps caps complying with BS 52: 1963.

Appropriate samples of light fittings with chokes and starters shall be submitted to the Engineer-in-charge for approval prior to installation.

 # Installation.

The light fitting shall be installed in accordance with the applicable fittings layout drawings.

All pendent fittings shall be supported by brass tubing of specified size from brass ceiling bass plate with at least 3/8" screw-hub.

The location of outlet shown on diagrammatic wiring plans shall be considered as approximate and it shall be incumbent upon the Contractor, before installation of outlets boxes to study all pertinent drawings and obtain precise information from the architectural schedules and drawings, large scale and full size details of finished rooms and approved shop drawings of other trades. It shall be understood that any outlet may be relocated at a distance not exceeding 15 feet from the location shown on the drawings.

In contouring outlets, due allowance shall be made for overhead piping ducts, window and door trim variations in thickness of running, plastering etc. as erected, regardless of conditions which may be otherwise shown on small drawings. Outlets incorrectly located shall be properly relocated at the contractor's expense.

Method of Measurement

Measurement for payment shall be done by units of lights installed in place. Each fitting complete with all accessories and consumables shall be considered as one unit.

Basis of payment

The quantity of completed and accepted work measurement as provided above shall be laid for at contract unit price per unit number (each) which payment shall constitute full compensation for furnishing all labour, tools and materials including supply of consumables accessories and incidentals necessary to complete this item of work.

2.04. Earth Continuity Conductors

Materials

These shall be electrolytic annealed copper of 100% conductivity at 20°C 68°F) (International Annealed Copper standard) with resistivity of 0.15318 ohm at 20°C (68°F and density of 0321171 lb/cu in for meeting the requirements of BS 6360: 1960 or its metric adoption.

Installation

The earth continuity conductor (ECC) and earthing lead shall run in accordance with the drawings and direction and all metal fitting shall be earthed with ECC. All the ECC from the various circuits, socket etc. shall be connected to the earthing block located near the DB/SDB Sizes of ECC shall be as stated in the drawing. All DB/SDB/SB shall be interconnected with ECC. The ECC shall be interconnected and draw alongwith the cables and no joint shall be allowed from earthing block of the respective earth point. Light and fan points except where indicated otherwise will not be earthod.

Method of Measurement

Measurement for payment shall be made by linear foot of earth continuity conductor in place for vertical or horizontal runs. The length shall be rounded to nearest foot and measured form "as-built" single line diagram

 # Basis of payment

The quantity of completed and accepted works measured as provided above shall be paid for at the contract unit price per foot which payment shall constitute full compensation for furnishing all materials, labour, tools and incidentals necessary to complete this item of work.

2.05 Distribution Boards/ Sub- Distribution Boards et

 # Materials

The DB/SDB shall be as per schedule and shall be safety dead front fixed type having circuit breakers/ solatorsk. Panels shall be designed for operation on a 400V, 50 HZ,3 -phase, 4 wire system. Breakers shall have inverse time tripping with thermal/ magnetic trip elements. All circuit breakers shall be trip- free and shall be of the indicating type. The panels shall have the phases clearly marked and where required shall have solid neutral buses. The panel shall be constructed as per schedule and shall comply with relevant requirements of applicable BS Including BS 4649 where applicable and shall be painted with two (2 coats of grey Duco to BS 381C shade 631. with standard concentric knockouts of required sizes all around. The panels shall have printed directory frames and be fixed directly inside the door. The door shall be provided with flush lock and handle. All doors shall be keyed alike. All hinges shall be concealed.

Nominal sizes indicated on the schedule are based on other will specifications.

The MCB/MCCBs shall be quick-make, quick-break types and shall have inverse time limit characteristics with instantaneous magnetic trip elements functioning on over loads above the normal operating range. All circuit breakers shall be trip-free. Rating and frame sizes of breakers shall be in accordance with schedule. All lugs shall be of the sholderless mechanical type. The Miniature Circuit Breakers (MCB) shall comply with BS 387 part 1 (1965) category M4 (5A to 60 A). Rated voltage 240/415 V AC 50 Hz. Interrupting capacity 4000 amp; capable of providing overload and short circuit protection. Through thermal and magnetic trip actions respectively, item,

rating 40C, preferably tropicalised (moisture-fungus-corrosion treated) with contracts of silver alloy, terminal capability up to 10 sqm wire, the MCCB shall comply with BS 3871, part 11 (1966). Rated voltage 600 AC 50 Hz with overload and short circuit protection to thermal and magnetic tripping action, interrupting capacity as indicated in the scheduled, temperature rating 40ºC preferably tropicalised (moisture- lungus- corrosion treated) terminal capacity up to 35 sqm wire.

Installation

The board shall be installed in accordance with applicable layout drawings Minimum height of bottom of the boards from the floor level shall be 2'-0" and maximum height of any circuit breaker/ switch shall be 6'-0" from the floor level.

The location of DB/SDN shown on diagrammatic wiring plans shall be considered as approximate and it shall be incumbent upon the Contractor, before installation of DB/SDB to study all pertinent drawings and obtain process information from the architectural schedules and drawings, large scale and full size details of finished rooms and approved shop drawings, large scale and full size details of finished rooms and approved shop drawings of other trades. It shall be understood that any DB/SDB may be located at a distance not exceeding 15 ft from the location shown on the drawing. In entering DB/SDB due allowance shall be made for overhead, piping, ducts, window and door trim, variations in thickness of furring. Plastering, etc erected, regardless of conditions, which might be other wise shown in small-scale drawings. DB/SDB incorrectly located shall be properly relocated at the contractor's expense.

Method of Measurement

Measurement for payment shall be by lunits of DB/SDB installed in place. Each DB/SDB complete with all accessories and consumables, shall be considered as one unit.

Basis of payment

The amount of completed and accepted work measured as provided above shall be paid for at the contract unit price for each, which payment shall be constitute full compensation for furnishing all labour, tools materials such as DB, MCCB isolators, equipment and accessories fabricated angle-iron frame, pipe supports, cable glands etc. and all other consumables and incidentals necessary to complete this item of work in all respects.

2.06 Ceiling Rose / Exhaust/ Wall Fans

 # Materials

The ceiling rose shall be moulded plastic approved quality.

The Coiling fans shall be of capacitor type. AC 240 V, single phase, 50 Hz. complete with regulator, suspension rod of require length, canopy and shall be constructed in accordance with applicable BS specifications Appropriate samples shall be submitted for approval prior to installation of the fans.

Exhaust fans shall be as per schedule and shall be constructed in accordance to applicable BS. Specifications. Appropriate samples shall be submitted for approval prior to installation of fans.

 # Installation

The fans shall be installed in accordance with the applicable fan layout drawing Circular box in ceiling rose for fan outlet shall be at the centre of the clamp, as detailed in the drawings.

Fans shall have the following installation height except where indicated otherwise.

Ceiling fan bottom : 8'6'' from the floor

Exhaust fan top : 1'0'' from ceiling

Wall fan blade end : 8'6'' from the floor.

Further, specification set-out in installation, light fittings shall also apply.

 # Method of Measurement

Measurement for payment shall be made by units of fans installed in place. Each fan complete with of accessories, e.g fan, regulator, ceiling rose etc. shall be considered as one unit of fan.

 # Basis of payment

The quality of completed and accepted work measured as provided above shall be paid for at the contract unit price, for each which payment shall include full compensation for furnishing all labour, tools and installation materials including fan, regulator and all other consumables and incidentals necessary to complete this item of work.

2.07 (a) Switch Boards and Fan Regulator

 # Materials

Switchboards and fan regulator board shall be as per schedule and shall have rocker/piano switches and fan regulators. The rockor/ piano switches shall be vertical single pole (1-way/2 way) SA. A.C complying to BS 3676:1863 and with the test requirements for inductive fluorescent or resistive loads specified and satisfy the requirements for 3-type of fluorescent lamp circuits up to the ration of these switches as set out in B.S. 3676 amendment 3. 1963.

The switches shall have a minimum clearance of 3 mm between the contacts and a similar crepagae distance. All contacts shall be faced with puro nilwen / silwer cadmium oxide alloy. The switch operating member shall pivot independently of the rocker piano, making the spade and make and brand independent of the speed at which the rocker is operated.

Terminal capability: minimum 2x2.5 sqm conductors for each, appropriate samples shall be submitted for approval to Engineer-in-charge prior to installation of switches, Each board shall have an earthing block of Cu or brass (1-1/2"x3/8") with 3x3/16" drilled holds to necessary tapped trends for 3/16" screws) Box ears shall be at least 14 SWG.

Installation

The Switch boards and fan regulator boards shall be installed in wall at a height of 4'-6" (bottom level), fit not specified otherwise, from the floor level and at locations shown in applicable layout drawings. The fan regulators shall be installed inside the box with regulator knobs projected over the covering if not specified otherwise. The phase wire shall be connected to the switches and the neutral wire shall be kept solid in all switch connectors. The ECC shall be connected to the earth pts inside the SB. Only approved sized steel boxes shall be installed at the time of construction of the wall to avoid chasing in wall.
The location boards shown on diagrammatic wiring plans shall be considered as approximate and it shall be incumbent upon the Contractor, before installation of SB/RB boxes to study all pertinent drawings and obtain all pertinent information's Specifications sot out in Article 2.03 b shall also apply.

Method of Measurement

Measurement for payment shall be unit of SB and/or fan regulators boards, in place. Each SB of regulator board with cover. Sheet steel box etc. Shall be considered as one unit:

Basis of Payment

The quality of completed and accepted work measured as provided above including SB, fan regulator board complete with plate switches, regulators and other accessories, consumables and incidentals necessary to complete this item of work.

2.08 Socket/ MCB/ MCCB/TV Antenna Outlets

Materials

All socket outlets, except the shaver sockets, shall be round-pin type white in colour confirming to BS 546: 1950 (3 -Pins) and BS 382: part I 1930 (2-Pins). The socket tuble shall be self-adjusting for pitch to non-expanding size limiting only to protect the internal contacts from distortion. All sockets (where applicable) shall have silver/silver/ silver-CD oxide alloy contacts in which contact pressure shall be permanently maintained by subsidiary helical compression springs. All mouldings shall be made from Amino plastic urea moulding powders to BS 1322:1956 and shall possess high truck resisting qualities. These shall, be supplied to counter-sunk Cd-plated fixing screws and mounted in 18 SWG hammer painted sheet steel box having brass earth pt. as per drawing and direction.

The controlled sockets to MCCB/ MCB, if applicable shall be unswitched and the box shall have earth point. For spaces of MCB/MCCB refer to article 2.50 a.

The shaver socket outlets shall comply with BS 3052 and shall incorporate and transformer protected by a self-reserting over current devices and a switch disconnecting the transformer from supply when no shaver is connected. These shall accept both round pin and flat pin plugs.
T.V antenna outlet shall be as per schedule.

 # Installation

Socket/ MCCB/MCB/T.V. antenna outlets be installed on all to lower and after face plate at a height of 9'' from the floor. If not specified otherwise and location shown in the applicable layout drawings.

The controlled outlet (socket and blank box) of MCB/MCCB shall be on wall with lower edge of the faceplate 6'' above the upper edge of lintel, if not specified otherwise.

The fixing of the units on the outlets boxes shall be by means of flat head. Cd-plated screws. The flat head of the screw shall be sunk in the plate so as to finish flush to the surface of the cover. The mounting heights of the outlets shall be as shown in the drawings. The earth wire shall be connected to earth plate of the boxes to the third pole of the 3 pin sockets, 2-pin socket out lets are for T.V and shavers only.

Conditions set out in Article 2.03 b (iii) shall also apply

 # Method of Measurement

Measurement for payment shall be units of sockets/ MCB outlets installed in place. Each sockets/ MCB outlets complete in sheet steel box socket, controlling MCB cover etc. shall be considered as one unit.

 # Basis of Payment

The quantity of completed and accepted work measured as provided above shall be paid for at the contract price for each, which payment shall constitute full compensation for furnishing all labour, tools etc. including socket/ MCB outlets, sheet box, all consumables and incidentals necessary to complete this item of work.

2.09 Earthing

 # Materials

Earth Electrodes

Plate Electrode (where applicable) shall be cold rolled (single) copper plate 2' x 2' x 1/8'' having provision for connecting the earthing lead.

Pipe Electrode (where applicable)

This will be 1-1/2'' dia G. I pipe with two 1/8'' dia holes across the pipe diameter at every 4'-0'' length of the pipe.

Earthing lead

Earthing lead shall consists of copper conductor as per specification given in Article 2.03 a. All terminal lugs be of copper and nut-bolts of brass.

Earthing Block

Earthing block shall be solid electrolytic copper, cast and machined, of size as per schedule having at least 10 (3/16" dia) drilled holes for accommodating the terminals of the earth continuity conductor, requisite number of brass nuts, bolts and washers shall also be provided.

Earth inspection pit

Brick used shall be 1st class. Only approved quality cement shall be used. Jhama brick khoa for RCC cover shall be 1" down graded (up to 1/4") and shall be washed leaned before casting 1/4" dia M.S Rods 10" c/c. with two 2/8" dia M.S. hook (of 2" diameter) shall be provided in the cover slab.

Installation

Earth Electrodes

The plate earth electrode (if applicable) shall be buried below ground level as or schedule and installed in an upright position and completely surrounded by a bed of at least one foot of charcoal mixed with lime and packed hard. Distance between any two earth electrodes shall be at least 25'.

The pipe earth electrode shall be buried below ground level, as per schedule by tube well sinking method. The earth lead from the main earth electrodes shall be installed in G.I. pipe of specified diameter. The terminal connected to the earth electrode shall use a brass-clamp. After making the connection, the clamp shall be covered with bitumen poured hot and covered with jute cloth.

Earthing leads

The earthing leads from the earth electrode shall be connected to the earthing block near DB double run of specified copper conductor (preferably tinned) shall be brought out as earth lead for the earth electrode through GI Pipe from the electrode and connected to the earth block. There shall be no joint in the copper earth lead. All earthing load shall follow the shortest and most direct route the earth electrode and short bends and joints shall be made mechanically strong and electrode continuous with minimum of resistance.

Earth inspection pit

The earth inspection pit shall be constructed as per schedule and direction. The slab shall have level surface and the pit shall have well formed regular sides, water curing for the slab and the pit shall be done for a minimum of 14 days.

Maximum Earthing loop Resistance

The maximum earth loop resistance from any point in the installation including earthing lead to the earth electrode shall not exceed the resistance specified in the schedule or that indicated by the Engineer. The contractor must ensure that the leads are efficiently bonded to all metal works other than the current parts, so that the above resistance level is not exceeded. It will be the duly of the contractor to provide earth tester, test the installation in presence of the Engineer-in-charge and submit earth report to the Engineer for approval.

 # Method of Measurement

Earthing

Measurement for payment for payment shall be as per linear foot of earthing load installed in place including necessary terminal lugs, nuts, bolts etc or "Ber set" (as applicable) of earth electrode (s) installed in place.

Earthing load

Measurement for payment shall be made by linear foot of earthing load installed in place including necessary terminal lugs, nuts- bolts etc.

Earthing Block

Measurement for payment shall be made by nits of earthing block installed in place complete with all connections.

Earth Inspection Pit

Measurement for payment shall be as per set of earth inspection pit installed in place.

 # Basis of Payment

The quantity of completed and accepted work measured as provided above shall be paid for at the contract unit price. 'Price, "Per set/ rft" (as applicable) which payment shall constitute full compensation for furnishing all materials, labour, tools, equipment and material including supply of all accessories consumables and incidentals necessary to complete.

2.10 Telephone

 # Materials

Metal conduit G.I Pipe etc

Refer to article 2.01 a

Telephone Pull Box. Junction Box, etc.

As per schedule also relevant portions of Article 1.01.1 shall apply. Telephone connection strips, wherever applicable be of standard acceptable to T & T authority.

Telephone grommet

The telephone grommet shall be constructed as per schedule of 18 SWG sheet steel and shall comply with relevant requirements of applicable B.S.

Telephone Plug

Telephone plug shall be made of brass, nickel-plated with rubular insulation and solder terminals. It shall be tested at 1000 V AC and shall fit all standard telephone jacks.

Telephone jacks

The jack shall be made of brass; nickel-plated bushing nickel insulation brass hexagonal nut and steel mounting washer.

Installation

Metal conduit GI Pipe, etc

Refer to Article 2.02 b

The junction boxes shall be installed flush in wall/ column

The junction boxes shall be placed in position during construction of the wall. The pull box shall be floor mounted, flushed with finished floor, made water tight with required rubber gasket and telescoping cover and installed during casting of floor slab. Also relevant portions of Article 2.01 b shall apply.

Method of Measurement

Measurement for payment shall be unit of telephone grommet pull/junction box and by liner root of pipes installed in place complete with MS box.

Basis of Payment

The quantity of completed and accepted works measured as provided above shall be paid for the contract unit price, for each/per rft. (As applicable), which payment shall constitute full compensation for furnishing all materials, labour, tools and equipment and installing materials including telephone grommet/PB/JB/MS box and all other accessories, consumables and incidentals necessary to complete this item of work.

2.11 Lighting Arrestor

Materials

Air terminal shall be of copper of grade required for commercial work generally designed of being 98% conductivity when annealed. The size and shape of the air terminal shall be as drawing.

Roof Conductor

Roof conductor shall be made of copper of grade as detailed in 2.11 a (i) and of size as indicated in the schedule.

Down conductor

Same as Article 2.11 a (ii)

Bending lead

Same as Article 2.11. 1 (ii)

Test Points

The test point shall be made as per schedule and drawing. The clamp assembles shall be well formed and shall be of brass. The conductor terminal shall be provided in tinned Cu-lugs of size as detailed in the drawing.

Earthing lead, earth electrode and earth inspection pit

Refer to Article 2.09. a for this specification.

Installation

Air Terminals

Air terminals shall be clamped to the building as per drawing and in a manner that there is no possibility of over-turning. Where necessary, additional braces, permanently and rightly and rigidly attached to the building, shall be used. On mortar and in brickwork, all holes shall be made with tools, such as a rowel bit, and shall be made in brick rather than in the mortar joint.

All air terminals shall be installed in a manner to bring the tip not less than thirty inches above the object to the protected.

Roof Conductor

Roof conductor shall be continuous and without any joint between termination. All termination shall be prominent both electrically and mechanically. Where joining of a conductor is absolutely unavoidable, it shall be made after express approval of the Engineer, shall be mechanically strong and well made and provide adequate electrical conductivity, which shall be secured by a contact area not less than double the conducting cross-selectional area of the conductor.

No bonds in the conductor shall have a radius of less than 8" and the angle of any turn shall not exceed 90°. All conductors run shall preserve a downward and horizontal course.

The conductor shall be securely attached to the building by means of fasteners at the intervals not exceeding 4'-0" and shall be embedded under roof finish or concealed in plaster. Fasteners shall have cross-section not less than 14 SWG and shall be made of brass or copper.

Appropriate samples of fasteners shall be submitted prior to installation of roof conductor.

Down Conductor

The down conductor shall be continuous and shall be installed as direction in the Schedule

These shall be securely fastened at the rooftop and at the plinth level by two screw masonry fasteners.
Also appropriate portions of Artificial 2. 11 b (ii) shall be applied.

Bending Lead

Same as Article 2.11. b(ii) to the extent that is applicable.

Test point

The test point shall be installed during construction of the building wall and made flush to the outside wall finish.

Cu-lugs shall be press fitted to the conductor terminals by crimping, tools, or shall be breezed, or shall use cast brass hugbllock, the lug shall be bolted to the brass bar by means of brass nuts and bolts.

Earth lead earth electrode and earth inspection pit

Refer to Article 2.09. b for this specifications.

 # Method of Measurement

Measurement for payment shall be per unit of item completed with all accessories.

Basis of Payment

The quality of completed and accepted works measured as provided shall be paid for at the contract unit price, which payment shall constitute full compensation for furnishing all materials labour tools and equipment and installation materials including switch board complete with plate switches and other accessories, consumables and incidental necessary complete the item of work.

2.4 Protection of fixtures, Materials and Equipment

Pipe openings shall be closed with caps or plugs during installation. Fixtures and equipment shall be tightly covered and protected against dirty water and chemical or mechanical injury. At the completion of the work. Fixture, materials and equipment shall be thoroughly cleaned and delivered in a condition satisfactory to the Engineer-in-charge.

3.0 APPROVAL AND LIST OF MATERIALS, FIXTURES AND EQUIPMENT

As soon as practicable after execution of contract and before any materials, fixture or equipment are purchased, the Contractor shall submit to the Engineer-in-charge for approval a complete list in triplicate of materials, fixtures and equipment to be used in the work, with their brand and manufacture. Any materials, fixtures and equipment listed which is not accordance with the specification requirements may be rejected.

4.0 EXCAVATING, TRENCHING AND BACK FILLING

Excavating trenching and back filling is specified under Section 1B and 1C-EXCAVATING AND FILLING AND GRADING

5.0 **MATERIALS AND EQUIPMENT**

5.1 Soil, Waste, Rain Water and vent piping

5.1.1 All soil; waste Rainwater piped shall be cast iron reinforced concrete. PVC or cement asbestos pipe as mentioned in the drawings. Schedule of item of works or as directed by the Engineer-in-charge

Cast iron piped 2'' and above shall be heavy-duty type (I-I/CI) with spigot and soccer joints having projecting ears. All fitting shall similar to the pipe.

Reinforced concrete pipes shall be centrifugal spun. All fitting shall be similar to the pipe.

PVC pipes shall be of approved size and shade with fittings similar to the pipe.

Cement Asbestos pipe shall be of approved size and quality with fittings similar to the pipe

Bending lead

Same as Article 2 11 b (ii) to the extent that is applicable

Test Point

The test point shall be installed during construction of the conductor terminals by crimping, tools, or shall be breezed, or shall use cast brass Hugh lock, The lug shall be bolted to the brass bar by means of brass nuts and bolts.

Earth lead earth electrode, and earth inspection pit

Refer to Article 2.09.b. for this specification.

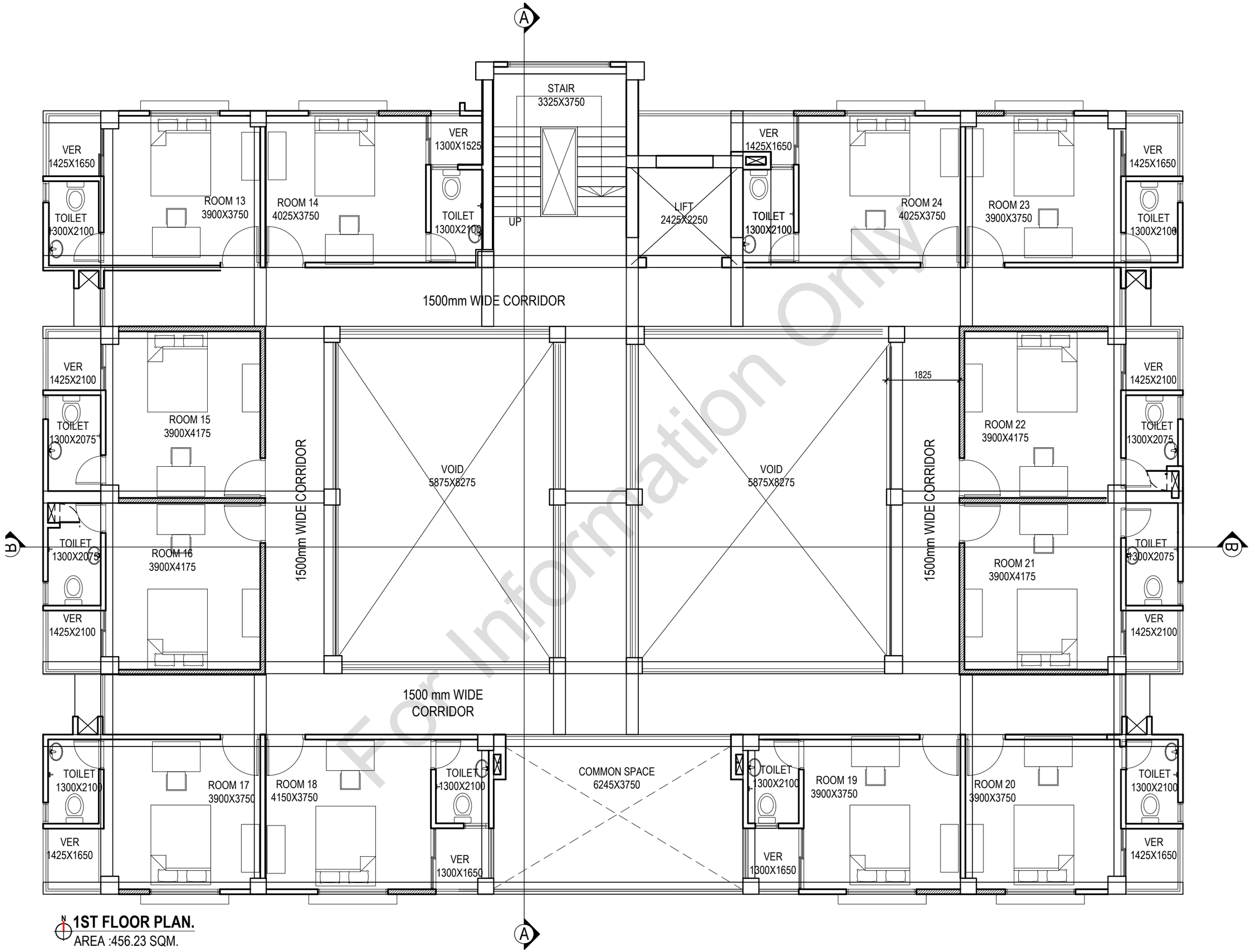
Method of Measurement

The quality of completed and accepted work, measured as provided shall be paid for at the contract unit price. Which payment shall constitute full compensation for furnishing all materials labour tools and equipment and installation materials including switchboard complete with plate switches and other accessories. Consumables and incidental necessary complete the item of work.

Basis of payment

The quality of completed and accepted works measured as provided shall be paid for at the contract unit price, which payment shall constitute full compensation for furnishing all materials labour tools and equipment and installation materials including switch board complete with plate switches and other accessories, consumables and incidental necessary complete the item of work.

Section 9. Drawings



1ST FLOOR PLAN.

AREA :456.23 SQM.

A

STAIR
3325X3750

VER
1425X1650

TOILET
1300X2100

ROOM 13
3900X3750

ROOM 14
4025X3750

VER
1300X1525

TOILET
1300X2100

UP

LIFT
2425X2250

VER
1425X1650

TOILET
1300X2100

ROOM 24
4025X3750

ROOM 23
3900X3750

VER
1425X1650

TOILET
1300X2100

1500mm WIDE CORRIDOR

VER
1425X2100

TOILET
1300X2075

ROOM 15
3900X4175

1500mm WIDE CORRIDOR

VOID
5875X8275

VOID
5875X8275

1825

1500mm WIDE CORRIDOR

ROOM 22
3900X4175

VER
1425X2100

TOILET
1300X2075

B

TOILET
1300X2075

ROOM 16
3900X4175

VER
1425X2100

ROOM 21
3900X4175

TOILET
1300X2075

VER
1425X2100

B

1500 mm WIDE
CORRIDOR

TOILET
1300X2100

ROOM 17
3900X3750

ROOM 18
4150X3750

TOILET
1300X2100

VOID
6245X3750

TOILET
1300X2100

ROOM 19
3900X3750

ROOM 20
3900X3750

TOILET
1300X2100

VER
1425X1650

VER
1300X1650

VER
1300X1650

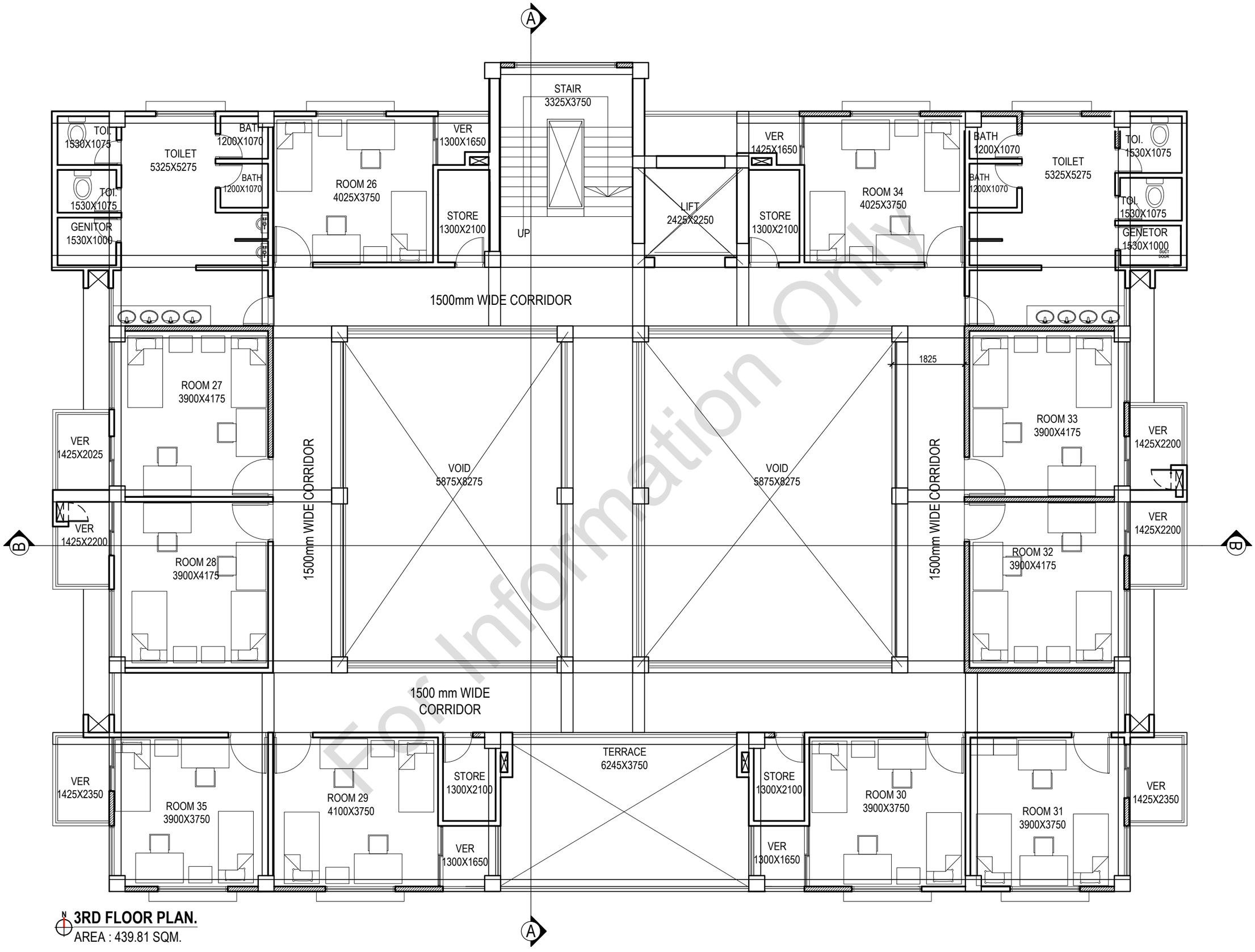
VER
1425X1650

A

N

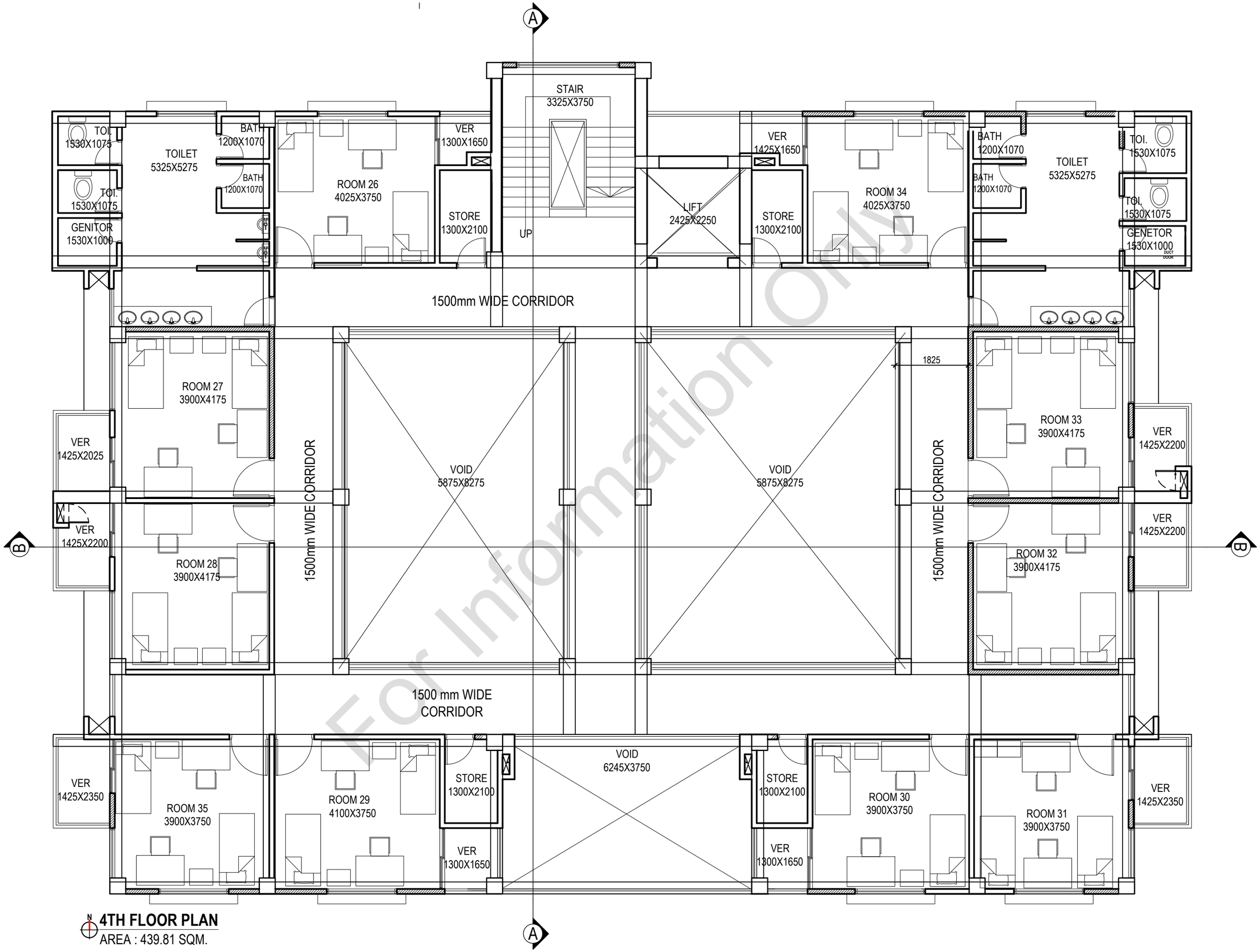
2ND FLOOR PLAN.

AREA :456.23 SQM.



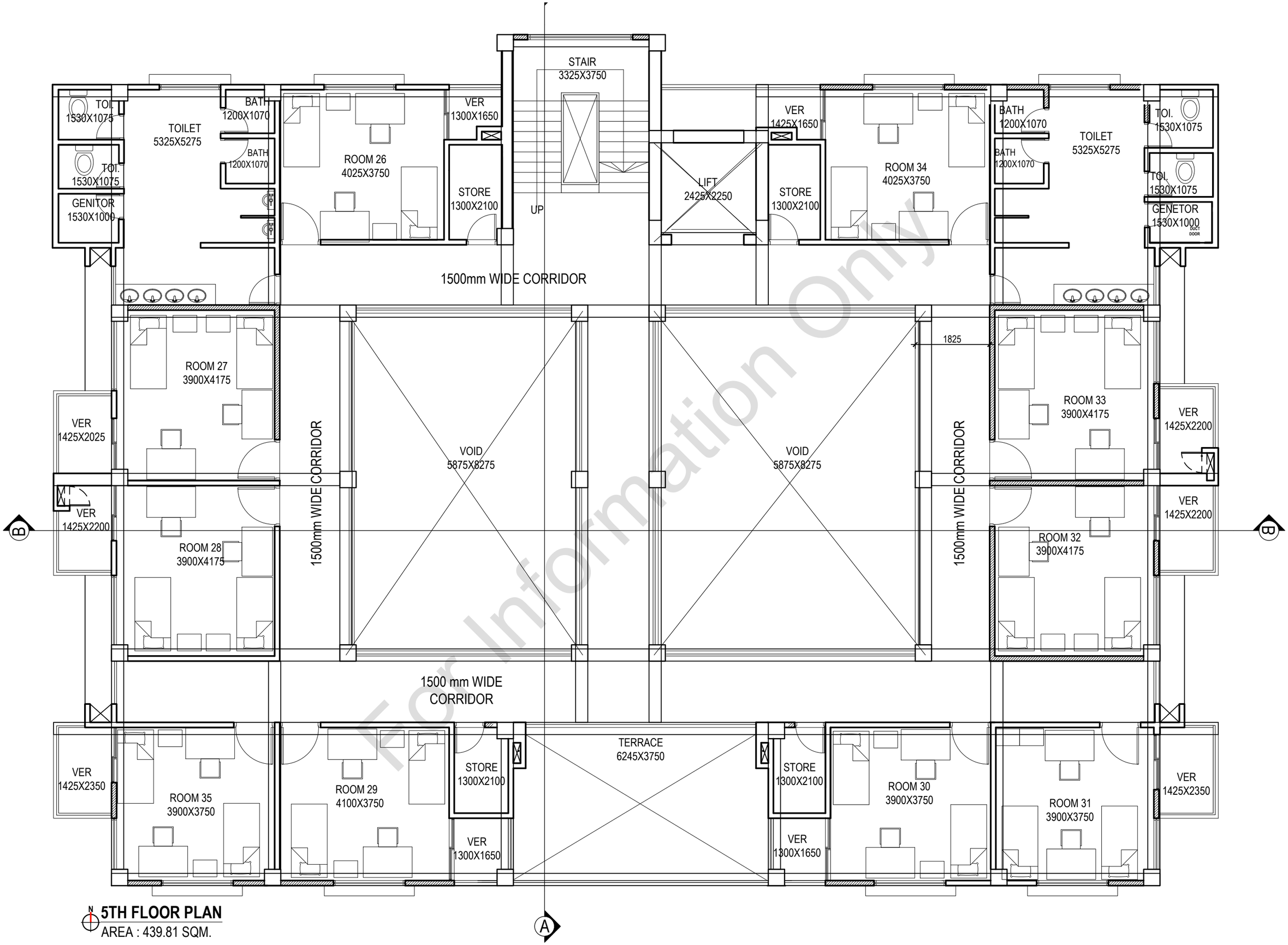
3RD FLOOR PLAN.

AREA : 439.81 SQM.



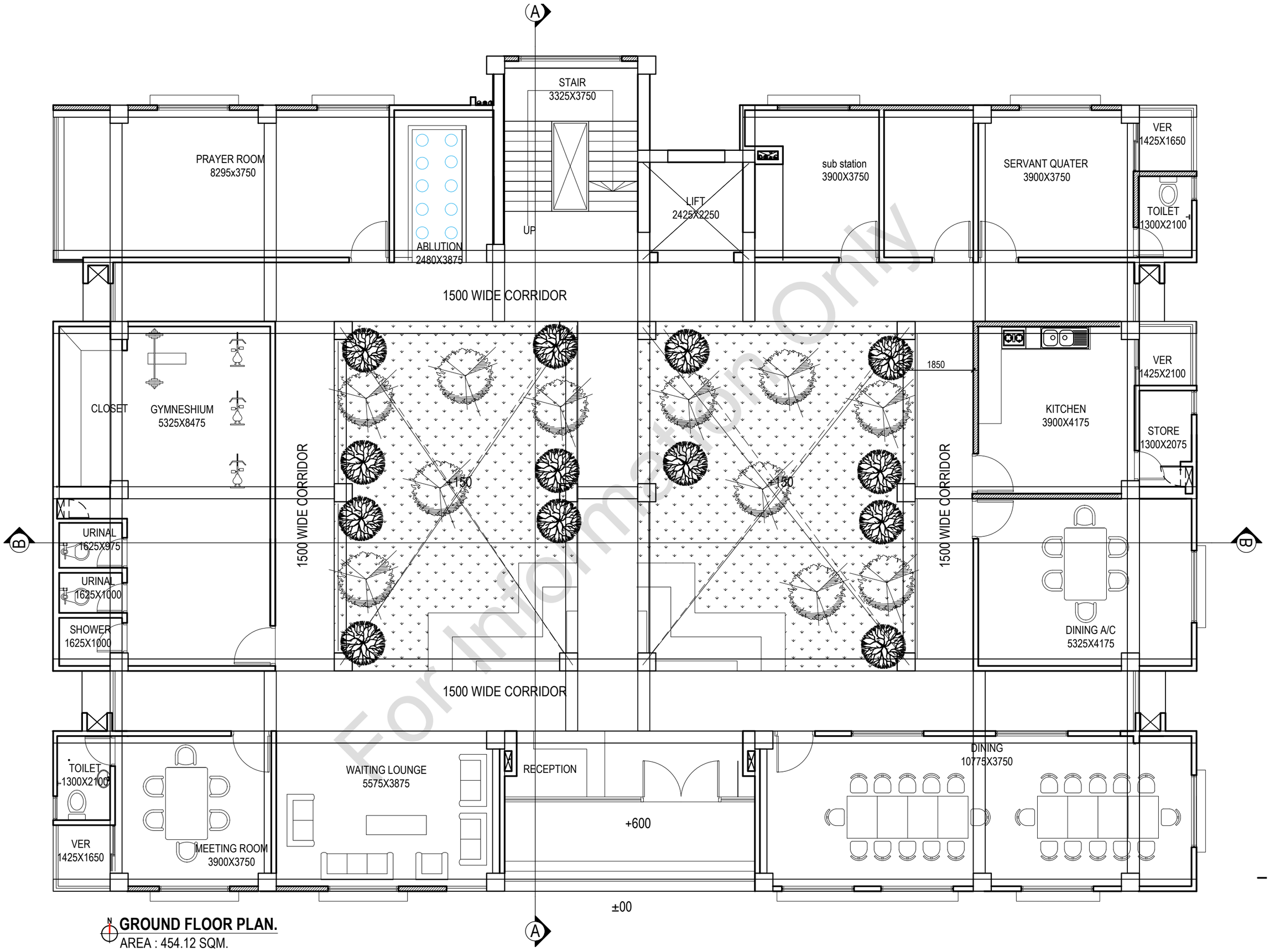
4TH FLOOR PLAN

AREA : 439.81 SQM.



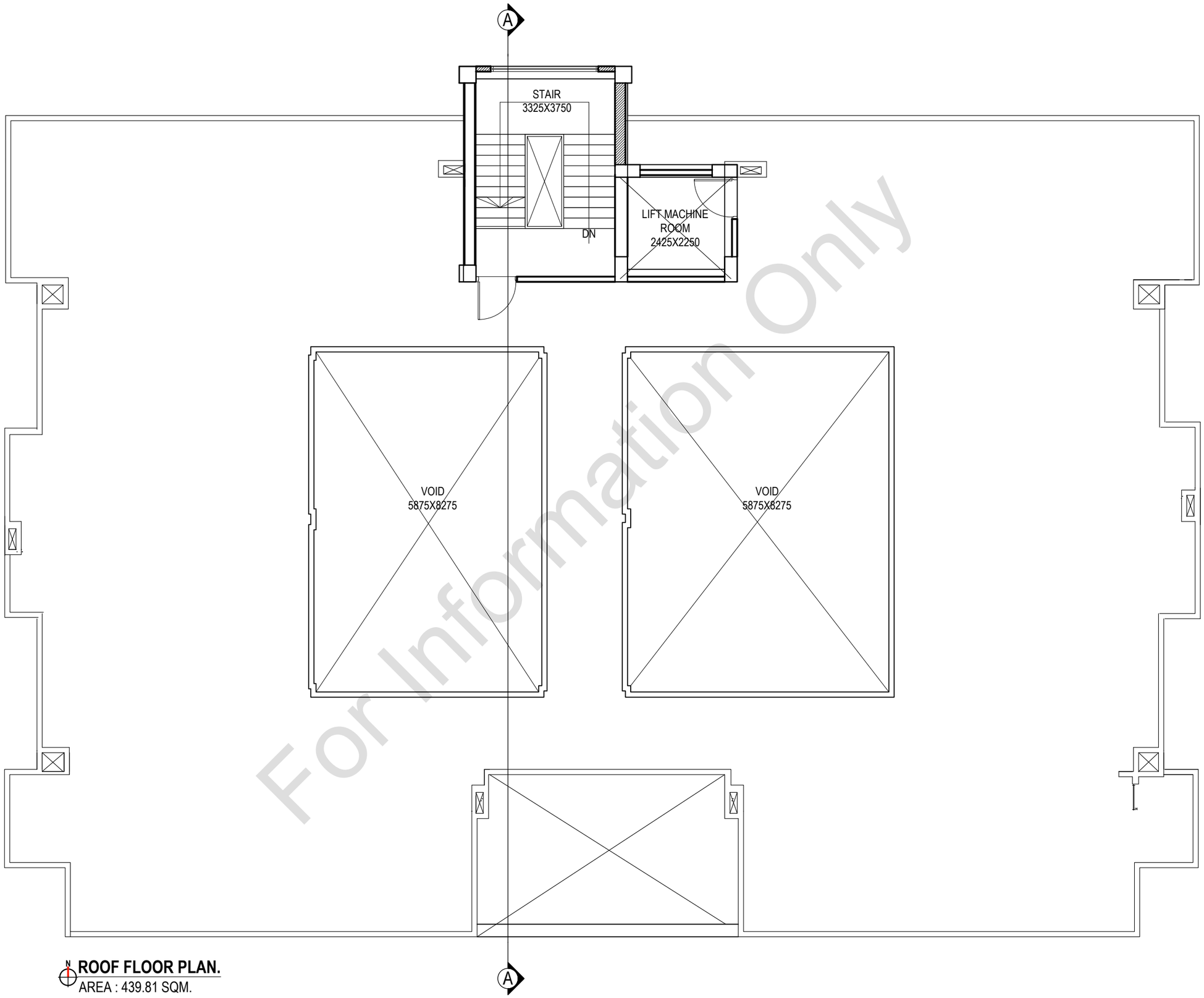
5TH FLOOR PLAN

AREA : 439.81 SQM.

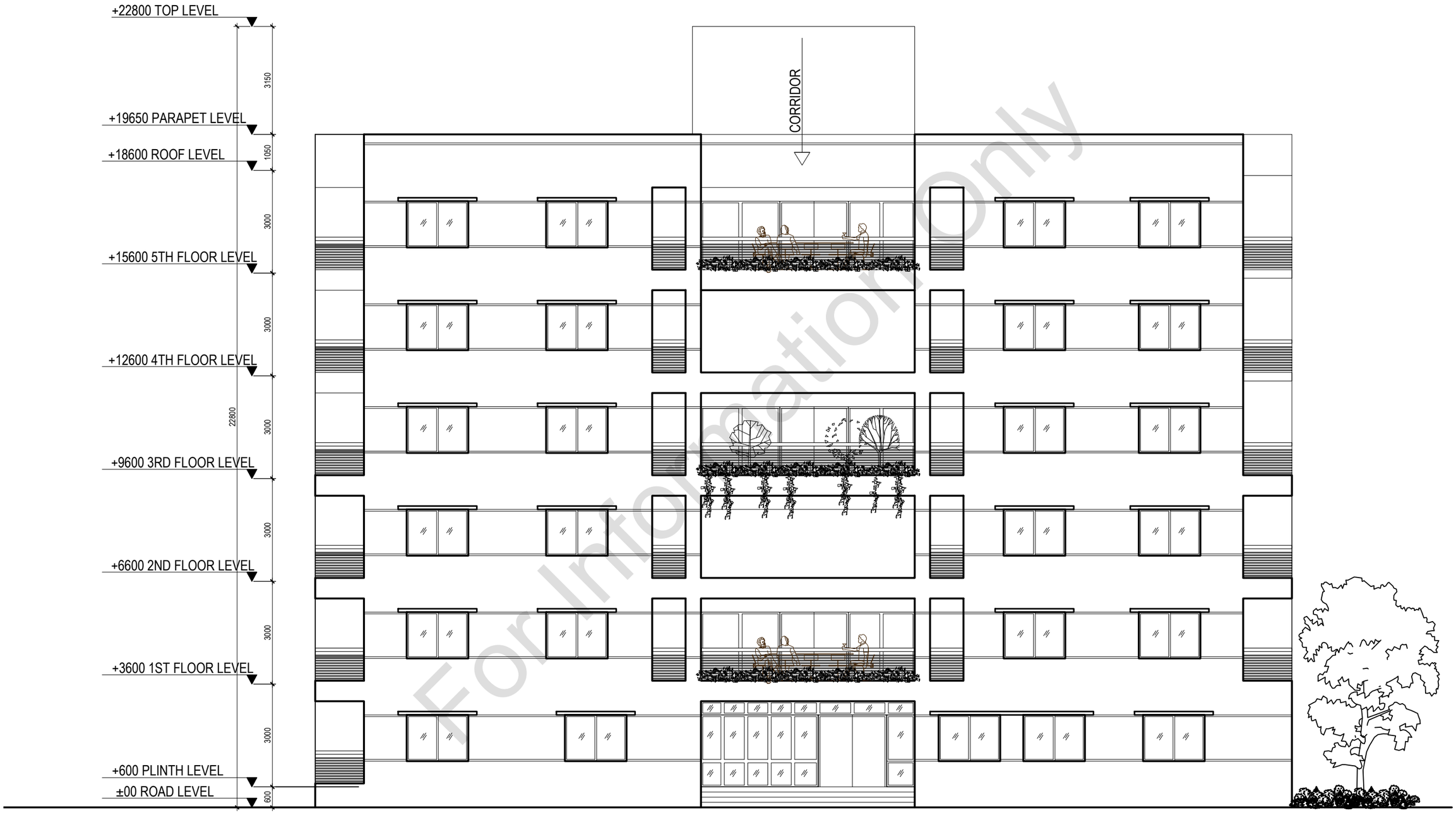


GROUND FLOOR PLAN.

AREA : 454.12 SQM.



ROOF FLOOR PLAN.
AREA : 439.81 SQM.



SOUTH ELEVATION.

COVER PAGE RPCL DORMITORY BUILDING

STRUCTURAL DRAWING

DATE : 06 JANUARY, 2019

CONSULTANT: Development Design Consultants Ltd.					
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project In Patuakhali District, Bangladesh					
RURAL POWER COMPANY LIMITED			OFFICE- sqm		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:	DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
				AFIFA ANTARA KHAN	MD. DABIR UDDIN
			CAD OPERATOR	ARCHITECT	TEAM LEADER (Acting)
			DWG NO.-RPCL/STC/HST1/ V01		OCT

LIST OF STRUCTURAL DRAWINGS

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S-03	DETAILS OF COLUMN	1
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S-06	PILE CAP LAYOUT PLAN	1
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S-19	DETAILS OF MACHINE ROOM	2

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

LIST OF STRUCTURAL DRAWINGS

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-00 /V04 AUGU

GENERAL STRUCTURAL NOTES

SCALE 1:150

1.GENERAL

a. ULTIMATE STRESS DESIGN METHOD IS USED AS PER BANGLADESH NATIONAL BUILDING CODE (BNBC) , UBC 1997, ASCE 7-02 AND ACI 2008.
b. ALL THE STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH RELEVANT ARCHITECTURAL DRAWINGS.
c. FOLLOW BNBC/93 FOR SPECIFICATIONS/STRUCTURAL REQUIREMENTS NOT MENTIONED IN THE DRWAINGS OR IN THIS NOTE SHEET.
d. ANY DETAILS NOT SHOWN IN THE DRAWING SHOULD BE DONE ACCORDING TO ACI DETAILING MANUAL.
e. BASIC WIND SPEED = 260 km/hr
f. SEISMIC ZONE - 1
g. OTHER LOADS AS PER BNBC 1993, UBC 97 & ASCE 7-02

2.FOUNDATION

a. THE BUILDING HAS BEEN DESIGNED FOR 6-STORIED DORMITORY BUILDING AT PATUAKHALI.
b. PILE FOUNDATION .
c. FOUNDATION CASTING OPERATIONS SHALL BE PERFORMED AS PER STANDARD PRACTICES.

3.CONCRETE

a. TYPE : CONCRETE COMPRESSIVE STRENGTH CONSIDERED AS FOLLOWS :
I) SUPER STRUCTURE , f 'c = 28.0 MPa (4000 psi)
WHICH ARE TO BE CONFORMED BY TRIAL MIX DESIGN.
b. MINIMUM CYLINDER STRENGTH : BASED ON CYLINDER TEST OF DIAMETER, D = 100mm & HEIGHT, H = 200mm.
FOR SUPER STRUCTURE WORKS: I) 7TH DAY STRENGTH, f'c=20 MPa
II) 28TH DAY STRENGTH, f'c= 28MPa

c. CURING OF R.C.C WORK :
I) CURING TIME MINIMUM 28 DAYS
II) METHOD OF CURING :
* HORIZONTAL SURFACE - BY PONDING OF WATER
* OTHER SURFACES-BY WRAPPING MOIST JUTE FABRIC AND SPRINKLING WATER BY HOSE PIPE FREQUENTLY.

4. CEMENT

PORTLAND COMPOSITE CEMENT MENTIONED ITEMWISE CONFORMING TO BDS EN-197-1-CEM 1/ ASTM-C 150 TYPE-I

5. CONCRETE AGGREGATE

a) FINE AGGREGATES: SAND OF F.M 2.50 (Min.)
b) COARSE AGGREGATES: 20mm DOWN WELL GRADED CRUSHED STONE CHIPS TO BE USED AS COARSE AGGREGATE
c) COARSE AGGREGATE SHOULD POSSESS ABRATION RESISTANCE SO THAT MAXIMUM LOS ANGELS ABRATION (LAA) < 30%
d) COARSE AGGREGATE MUST BE SATURATED SURFACE DRY (SSD) CONDITION WHILE CONCRETING

6. STEEL REINFORCEMENT

a) ALL STRUCTURAL REINFORCEMENTS ARE OF 60 GRADE HIGH STRENGTH DEFORMED BAR MADE FROM BILLET STEEL
b) YIELD STRENGTH OF STEEL f'y = 415 MPa (60000 psi) CONFORMED TO ONE OF THE FOLLOWING SPECIFICATIONS :i) BDS 1313 : 1991, ii) ASTM A615M
d) THE FOLLOWING TESTS FOR REINFORCING BARS FROM RANDOM SAMPLES SHALL BE CONDUCTED AT BUET AS PER BDS 1313 : 1991 AND TEST RESULT SHALL BE SUBMITTED TO THE ENGINEER FOR CHEECKING AND RECORD :
i) TENSILE STRENGTH TEST
ii) PERCENTAGE ELONGATION TEST
iii) BEND/REBEND TEST

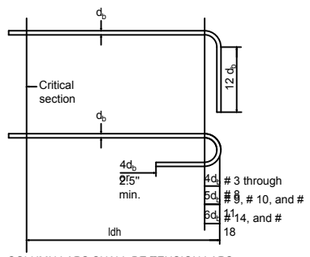
7. WATER

POTABLE WATER TO BE USED IN ALL CONCRETE MIX.

8. LAP LENGTH

UNLESS OTHERWISE MENTIONED IN THE DRAWINGS, LAP LENGTH OF BARS SHALL BE :

BAR DIA (mm)	TENSION (mm)	COMPRESSION (mm)
10Ø	400	300
12Ø	460	360
16Ø	610	480
20Ø	760	600
25Ø	1170	750
28Ø	1310	840
32Ø	1500	960



COLUMN LAPS SHALL BE TENSION LAPS

7. HOOKS OF REBAR

a) FOR ALL RE-BAR : PROVIDE 90° STANDARD HOOKS (L-BENT) IF NOT SHOWN IN THE DRAWINGS.

8. SPACER BARS

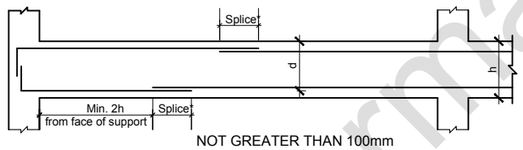
TO SUPPORT SECOND LAYER BARS IN BEAMS USE 25Ø SPACER BARS @ 1000 C/C WHERE REQUIRED.

9.CHAIRS

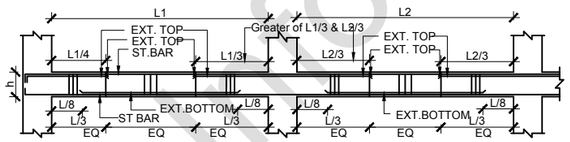
USE CHAIRS OF NECESSARY DIMENSION MADE OF 20Ø BAR TO SUPPORT TOP BARS OF MAT @ 1200 C/C.

10. LAP LOCATION :

a) FOR BEAM BOTTOM BAR, LAP NOT TO BE PROVIDED AT MIDDLE THIRD ZONE OF THE SPAN
b) FOR BEAM TOP BAR, LAP MAY BE PROVIDED AT MIDDLE THIRD ZONE OF THE SPAN
c) NOT MORE THAN 50% OF THE BARS SHALL BE SPLICED AT ONE PLACE
d) LAP SPLICES ARE TO BE CONFINED BY HOOPS WITH MAXIMUM SPACING OR PITCH OF d/4 OR 100 WHERE d IS THE EFFECTIVE DEPTH OF THE BEAM.



NOT GREATER THAN 100mm



TYPICAL SECTION OF BEAM LONG SECTION

11. DEVELOPMENT LENGTH

ALL BEAM AND SLAB REBARS SHOULD BE EXTENDED INTO THE SUPPORT UPTO DEVELOPMENT LENGTH.

12. ALL ADMIXTURE

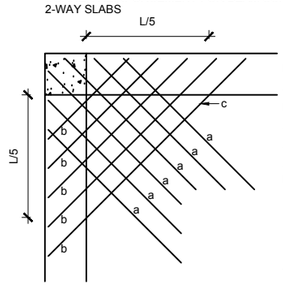
APPROVAL BY THE CONSULTANT.

13. WATER STOPPER

225mm WIDE PVC WATER STOPPER TO BE USED AT ALL CONSTRUCTION JOINTS BELOW GROUND IN MAT, RETAING WALL & WATER TANK WALL.

14. CORNER REINFORCEMENT ('CR')

CORNER REINFORCEMENT FOR BEAM SUPPORTED 2-WAY SLABS



L = LONGER CLEAR SPAN
a = TOP BARS
b = BOTTOM BARS
a = c
SPACING OF CORNER BARS =
SPACING OF MAXIMUM POSITIVE BARS

15. CONCRETE CLEAR COVER FOR REINFORCING BARS

Member	Location/Condition	Clear Cover (mm)	Figure
Footing	Side	75	
	Bottom	75	
Column	Above Footing	* 50	
Wall	Above Footing	* 40	
Beam	top, side	** 40	
	bottom	** 40	
Slab and stair	Top and bottom	20	
Retaining Wall	Exterior	65	
	Interior	40	
Water tank	Water face	50	
	Other face	50	

* From tie
** From stirrups

17. MAXIMUM BARS IN BEAMS IN SINGLE LAYER

MAXIMUM NUMBER OF BARS AS A SINGLE LAYER IN BEAM STEM SHALL BE AS PER ACI DETAILING MANUAL.

18. MINIMUM BAR SPACING OF COLUMN

LONGITUDINAL BARS

CLEAR DISTANCE BETWEEN LONGITUDINAL BARS SHALL NOT BE LESS THAN 1.5 TIMES BAR DIAMETER, 1.5 TIMES OF THE MAXIMUM SIZE OF COARSE AGGREGATE NOR 40mm.

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

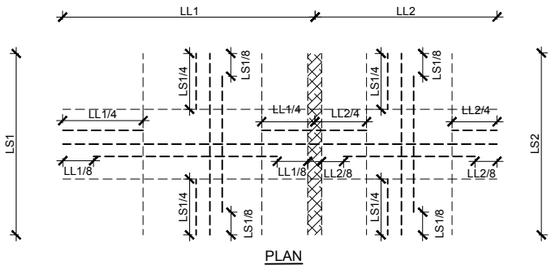
GENERAL NOTES-01

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-01 /V04 AUGU

19. SLAB REINFORCING DETAILS

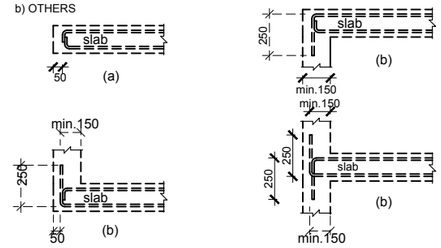


PLAN

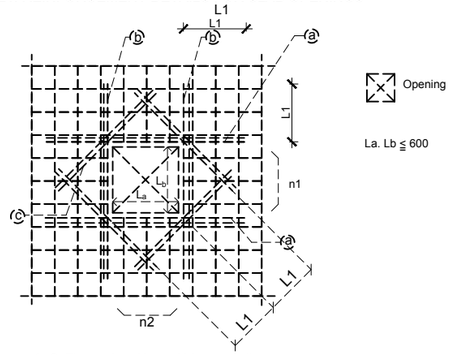
20. SLAB END REINFORCING DETAILS

a) FREE END OF SLAB INCAPABLE OF EMBEDDING OF STEEL BAR IN BEAM/WALL

b) OTHERS



21. REINFORCEMENT DETAILS FOR SLAB OPENINGS



n1,n2 : The number of bars which are cut off for opening

(a) The number of extra bars > n1/2 (top and bott bars)

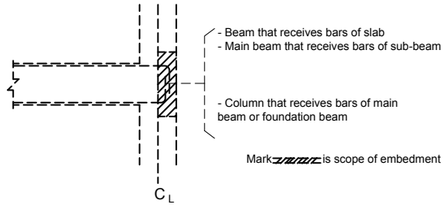
(b) The number of extra bars > n2/2 (top and bott bars)

(c) The number of extra bars = 2-D12 (top and bott bars)

22. RECOMMENDED END HOOKS

Bar hook	Form and Extention	Bend Angle (degree)	Bend Radius (r)	Used Bar	Location
Primary reinf.	d_b, $4d_b$	180°	r = 4db	6 to 25	Lap splice end of anchorage
Tie/ stirrups	d_b, 6db or 75mm	135°	r = 1.25db	6 to 12	Stirrups fastening bar diagonal hoop
Primary reinf.	d_b, $12d_b$	90°	r = 4db	6 to 25	Bend-up for embedment
			r = 5db	28 to 32	
Slab	d_b	45°	r = 5db	8 to 20	Bend bar in slab

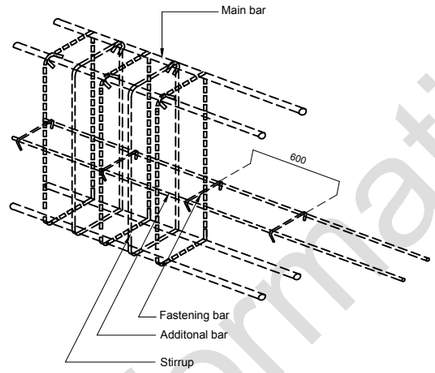
23. SCOPE OF EMBEDMENT



24. OPENING IN R.C.C. WALLS

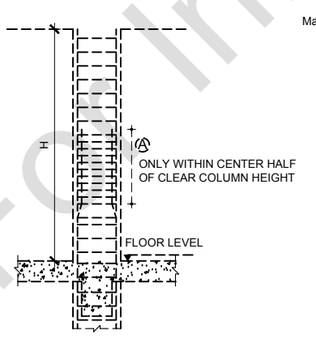
NOT LESS THAN THREE NO. 20Ø BARS SHALL BE PROVIDED AROUND ALL DOOR AND WINDOW OPENINGS IN R.C.C. WALLS. THE BAR SHALL BE EXTENDED BEYOND THE CORNERS OF THE OPENINGS TO A DISTANCE EQUAL TO THE DEVELOPMENT LENGTH BUT NOT LESS THAN 600.

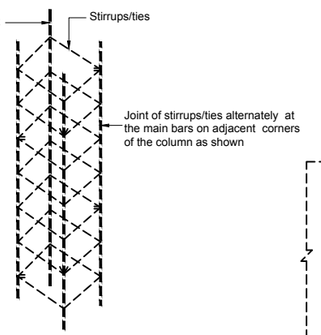
25. END HOOK OF STIRRUPS

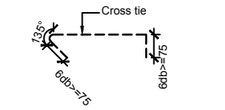


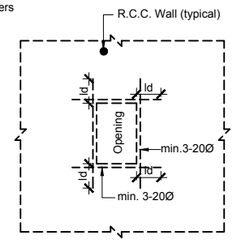
END HOOKS OF STIRRUPS ARE LOCATED ALTERNATELY AT TOP CORNER BAR OF THE SECTION.

26. COLUMN SPLICE LOCATION



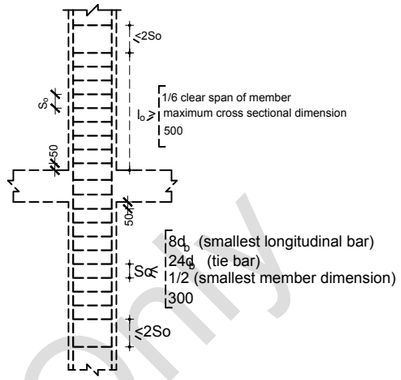




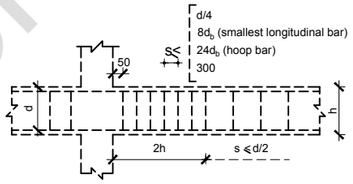


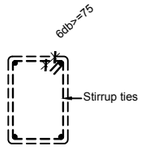
(A) IS AREA FOR SPLICE OF COLUMN REINFORCEMENT. MAXIMUM 50% OF TOTAL BAR IS SPLICED AT ONE LEVEL.
H = CLEAR COLUMN HEIGHT

27. CONFINEMENT REQUIREMENTS OF COLUMN AT JOINTS FOR EARTHQUAKE LOADING



28. CONFINEMENT REQUIREMENTS OF BEAM AT JOINTS FOR EARTHQUAKE LOADING





RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

GENERAL NOTES-02

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
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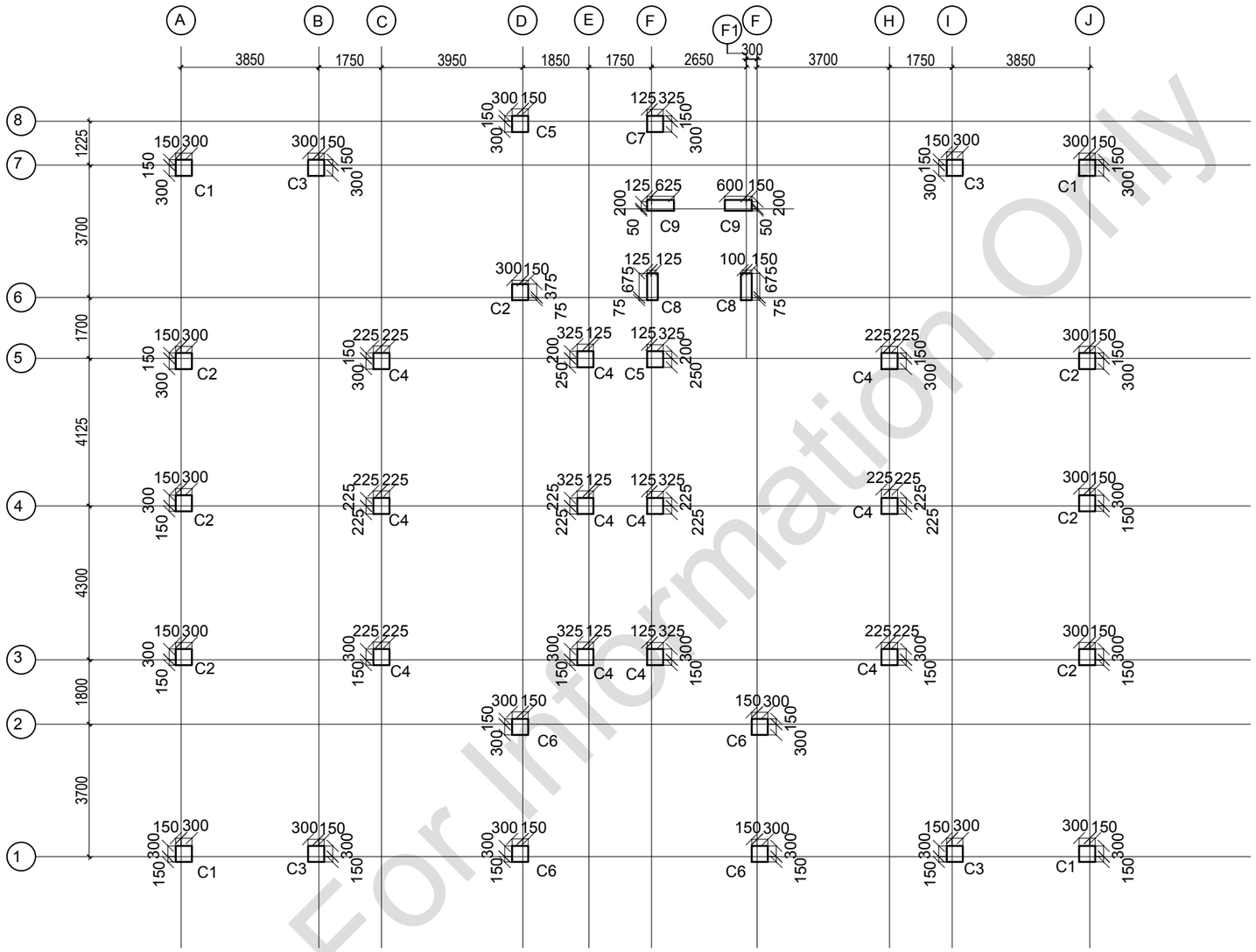
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-01a /V04 AUGU



GROUND FLOOR COLUMN LAYOUT PLAN
SCALE 1:150

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

COLUMN LAYOUT PLAN

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
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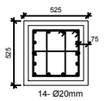
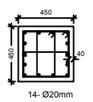
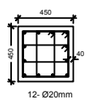
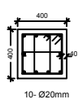
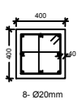
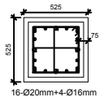
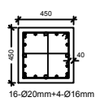
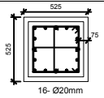
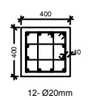
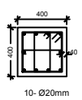
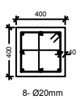
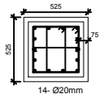
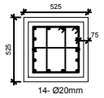
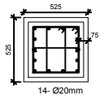
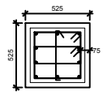
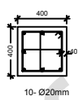
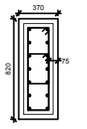
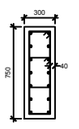
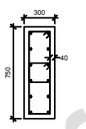
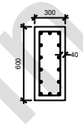
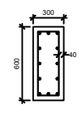
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-03 /V04 AUGU

SCHEDULE OF COLUMN

COLUMN TYPE	UP TO PLINTH LEVEL	PLINTH TO GROUND FLOOR	GROUND FLOOR TO 2ND FLOOR	2ND FLOOR TO 4TH FLOOR	4TH FLOOR TO ROOF
C1 (4 NOS.) (450x450)	 14- Ø20mm	 14- Ø20mm	 12- Ø20mm	 10- Ø20mm	 8- Ø20mm
C2 (7 NOS.) (450x450)	 16-Ø20mm+4-Ø16mm	 16-Ø20mm+4-Ø16mm	 14- Ø20mm	 10- Ø20mm	 8- Ø20mm
C3 (4 NOS.) (450x450)	 16- Ø20mm	 16- Ø20mm	 12- Ø20mm	 10- Ø20mm	 8- Ø20mm
C4 (11 NOS.) (450x450)	 14- Ø20mm	 14- Ø20mm	 12- Ø20mm	 10- Ø20mm	 8- Ø20mm
C5 (2 NOS.) (450x450)	 14- Ø20mm	 14- Ø20mm	 12- Ø20mm	 10- Ø20mm	 8- Ø20mm
C6 (4 NOS.) (450x450)	 14- Ø20mm	 14- Ø20mm	 12- Ø20mm	 10- Ø20mm	 8- Ø20mm
C7 (1 NOS.) (450x450)	 10- Ø20mm	 10- Ø20mm	 8- Ø20mm	 10- Ø20mm	 8- Ø20mm
C8 (2 NOS.) (250x750)	 14- Ø25mm	 14- Ø25mm	 12- Ø25mm	 14- Ø20mm	 12- Ø20mm
C9 (2 NOS.) (250x750)	18- Ø20mm	18- Ø20mm	16- Ø20mm	14- Ø20mm	12- Ø20mm

SCALE 1:25

LONG SECTION OF TYPICAL COLUMN

SCALE 1:50

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF COLUMN

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
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CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

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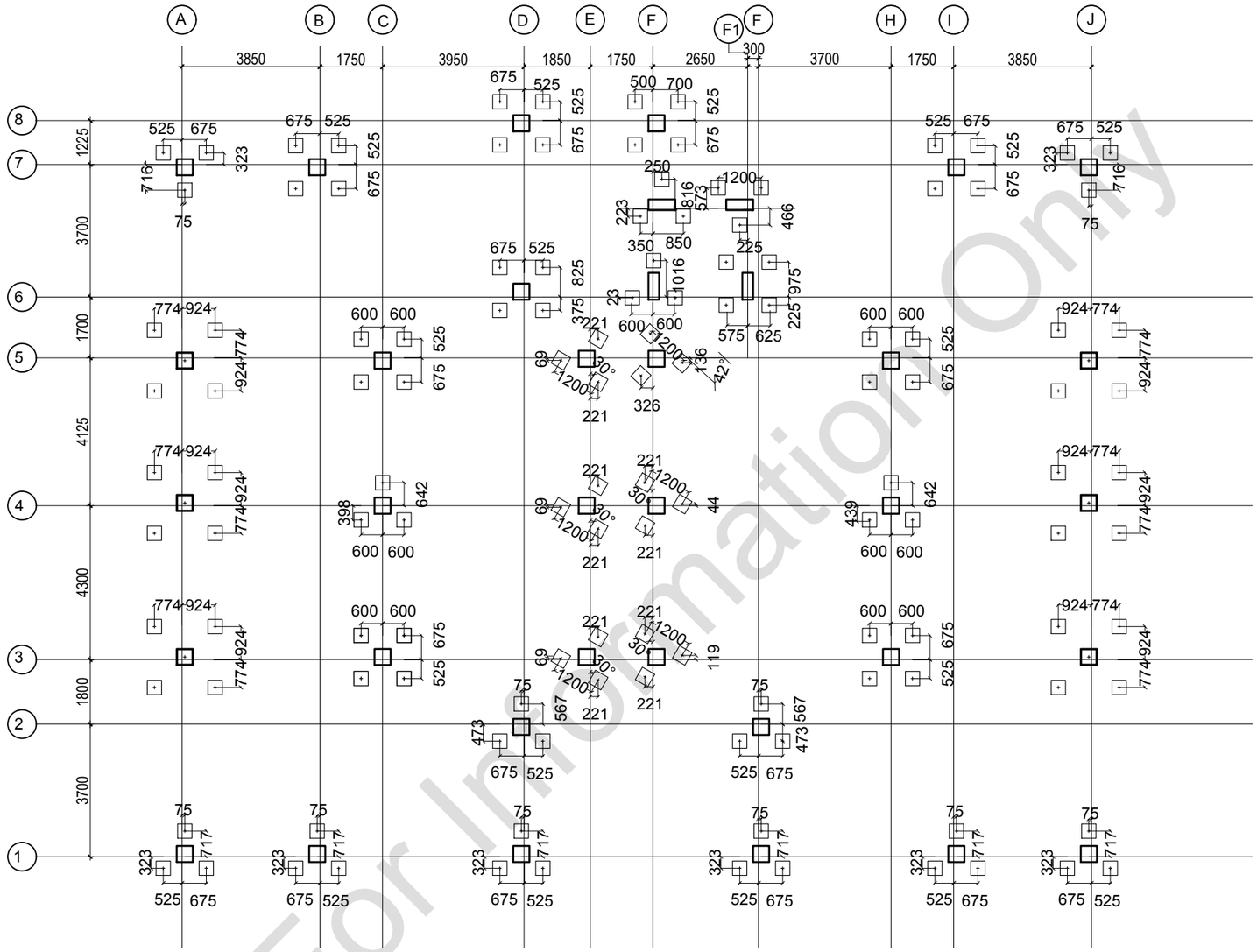

PILE LAYOUT PLAN
SCALE 1:150

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

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2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

PILE LAYOUT PLAN

RPCL DORMITORY

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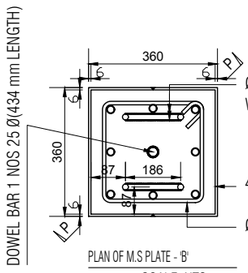
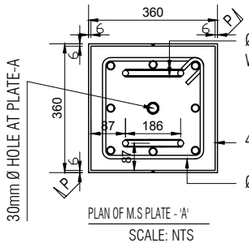
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-04 /V04 AUGU



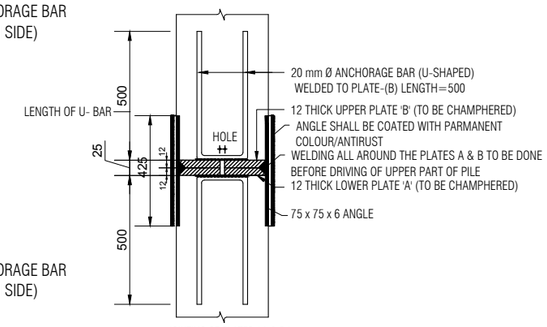
PLAN OF M.S PLATE - 'B'

SCALE: NTS



PLAN OF M.S PLATE - 'A'

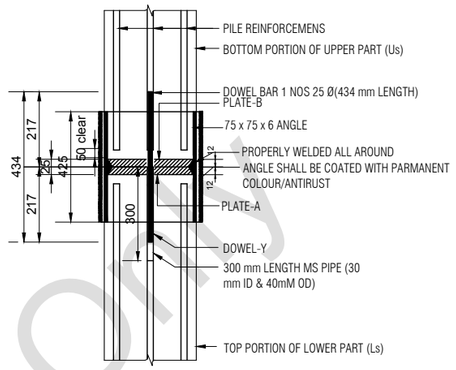
SCALE: NTS



JOINTING OF PLATES (A & B)

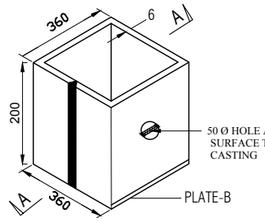
(DOWEL BAR, REINFORCEMENTS AND GI / MS PIPE NOT SHOWN)

SCALE: NTS



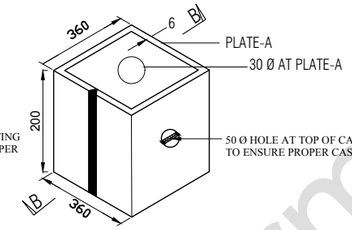
SPLICING DETAIL OF PILE (SECTION P-P)

SCALE: NTS



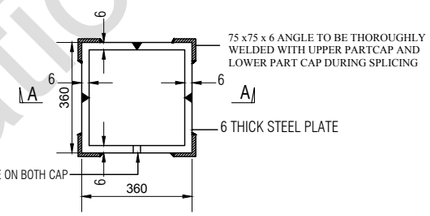
UPPER PART CAP (3D VIEW)

SCALE: NTS



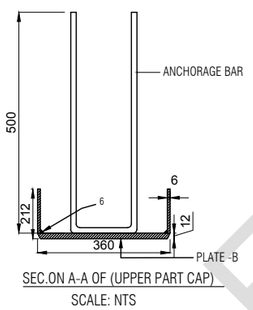
LOWER PART CAP (3D VIEW)

SCALE: NTS



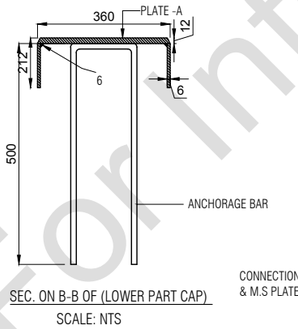
PLANE VIEW OF CAP

SCALE: NTS



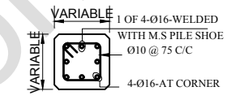
SEC.ON A-A OF (UPPER PART CAP)

SCALE: NTS



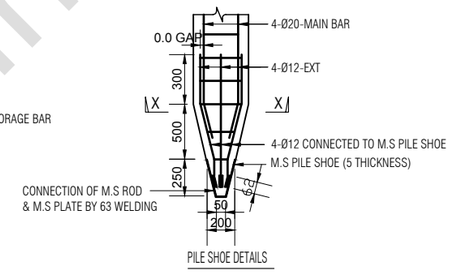
SEC. ON B-B OF (LOWER PART CAP)

SCALE: NTS



SECTION : X - X

SCALE: NTS



PILE SHOE DETAILS

SCALE: NTS

[ONLY FOR TENDER]

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF PILE

RPCL DORMITORY

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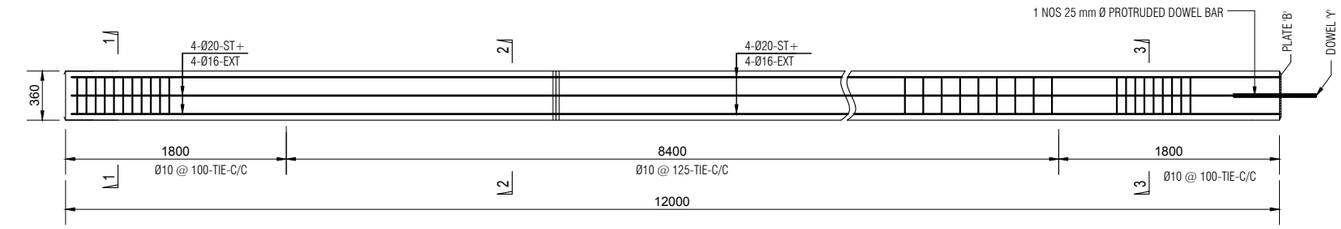
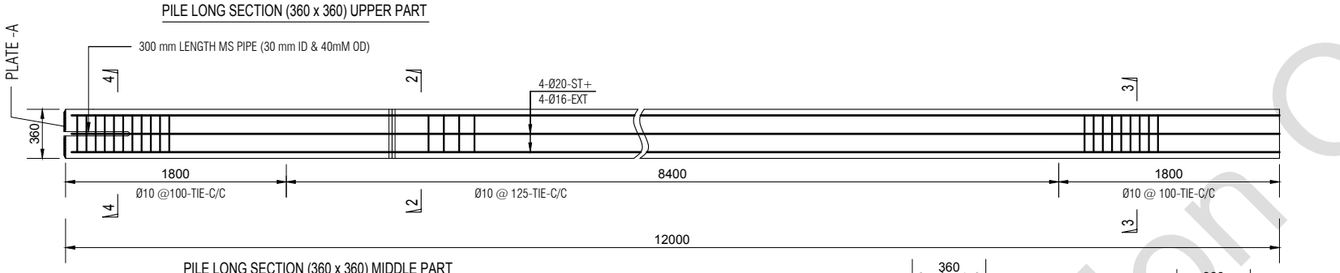
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

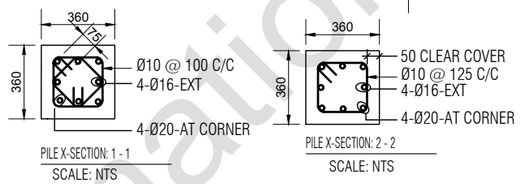
DWG NO. -RPCL/STC/HST1/ S-05 /V04 | AUGU



PILE LONG SECTION (360 x 360) UPPER PART



PILE LONG SECTION (360 x 360) MIDDLE PART



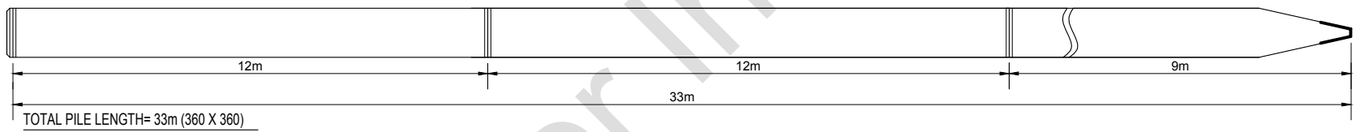
PILE X-SECTION: 1 - 1
SCALE: NTS

PILE X-SECTION: 2 - 2
SCALE: NTS

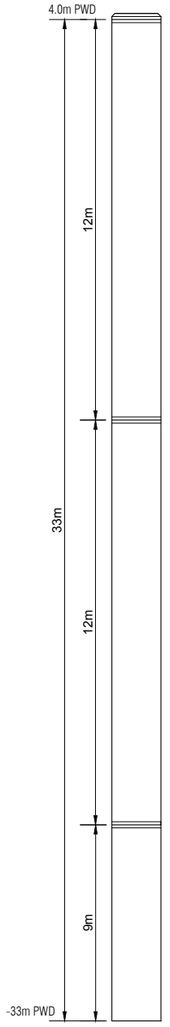
PILE X-SECTION: 3 - 3
SCALE: NTS

PILE X-SECTION: 4 - 4
SCALE: NTS

PILE LONG SECTION (360 x 360) LOWER PART



TOTAL PILE LENGTH= 33m (360 X 360)



[ONLY FOR TENDER]

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

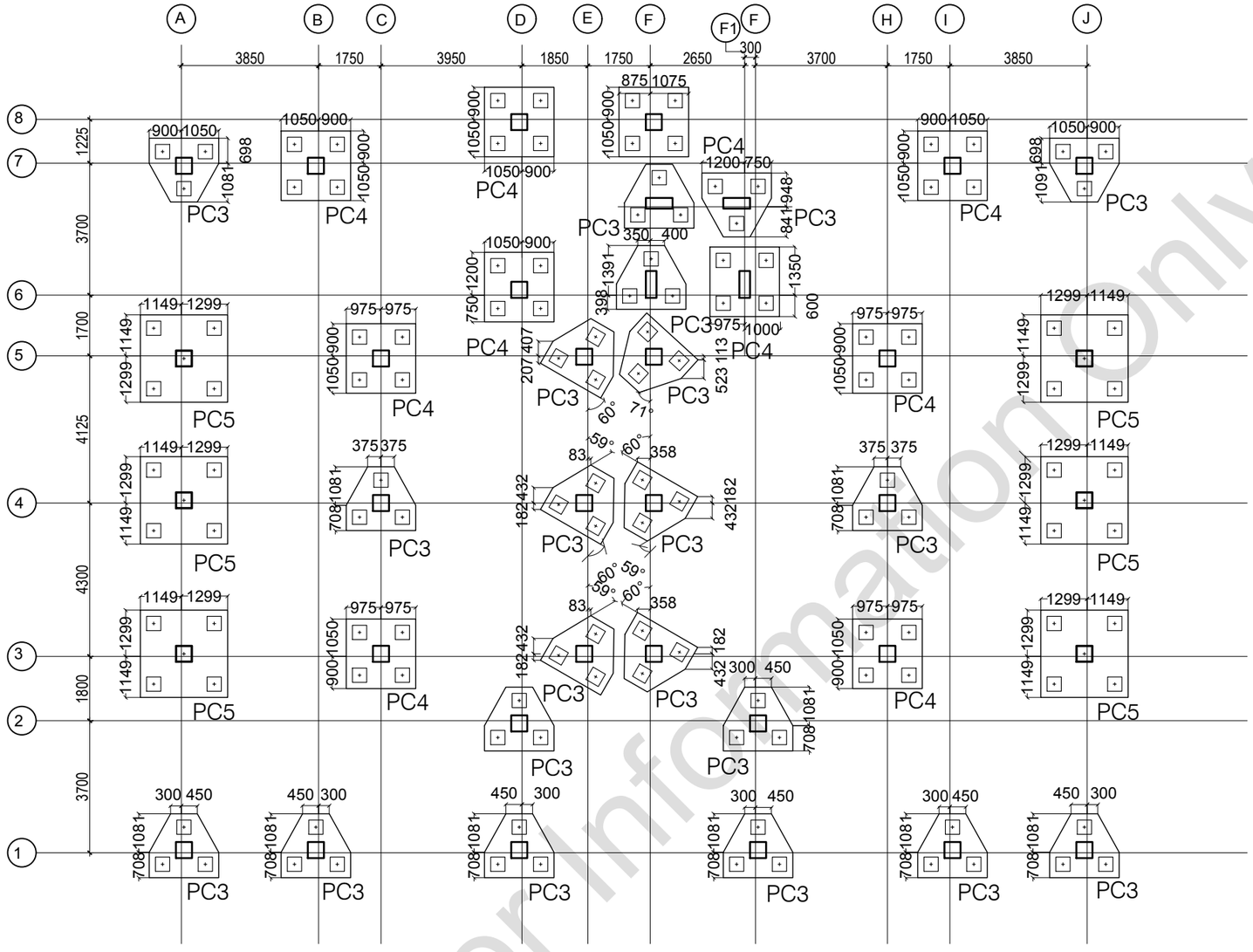
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF PILE

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-05a /V04 | AUGU



PILE CAP LAYOUT PLAN
SCALE 1:150

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

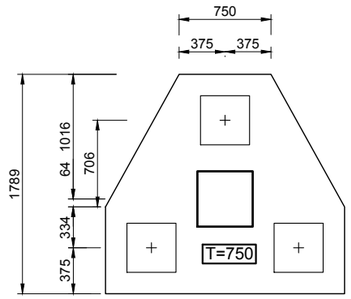
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

PILE CAP LAYOUT PLAN

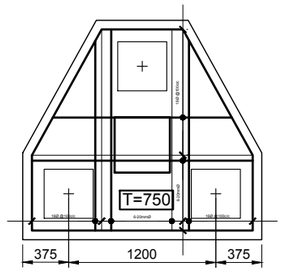
RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

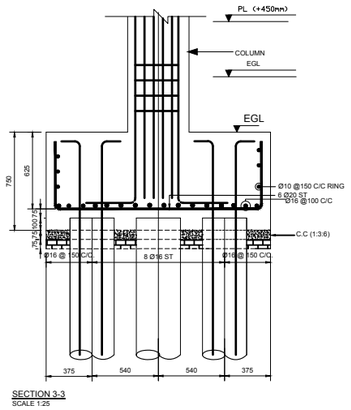
DWG NO. -RPCL/STC/HST1/ S-05 /V04 AUGU



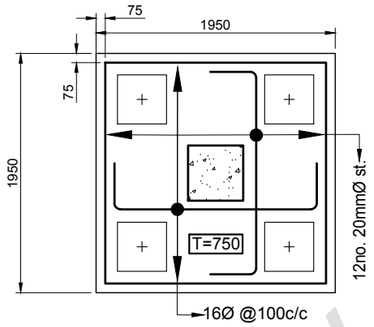
PLAN OF PILE CAP -PC3



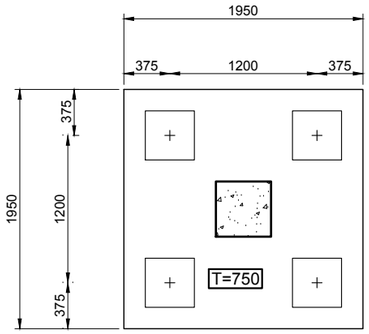
REINFORCEMENT OF PILE CAP PC3



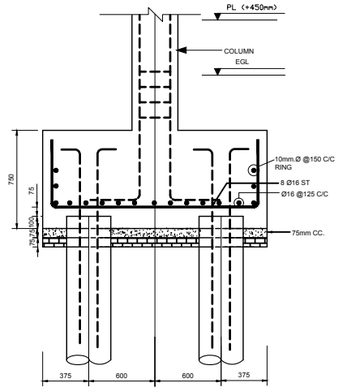
SECTION 3-3
SCALE 1:25



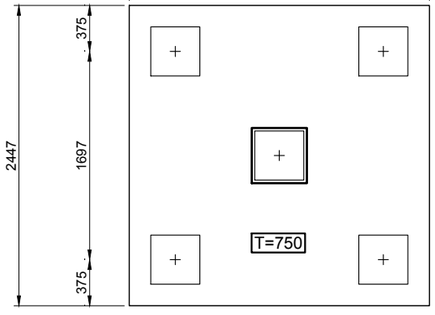
PLAN OF PILE CAP -PC4



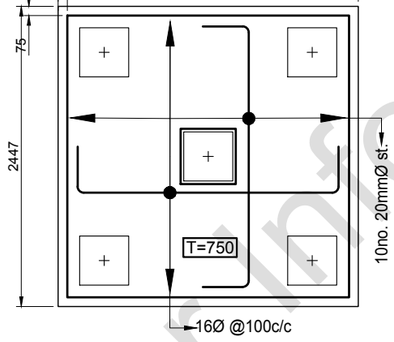
REINFORCEMENT OF PILE CAP PC4



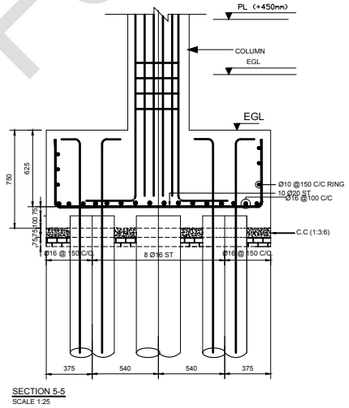
SECTION 4-4
SCALE 1:25



PLAN OF PILE CAP -PC5



REINFORCEMENT OF PILE CAP PC5



SECTION 5-5
SCALE 1:25

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

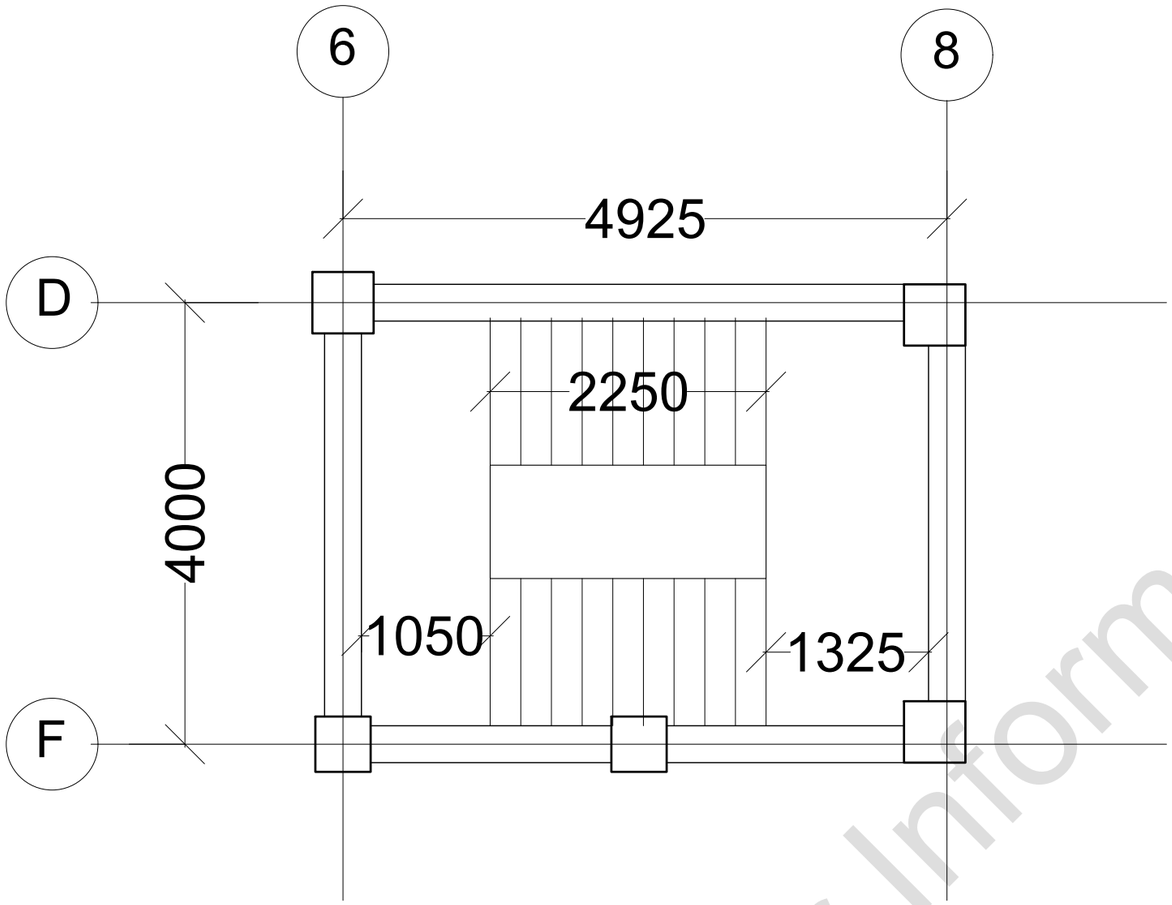
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

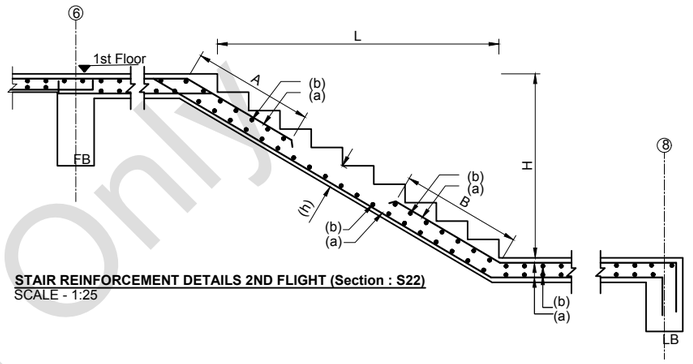
PILE CAP DETAILS

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-07 /V04 AUGU





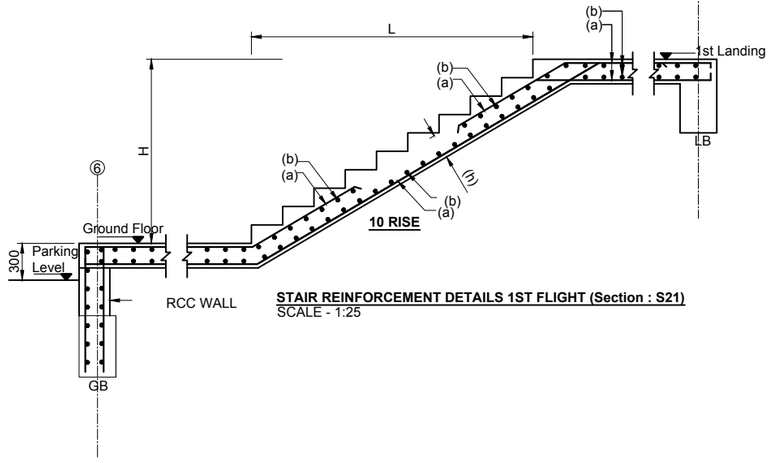
STAIR REINFORCEMENT DETAILS 2ND FLIGHT (Section : S22)
SCALE - 1:25

DIMENSION OF STAIR:

B	A	H	L
1200	1200	1500	2250

REBAR SCHEDULE:

b	a	h
Ø10 @ 175 c/c	Ø12 @ 150 c/c	200



STAIR REINFORCEMENT DETAILS 1ST FLIGHT (Section : S21)
SCALE - 1:25

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

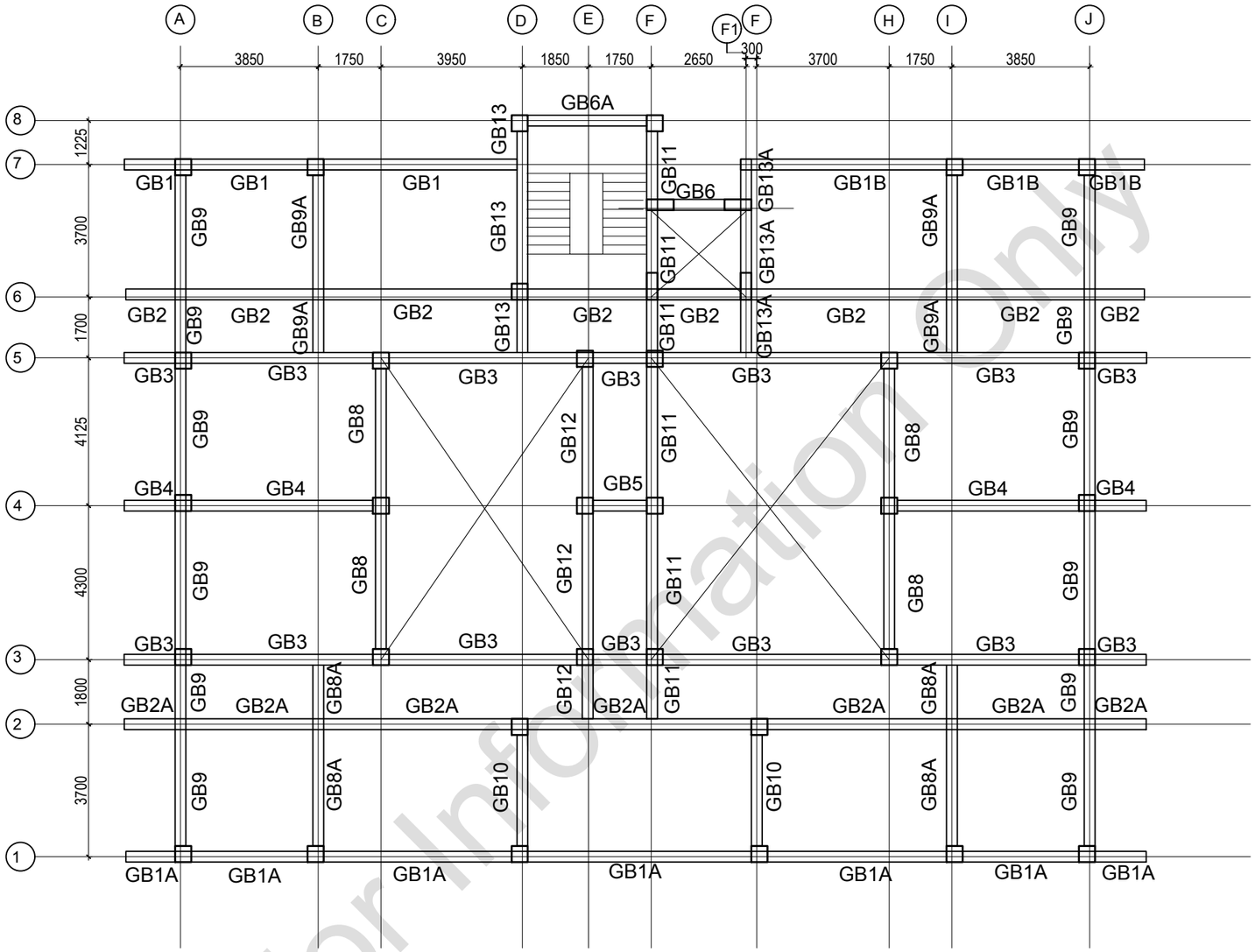
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF STAIR

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-08 /V04 AUGU



GRADE BEAM FRAMING PLAN.
SCALE 1:150

CONSULTANT: Development Design Consultants Ltd.

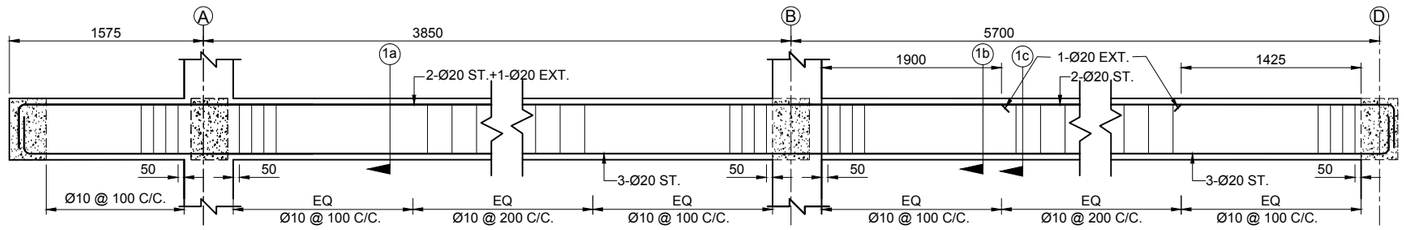
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

GROUND FLOOR BEAM FRAMING PLAN

RPCL DORMITORY

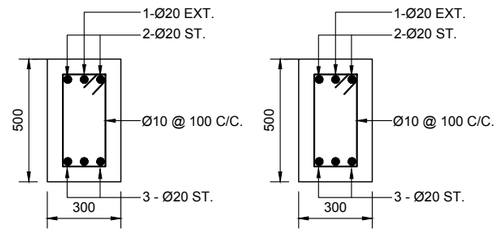
RURAL POWER COMPANY LIMITED					
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:	DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
				SOUPTIK BARMAN TIRTHA	DABIR UDDIN
			CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-09 /V04 AUGU



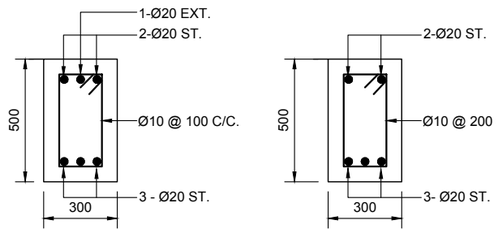
LONG SECTION OF GRADE BEAM-GB1(300X500)

SCALE 1:50



SECTION 1a

SCALE 1:25

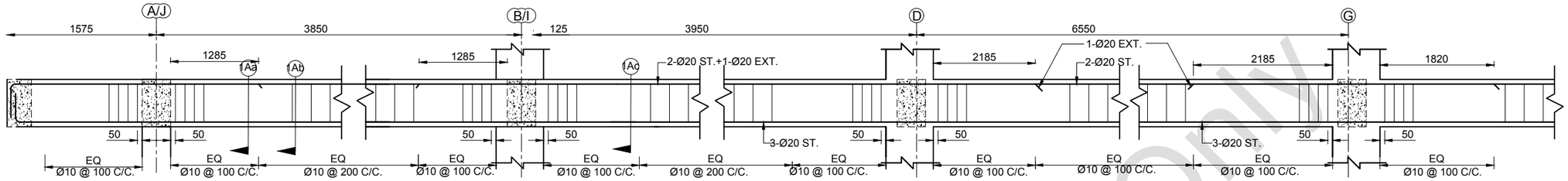


SECTION 1b

SCALE 1:25

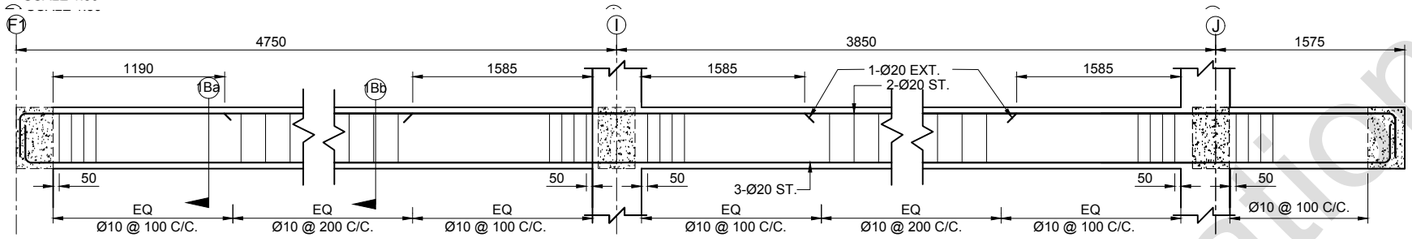
SECTION 1c

SCALE 1:25



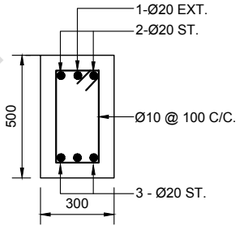
LONG SECTION OF GRADE BEAM-GB1A(300X500)

SCALE 1:50



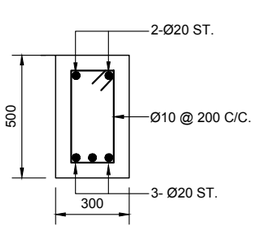
LONG SECTION OF GRADE BEAM-GB1B(300X500)

SCALE 1:50



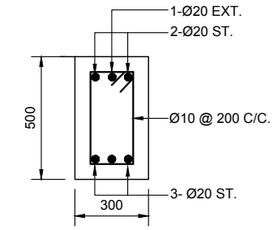
SECTION 1Aa

SCALE 1:25



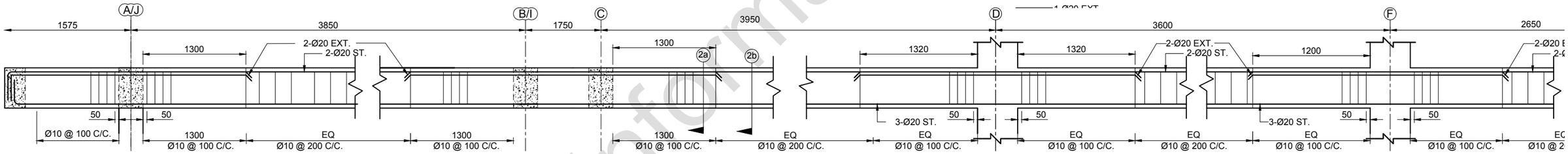
SECTION 1Ab

SCALE 1:25



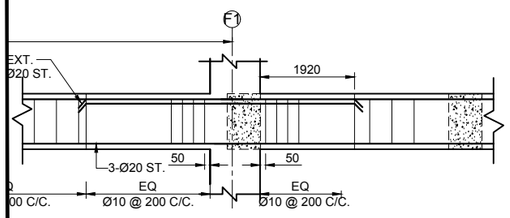
SECTION 1Ac

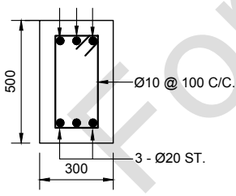
SCALE 1:25



LONG SECTION OF GRADE BEAM-GB2(300X500)

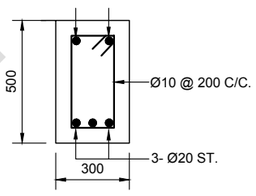
SCALE 1:50





SECTION 1Ba

SCALE 1:25

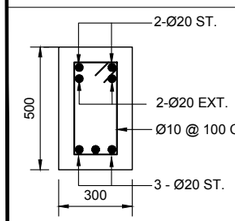


SECTION 1Bb

SCALE 1:25

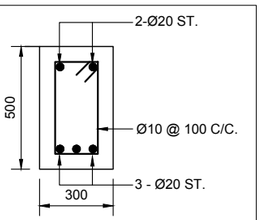
LONG SECTION OF GRADE BEAM-GB2A(300X500)

SCALE 1:50



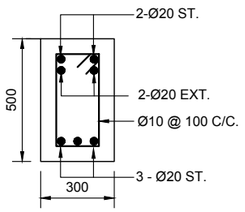
SECTION 2a

SCALE 1:25



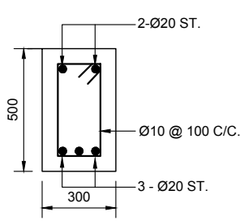
SECTION 2b

SCALE 1:25



SECTION 2Aa

SCALE 1:25



SECTION 2Ab

SCALE 1:25

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

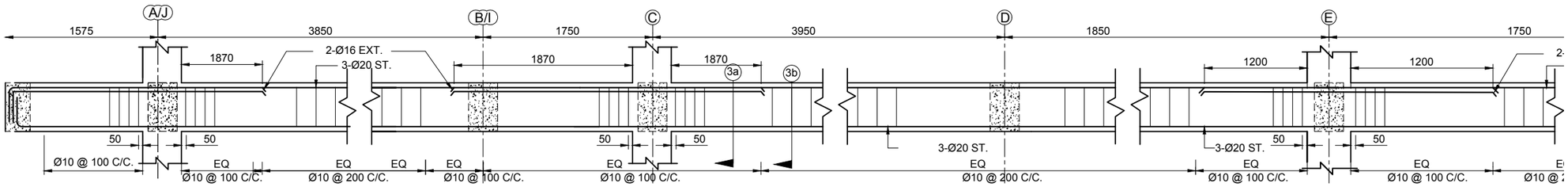
DETAILS OF GROUND FLOOR BEAM

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

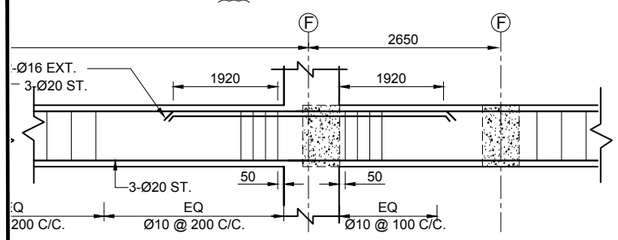
DWG NO. -RPCL/STC/HST1/ S-10 /V04 | AUGU

SCALE 1:50



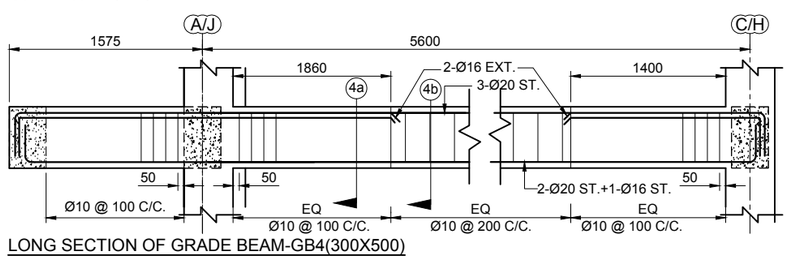
LONG SECTION OF GRADE BEAM-GB3(300X500)

SCALE 1:50



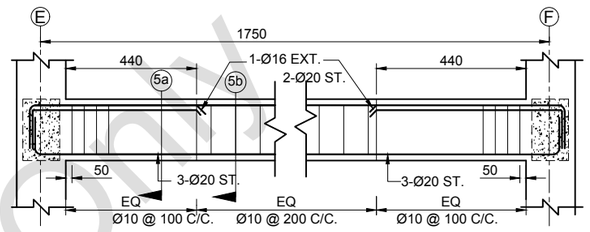
LONG SECTION OF GRADE BEAM-GB3(300X500)

SCALE 1:50



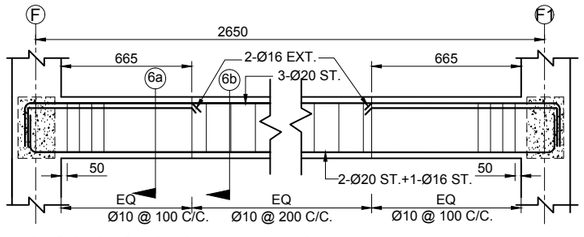
LONG SECTION OF GRADE BEAM-GB4(300X500)

SCALE 1:50



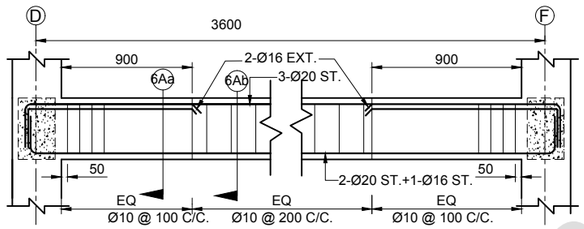
LONG SECTION OF GRADE BEAM-GB5(300X500)

SCALE 1:50



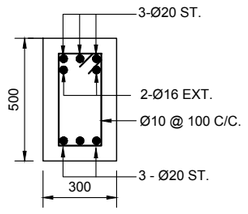
LONG SECTION OF GRADE BEAM-GB6(300X500)

SCALE 1:50



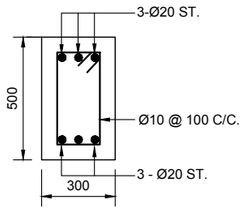
LONG SECTION OF GRADE BEAM-GB6A(300X500)

SCALE 1:50



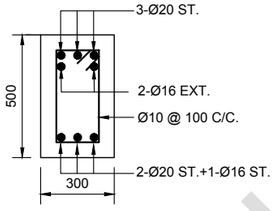
SECTION 3a

SCALE 1:25



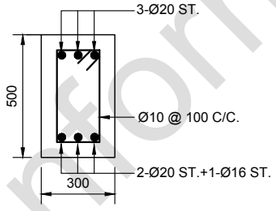
SECTION 3b

SCALE 1:25



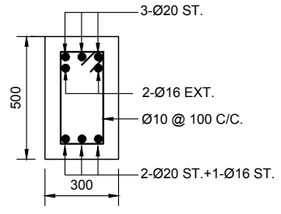
SECTION 6a

SCALE 1:25



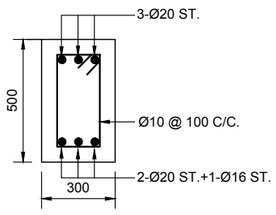
SECTION 6b

SCALE 1:25



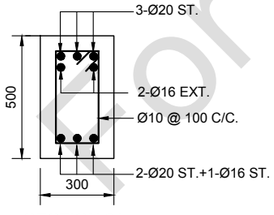
SECTION 4a

SCALE 1:25



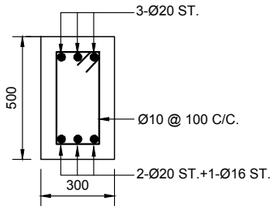
SECTION 4b

SCALE 1:25



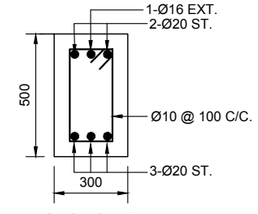
SECTION 6Aa

SCALE 1:25



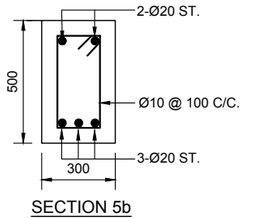
SECTION 6Ab

SCALE 1:25



SECTION 5a

SCALE 1:25



SECTION 5b

SCALE 1:25

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

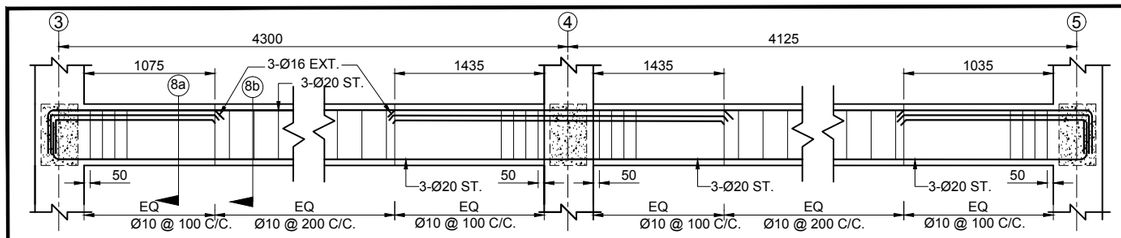
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF GROUND FLOOR BEAM

RPCL DORMITORY

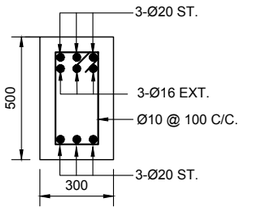
DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-10a /V04 AUGU



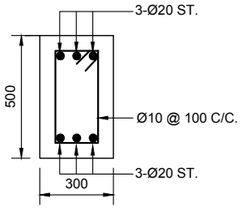
LONG SECTION OF GRADE BEAM-GB8(300X500)

SCALE 1:50



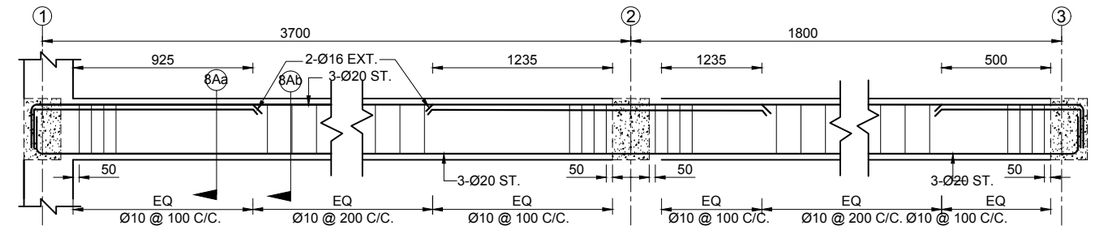
SECTION 8a

SCALE 1:25



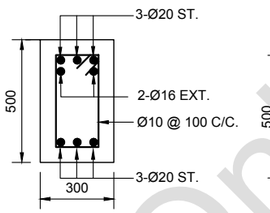
SECTION 8b

SCALE 1:25



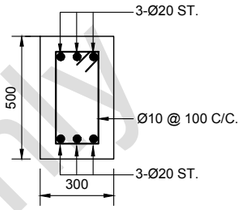
LONG SECTION OF GRADE BEAM-GB8A(300X500)

SCALE 1:50



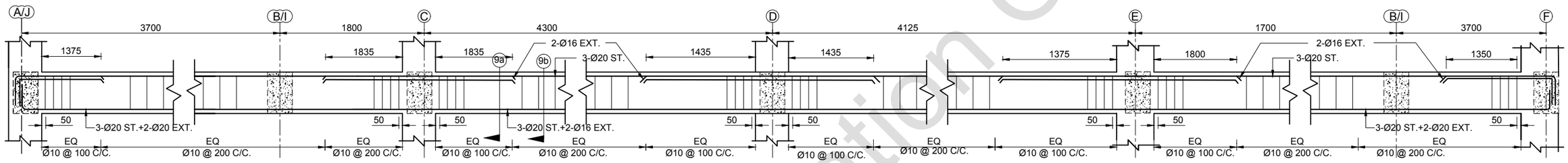
SECTION 8Aa

SCALE 1:25



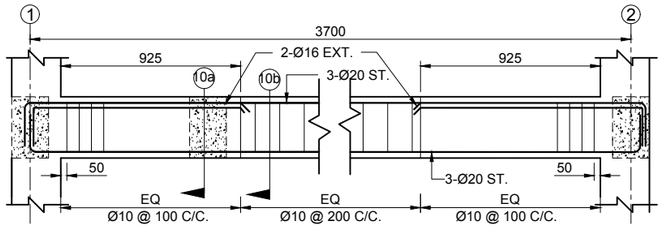
SECTION 8Ab

SCALE 1:25



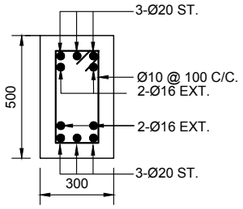
LONG SECTION OF GRADE BEAM-GB9(300X500)

SCALE 1:50



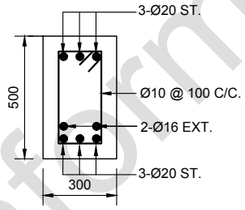
LONG SECTION OF GRADE BEAM-GB10(300X500)

SCALE 1:50



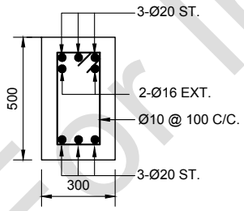
SECTION 6Aa

SCALE 1:25



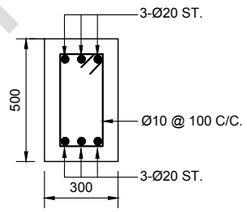
SECTION 6Ab

SCALE 1:25



SECTION 10a

SCALE 1:25



SECTION 10b

SCALE 1:25

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

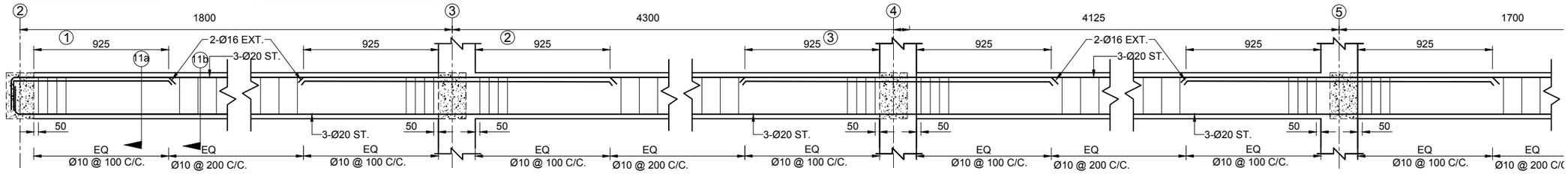
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF GROUND FLOOR BEAM

RPCL DORMITORY

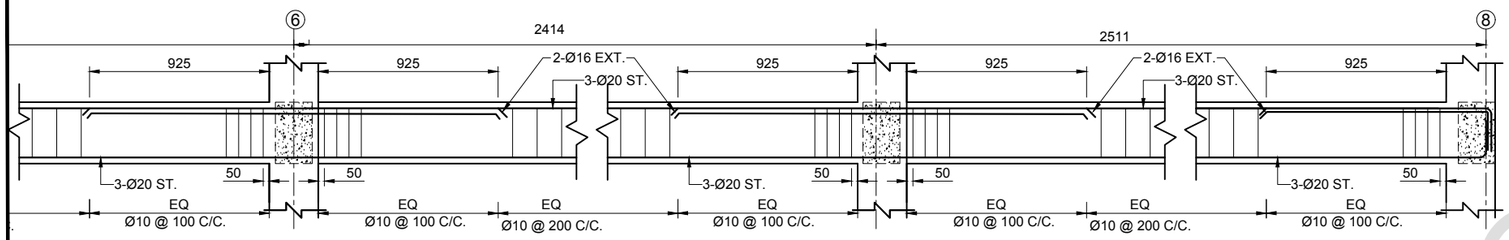
DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-10b /V04 AUGU



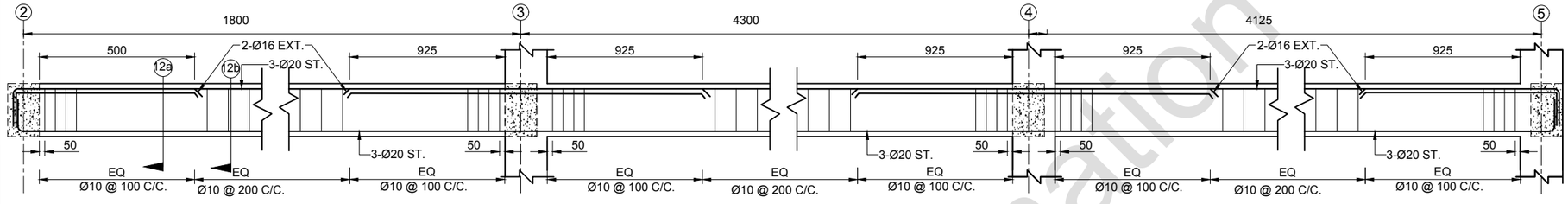
LONG SECTION OF GRADE BEAM-GB11(300X500)

SCALE 1:50



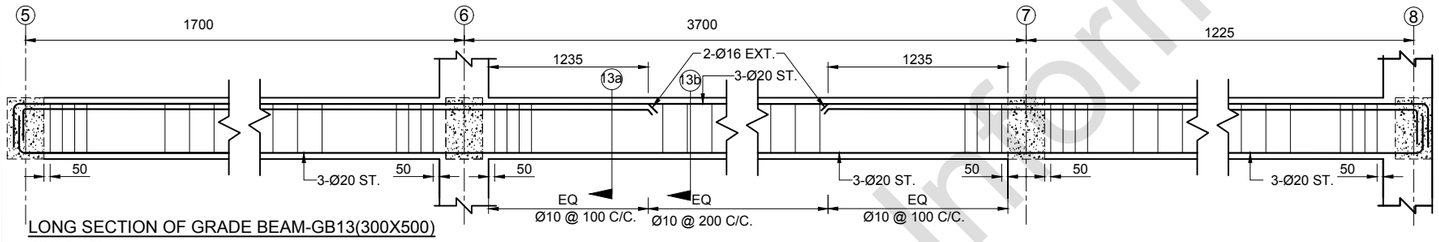
LONG SECTION OF GRADE BEAM-GB11(300X500)

SCALE 1:50



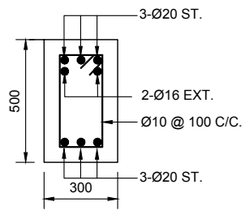
LONG SECTION OF GRADE BEAM-GB12(300X500)

SCALE 1:50



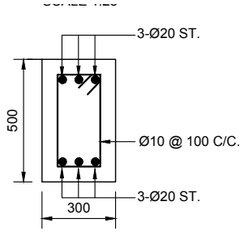
LONG SECTION OF GRADE BEAM-GB13(300X500)

SCALE 1:50



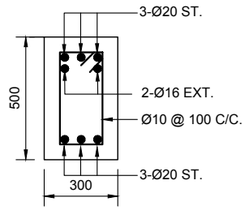
SECTION 11

SCALE 1:25



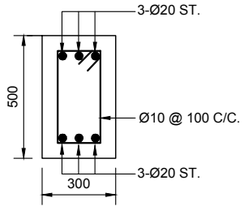
SECTION 11

SCALE 1:25



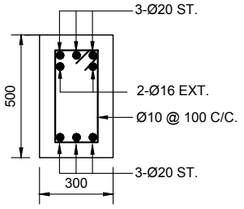
SECTION 12a

SCALE 1:25



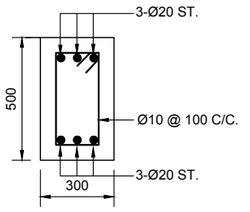
SECTION 12b

SCALE 1:25



SECTION 13a

SCALE 1:25



SECTION 13b

SCALE 1:25

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

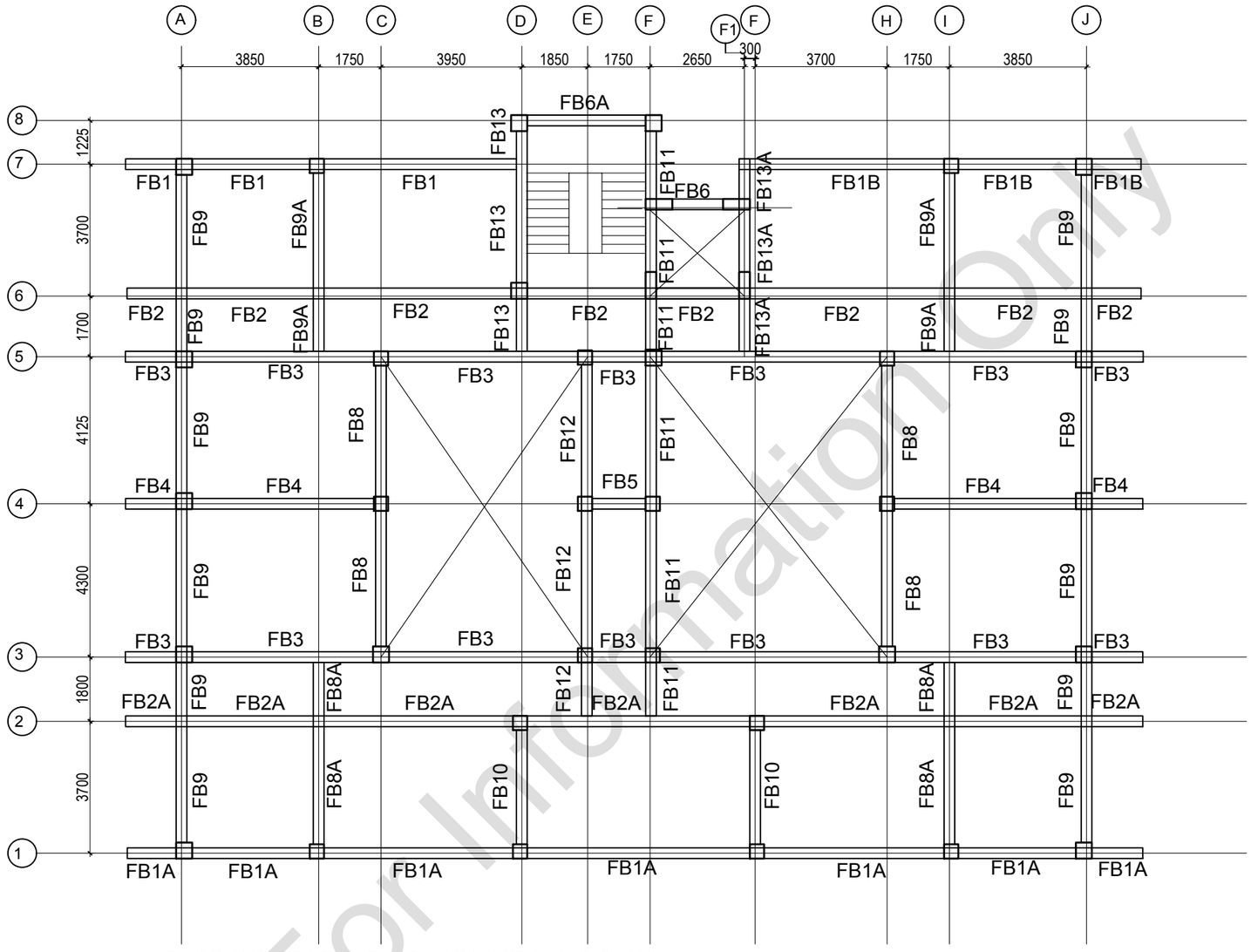
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF GROUND FLOOR BEAM

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-10c /V04 AUGU



FIRST AND SECOND FLOOR BEAM FRAMING PLAN.
SCALE 1:150

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

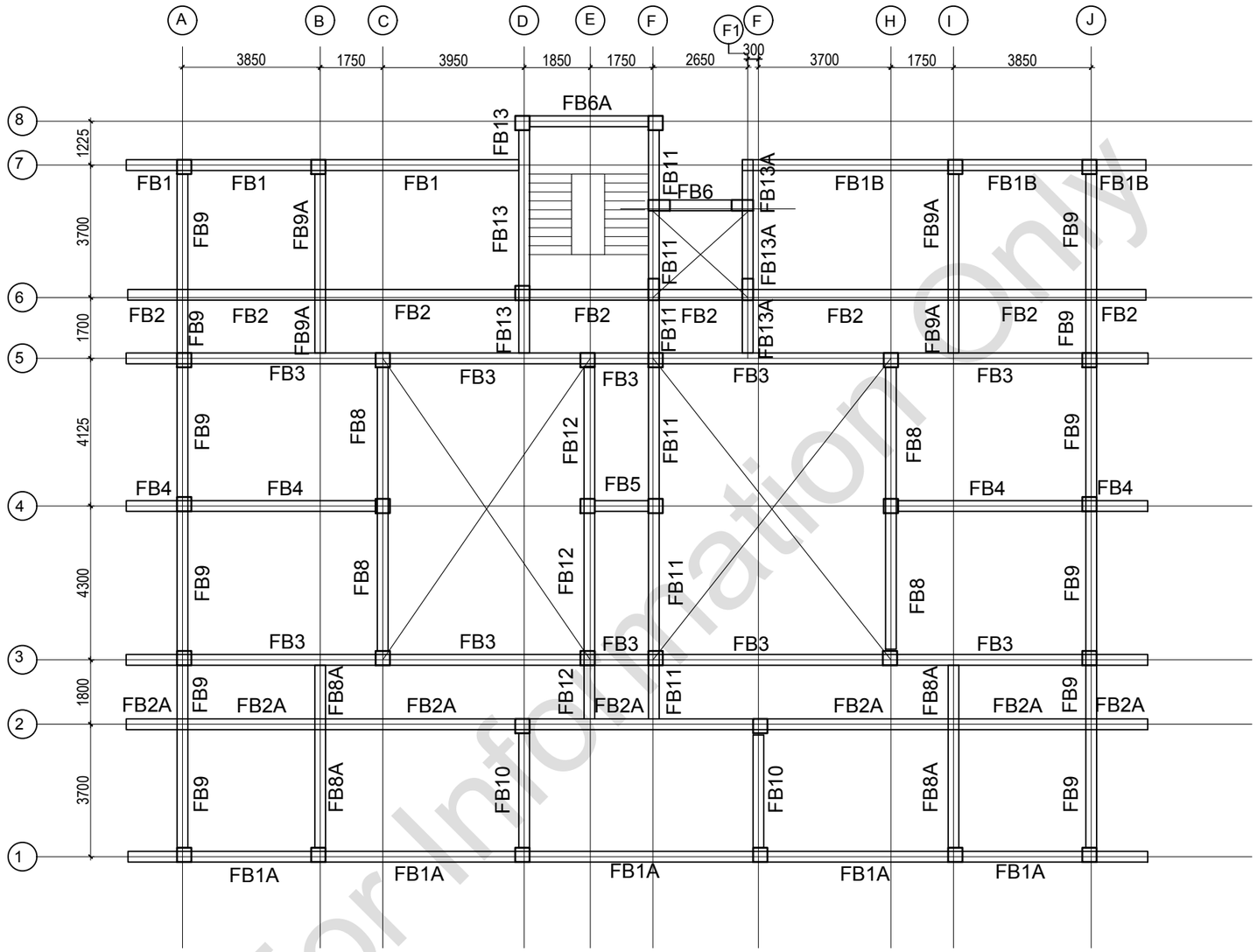
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

FIRST AND SECOND FLOOR BEAM FRAMING PI

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-11 /V04 AUGU



THIRD FLOOR AND ABOVE BEAM FRAMING PLAN.
SCALE 1:150

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

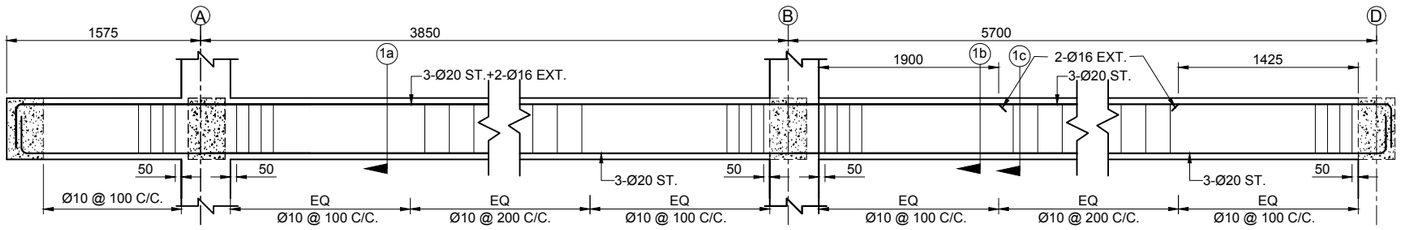
FIRST FLOOR AND ABOVE BEAM LAYOUT PLAN

RPCL DORMITORY

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

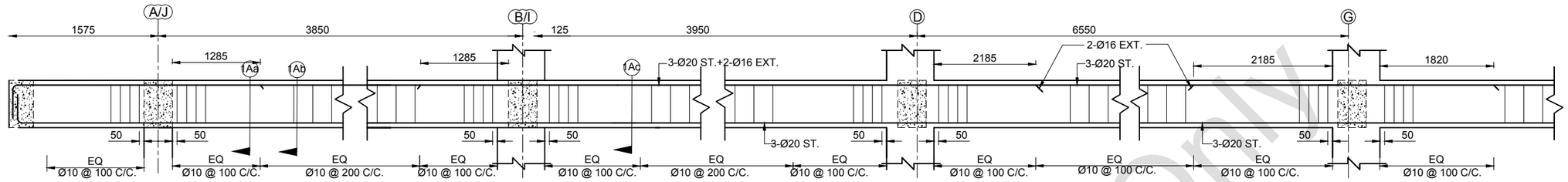
DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-11 /V04 AUGU



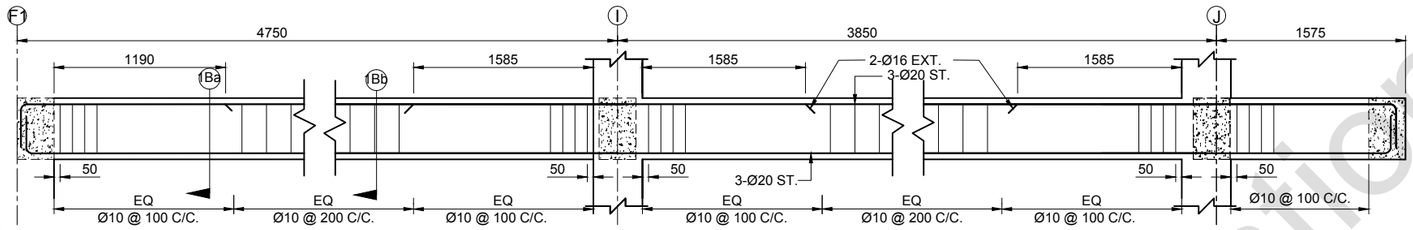
LONG SECTION OF GRADE BEAM-FB1(300X550)

SCALE 1:50



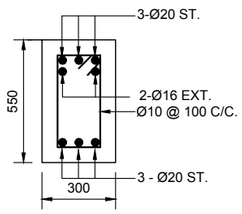
LONG SECTION OF GRADE BEAM-FB1A(300X550)

SCALE 1:50



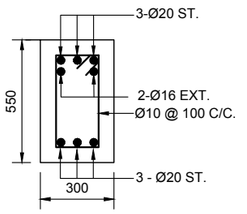
LONG SECTION OF GRADE BEAM-FB1B(300X550)

SCALE 1:50



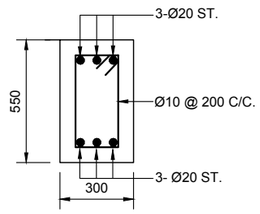
SECTION 1a

SCALE 1:25



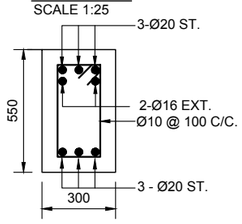
SECTION 1b

SCALE 1:25



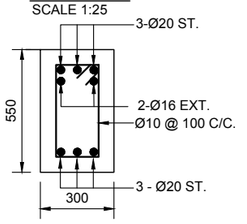
SECTION 1c

SCALE 1:25



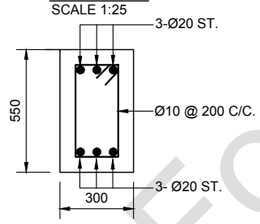
SECTION 1Aa

SCALE 1:25



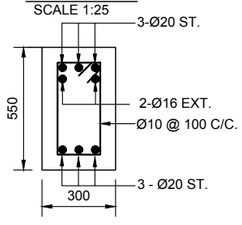
SECTION 1Ab

SCALE 1:25



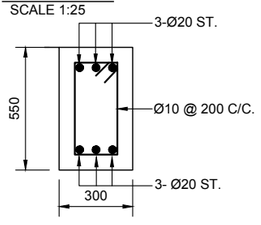
SECTION 1Ac

SCALE 1:25



SECTION 1Ba

SCALE 1:25



SECTION 1Bb

SCALE 1:25

RURAL POWER COMPANY LIMITED

CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

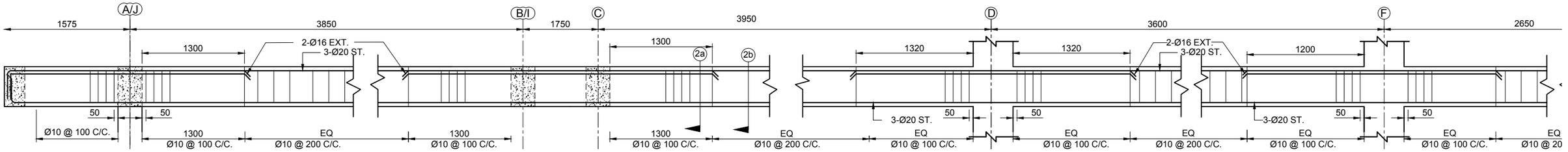
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF FIRST FLOOR AND ABOVE BEAM

RPCL DORMITORY

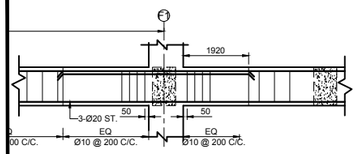
DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-12 /V04 AUGU



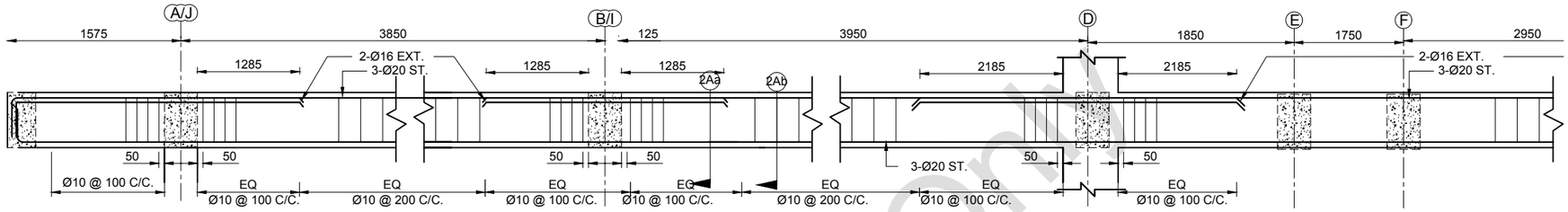
LONG SECTION OF GRADE BEAM-FB2(300X550)

SCALE 1:50



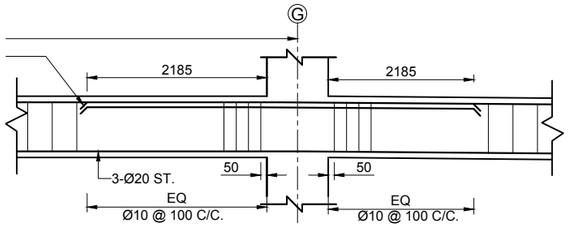
LONG SECTION OF GRADE BEAM-FB2(300X550)

SCALE 1:50



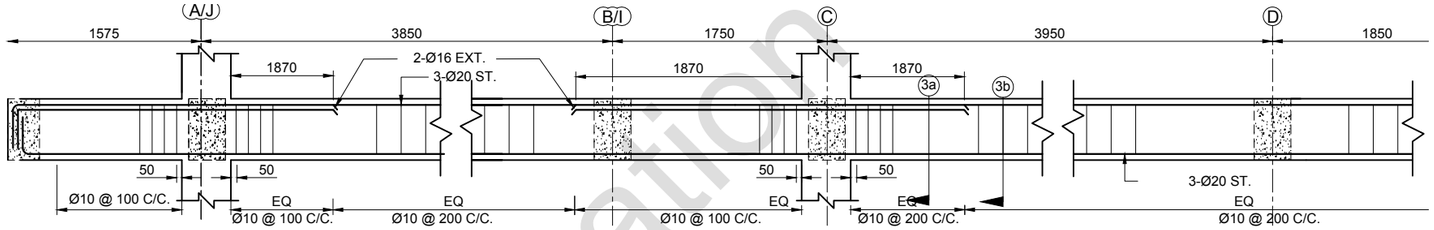
LONG SECTION OF GRADE BEAM-FB2A(300X550)

SCALE 1:50



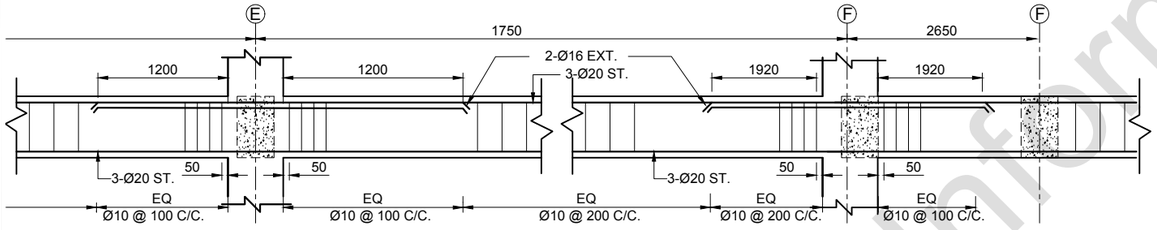
LONG SECTION OF GRADE BEAM-FB2A(300X550)

SCALE 1:50



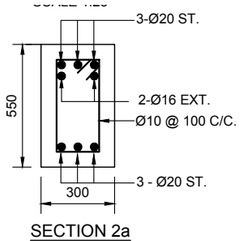
LONG SECTION OF GRADE BEAM-FB3(300X550)

SCALE 1:50



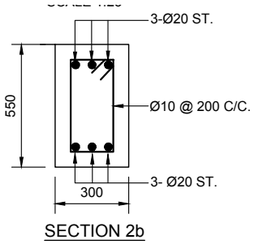
LONG SECTION OF GRADE BEAM-FB3(300X550)

SCALE 1:50



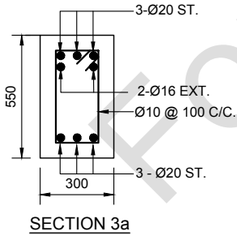
SECTION 2a

SCALE 1:25



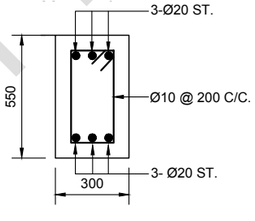
SECTION 2b

SCALE 1:25



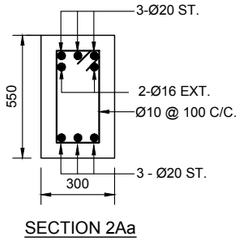
SECTION 3a

SCALE 1:25



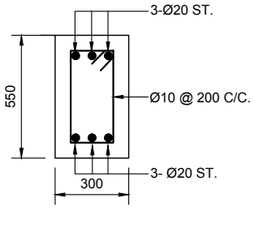
SECTION 3b

SCALE 1:25



SECTION 2Aa

SCALE 1:25



SECTION 2Ab

SCALE 1:25

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: ddc Development Design Consultants Ltd.

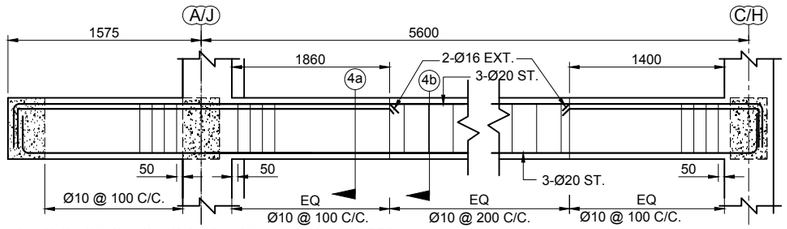
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF FIRST FLOOR AND ABOVE BEAM

RPCL DORMITORY

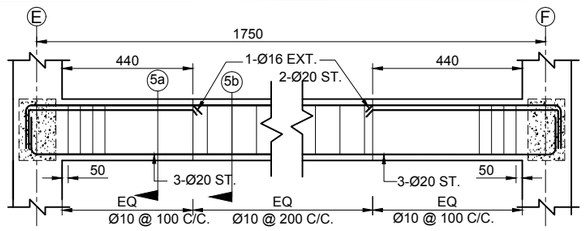
DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-12a /V04 AUGU



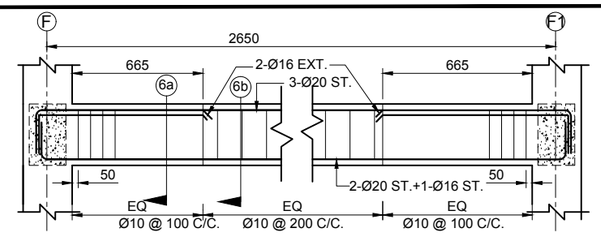
LONG SECTION OF GRADE BEAM-FB4(300X550)

SCALE 1:50



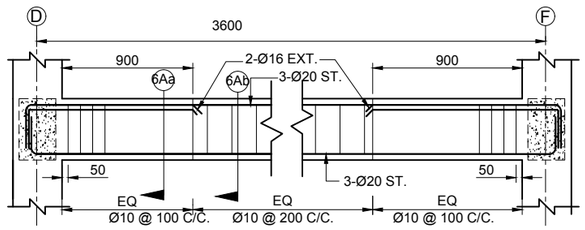
LONG SECTION OF GRADE BEAM-FB5(300X550)

SCALE 1:50



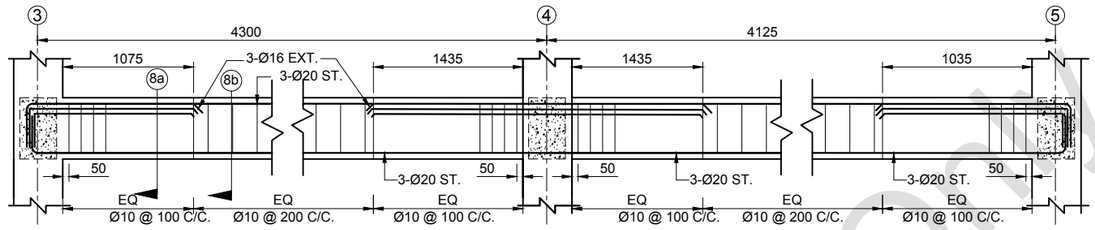
LONG SECTION OF GRADE BEAM-FB6(300X550)

SCALE 1:50



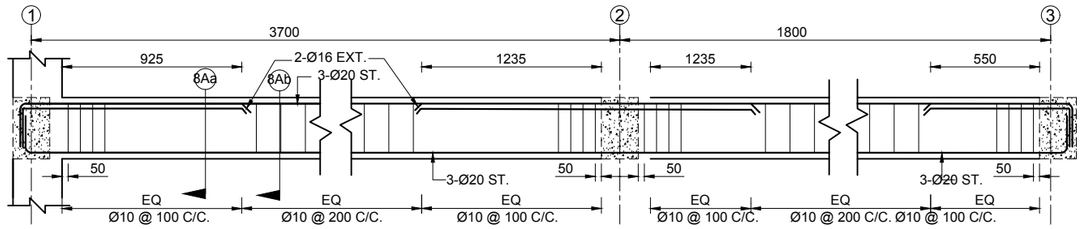
LONG SECTION OF GRADE BEAM-FB6A(300X550)

SCALE 1:50



LONG SECTION OF GRADE BEAM-FB8(300X550)

SCALE 1:50



LONG SECTION OF GRADE BEAM-FB8A(300X550)

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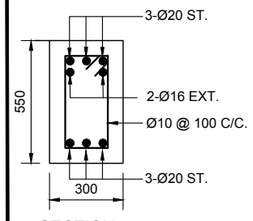
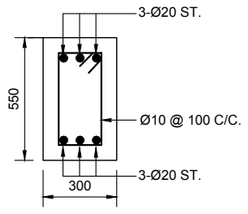


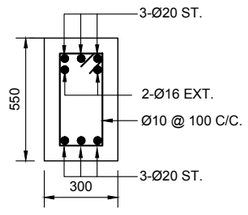
SECTION 4a

SCALE 1:25



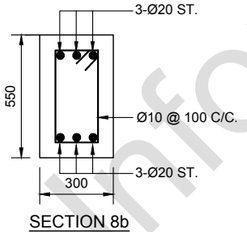
SECTION 4b

SCALE 1:25



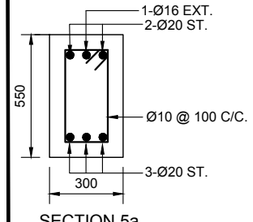
SECTION 8a

SCALE 1:25



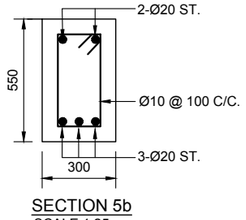
SECTION 8b

SCALE 1:25



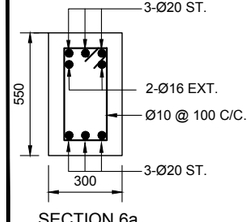
SECTION 5a

SCALE 1:25



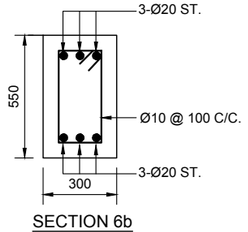
SECTION 5b

SCALE 1:25



SECTION 6a

SCALE 1:25



SECTION 6b

SCALE 1:25

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

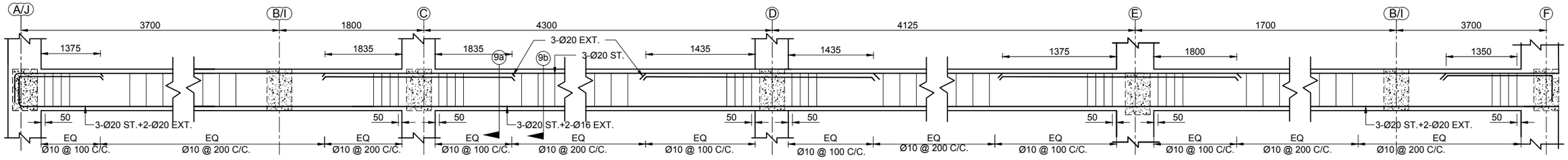
DETAILS OF FIRST FLOOR AND ABOVE BEAM

RURAL POWER COMPANY LIMITED

RPCL DORMITORY

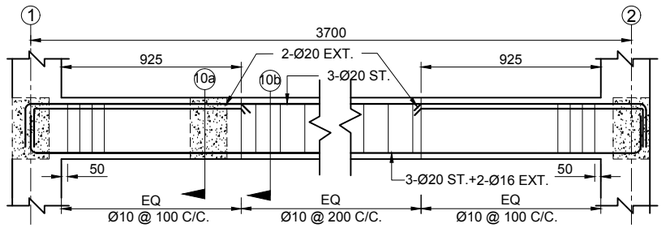
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:	DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
				SOUPTIK BARMAN TIRTHA	DABIR UDDIN
			CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-12b /V04 AUGU



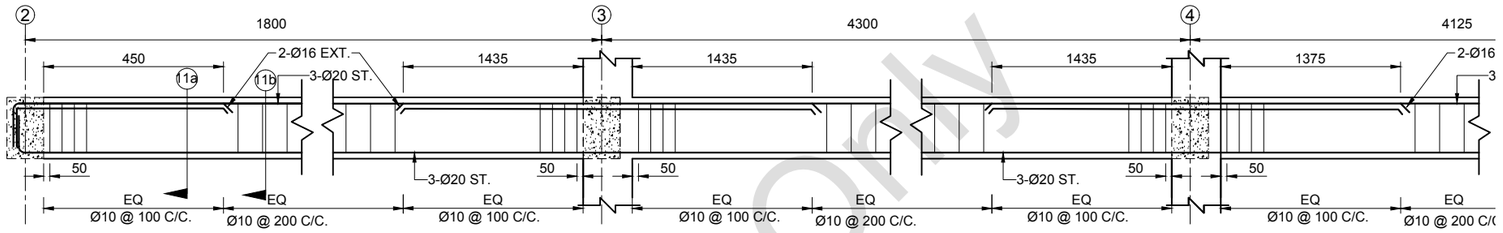
LONG SECTION OF GRADE BEAM-FB9(300X550)

SCALE 1:50



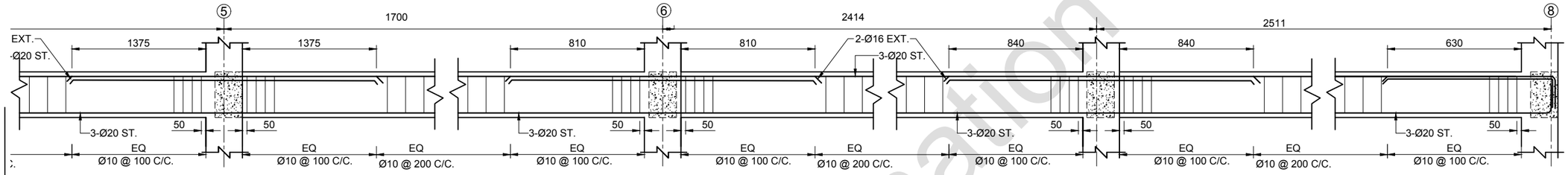
LONG SECTION OF GRADE BEAM-FB10(300X550)

SCALE 1:50



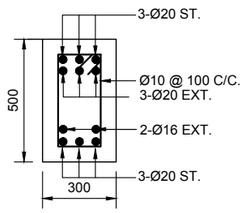
LONG SECTION OF GRADE BEAM-FB11(300X550)

SCALE 1:50



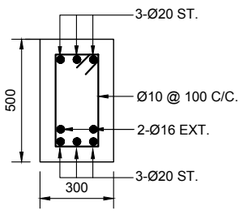
LONG SECTION OF GRADE BEAM-FB11(300X550)

SCALE 1:50



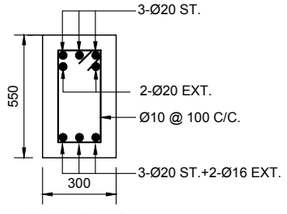
SECTION 9a

SCALE 1:25



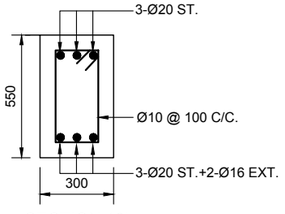
SECTION 9b

SCALE 1:25



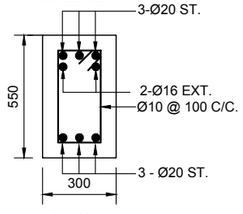
SECTION 10a

SCALE 1:25



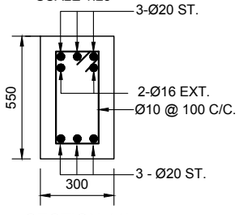
SECTION 10b

SCALE 1:25



SECTION 11a

SCALE 1:25



SECTION 11b

SCALE 1:25

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

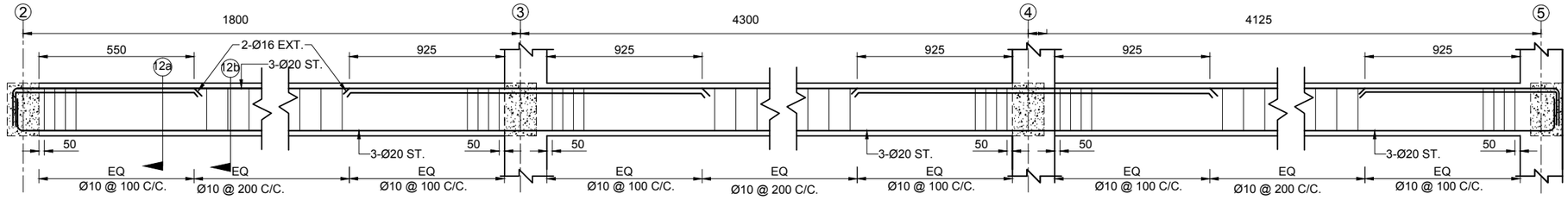
DETAILS OF FIRST FLOOR AND ABOVE BEAM

RURAL POWER COMPANY LIMITED

RPCL DORMITORY

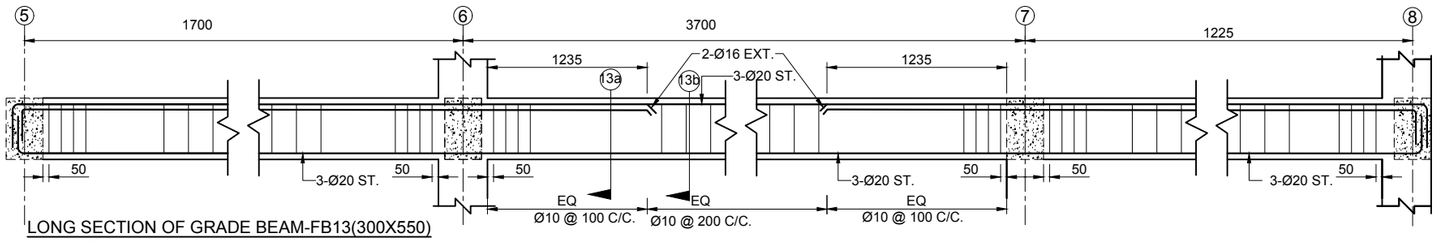
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:	DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDED
				SOUPTIK BARMAN TIRTHA	DABIR UDDIN
			CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting)

DWG NO. -RPCL/STC/HST1/ S-12c /V04 AUGUS



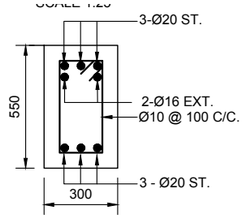
LONG SECTION OF GRADE BEAM-FB12(300X550)

SCALE 1:50



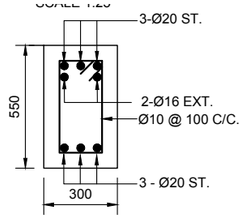
LONG SECTION OF GRADE BEAM-FB13(300X550)

SCALE 1:50



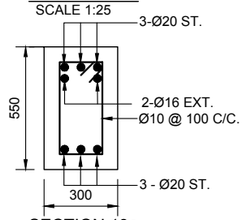
SECTION 12a

SCALE 1:25



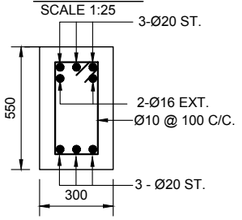
SECTION 12b

SCALE 1:25



SECTION 13a

SCALE 1:25



SECTION 13b

SCALE 1:25

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

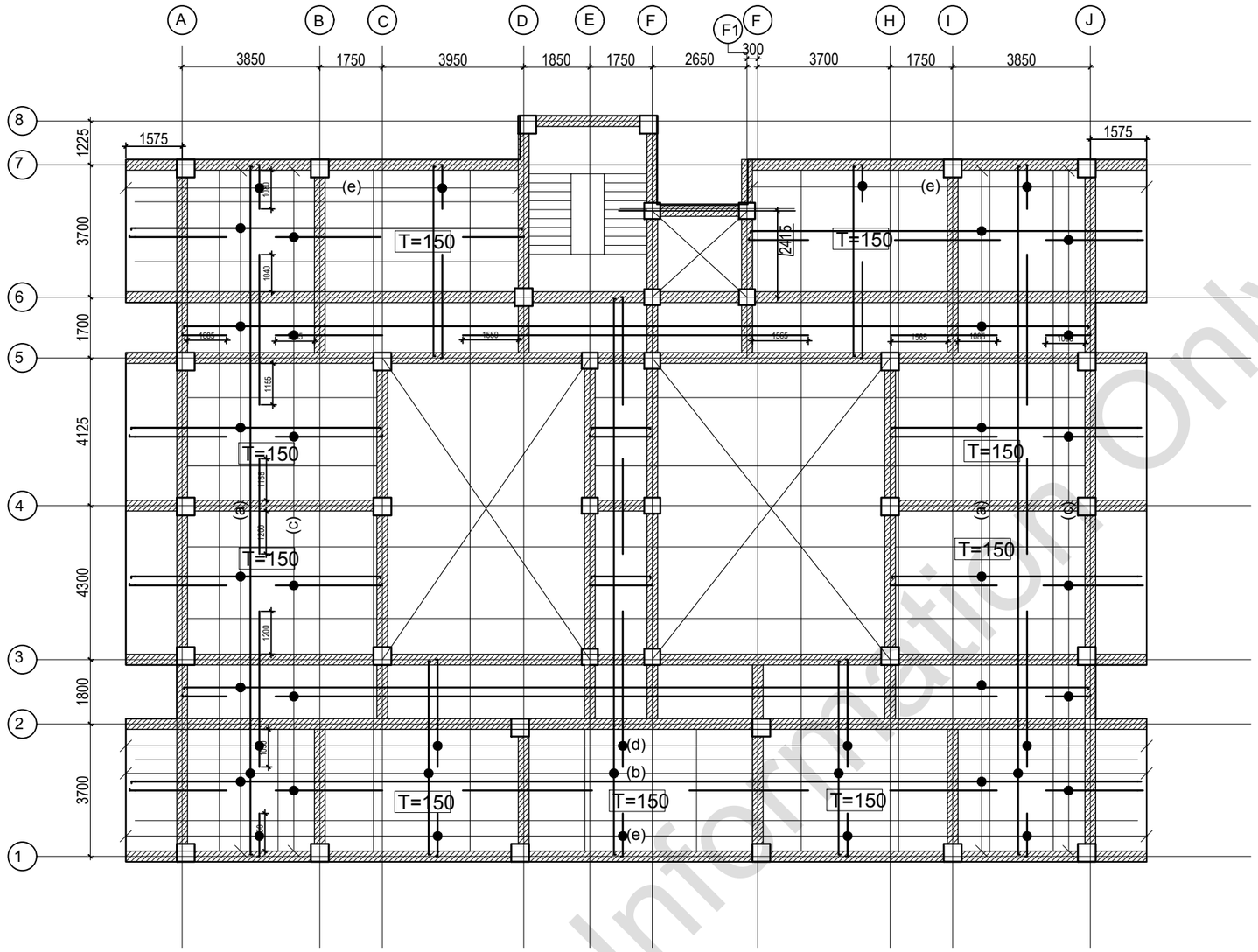
DETAILS OF FIRST FLOOR AND ABOVE BEAM

RURAL POWER COMPANY LIMITED

RPCL DORMITORY

CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:	DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDED
				SOUPTIK BARMAN TIRTHA	DABIR UDDIN
			CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting)

DWG NO. -RPCL/STC/HST1/ S-12d /V04 AUGUS



FIRST FLOOR SLAB DETAILS.
SCALE 1:150

SLAB THICKNESS 100mm EXCEPT MENTIONED

(a)=Ø10 @ 150 C/C ST. BOTTOM
(b)=Ø10 @ 150 C/C ST. BOTTOM
(c)=Ø10 @ 100 C/C AT TOP.
(d)=Ø10 @ 100 C/C AT TOP.
(e)=Ø10 @ 200 C/C AT TOP.
USE Ø10 @ 200 C/C WHERE REQUIRED AS BINDER.

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

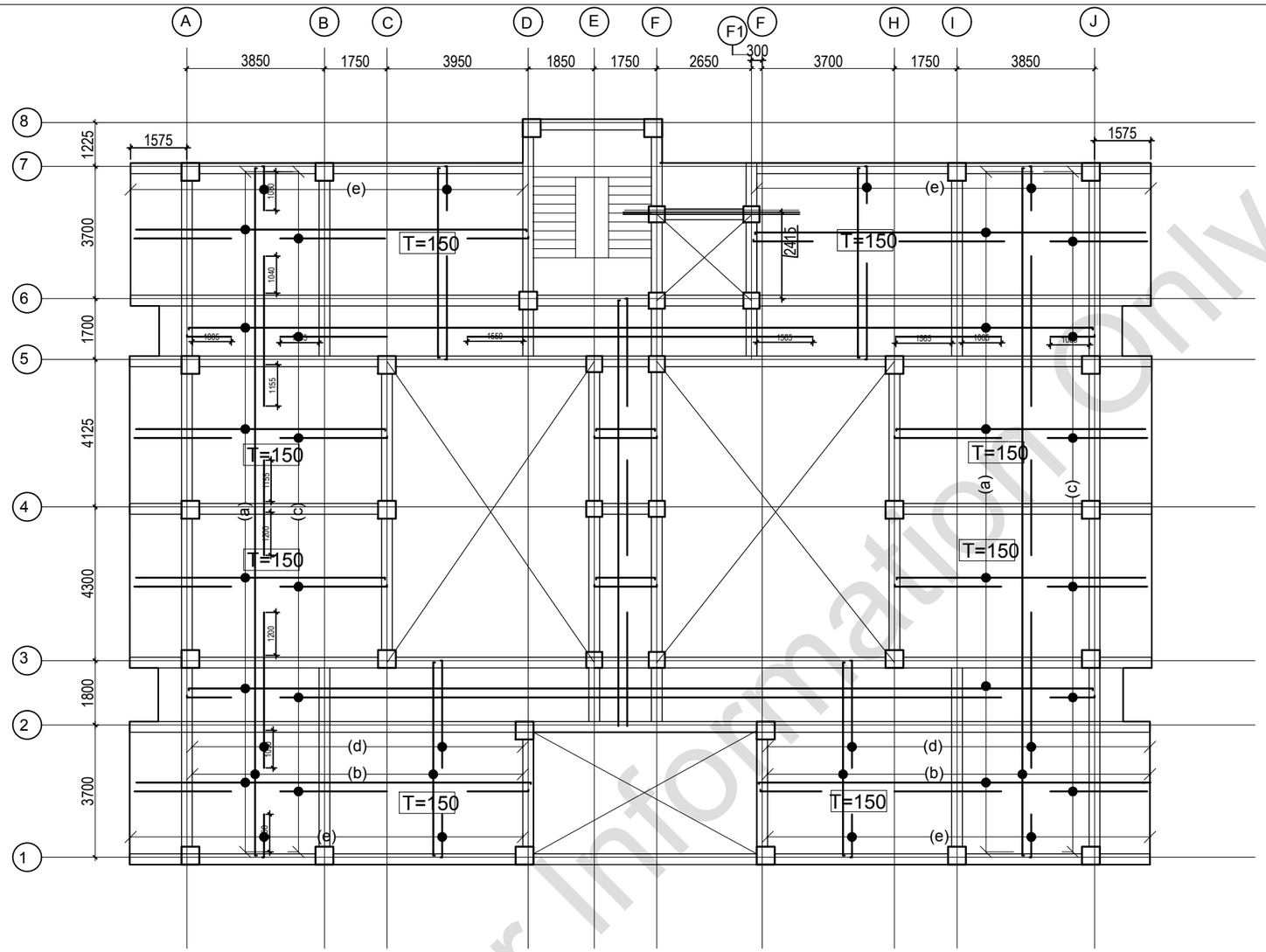
DETAILS OF FIRST FLOOR SLAB

RPCL DORMITORY

RURAL POWER COMPANY LIMITED

CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:	DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDED
				SOUPTIK BARMAN TIRTHA	DABIR UDDIN
			CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting)

DWG NO. -RPCL/STC/HST1/ S-13 /V04 AUGUS



SECOND AND FOURTH FLOOR SLAB DETAILS
SCALE 1:150

SLAB THICKNESS 100mm EXCEPT MENTIONED

(a)=Ø10 @ 150 C/C ST. BOTTOM
(b)=Ø10 @ 100 C/C ST. BOTTOM
(c)=Ø10 @ 100 C/C AT TOP.
(d)=Ø10 @ 100 C/C AT TOP.
(e)=Ø10 @ 200 C/C AT TOP.
USE Ø10 @ 200 C/C WHERE REQUIRED AS BINDER.

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

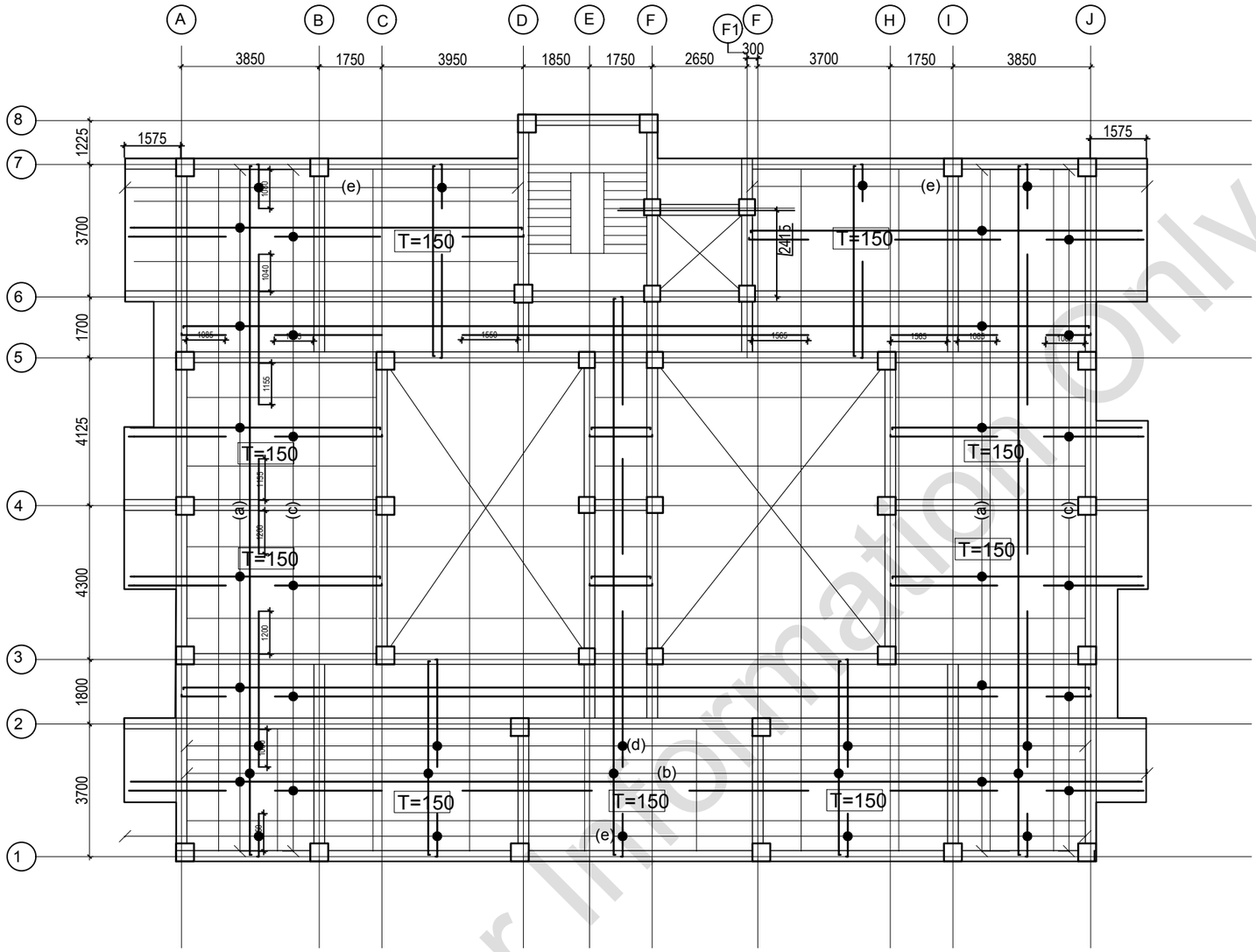
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF SECOND AND FOURTH FLOOR SL

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMEND
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ /V04 AUGU



THIRD AND FIFTH FLOOR SLAB DETAILS

SCALE 1:150

SLAB THICKNESS 100mm EXCEPT MENTIONED

(a)=Ø10 @ 150 C/C ST. BOTTOM
(b)=Ø10 @ 150 C/C ST. BOTTOM
(c)=Ø10 @ 100 C/C AT TOP.
(d)=Ø10 @ 100 C/C AT TOP.
(e)=Ø10 @ 200 C/C AT TOP.
USE Ø10 @ 200 C/C WHERE REQUIRED AS BINDER.

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

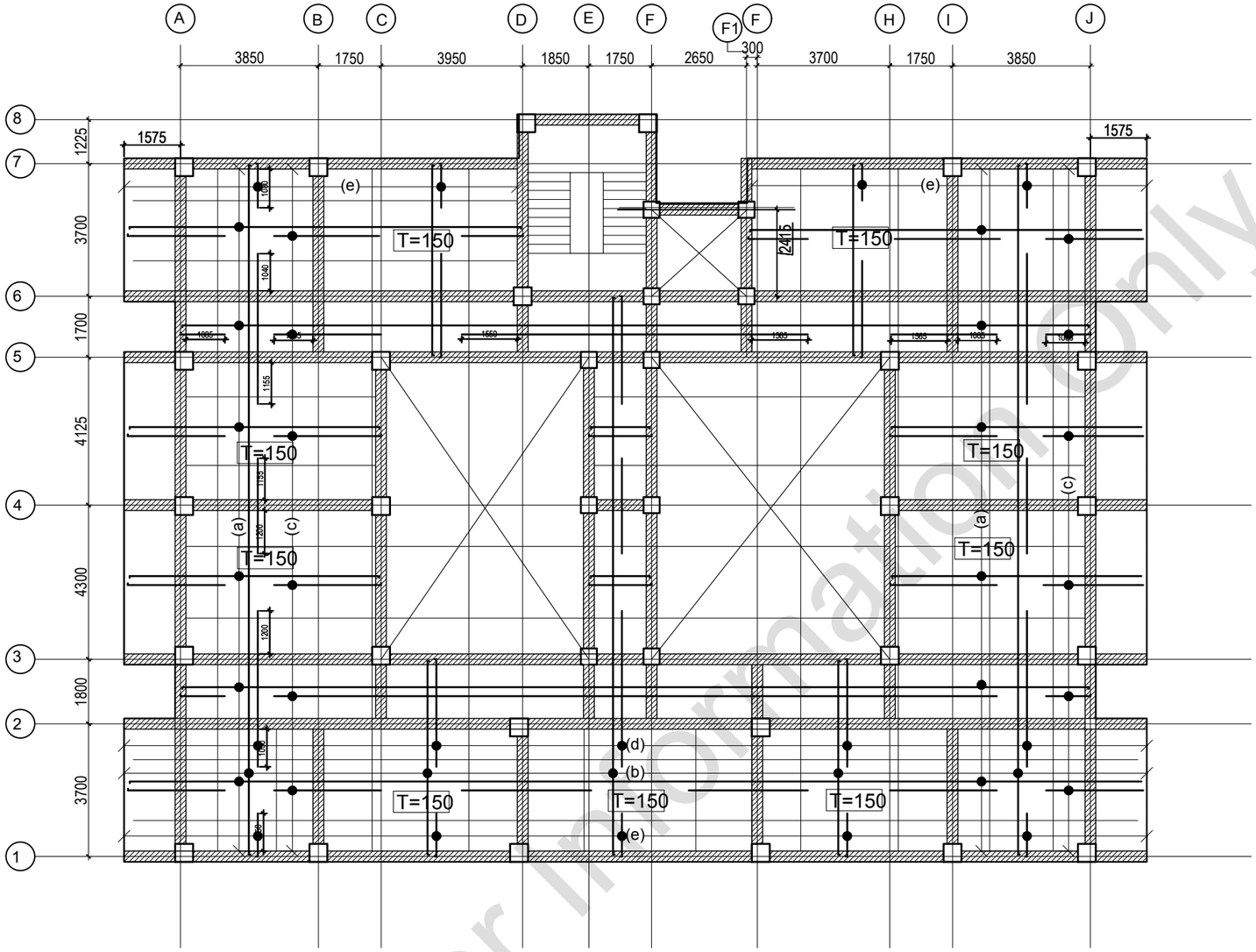
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF THIRD AND FIFTH FLOOR SLAB

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMEND
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

DWG NO. -RPCL/STC/HST1/ S-14 /V04 AUGU



ROOF SLAB DETAILS.
SCALE 1:150

SLAB THICKNESS 100mm EXCEPT MENTIONED

(a)=Ø10 @ 150 C/C ST. BOTTOM
(b)=Ø10 @ 150 C/C ST. BOTTOM
(c)=Ø10 @ 100 C/C AT TOP.
(d)=Ø10 @ 100 C/C AT TOP.
(e)=Ø10 @ 200 C/C AT TOP.
USE Ø10 @ 200 C/C WHERE REQUIRED AS BINDER.

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

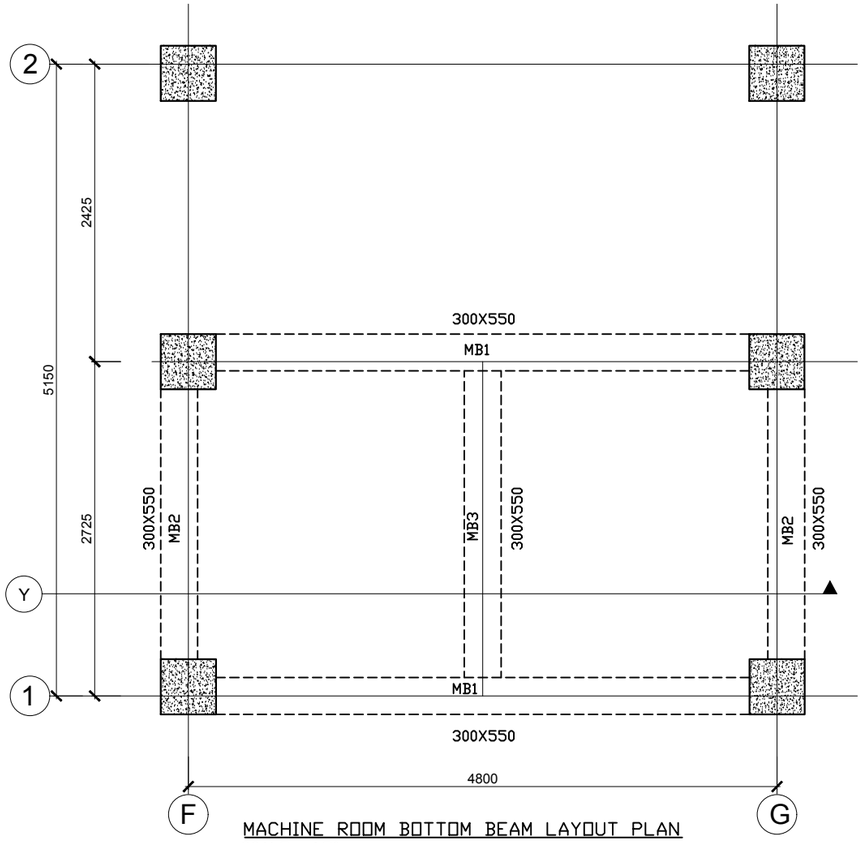
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF ROOF SLAB

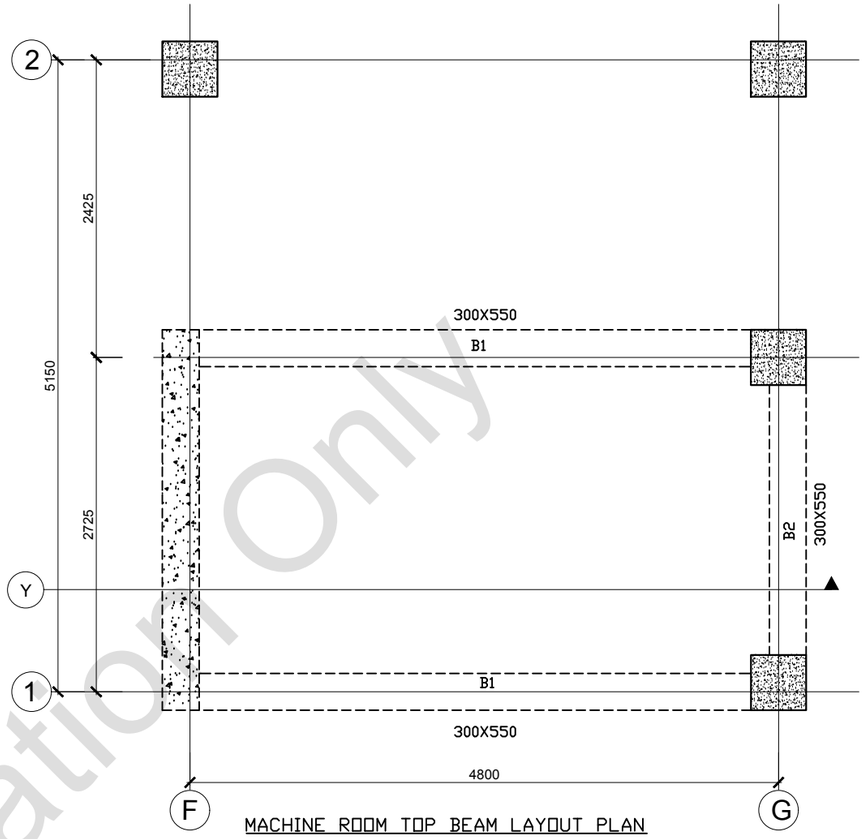
RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMEND
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting

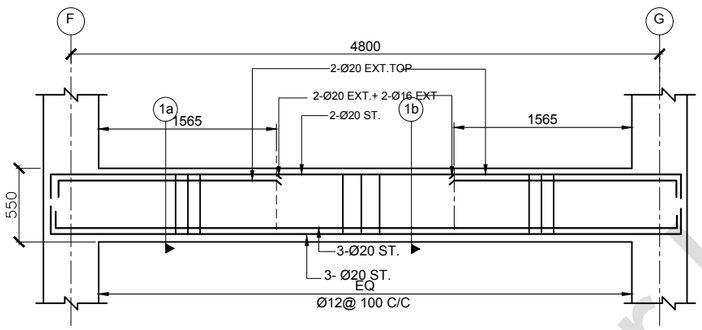
DWG NO. -RPCL/STC/HST1/ /V04 AUGU



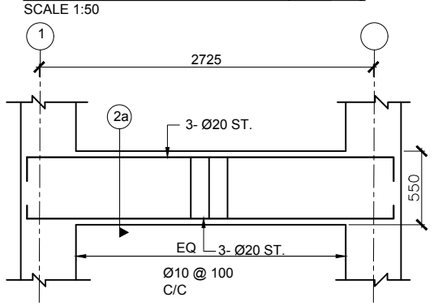
MACHINE ROOM BOTTOM BEAM LAYOUT PLAN
SCALE : 1:50



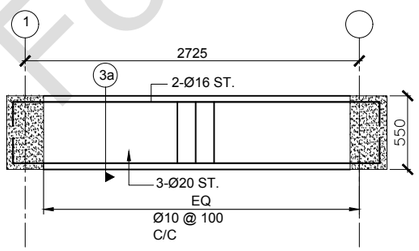
MACHINE ROOM TOP BEAM LAYOUT PLAN
SCALE : 1:50



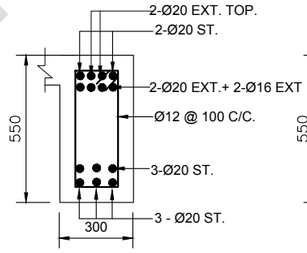
LONG SECTION OF BEAM-MB1 (300X550)
SCALE 1:50



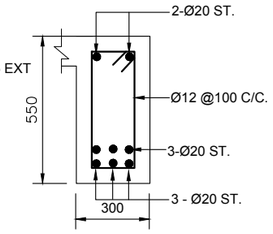
LONG SECTION OF BEAM-MB2 (300X550)
SCALE 1:50



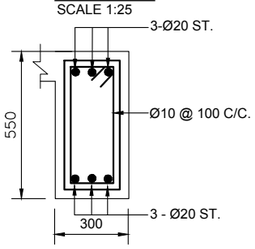
LONG SECTION OF BEAM-MB3 (300X550)
SCALE 1:50



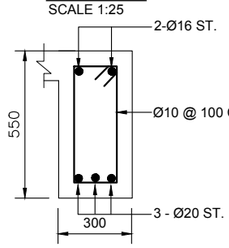
SECTION 1a
SCALE 1:25



SECTION 2b
SCALE 1:25



SECTION 2a
SCALE 1:25



SECTION 3a
SCALE 1:25

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

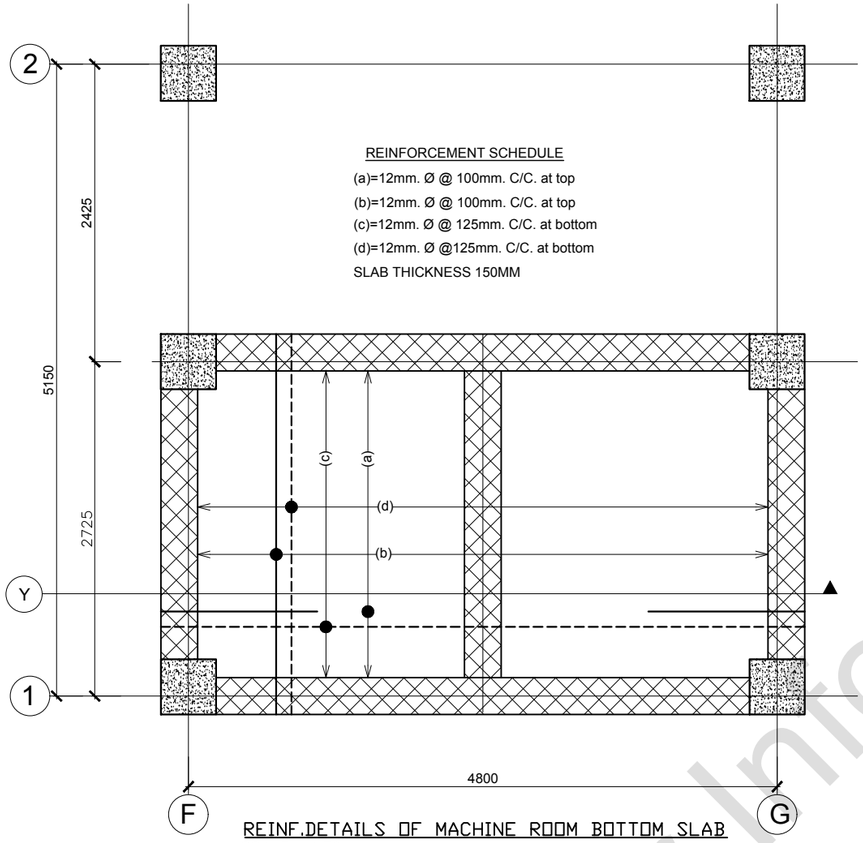
2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF MACHINE ROOM

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting)

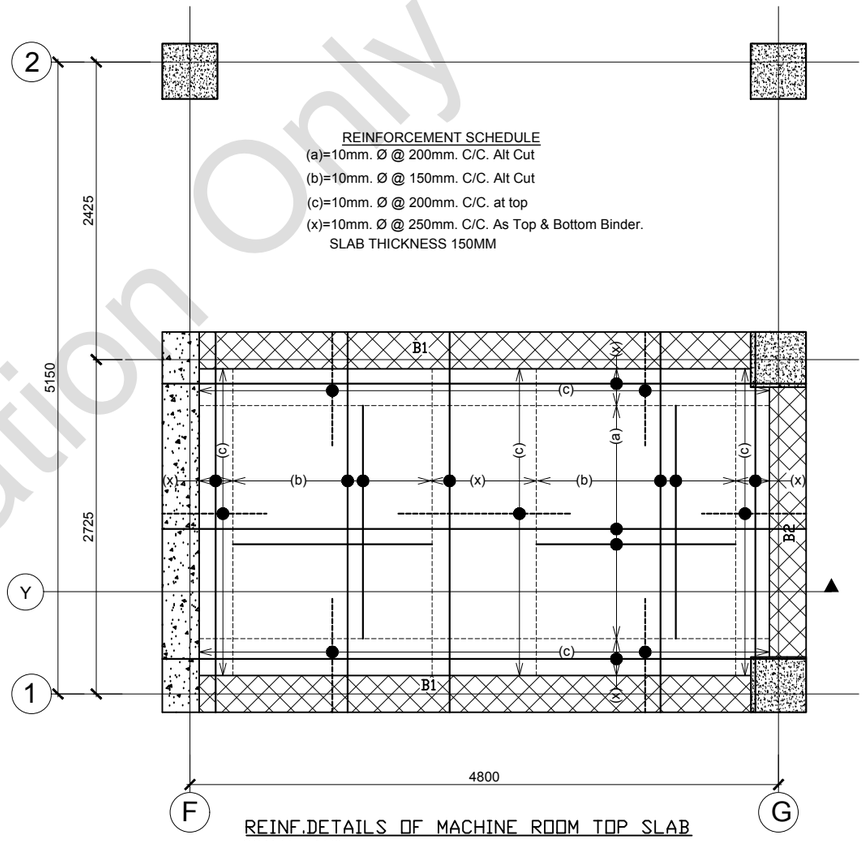
DWG NO. -RPCL/STC/HST1/ S-16 /V04 AUGU



REINFORCEMENT SCHEDULE

(a)=12mm. Ø @ 100mm. C/C. at top
(b)=12mm. Ø @ 100mm. C/C. at top
(c)=12mm. Ø @ 125mm. C/C. at bottom
(d)=12mm. Ø @125mm. C/C. at bottom
SLAB THICKNESS 150MM

REINF.DETAILS OF MACHINE ROOM BOTTOM SLAB
SCALE : 1:50



REINFORCEMENT SCHEDULE

(a)=10mm. Ø @ 200mm. C/C. Alt Cut
(b)=10mm. Ø @ 150mm. C/C. Alt Cut
(c)=10mm. Ø @ 200mm. C/C. at top
(x)=10mm. Ø @ 250mm. C/C. As Top & Bottom Binder.
SLAB THICKNESS 150MM

REINF.DETAILS OF MACHINE ROOM TOP SLAB
SCALE : 1:50

RURAL POWER COMPANY LIMITED		
CHECKED & REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:

CONSULTANT: Development Design Consultants Ltd.

2x660 MW Coal Based Ultra Super-Critical Thermal Power Project
In Patuakhali District, Bangladesh

DETAILS OF MACHINE ROOM

RPCL DORMITORY

DRAWN BY:	DESIGNED BY:	CHECKED & RECOMMENDE
	SOUPTIK BARMAN TIRTHA	DABIR UDDIN
CAD OPERATOR	STRUCTURAL ENGINEER	TEAM LEADER (Acting)

DWG NO. -RPCL/STC/HST1/ S-16a /V04 | AUGU

FORMAT

LOGO

[Insert Full Contact Details of the Procuring Entity]

Commencement of Works

Office Memo No: Date:

To:

[Name of Contractor]
[Address)

Contract Reference:

Pursuant to GCC Sub Clause 39.1 of the above mentioned Contract Agreement, this is to notify you that the following precedent conditions have been duly fulfilled:

(i) the Contract Agreement has been signed;
(ii) the possession of the Site has been given; and
(iii) the advance payment has been made*(delete if not appropriate).*

You are therefore requested to:

1. Commence execution of the Works, in accordance with GCC Sub Clause 1.1(nn), within*(specify date)*;
2. Submit Insurance Policy Documents, in accordance with GCC Sub Clause 36.2, within (*specify date*)
3. Submit Programme of Works, in accordance with GCC Sub Clause 41.1, within (*specify date*)

Signed

Duly authorised to sign for and on behalf of *[name of Procuring Entity]*

Date:

FORMAT

LOGO

[Insert Full Contact Details of the Procuring Entity]

CONTRACT AMENDMENT

Contract No.	
Amendment No.	
Approval Reference No.	

Contract No. [insert number/year] by and between the [insert Procuring Entity's name] and [insert Contractor's legal title] for the contract named [insert name of the Works and physical services] is amended as follows:

1. GCC Clause [insert clause no], is hereby revised as _____

2. GCC Clause [insert clause no], is hereby revised as _____

and so on .

The effective date of this Amendment is [insert effective date] or upon execution whichever is later.

ALL OTHER TERMS AND CONDITIONS OF THE ORIGINAL CONTRACT SHALL REMAIN IN FULL FORCE AND EFFECT

THIS AMENDMENT, consisting of [insert number] page(s) and [insert number] attachment(s), is executed by the persons signing below who warrant that they have the authority to execute this Amendment under the original Contract.

IN WITNESS WHEREOF, the Procuring Entity and the Contractor have signed this Amendment.

[Contractor's Authorized Signatory]	[Procuring Entity's Authorized Signatory]
Signature	Signature
Title Date	Title Date

FORMAT

LOGO

[Insert Full Contact Details of Issuing Authority]

Office Memo no: _____ Date: _____

COMPLETION CERTIFICATE

01	Procuring Entity Details		
	(a) Division	:	
	(b) Circle/Directorate	:	
	(c) Zone/Region	:	
	(d) Others (*specify*)	:	
02	Name of Works	:	
03	Contract No	:	
04	Contractor's Legal Title	:	
05	Contractor's Contact Details	:	
06	Contractor's Trade License/Enlistment/Registration Details	:	
07	Reference to NOA with Date	:	
08	Original Contract Price as in NOA	:	
09	Final Contract Price as Executed	:	
10	Original Contract Period		
	(a) Date of Commencement	:	
	(b) Date of Completion	:	
11	Actual Implementation Period		
	(a) Date of Actual Commencement	:	
	(b) Date of Actual Completion	:	
12	Days/Months Contract Period Extended	:	
13	Amount of Bonus for Early Completion	:	
14	Amount of LD for Delayed Completion	:	
15	Physical Progress in Percent (*in terms of value*)	:	
16	Financial Progress in Amount (*in terms of payment*)	:	
17	Special Note (*if any*)	:	

Certified that the Works under the Contract has been executed and completed in all respects in strict compliance with the provisions of the Contract including all plans, designs, drawings, specifications and all modifications thereof as per direction and satisfaction of the Project Manager/Engineer-in Charge/Other (*specify*). All defects in workmanship and materials reported during construction have been duly corrected.

Name and Signature of the Issuing Authority with Designation

please turn over

Details of Works Completed

Contractor: [insert legal title]		
No	**Major Components of Works**	**Total Value (in Contract Currency)**

Joint Venture

[delete, if not appropriate]

Leading Partner: [insert legal title]		
No	**Components/Activities [reference drawn to JV Partner Information]**	**Value (in Contract Currency)**

Co-partner: [insert legal title]		
No	**Components/Activities [reference drawn to JV Partner Information]**	**Value (in Contract Currency)**

Co-partner: [insert legal title]		
No	**Components/Activities [reference drawn to JV Partner Information]**	**Value (in Contract Currency)**

Note: Figures shown must correspond to Total Value

Sub-contractor

[delete, if not appropriate]

Named Sub-contractor: [insert legal title] [delete, if not appropriate]		
No	**Components/Activities [reference drawn to Sub-contractor Information]**	**Value (in Contract Currency)**
Nominated Sub-contractor: [insert legal title] [delete, if not appropriate]		
No	**Components/Activities [reference drawn to PCC of Contract Document]**	**Value (in Contract Currency)**

Name and Signature of the Issuing Authority with Designation

Tenderer's Past Performance processing (Form PW3-PPP)

Invitation for Tender No: *IFT No]*

Tender Package No: *[Package No]*

Lot No (*when applicable*) *[Lot No)]*

Date of IFT Publication:

Name of the Tenderer:

Name of JV Partners and their business share (If the tender is JV):

Official Cost Estimate of the tender:

(A) List of Successfully Completed Contract during the last 5 years from IFT Date under the organization of the procuring entity inviting tender and business share value of the tenderer is less than or equal to 75% of the official cost estimate of the tender.

SL No	Name of Works	Value of work
1		
2		
3		

[In case of tenderer is a JV, the list is the aggregation of the completed contracts of all JV partners]

(B) List of On-Going works / Current Commitment of the tenderer under any Organization.

SL No	Name of On-Going Works Contract and Current Commitments	Business Share Value of work
1		
2		
3		

[In case of tenderer is a JV, the list is the aggregation of the on-going works/current commitments of all JV partners]

Tenderer's Past Performance Evaluation (Form PW3-PPE)

Invitation for Tender No:

Tender Package No:

Lot No (*if applicable*):

Date of IFT Publication:

Official Cost Estimate of the tender:

$\text{Score } 1 = \frac{A}{B} \times 140$	$\text{Score } 2 = \frac{C}{D} \times 100$	$\text{Score } 3 = \frac{E}{F} \times 60$
A= Number of Completed Contracts of the Tenderer B= Highest Number of Completed Contracts among the Tenderers	C= Value of Completed Contracts of the Tenderer D= Highest Value of Completed Contracts among the Tenderers	E= Value of On-Going Contracts of the Tenderer F= Highest Value of On-Going Contracts among the Tenderers

B=
D=
F=

SL No	Name of the Tenderer	A	Score 1 =140* (A/B)	C	Score 2 =100* (C/D)	E	Score 3 =60* (E/F)	Total Score= Score 1+ Score 2+ Score 3
1								
2								
3								

Winner:
Notes:

1. **In case of the Tenderer is a JV, the Contract Number and the value shall be multiplied by the business share of the JV partner and added.**
2. **If the total score of all the tenderer is zero then the tender shall be recommended for re-tender.**
3. **In case of highest equal total score, the winner shall be selected according to score 1, If score 1 is equal then the winner shall be selected according to score 2. Otherwise all tenders shall be rejected for retender.**

FORMAT

Invitation for Tenders (IFT)

*The **Invitation for Tenders (IFT)** is a copy of the standard format as appears on the website and used for published advertisement that provides relevant and essential information to help Tenderers to decide whether or not to participate in the particular Tender. This is provided in the Tender Document for information only. This should not be included in the FINAL DOCUMENT.*

Invitation for Tenders

[This is the website format and as used for published advertisement.
It is included in this document for information only]

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH						
1	Ministry/Division	< select >				V
2	Agency	< select >				V
3	Procuring Entity Name	< type in name >				
4	Procuring Entity Code	Not used at present				
5	Procuring Entity District	< select >		V		
6	Invitation for	< select >	V	< select >	V	< select > V
7	Invitation Ref No	< type in name >				
8	Date	< select >		V		
KEY INFORMATION						
9	Procurement Method	< select >		V	< select >	V
FUNDING INFORMATION						
10	Budget and Source of Funds	< select >		V		
11	Development Partners (if applicable)	< type in name >				
PARTICULAR INFORMATION						
12	Project / Programme Code (if applicable)	< use MOF code >				
13	Project / Programme Name (if applicable)	< use MOF name >				
14	Tender Package No.	< type in name >				
15	Tender Package Name	< type in name >				
		Date				
16	Tender Publication Date	< select >	V			
17	Tender Last Selling Date *[up to the day prior to the day of Deadline for Submission]*	< select >	V			
		Date		**Time**		
18	Tender Closing Date and Time	< select >	V	< select >	V	
19	Tender Opening Date and Time	< select >	V	< select >	V	
20	Name & Address of the office(s)	**Address**				
	- Selling Tender Document (Principal)	< type in name >				
	- Selling Tender Document (Others)	< type in name >				
NO CONDITIONS APPLY FOR SALE , PURCHASE OR DISTRIBUTION OF TENDER DOCUMENTS						
	- Receiving Tender Document	< type in name >				
	- Opening Tender Document	< type in name >				
21	Place / Date / Time of Pre-Tender Meeting (Optional)	< type in name >				
		Date		**Time**		
		< select >	V	< select >	V	
INFORMATION FOR TENDERER						
22	Brief Eligibility and Qualification of Tenderer	< type in name >				
23	Brief Description of Works	< type in name >				
24	Brief Description of Physical Services	< type in name >				
25	Price of Tender Document (Tk)	< type in price >				

	Lot No	Identification of Lot	Location	Tender Security Amount (Tk)	Completion Time in Weeks/Months
26	1	< type in name >	< type in name >	<type in>	<type in>
27	2	< type in name >	< type in name >	<type in>	<type in>
28	3	< type in name >	< type in name >	<type in>	<type in>
29	4	< type in name >	< type in name >	<type in>	<type in>

30	Name of Official Inviting Tender	< type in name >		
31	Designation of Official Inviting Tender	< type in name >		
32	Address of Official Inviting Tender	< type in name >		
33	Contact details of Official Inviting Tender	< Tel. No. >	< Fax No. >	< e-mail >
34	The Procuring Entity reserves the right to reject all the Tenders or annul the Tender proceedings			

<select> : these fields are "pop-up" fields and the procuring entity will only have to select the correct name, address or date in order to complete the form.<type in name> : these fields are to be completed by typing in the relevant data.

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.