

MINISTRY OF LOCAL GOVERNMENT, CHIEFTAINCY & RELIGIOUS AFFAIRS



TENDER DOCUMENTS

COMPLETION OF 1NO. 6-UNIT TEACHERS BUNGALOW AT TAFI MADOR

AFADZATO SOUTH DISTRICT ASSEMBLY

VR/ASDA/WKS/RFQ/DACF/082/2026

Supervising Department

The District Works Department

Afadzato South District Assembly

Post Office Box 645

Hohoe

JUNE, 2026

**GOVERNMENT OF THE REPUBLIC OF GHANA
AFADZATO SOUTH DISTRICT ASSEMBLY**

LIST OF BIDDING DOCUMENT

SECTION 0	INVITATIONS(S) TO BID
SECTION I	INSTRUCTIONS TO BIDDERS
SECTION II	BIDDING DATA SHEET
SECTION III	GENERAL CONDITION OF CONTRACT (FIDIC'S SHORT FORM)
SECTION IV	PARTICULAR CONDITIONS
SECTION V	SPECIFICATIONS
SECTION VI	FORM OF BID APPENDIX TO BID AND FORM OF BID SECURITY
SECTION VII	BILL OF QUANTITIES
SECTION VIII	DRAWINGS
SECTION IX	FORM OF AGREEMENT
SECTION X	SCHEDULES OF SUPPLEMENTARY INFORMATION
SECTION XI	FORMS OF TENDER AND PERFORMANCE SECURITIES

The contractor is to check the content of the **TENDER DOCUMENT** received against the above listing and return a copy of this sheet as confirmation of their receipt to the Employer.

Name of Contract: **COMPLETION OF 1 NO. 6-UNIT TEACHERS BUNGALOW AT TAFI MADOR**

I certify that the abovementioned documents have been received by the bidder and confirmed by;

Name of Contractor:

Signature: Date:

**GOVERNMENT OF THE REPUBLIC OF GHANA
AFADZATO SOUTH DISTRICT ASSEMBLY**

SECTION

INVITATION TO TENDER

Date: Wednesday 3rd June, 2026

Bid No.: VR/ASDA/WKS/RFQ/DACF/082/2026

1. The Afadzato South District Assembly intends to apply part of its budgetary allocation from the **District Assemblies Common Fund (DACF)** to fund procurement of the following works and hereby request your company to submit quotation:
 - **COMPLETION OF 1 No. 6- UNIT TEACHERS BUNGALOW AT TAFI MADOR**
2. The Afadzato South District Assembly hereby request your company to submit quotation for the above works at Afadzato South.
3. The details of work are as specified in the drawings and Activity Schedule (Bill of Quantities).
4. Tendering will be conducted through the Request For Quotation (RFQ) procedures as specified in the Public Procurement Act 2003 (Act 663), as amended by Act 914 of 2016, Act 1139 of 2025, the Public Procurement (Thresholds for Approving Authorities and Procurement Methods) Regulations, 2025 (L.I. 2516) and in the guidelines of the Public Procurement Authority of Ghana.
5. Your quotation shall be accompanied with the following document:
 - **Valid Ministry of Water Resource, Works and Housing Classification (D3,K3)**
 - **Valid Ghana Revenue Authority Certificate,**
 - **Valid SSNIT Clearance Certificate,**
 - **Valid Labour Certificate,**
 - **Valid Company Registration Certificate (Certificate of Incorporation and Commencement),**
 - **Power of Attorney,**
 - **Valid certificate of Registration from Public Procurement Authority,**
 - **Company Profile including key personnel competencies,**
 - **Evidence of similar works executed and equipment holding and capacity**
6. Completed Tender Documents are to be submitted electronically through the Government of Ghana Electronic Procurement System. on or before **11:00am (Local time) on Friday, 19th June, 2026** at which day and time the submitted Tenders shall be opened in the presence of Tenderers and / or their representatives who may choose to attend. Electronic tendering **shall** be

permitted. Tenders shall be valid for a period of **60 days** after the deadline of Tender submission. Late Tenders will be rejected.

Address for information, inspection, purchase and submission of Tender Document

**Office of the District Coordinating Director
Afadzato South District Assembly
Post Office Box 645
Hohoe - Volta Region**

Section I. Instructions to Tenderers

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Instructions to Tenderers

A. General

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|------------------------------|---|
| 1. Scope of Tender | <p>1.1 The Employer as defined in the Contract Data, invites Tenders for the construction of Works, as described in the Contract Data. The name and identification number of the Contract is provided in the Contract Data.</p> <p>1.2 The successful Tenderer will be expected to complete the Works by the Intended Completion Date specified in the Contract Data.</p> |
| 2. Source of Funds | <p>2.1 The Procurement Entity (hereinafter called “Employer”) named in the Tender Data Sheet shall fund this procurement from part of its budgetary allocation toward the realization of the project named in the TDS.</p> <p>2.2 Payments will be made only at the request of the Employer and upon approval by a designated official of the Republic of Ghana in accordance with the terms and conditions of the contract between the Purchaser and the Supplier (hereinafter called the Contract), and will be subject in all respects to the Financial Administration Act, 2002 and the Financial Administration Regulations, 2002 of the Republic of Ghana. No party other than the Supplier shall derive any rights from the Contract or have any claim to the funds.</p> |
| 3. Eligible Tenderers | <p>3.1 This Invitation for Tenders is open to all Tenderers from eligible countries as defined in the Procurement Guidelines of the Procurement Board of the Republic of Ghana. Any materials, equipment, and services to be used in the performance of the Contract shall have their origin in eligible source countries.</p> <p>3.2 All Tenderers shall provide in Section 2, Forms of Tender and Qualification Information, a statement that the Tenderer (including all</p> |

members of a joint venture and subcontractors) is not associated, nor has been associated in the past, directly or indirectly, with the consultant or any other entity that has prepared the design, specifications, and other documents for the Project or being proposed as Project Manager for the Contract. A firm that has been engaged by the Employer to provide consulting services for the preparation or supervision of the Works, and

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any of its affiliates, shall not be eligible to Tender.

- 3.3 Government-owned enterprises in the country may only participate if they are legally and financially autonomous, and operate under commercial law.

- 4. Qualification of the Tenderer**
- 4.1 All Tenderers shall provide in Section 2, Forms of Tender and Qualification Information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.
- 4.2 In the event that prequalification of potential Tenderers has been undertaken, only Tenders from prequalified Tenderers will be considered for award of Contract. These qualified Tenderers should submit with their Tenders any information updating their original prequalification applications or, alternatively, confirm in their Tenders that the originally-submitted prequalification information remains essentially correct as of the date of Tender submission. The update or confirmation should be provided in Section 2.
- 4.3 If the Employer has not undertaken prequalification of potential Tenderers, all Tenderers shall include the following information and documents with their Tenders in Section 2, unless otherwise stated in the Tender Data:
- (a) copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the Tender to commit the Tenderer;
 - (b) total monetary value of construction work performed for each of the last five years;
 - (c) experience in works of a similar nature and size for each of the last five years, and details of work under way or contractually committed; and clients who may be contacted for further information on those contracts;

- (d) major items of construction equipment proposed to carry out the Contract;
- (e) qualifications and experience of key site management and

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technical personnel proposed for the Contract;

- (f) reports on the financial standing of the Tenderer, such as profit and loss statements and auditor's reports for the past five years;
- (g) evidence of adequacy of working capital for this Contract (access to line(s) of credit and availability of other financial resources);
- (h) authority to seek references from the Tenderer's bankers;
- (i) information regarding any litigation, current or during the last five years, in which the Tenderer is involved, the parties concerned, and disputed amount; and
- (j) proposals for subcontracting components of the Works amounting to more than 10 percent of the Contract Price.

4.4 Tenders submitted by a joint venture of two or more firms as partners shall comply with the following requirements, unless otherwise stated in the Tender Data:

- (a) the Tender shall include all the information listed in Sub-Clause 4.3 above for each joint venture partner;
- (b) the Tender shall be signed so as to be legally binding on all partners;
- (c) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;
- (d) one of the partners will be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all partners of the joint venture; and
- (e) the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

4.5 To qualify for award of the Contract, Tenderers shall meet the following minimum qualifying criteria:

- (a) annual volume of construction work of at least the amount specified in the Tender Data;

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- (b) experience as prime contractor in the construction of at least two works of a nature and complexity equivalent to the Works over the last 10 years (to comply with this requirement, works cited should be at least 70 percent complete);
- (c) proposals for the timely acquisition (own, lease, hire, etc.) of the essential equipment listed in the Tender Data;
- (d) a Contract Manager with five years' experience in works of an equivalent nature and volume, including no less than three years as Manager; and
- (e) liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, of no less than the amount specified in the Tender Data.

A consistent history of litigation or arbitration awards against the Applicant or any partner of a Joint Venture may result in disqualification.

- 4.6 The figures for each of the partners of a joint venture shall be added together to determine the Tenderer's compliance with the minimum qualifying criteria of Sub-Clause 4.5(a) and (e); however, for a joint venture to qualify, each of its partners must meet at least 25 percent of minimum criteria 4.5(a), (b), and (e) for an individual Tenderer, and the partner in charge at least 40 percent of those minimum criteria. Failure to comply with this requirement will result in rejection of the joint venture's Tender. Subcontractors' experience and resources will not be taken into account in determining the Tenderer's compliance with the qualifying criteria, unless otherwise stated in the Tender Data.
- 4.7 Domestic Tenderers and joint ventures of domestic and foreign Tenderers applying for eligibility for a 7½-percent margin of preference in Tender evaluation shall supply all information to satisfy the criteria for eligibility as described in Clause 30 of these Instructions to Tenderers.

- 5. One Tender per Tenderer** 5.1 Each Tenderer shall submit only one Tender, either individually or as a partner in a joint venture. A Tenderer who submits or participates in more than one Tender (other than as a subcontractor or in cases of

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alternatives that have been permitted or requested) will cause all the proposals with the Tenderer's participation to be disqualified.

- 6. Cost of Tender** 6.1 The Tenderer shall bear all costs associated with the preparation and submission of his Tender, and the Employer will in no case be responsible or liable for those costs.

- 7. Site Visit** 7.1 The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine the Site of Works and its surroundings and obtain 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 the Tenderer's own expense.

B. Tender Documents

- 8. Content of Tender Documents** 8.1 The set of Tender documents comprises the documents listed in the table below and addenda issued in accordance with Clause 10:

Section I	Instructions to Tenderers
II	Forms of Tender and Qualification Information
III	Conditions of Contract
IV	Tender Data
V	Specifications
VI	Drawings
VII	Bill of Quantities/Activity Schedule
VIII	Forms of Securities

- 8.2 Tenderers should complete and return sections II, VII and VIII.

- 9. Clarification of Tender Documents** 9.1 A prospective Tenderer requiring any clarification of the Tender documents may notify the Employer in writing or by cable ("cable" includes telex, facsimile and email) at the Employer's address indicated in the invitation to Tender. The Employer will respond to any request for clarification received earlier than 28 days prior to the deadline for submission of Tenders. Copies of the Employer's response will be forwarded to all purchasers of the

Tender documents, including a description of the inquiry, but without identifying its source.

- 10. Amendment of Tender** 10.1 Before the deadline for submission of Tenders, the Employer may modify the Tender documents by issuing addenda.

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Documents

- 10.2 Any addendum thus issued shall be part of the Tender documents and shall be communicated in writing or by cable to all purchasers of the Tender documents. Prospective Tenderers shall acknowledge receipt of each addendum by cable to the Employer.
- 10.3 To give prospective Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Employer shall extend, as necessary, the deadline for submission of Tenders, in accordance with Sub-Clause 20.2 below.

C. Preparation of Tenders

11. Language of Tender

- 11.1 All documents relating to the Tender shall be in the language specified in the Contract Data.

12. Documents Comprising the Tender

- 12.1 The Tender submitted by the Tenderer shall comprise the following:
- (a) The Tender (in the format indicated in Section 2);
 - (b) Tender Security;
 - (c) Priced Bill of Quantities;
 - (d) Qualification Information Form and Documents;
 - (e) Alternative offers where invited;

and any other materials required to be completed and submitted by Tenderers, as specified in the Tender Data.

13. Tender Prices

- 13.1 The Contract shall be for the whole Works, as described in Sub-Clause 1.1, based on the priced Bill of Quantities submitted by the Tenderer.
- 13.2 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items for which no rate or price is

entered by the Tenderer will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.

- 13.3 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of Tenders, shall be included in the rates, prices, and total Tender price submitted by the Tenderer.

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- 13.4 The rates and prices quoted by the Tenderer shall be subject to adjustment during the performance of the Contract if provided for in the Tender and Contract Data and the provisions of Clause 47 of the Conditions of Contract. The Tenderer shall submit with the Tender all the information required under the Contract Data and Clause 47 of the Conditions of Contract.

14. Currencies of Tender and Payment

- 14.1 The unit rates and prices shall be quoted by the Tenderer entirely in the currency of the Employer's country as specified in the Contract Data. Foreign currency requirements shall be indicated as a percentage of the Tender price (excluding provisional sums ²) and shall be payable at the option of the Tenderer in up to three foreign currencies of any eligible country.
- 14.2 The rates of exchange to be used by the Tenderer in arriving at the local currency equivalent and the percentage(s) mentioned in para.
- 14.1 above shall be the selling rates for similar transactions established by the authority specified in the Contract Data prevailing on the date 28 days prior to the latest deadline for submission of Tenders. These exchange rates shall apply for all payments so that no exchange risk will be borne by the Tenderer. If the Tenderer uses other rates of exchange, the provisions of Clause 28.1 shall apply. In any case, payments will be computed using the rates quoted in the Tender.
- 14.3 Tenderers shall indicate details of their expected foreign currency requirements in the Tender.
- 14.4 Tenderers may be required by the Employer to clarify their foreign currency requirements and to substantiate that the amounts included in the rates and prices ³ and in the Contract Data are reasonable and responsive to Sub-Clause 14.1.

15. Tender Validity

- 15.1 Tenders shall remain valid for the period ⁴ specified in the Tender Data.
- 15.2 In exceptional circumstances, the Employer may request that the

Tenderers extend the period of validity for a specified additional period. The request and the Tenderers' responses shall be made in writing or by cable. A Tenderer may refuse the request without forfeiting the Tender Security. A Tenderer agreeing to the request will not be required or permitted to otherwise modify the Tender, but will be required to extend the validity of Tender Security for the period of the extension, and in compliance with Clause 16 in all respects.

- 15.3 In the case of contracts in which the Contract Price is fixed (not subject to price adjustment), if the period of Tender validity is extended beyond 60 days, the amounts payable in local and foreign currency to the Tenderer selected for award, shall be increased by applying to both the local and the foreign currency component of the payments, respectively, the factors specified in the Tender Data or in the request for extension, for the period of delay beyond 60 days after the expiry of the initial Tender validity, up to the notification of award. Tender evaluation will be based on the Tender prices without taking the above correction into consideration.

16. Tender Security

- 16.1 The Tenderer shall furnish, as part of the Tender, a Tender Security in local currency or in a freely convertible currency, in the amount specified in the Tender Data.
- 16.2 The Tender Security shall, at the Tenderer's option, be in the form of a certified check, bank draft, letter of credit, or a bank guarantee from a reputable bank located in the country of the Employer or abroad. The format of the Tender Security should be in accordance with the form of Tender Security included in Section 8 or another form acceptable to the Employer. Tender Security shall be valid for 28 days beyond the validity of the Tender.
- 16.3 Any Tender not accompanied by an acceptable Tender Security shall be rejected by the Employer. The Tender Security of a joint venture must define as "Tenderer" all joint venture partners and list them in the following manner: a joint venture consisting of "____," "____," and "____".

- 16.4 The Tender Security of unsuccessful Tenderers will be returned within 28 days of the end of the Tender validity period specified in Sub-

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Clause 15.1.

- 16.5 The Tender Security of the successful Tenderer will be discharged when the Tenderer has signed the Agreement and furnished the required Performance Security.
- 16.6 The Tender Security may be forfeited
- (a) if the Tenderer withdraws the Tender after Tender opening during the period of Tender validity;
 - (b) if the Tenderer does not accept the correction of the Tender price, pursuant to Clause 27; or
 - (c) in the case of a successful Tenderer, if the Tenderer fails within the specified time limit to
 - (i) sign the Agreement; or
 - (ii) furnish the required Performance Security.

17. Alternative Proposals by Tenderers 17.1 Tenderers shall submit offers that comply with the requirements of the Tender documents, including the basic technical design as indicated in the drawings and specifications. Alternatives will not be considered, unless specifically allowed in the Tender Data. If so allowed, Sub-Clause 17.2 shall govern.

- 17.2 If so allowed in the Tender Data, Tenderers wishing to offer technical alternatives to the requirements of the Tender documents must also submit a Tender that complies with the requirements of the Tender documents, including the basic technical design as indicated in the drawings and specifications. In addition to submitting the basic Tender, the Tenderer shall provide all information necessary for a complete evaluation of the alternative by the Employer, including design calculations, technical specifications, breakdown of prices, proposed construction methods and other relevant details. Only the technical alternatives, if any, of the lowest

evaluated Tenderer conforming to the basic technical requirements shall be considered by the Employer.

- 18. Format and Signing of** 18.1 The Tenderer shall prepare one original of the documents comprising the Tender as described in Clause 12 of these Instructions to

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- Tender** Tenderers, bound with the volume containing the Form of Tender, and clearly marked “ORIGINAL.” In addition, the Tenderer shall submit copies of the Tender, in the number specified in the Tender Data, and clearly marked as “COPIES.” In the event of discrepancy between them, the original shall prevail.
- 18.2 The original the Tender shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Tenderer, pursuant to Sub-Clauses 4.3(a) or 4.4(b), as the case may be. All pages of the Tender where entries or amendments have been made shall be initialled by the person or persons signing the Tender.
- 18.3 The Tender shall contain no alterations or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the Tenderer, in which case such corrections shall be initialed by the person or persons signing the Tender.

D. Submission of Tenders

- 19. Sealing and Marking of Tenders**
- 19.1 The Tenderer shall seal the original and all copies of the Tender in two inner envelopes and one outer envelope, duly marking the inner envelopes as “ORIGINAL” and “COPIES”.
- 19.2 The inner and outer envelopes shall
- (a) be addressed to the Employer at the address provided in the Tender Data;
 - (b) bear the name and identification number of the Contract as defined in the Tender and Contract Data; and
 - (c) provide a warning not to open before the specified time and date for Tender opening as defined in the Tender Data.
- 19.3 In addition to the identification required in Sub-Clause 19.2, the inner envelopes shall indicate the name and address of the Tenderer to enable the Tender to be returned unopened in case it is declared late, pursuant to Clause 21.
- 19.4 If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the Tender.
- 20. Deadline for Submission of Tenders**
- 20.1 Tenders shall be delivered to the Employer at the address specified above no later than the time and date specified in the Tender Data.
- 20.2 The Employer may extend the deadline for submission of Tenders by issuing an amendment in accordance with Clause 10, in which case all rights and obligations of the Employer and the Tenderers previously subject to the original deadline will then be subject to the new deadline.
- 21. Late**
- 21.1 Any Tender received by the Employer after the deadline prescribed

Tenders in Clause 20 will be returned unopened to the Tenderer.

22. Modification and Withdrawal of Tenders

22.1 Tenderers may modify or withdraw their Tenders by giving notice in writing before the deadline prescribed in Clause 20.

22.2 Each Tenderer's modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with Clauses 18 and 19,

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with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL," as appropriate.

22.3 No Tender may be modified after the deadline for submission of Tenders.

22.4 Withdrawal of a Tender between the deadline for submission of Tenders and the expiration of the period of Tender validity specified in the Tender Data or as extended pursuant to Sub-Clause 15.2 may result in the forfeiture of the Tender Security pursuant to Clause 16.

22.5 Tenderers may only offer discounts to, or otherwise modify the prices of their Tenders by submitting Tender modifications in accordance with this clause, or included in the original Tender submission.

E. Tender Opening and Evaluation

23. Tender Opening

23.1 The Employer will open the Tenders, including modifications made pursuant to Clause 22, in the presence of the Tenderers' representatives who choose to attend at the time and in the place specified in the Tender Data.

23.2 Envelopes marked "WITHDRAWAL" shall be opened and read out first. Tenders for which an acceptable notice of withdrawal has been submitted pursuant to Clause 22 shall not be opened.

23.3 The Tenderers' names, the Tender prices, the total amount of each Tender and of any alternative Tender (if alternatives have been requested or permitted), any discounts, Tender modifications and withdrawals, the presence or absence of Tender Security, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening.

- 23.4 The Employer will prepare minutes of the Tender opening, including the information disclosed to those present in accordance with Sub-Clause 23.3.

- 24. Process to be Confidential** 24.1 Information relating to the examination, clarification, evaluation, and comparison of Tenders and recommendations for the award of a contract shall not be disclosed to Tenderers or any other persons not officially concerned with such process until the award to the successful Tenderer has been announced. Any effort by a Tenderer

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to influence the Employer's processing of Tenders or award decisions may result in the rejection of his Tender.

- 25. Clarification of Tenders** 25.1 To assist in the examination, evaluation, and comparison of Tenders, the Employer may, at the Employer's discretion, ask any Tenderer for clarification of the Tenderer's Tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, telex, facsimile, or email but no change in the price or substance of the Tender shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Tenders in accordance with Clause 27.

- 26. Examination of Tenders and Determination of Responsiveness** 26.1 Prior to the detailed evaluation of Tenders, the Employer will determine whether each Tender (a) meets the eligibility criteria defined in Clause 3; (b) has been properly signed; (c) is accompanied by the required securities; and (d) is substantially responsive to the requirements of the Tender documents.
- 26.2 A substantially responsive Tender is one, which conforms to all the terms, conditions, and specifications of the Tender documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the Tender documents, the Employer's rights or the Tenderer's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Tenderers presenting substantially responsive Tenders.
- 26.3 If a Tender is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

- 27. Correction of Errors**
- 27.1 Tenders determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:
- (a) where there is a discrepancy between the amounts in figures and in words, the amount in words will govern; and

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- (b) where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern, unless in the opinion of the Employer there is an obviously gross misplacement of the decimal point in the unit rate, in which case the line item total as quoted will govern, and the unit rate will be corrected.
- 27.2 The amount stated in the Tender will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, with the concurrence of the Tenderer, shall be considered as binding upon the Tenderer. If the Tenderer does not accept the corrected amount, the Tender will be rejected, and the Tender Security may be forfeited in accordance with Sub-Clause 16.6(b).
- 28. Currency for Tender Evaluation**
- 28.1 Tenders will be evaluated as quoted in the currency of the Employer's country as defined in the Contract Data in accordance with Sub-Clause 14.1, unless a Tenderer has used different exchange rates than those prescribed in Sub-Clause 14.2, in which case the Tender will be first converted into the amounts payable in different currencies using the rates quoted in the Tender and then reconverted to the Employer's currency using the exchange rates prescribed in Sub-Clause 14.2.
- 29. Evaluation and Comparison of Tenders**
- 29.1 The Employer will evaluate and compare only the Tenders determined to be substantially responsive in accordance with Clause 26.
- 29.2 In evaluating the Tenders, the Employer will determine for each Tender the evaluated Tender price by adjusting the Tender price as follows:
- (a) making any correction for errors pursuant to Clause 27;
- (b) excluding provisional sums and the provision, if any, for

contingencies in the Bill of Quantities,⁸ but including Daywork,⁹ where priced competitively;

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- (c) making an appropriate adjustment for any other acceptable variations, deviations, or alternative offers submitted in accordance with Clause 17; and
- (d) making appropriate adjustments to reflect discounts or other price modifications offered in accordance with Sub-Clause 22.5.

29.3 The Employer reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors, which are in excess of the requirements of the Tender documents or otherwise result in unsolicited benefits for the Employer will not be taken into account in Tender evaluation.

29.4 The estimated effect of any price adjustment conditions under Clause 47 of the Conditions of Contract, during the period of implementation of the Contract, will not be taken into account in Tender evaluation. 29.5 ¹⁰

30. Preference for Domestic Tenderers

30.1 A percent margin of price preference of not less than 10% for qualifying domestic tenderers shall apply in tender evaluation in accordance with the criteria set by the Public Procurement Board for fixing such percentages.

30.2 Domestic Tenderers shall provide all evidence necessary to prove that they meet the following criteria to be eligible for the specified percent margin of preference in the comparison of their Tenders with those of Tenderers who do not qualify for the preference. They should

- (a) be registered within the country of the Employer;

- (b) have majority ownership by nationals of the country of the Employer;
- (c) not subcontract more than 50 percent of the Works measured in terms of value to foreign contractors; and

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Section I. Instructions to Tenderers

- (d) satisfy any other criteria specified for the purpose of domestic preference eligibility, as specified in the Tender Data.
- 30.3 Joint ventures between domestic and foreign firms may be eligible for the margin of preference provided the domestic partner or partners
- (a) individually satisfy the above criteria of eligibility for the preference;
 - (b) demonstrate a beneficiary interest of no less than 50 percent in the joint venture, as demonstrated by the profit and loss sharing provisions of the joint venture agreement;
 - (c) will, under the arrangements proposed, carry out at least 50 percent of the Works, measured in terms of value, which shall exclude any materials or plant which are to be directly imported by the domestic partner(s) (always provided that the domestic partner or partners are qualified to carry out that amount of work, in accordance with the criteria of Sub-Clause 4.3); and
 - (d) satisfy any other criteria specified for the purpose of domestic preference eligibility, as specified in the Tender Data.
- 30.4 The following procedure will be used to apply the margin of preference:
- (a) Responsive Tenders will be classified into the following groups:

- (i) Group A: Tenders offered by domestic Tenderers and joint ventures meeting the respective criteria of Sub-Clauses 30.2 and 30.3 above; and
 - (ii) Group B: all other Tenders.
- (b) For the purpose of further evaluation and comparison of Tenders only, an amount equal to 7½ percent of the evaluated. Tender prices determined in accordance with Clause 29.2(a), (b), and (d), will be added to all Tenders classified in Group B.

F. Award of Contract

- 31. Award Criteria** 31.1 Subject to Clause 32, the Employer will award the Contract to the Tenderer whose Tender has been determined to be substantially

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Section I. Instructions to Tenderers

responsive to the Tender documents and who has offered the lowest evaluated Tender price, provided that such Tenderer has been determined to be (a) eligible in accordance with the provisions of Clause 3, and (b) qualified in accordance with the provisions of Clause 4.

- 32. Employer's Right to Accept any Tender and to Reject any or all Tenders** 32.1 Notwithstanding Clause 31, the Employer reserves the right to accept or reject any Tender, and to cancel the Tender process and reject all Tenders, at any time prior to the award of Contract, without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected Tenderer or Tenderers of the grounds for the Employer's action.

- 33. Notification of Award and Signing of Agreement** 33.1 The Tenderer whose Tender has been accepted will be notified of the award by the Employer prior to expiration of the Tender validity period by cable, telex, email or facsimile confirmed by registered letter. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").

- 33.2 The notification of award will constitute the formation of the Contract, subject to the Tenderer furnishing the Performance Security in accordance with Clause 34 and signing the Agreement in accordance with Sub-Clause 33.3.

- 33.3 The Agreement will incorporate all agreements between the Employer and the successful Tenderer. It will be signed by the Employer and sent to the successful Tenderer, within 28 days following the notification of award along with the Letter of

Acceptance. Within 21 days of receipt, the successful Tenderer will sign the Agreement and deliver it to the Employer.

- 33.4 Upon the furnishing by the successful Tenderer of the Performance Security, the Employer will promptly notify the other Tenderers that their Tenders have been unsuccessful.

34. Performance Security

- 34.1 Within 28 days after receipt of the Letter of Acceptance, the successful Tenderer shall deliver to the Employer a Performance Security in the amount stipulated in the Contract Data and in the form (Bank Guarantee and/or Bond) stipulated in the Tender Data, denominated in the type and proportions of currencies in the Letter

of Acceptance and in Accordance with the Conditions of Contract.

- 34.2 If the Performance Security is provided by the successful Tenderer in the form of a Bank Guarantee, it shall be issued either (a) at the Tenderer's option, by a bank located in the country of the Employer or a foreign bank through a correspondent bank located in the country of the Employer, or (b) with the agreement of the Employer directly by a foreign bank acceptable to the Employer.
- 34.3 If the Performance Security is to be provided by the successful Tenderer in the form of a Bond, it shall be issued by a surety which the Tenderer has determined to be acceptable to the Employer.
- 34.4 Failure of the successful Tenderer to comply with the requirements of Sub-Clause 34.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Tender Security.

35. Advance Payment and Security

- 35.1 The Employer will provide an Advance Payment on the Contract Price as stipulated in the Conditions of Contract, subject to a maximum amount, as stated in the Tender Data.

36. Adjudicator

- 36.1 The Employer proposes the person named in the Tender Data to be appointed as Adjudicator under the Contract, at an hourly fee specified in the Tender Data, plus reimbursable expenses. If the Tenderer disagrees with this proposal, the Tenderer should so state in the Tender. If, in the Letter of Acceptance, the Employer has not agreed on the appointment of the Adjudicator, the Adjudicator shall be appointed by the Appointing Authority designated in the Contract Data at the request of either party.

37. Corrupt or Fraudulent Practices

37.1 The Government of Ghana (GOG) requires that all Procurement Entities as well as Tenderers, Suppliers, Contractors and Consultants participating in contracts financed from the public funds of the Republic of Ghana, adhere to the highest ethical standards, both during the tendering process and throughout the execution of such contracts. The list of definitions set forth below involves the most common types of corrupt practices, but is not exhaustive. For this reason, the Public Procurement Board will also consider claims of similar nature involving alleged acts of corruption, in accordance with the established procedure.

- (a). “Bribery” means the act of unduly offering, giving, receiving or soliciting anything of value to influence the

process of procuring goods or services, selecting consultants, or executing contracts.

- (b). “Extortion” or “Coercion” means the act attempting to influence the process of procuring goods or services, selecting consultants, or executing contracts by means of threats of injury to person, property or reputation.
- (c). “Fraud” means the misrepresentation of information or facts for the purpose of influencing the process of procuring goods or services, selecting consultants, or executing contracts, to the detriment of the Procurement Entity/Purchaser or other participants.
- (d). “Collusion” is an agreement between tenderers designed to result in tenders at artificial prices that are not competitive.

37.2 If, in accordance with the administrative procedures of the Public Procurement Board, it is demonstrated that a government/public official, or anyone acting on his or her behalf, and/or a Tenderer in a procurement process or supplier/contractor during the execution of the contract carried out in connection with a project financed from the public funds of the Republic of Ghana has committed corrupt practices, the Public Procurement Board or the appropriate Tender review Board will:

- (a) reject a proposal to award a contract in connection with the respective procurement process; and/or

- (b) declare a firm and/or its personnel directly involved in corrupt practices, temporarily or permanently ineligible to be awarded future contracts financed from the public funds of the Republic of Ghana.

37.3 The Tenderer shall disclose any commissions or fees that may have been paid or are to be paid to agents, representatives, or commission agents with respect to the tendering process or execution of the contract. The information disclosed must include at the name and address of the agent, representative, or commission agent, the amount and currency, and the purpose of the commission or fee. The information must be included in the

Tender Submission Sheet.

37.4 Any communications between the Tenderer and the Purchaser related to matters of alleged fraud or corruption must be made in writing

G. Tender Data
Instructions to Tenderers Clause Reference

- (2.1) The Employer is **AFADZATO SOUTH DISTRICT ASSEMBLY**
- (2.1) The Project is **COMPLETION OF 1 No. 6-UNIT TEACHERS BUNGALOW AT TAFI MADOR**
- (4.3) The information required from Tenderers in Sub-Clause 4.3 is modified as follows: In addition to items listed in sub-clause 4.3, the bidder is required to provide;
CURRENT TAX CLEARANCE CERTIFICATE
VALID BUSINESS REGISTRATION CERTIFICATE
VALID INCOME TAX CERTIFICATE
VALID SSNIT CERTIFICATE
VALID LABOUR CERTIFICATE
VALID MINISTRY OF WORKS AND HOUSING CERTIFICATE
D3, K3 and above
VALID PPA REGISTRATION CERTIFICATE
- (4.4) The qualification data required from Tenderers in Sub-Clause 4.4 are modified as follows: **NONE**
- (4.5) The qualification criteria in Sub-Clause 4.5 are modified as follows:
- (4.5a) The minimum required annual volume of construction work for the successful Tenderer in any of the last five years shall be **GHS100,000.00**
- (4.5c) The essential equipment to be made available for the Contract by the successful Tenderer shall be:

**Poker Vibrator – 1No.
Plate Compactor - 1No.
Concrete Mixer - 1 No.
Tipper Truck - 1No.**

Bar Bender/Cutter – 1No.

Indicate clearly how you intend to acquire the above equipment. Show evidence of ownership for owned equipment and evidence of availability at the time of construction for hired and leased equipment.

(4.5d) The minimum level of Personnel proposed for the Project shall be:

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- 1 No. Site Engineer
/Manager - HND/Degree with
5yrs/3yrs experience**
- 1 No. Quantity Surveyor
- HND/Degree with 5yrs/3yrs
experience**
- 1No. General Foreman
- CTC with 5yrs experience**

- (4.5e) The minimum amount of liquid assets and/or credit facilities net of other contractual commitments of the successful Tenderer shall **BE 20% OF Tender figure**. The credit facility should be an unconditional guarantee from a **reputable financial institution**
- (7.1) The tenderer shall submit a **site visit assessment report** to obtain all information that may be necessary for preparing the tender. The cost of visiting the site shall be at the tenderer's expense
- (13.4) The Contract **IS NOT** subject to price adjustment in accordance with Clause 47 of the Conditions of Contract.
- (15.1) The period of Tender validity shall be **60** days after the deadline for Tender submission specified in the Tender Data.
- (15.3) The adjustment of Tender price in accordance with Clause 15.3 shall be calculated on the basis of an annual increase for foreign costs of - percent and an annual increase for local costs of - percent. **(N/A)**
- (16.1) The amount of Tender Security shall be as indicated for the various lots in the Invitation for Tenders **from a reputable Insurance Company (N/A)**
- (17.0) Alternative proposals to the requirements of the Tender documents **N/A**.
- (18.1) The number of copies of the Tender to be completed and returned shall be: **(1) original and (1) additional copy (Additional copy should be complete Documents)**
- (19.2) The Employer's address for the purpose of Tender submission is:

**The District Coordinating Director
Afadzato South District Assembly
P.O.Box 645, Hohoe**

(20.1) The deadline for submission of Tenders shall be

Date: **June 19th, 2026**

Time: **11:00am**

(25.1) As part of the tender submission tenderers are expected to submit in addition a breakdown of unit rates for the following work items in the bills of quantities:

(a) 150mm thick solid blockwork	-	1m ²	
(b) Approved Laterite Filling	-	1m ³	
(c) Plain insitu (1:3:6) concrete 1m ³	-		
(d) Reinforced insitu (1:2:4) concrete 1m ³	-		
(e) 16mm diameter bars	-		kg
(f) 12mm diameter bars	-		kg
(g) 10mm diameter bars	-		kg
(h) Sawn formwork 1m ²	-		
(i) 0.50mm prepainted longspan Aluzinc roof covering	-	1m ²	
(j) 50 x 150mm hardwood	-		1m
(k) 50 x 100mm hardwood	-		1m
(l) 50 x 50mm hardwood	-		1m
(m) 50 x 150mm door and window frames	-		1m
(n) 12mm thick cement and sand (1:4) render on walls 1m ²	-		
(p) 50mm thick cement and sand (1:3) screed 1m ²	-		
(q) Prepare and Apply 3coats of emulsion paint on walls 1m ²	-		
(r) One undercoat and two finishing coats of oil paint 1m ²	-		

(30.0) Domestic contractors **will not** receive a margin of preference in Tender evaluation.

(34.0) The Standard Form of Performance Security acceptable to the Employer shall be **Bank Guarantee (10%) or Performance Bond (30%)**

(35.0) The Advance Payment shall be **N/A**

(36.1) The Adjudicator proposed by the Employer is:

Name: **THE PRESIDENT**

Address: **INSTITUTION OF ENGINEERING & TECHNOLOGY,
GHANA (IET)**

The hourly fee for this proposed Adjudicator shall be: **according to the rates approved by the IET.**

Section II. Forms of Tender, Qualification Information, Letter of Acceptance, and Agreement

Contractor's Tender

Notes on Form of Contractor's Tender

The Tenderer shall fill in and submit this Tender form with the Tender. Additional details on the price should be inserted if the Tender is in various currencies. If the Tenderer objects to the Adjudicator proposed by the Employer in the Tender documents, he should so state in his Tender, and present an alternative candidate, together with the candidate's daily fees and biographical data, in accordance with Clause 36 of the Instructions to Tenderers.

TENDER FORM
(To be reproduced on Letter Head of Bidder)

Date: _____

To: _____

Address: _____

We offer to execute the _____ in accordance with
the Conditions of Contract
accompanying this Tender for the Contract Price of

For a period of five (5) calendar months.

The Contract shall be paid in the following currencies:

Currency	Percentage payable in Currency	Rate of exchange: one foreign equals GHC _____	Inputs for which foreign currency is required
(a) Cedis	100	Nil	Nil
(b)			

The advance payment required is:

	Amount	Currency
(a)	NIL	NIL
(b)		

We accept the appointment of _____ as the
Adjudicator.

Or

We do not accept the appointment of
_____ as the Adjudicator, and propose
instead that _____ be appointed as Adjudicator, whose daily
fees and biographical data are attached.

This Tender and your written acceptance of it shall constitute a binding Contract between us.
We understand that you are not bound to accept the lowest or any Tender you receive.

Section II. Forms of Tender, Qualification Information,
Letters of Acceptance, and
Agreement

Commissions or gratuities, if any, paid or to be by us to agents relating to this Tender, and to contract execution if we are awarded the contract, are listed below:

Name & Address of Agent or	Amount & Currency	Purpose of Commission Gratuity
NIL	NIL	NIL

We hereby confirm that this Tender complies with the Tender Validity and Tender Security required by the Tender documents and specified in the Tender Data.

Authorized Signature:

Name and Title of Signatory:

Name of Tenderer:

Address:

Section II. Forms of Tender, Qualification Information

Letters of Acceptance, and
Agreement

ATTACHMENTS TO THE TENDER

Attach. 1 Power of Attorney

Attach. 2 Tender Security

Attach. 3 Price Schedules of Major Items

Attach. 4 Documentary Evidence of Tenderer's Qualifications

Attach. 5 Others:

- Work Programme and Schedule
- Declaration letter, stating bidder's acceptance of disqualification should any of the information provided for the purposes of the Bid be found to be false.

Section II. Forms of Tender, Qualification Information,

Letters of Acceptance, and Agreement

Qualification Information**Notes on Form of Qualification Information**

The information to be filled in by Tenderers in the following pages will be used for purposes of postqualification or for verification of prequalification as provided for in Clause 4 of the Instructions to Tenderers. This information will not be incorporated in the Contract. Attach additional pages as necessary. Pertinent sections of attached documents should be translated into English. If used for prequalification verification, the Tenderer should fill in updated information only.

Qualification Information**1. Individual
Tenderers or
Individual
Members of
Joint Ventures**

- 1.1 Constitution or legal status of Tenderer: _____ [attach
copy]
Place of registration: _____
Principal place of business: _____
Power of attorney of signatory of Tender: [attach]
- 1.2 Total annual volume of construction work performed in five years, in the internationally traded currency specified in the Tender Data:

- 1.3 Work performed as prime Contractor on works of a similar nature and volume over the last five years. The values should be indicated in the same currency used for Item 1.2 above. Also list details of work under way or committed, including expected completion date.

Reproduce and fill out Format

Project name and Country	Name of client and contact person	Type of work performed and year of completion	Value of contract
(a)			
(b)			

- 1.4 Major items of Contractor's Equipment proposed for carrying out the Works. List all information requested below. Refer also to Sub-Clause 4.3(c) of the Instructions to Tenderers.

Reproduce and fill out Format

Item of Equipment	Description, make, and age (years)	Condition (new, good, poor) and number available	Owned, leased (from whom?), or be purchased (from whom?)
(a)			
(b)			

- 1.5 Qualifications and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data. Refer also to Sub-Clause 4.3(e) of the Instructions to Tenderers and Sub-Clause 9.1 of the Conditions of Contract.

Reproduce and fill out Format

Position	Name	Years of experience (general)	Years of experience in proposed position
(a)			
(b)			

- 1.6 Proposed subcontracts and firms involved. Refer to Clause 7 of Conditions of Contract.

Reproduce and fill out Format

Sections of the Works	Value of Subcontract	Subcontractor (name and address)	Experience in similar work
(a)			
(b)			

- 1.7 Financial reports for the last five years: balance sheets, profit and loss statements, auditors' reports, etc. List below and attach copies.

- 1.8 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List below and attach copies of support documents.

- 1.9 Name, address, and telephone, telex, and facsimile numbers of banks that may provide references if contacted by the Employer.

- 1.10 Information on current litigation in which the Tenderer is involved.

Reproduce and fill out Format

Other party(ies)	Cause of dispute	Amount involved
(a)		
(b)		

- 1.11 Statement of compliance with the requirements of Sub-Clause 3.2 of the Instructions to Tenderers.

- 1.12 Proposed Programme (work method and schedule).
Descriptions, drawings, and charts, as necessary, to comply with the requirements of the Tender documents.

- 2. Joint Ventures**
- 2.1 The information listed in 1.1 - 1.11 above shall be provided for each partner of the joint venture.
- 2.2 The information in 1.12 above shall be provided for the joint venture.
- 2.3 Attach the power of attorney of the signatory(ies) of the Tender authorizing signature of the Tender on behalf of the joint

venture

Letters of Acceptance, and
Agreement

2.4 Attach the Agreement among all partners of the joint venture
(and which is legally binding on all partners), which shows that

- (a) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;
- (b) one of the partners will be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all partners of the joint venture; and
- (c) the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

**3. Additional
in
Requirements**

3.1 Tenderers should provide any additional information required the Tender Data or to fulfill the requirements of Sub-Clause 4.1 and Clause 30 of the Instructions to Tenderers, if applicable.

LETTER OF ACCEPTANCE

[letterhead paper of the Employer]

Date _____

To: _____

This is to notify you that your Tender dated _____ for execution of the
_____ for the Contract Price of the
equivalent _____ of _____,
_____, as corrected and modified in
accordance with the Instructions to Tenderers is hereby accepted by us.

We accept that _____ be appointed as the Adjudicator.

Or

We do not accept that _____ be appointed as adjudicator, and by sending a
copy of this letter of acceptance to _____, we are hereby requesting
_____, the Appointing Authority, to appoint the Adjudicator in accordance
with Clause 36.1 of the Instructions to Tenderers.

You are hereby required to submit the Performance Security stipulated in the Tender
Documents
within 28 days after receipt of this Letter of Acceptance.

Following receipt of the Performance Security you will be invited to:

- (i) sign the Contract Agreement as provided in the Tender Documents; and
- (ii) to commence performance of the said contract in accordance with the Contract Documents.

Authorized Signature _____

Name and Title of Signatory _____

Name of Employer: _____

Attachment: Agreement

cc: Public Procurement Board and Relevant Departments

Agreement

This Agreement, made the _____ day of....., **2026** between **AFADZATO SOUTH DISTRICT ASSEMBLY** (hereinafter called “the Employer”) and -----
----- (hereinafter called “the Contractor”) of the other part.

Whereas the Employer is desirous that the Contractor execute **COMPLETION OF 1 No.6-UNIT TEACHERS BUNGALOW AT TAFI MADOR** (hereinafter called “the Works”) and the Employer has accepted the Tender by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

Now this Agreement witnessed as follows:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects wherein 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 thereto have caused this Agreement to be executed the day and year first before written.

For the Employer :

Name: HON. MANFRED TAWIAH
Designation: DISTRICT CHIEF EXECUTIVE
Signature:
Witnessed by
Name: MR. KODJO MAWUGBE
Designation: DIST. COORDINATING DIRECTOR

Signature

For the Contractor

Name:
Designation:
Signature:
Witnessed by:
Name:
Designation:

Signature

Section III. Conditions of Contract

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Conditions of Contract

A. General

1. Definitions

1.1 Boldface type is used to identify defined terms.

The **Adjudicator** is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in Clauses 24 and 25 hereunder.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Tender.

Compensation Events are those defined in Clause 44 hereunder.

The **Completion Certificate** is the certificate issued by the Project Manager after the Defects Liability Period and upon correction of all defects by the Contractor.

The **Completion Date** is the date of taking-over the Works as certified by the Project Manager, in accordance with Sub-Clause 55.1.

The **Contract** is the Contract between the Employer and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in Clause 2.3 below.

The **Contractor** is a person or corporate body whose Tender to carry out the Works has been accepted by the Employer.

The **Contractor's Tender** is the completed Tender document submitted by the Contractor to the Employer.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; months are calendar months.

Dayworks are varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The **Defects Liability Certificate** is the certificate issued by Project Manager upon correction of defects by the Contractor.

The **Defects Liability Period** is the period named in the Contract Data and calculated from the Taking-Over Date.

Drawings include calculations and other information provided or approved by the Project Manager for the execution of the Contract.

The **Employer** is the party who employs the Contractor to carry out the Works.

Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The **Initial Contract Price** is the Contract Price listed in the Employer's Letter of Acceptance.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall substantially complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Project Manager by issuing an extension of time or an acceleration order.

Materials are all supplies, including consumables, used by the Contractor for incorporation in the Works.

Plant is any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function.

The **Project Manager** is the person named in the Contract Data (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract.

The **Site** is the area defined as such in the Contract Data.

Site Investigation Reports are those that were included in the

Tender documents and are factual and interpretative reports about the surface and subsurface conditions at the Site.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager.

The **Start Date** is given in the Contract Data. It is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.

A **Subcontractor** is 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.

The **Taking-Over Certificate** is a certificate issued by the Project Manager when the works are substantially completed in accordance with Sub-Clause 55.1

Temporary Works are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works.

A **Variation** is an instruction given by the Project Manager which varies the Works.

The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the Contract Data.

2. Interpretation

- 2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Project Manager will provide instructions clarifying queries about these Conditions of Contract.
- 2.2 If sectional completion is specified in the Contract Data, references in the Conditions of Contract 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).

- 2.3 The documents forming the Contract shall be interpreted in the

following order of priority:

- (1) Agreement,
- (2) Letter of Acceptance,
- (3) Contractor's Tender,
- (4) Contract Data,
- (5) Conditions of Contract,
- (6) Specifications,
- (7) Drawings,
- (8) Bill of Quantities,¹¹ and
- (9) any other document listed in the Contract Data as forming part of the Contract.

3. Language and Law

3.1 The Contract and the law governing the Contract shall be in English

4. Duties and in

4.1 (a) The Project Manager shall carry out the duties specified in the Contract

Authority of the Project Manager

(b) The Project Manager may exercise the authority specified in or necessarily to be implied from the Contract.

(c) Except as expressly stated in the Contract, the Project Manager shall have no authority to relieve the Contractor of any of his obligations under the Contract

shall 4.2 With reference to Sub-Clause 4.1 (b), the following provision also apply:

The Project Manager shall obtain the specific approval of the Employer before taking any of the following actions:

- (a) approving subcontracting of any part of the Works;
- (b) certifying additional cost;
- (c) determining an extension of time;
- (d) issuing a variation under, except if such variation would increase the Contract Price by less than the amount stated in the Appendix to Tender; or
- (e) fixing rates or prices.

4.3 Except where otherwise specifically stated, the Project Manager will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

¹¹ In lump sum contracts, delete "Bill of Quantities" and replace with "Activity Schedule".

4.4 Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Project

Manager, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibilities under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Project Manager, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Project Manager. The Project Manager shall determine an addition to the Contract Price, in respect of such instruction, in consultation with the Employer and shall notify the Contractor accordingly, with a copy to the Employer

5. Delegation

- 5.1 The Project Manager may delegate any of his duties and responsibilities to other people, except to the Adjudicator, after notifying the Contractor, and may cancel any delegation after notifying the Contractor.

6. Communications the

- 6.1 Communications between parties that are referred to in Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered.

7. Subcontracting

- 7.1 The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations.

8. Other Contractors

- 8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors, as referred to in the Contract Data. The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification.

9. Personnel

- 9.1 The Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred to in the Contract Data, to carry out the functions stated in the Schedule or other personnel approved by the Project Manager. The Project Manager will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are substantially equal to or better than those of the personnel listed in the Schedule.

- 9.2 If the Project Manager asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating

the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.

10. Employer's and Contractor's Risks 10.1 The Employer carries the risks, which this Contract states are Employer's risks, and the Contractor carries the risks, which Contract states are Contractor's risks.

11. Employer's Risks 11.1 From the Start Date until the Defects Correction Certificate has been issued, the following are Employer'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 Employer 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 Employer or in the Employer's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.

11.2 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 an Employer'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 an Employer's risk, or
- (c) the activities of the Contractor on the Site after the Completion Date.

12. Contractor's 12.1 From the Starting Date until the Defects Correction Certificate has

Risks

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 Employer's risks are Contractor's risks.

13. Insurance

13.1 The Contractor shall provide, in the joint names of the Employer

and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the Contract Data 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.

13.2 Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

13.3 If the Contractor does not provide any of the policies and certificates required, the Employer may effect the insurance which the Contractor should have provided and recover the premiums the Employer 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.

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

13.5 Both parties shall comply with any conditions of the insurance policies.

14. Site Investigation Reports

14.1 The Contractor, in preparing the Tender, shall rely on any Site Investigation Reports referred to in the Contract Data, supplemented by any information available to the Tenderer.

15. Queries about

15.1 The Project Manager will clarify queries on the Contract Data.

**the Contract
Data**

**16. Contractor to
accordance
Construct the
Works** 16.1 The Contractor shall construct and install the Works in
with the Specifications and Drawings.

**17. The Works to
Be Completed
by the Intended
Completion** 17.1 The Contractor may commence execution of the Works on the
Start Date and shall carry out the Works in accordance with the
Programme submitted by the Contractor, as updated with the
approval of the Project Manager, and complete them by the
Intended Completion Date.

Date 18.1 The Contractor shall submit Specifications and Drawings
showing **18. Approval by the** the proposed Temporary Works to the Project
Manager, who is to
Project approve them if they comply with the Specifications and
Drawings.

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

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

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

18.5 All Drawings prepared by the Contractor for the execution of
the
temporary or permanent Works, are subject to prior approval by
the Project Manager before this use.

**19. Safety
activities** 19.1 The Contractor shall be responsible for the safety of all
on the Site.

20. Discoveries 20.1 Anything of historical or other interest or of significant value
unexpectedly discovered on the Site shall be the property of the
Employer. The Contractor shall notify the Project Manager of
such discoveries and carry out the Project Manager's
instructions for dealing with them.

**21. Possession of
the Site** 21.1 Insofar as the Contract may prescribe the Employer shall give:

 (a) the extent of portions of the Site of which the
Contractor is
 to be given possession from time to time

- (b) the order in which such portions shall be made available to the Contractor, and, subject to any requirement in the Contract as to the order in which the Works shall be executed, the Employer will, with the Project Manager's notice to commence the Works, give to the Contractor possession of
- (c) so much of the Site, and
- (d) such access as, in accordance with the Contract, is to be provided by the Employer as may be required to enable the Contractor to commence and proceed with the execution of the Works in accordance with the programme referred to in Clause 27, if any, and otherwise in accordance with such reasonable proposals as the Contractor ' shall, by notice to the Project Manager with a copy to the Employer, make. The Employer will, from time to time as the Works proceed, give to the Contractor possession of such further portions of the Site as may be required to enable the Contractor to proceed with the execution of the Works with due dispatch in accordance with such programme or proposals, as the case may be.

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|--------------------------------------|------|---|
| 22. Access to the Site | 22.1 | The Contractor shall allow the Project Manager and any person authorized 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. |
| 23. Instructions | 23.1 | Pursuant to the Duties and Authority of the Project Manager as specified in Clause 4, the Contractor shall carry out all instructions of the Project Manager, which comply with the applicable laws where the Site is located. |
| 24. Disputes | 24.1 | 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 14 days of the notification of the Project Manager's decision. |
| 25. Procedure for of Disputes | 25.1 | The Adjudicator shall give a decision in writing within 28 days receipt of a notification of a dispute. |
| | 25.2 | The Adjudicator shall be paid by the hour at the rate specified in the Tender Data and Contract Data, together with reimbursable expenses of the types specified in the Contract Data, and the cost |

shall be divided equally between the Employer and the Contractor, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within 28 days of the Adjudicator's written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator's decision will be final and binding.

- 25.3 The arbitration shall be conducted in accordance with the arbitration procedure published by the institution named and in the place shown in the Contract Data.

**26. Replacement of
and
Adjudicator**

- 26.1 Should the Adjudicator resign or die, or should the Employer 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 Employer and the Contractor. In case of disagreement between the Employer and the Contractor, within 30 days, the Adjudicator shall be designated by the Appointing Authority designated in the Contract Data at the request of either party, within 14 days of receipt of such request.

B. Time Control

27. Programme

- 27.1 Within the time stated in the Contract Data, the Contractor shall submit to the Project Manager for approval a Programme showing the general methods, arrangements, order, and timing for all the activities in the Works.
- 27.2 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.
- 27.3 The Contractor shall submit to the Project Manager for approval an updated Programme at intervals no longer than the period stated in the Contract Data. If the Contractor does not submit an updated Programme within this period, the Project Manager may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Programme has been submitted.

	27.4	The Project Manager's approval of the Programme shall not alter the Contractor's obligations. The Contractor may revise the Programme and submit it to the Project Manager again at any time. A revised Programme shall show the effect of Variations and Compensation Events.
28. Extension of Date if the Intended makes Completion Date	28.1	The Project Manager shall extend the Intended Completion a Compensation Event occurs or a Variation is issued which it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost.
	28.2	The Project Manager shall decide whether and by how much to extend the Intended Completion Date within 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 new Intended Completion Date.
29. Acceleration	29.1	When the Employer wants the Contractor to finish before the Intended Completion Date, the Project Manager will obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Employer accepts these proposals, the Intended Completion Date will be adjusted accordingly and confirmed by both the Employer and the Contractor.
	29.2	If the Contractor's priced proposals for an acceleration are accepted by the Employer, they are incorporated in the Contract Price and treated as a Variation.
30. Delays start Ordered by the Project Manager	30.1	The Project Manager may instruct the Contractor to delay the or progress of any activity within the Works.
31. Management meetings. Meetings	31.1	The Project Manager shall arrange monthly management meetings. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

31.2 The Project Manager shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

32. Early Warning

32.1 The Contractor shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price or delay the execution of the Works. The Project Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.

32.2 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 by anyone involved in the work and in carrying out any resulting instruction of the Project Manager.

C. Quality Control

**33. Identifying
notify
Defects**

33.1 The Project Manager shall check the Contractor's work and the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Project Manager may instruct the Contractor to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect.

34. Tests

34.1 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.

**35. Correction of
Defects**

35.1 The Project Manager shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Taking-Over, and is defined in the Contract Data.

35.2 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.

**36. Uncorrected
Defects**

- 36.1 If the Contractor has not corrected a Defect within the Defects Liability Period, the Project Manager will have the Defects corrected and the Contractor surcharged with the amount involved.

D. Cost Control

- 37. Bill of Quantities** ¹²
- 37.1 The Bill of Quantities shall contain items for the construction, installation, testing, and commissioning work to be done by the Contractor.
- 37.2 The Bill of Quantities is used to calculate the Contract Price.
- The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.
- 38. Changes in the in Quantities** ¹³
- 38.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 1 percent of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change.
- 38.2 The Project Manager shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15 percent, except with the prior approval of the Employer.
- 38.3 If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the Bill of Quantities.
- 39. Variations**
- 39.1 All Variations shall be included in updated Programmes ¹⁴ produced by the Contractor.
- 40. Payments for quotation Variations**
- 40.1 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 days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.

¹² In lump sum contracts, delete “Bill of Quantities” and replace with “Activity Schedule,” and replace Sub-Clauses

37.1 and 37.2, as follows:

37.1 The Contractor shall provide updated Activity Schedules within 14 days of being instructed to by the Project Manager. The activities on the Activity Schedule shall be coordinated with the activities on the Program.

37.2 The Contractor shall show delivery of Materials to the Site separately on the Activity Schedule if payment for Materials on Site shall be made separately.

¹³ In lump sum contracts, delete “Bill of Quantities” and replace with “Activity Schedule,” and replace entire Clause 38 with new Sub-Clause 38.1, as follows:

38.1 The Activity Schedule shall be amended by the Contractor to accommodate changes of Program or method of working made at the Contractor’s own discretion. Prices in the Activity Schedule shall not be altered when the Contractor makes such changes to the Activity Schedule.

¹⁴ In lump sum contracts, add “and Activity Schedules” after “Programs”.

- 40.2 If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work above the limit stated in Sub-Clause 38.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work.¹⁵
- 40.3 If the Contractor's quotation is 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.
- 40.4 If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.
- 40.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.

41. Cash Flow Forecasts

- 41.1 When the Programme ¹⁶ is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates.

42. Payment Certificates

- 42.1 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.
- 42.2 The Project Manager shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.
- 42.3 The value of work executed shall be determined by the Project Manager.

¹⁵ In lump sum contracts, delete this paragraph.

¹⁶ In lump sum contracts, add "or Activity Schedule" after "Program".

- 42.4 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.¹⁷
- 42.5 The value of work executed shall include the valuation of Variations and Compensation Events.
- 42.6 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.

43. Payments

- 43.1 Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Contractor the amounts certified by the Project Manager within 28 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest on the late payment in the next payment. 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 at the prevailing rate of interest for commercial borrowing for each of the currencies in which payments are made.
- 43.2 If an amount certified is increased in a later certificate or 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.
- 43.3 Unless otherwise stated, all payments and deductions will be paid or charged in the proportions of currencies comprising the Contract Price.
- 43.4 Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

44. Compensation Events

- 44.1 The following shall be Compensation Events:
- (a) The Employer does not give access to the Site as defined in Clause 21 by the Site Possession Date as stated in the Contract Data.

¹⁷

- (b) The Employer modifies the Schedule of Other Contractors in a way that affects the work 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.
 - (f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to Tenderers (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site.
 - (g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.
 - (h) Other contractors, public authorities, utilities, or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.
 - (i) The advance payment is delayed.
 - (j) The effects on the Contractor of any of the Employer's Risks.
 - (k) The Project Manager unreasonably delays issuing a Certificate of Completion.
 - (l) Other Compensation Events described in the Contract or determined by the Project Manager shall apply.
- 44.2 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.

44.3 As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, 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.

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

**45. Tax
duties,**

45.1 The Project Manager shall adjust the Contract Price if taxes, and other levies are changed between the date 28 days before the submission of Tenders for the Contract and the date of the last Completion certificate. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such changes are not already reflected in the Contract Price or are a result of Clause 47.

46. Currencies

46.1 Where payments are made in currencies other than the Ghanaian Cedis, the exchange rates used for calculating the amounts to be paid shall be the exchange rates stated in the Contractor's Tender.

**47. Price
only if
Adjustment**

- 47.1 Prices shall be adjusted for fluctuations in the cost of inputs provided for in the Contract Data. If so provided, the amounts certified in each payment certificate, after deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amounts due in each currency. A separate formula of the type indicated below applies to each Contract currency:

$$P_c = A_c + B_c I_{mc}/I_{oc}$$

where:

P_c is the adjustment factor for the portion of the Contract Price payable in a specific currency “c”. A_c and B_c are coefficients¹⁸ specified in the Contract Data, representing the nonadjustable and adjustable portions, respectively, of the Contract Price payable in that specific currency “c”; and I_{mc} is the index prevailing at the end of the month being invoiced and I_{oc} is the index prevailing 28 days before Tender opening for inputs payable; both in the specific currency “c”.

- 47.2 If the value of the index is changed after it has been used in a calculation, the calculation shall be corrected and an adjustment made in the next payment certificate. The index value shall be deemed to take account of all changes in cost due to fluctuations in costs.

- 48. Retention**
- 48.1 The Employer shall retain ¹⁹ from each payment due to the Contractor the proportion stated in the Contract Data until Completion of the whole of the Works.
- 48.2 On completion of the whole of the Works, half the total amount retained shall be repaid to the Contractor and half when the Defects Liability Period has passed and the Project Manager has certified that all Defects notified by the Project Manager to the Contractor before the end of this period have been corrected.
- 48.3 On completion of the whole Works, the Contractor may substitute retention money with an “on demand” Bank guarantee.
- 49. Liquidated Damages**
- 49.1 The Contractor shall pay liquidated damages ²⁰ to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor’s liabilities.
- 49.2 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. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in Sub-Clause 43.1.
- 50. Advance of Payment**
- 50.1 The Employer shall make advance payment to the Contractor the amounts stated in the Contract Data by the date stated in the Contract Data, against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to the advance payment. The Guarantee shall remain effective until the advance payment has been repaid, but the amount of the Guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest will not be charged on the advance payment.
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- 50.2 The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Project Manager.
- 50.3 The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages.
- 51. Securities**
- 51.1 The Performance Security shall be provided to the Employer not later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the Employer, and denominated in the types and proportions of the currencies in which the Contract Price is payable. The Performance Security shall be valid until a date 28 days from the date of issue of the Certificate of Completion in the case of a Bank Guarantee, and until one year from the date of issue of the Completion Certificate in the case of a Performance Bond.
- 52. Dayworks shall**
- 52.1 If applicable, the Dayworks rates in the Contractor's Tender 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.
- 52.2 All work to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within two days of the work being done.
- 52.3 The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.
- 53. Cost of Repairs the**
- 53.1 Loss or damage to the Works or Materials to be incorporated in Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

- 54. Completion** 54.1 The Contractor shall request the Project Manager to issue a certificate of Completion of the Works, and the Project Manager will do so upon deciding that the work is completed.
- 55. Taking Over** 55.1 The Employer shall take over the Site and the Works within seven days of the Project Manager's issuing a certificate of Completion.
- 56. Final Account detailed** 56.1 The Contractor shall supply the Project Manager with a account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Project Manager shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate.
- 57. Operating and manuals Maintenance the dates stated in Manuals** 57.1 If "as built" Drawings and/or operating and maintenance are required, the Contractor shall supply them by the Contract Data.
- 57.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the Contract Data, or they do not receive the Project Manager's approval, the Project Manager shall withhold the amount stated in the Contract Data from payments due to the Contractor.
- 58. Termination** 58.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.
- 58.2 Fundamental breaches of Contract shall include, but shall not be limited to, the following:
- (a) the Contractor stops work for 28 days when no stoppage of work is shown on the current Programme and the stoppage has not been authorized by the Project Manager;

- (b) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 28 days;
- (c) the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
- (d) a payment certified by the Project Manager is not paid by the Employer to the Contractor within 84 days of the date of the Project Manager's certificate;
- (e) 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;
- (f) the Contractor does not maintain a Security, which is required; and
- (g) 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 defined in the Contract Data.

58.3 When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under Sub-Clause 59.2 above, the Project Manager shall decide whether the breach is fundamental or not.

58.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

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

59. Payment upon Termination

Manager

59.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a

debt payable to the Employer.

- 59.2 If the Contract is terminated for the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.

60. Property

- 60.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer if the Contract is terminated because of the Contractor's default.

61. Release from by Performance

- 61.1 If the Contract is frustrated by the outbreak of war or any other event entirely outside the control of either the Employer or the Contractor, 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 work carried out before receiving it and for any work carried out afterwards to which a commitment was made.

Section IV. Contract Data

The following documents are also part of the Contract:

Contract

Clause

1.0 The Site is located at **as indicated in the Invitation for Tender** and is defined in drawings No: _____

1.1 The Employer is:

Name: **AFADZATO SOUTH DISTRICT ASSEMBLY**

Address **P.O. BOX 645, HOHOE**

Name of Authorized Representative **THE DISTRICT
COORDINATING DIRECTOR,**

The Project Manager is:

Name **DISTRICT HEAD OF WORKS**

Address **P.O. BOX 645, HOHOE.**

Name of Authorized Representative **THE DISTRICT COORDINATING
DIRECTOR,**

The name and identification number of the Contract is:
VR/ASDA/WKS/RFQ/DACF/082/2026

The Works consist of **COMPLETION OF 1 No. 6-UNIT TEACHERS BUNGALOW AT TAFI MADOR**

The Start Date shall be _____.

The Intended Completion Date for the whole of the Works shall be _____.

The following documents also form part of the Contract:

INSTRUCTION TO TENDERERS

FORM OF TENDER

ARTICLES OF AGREEMENT

CONDITIONS OF CONTRACT

PRELIMINARIES AND BILLS OF QUANTITIES AND DRAWINGS

3.0 The language of the Contract documents is **ENGLISH**

The law that applies to the Contract is the law of the Republic of Ghana.

8.0 Schedule of Other Contractors

9.0 The Schedule of Key Personnel

13.0 The minimum insurance covers shall be: **GHC 30,000.00 TO COVER CONTRACTOR'S ALL-RISK INSURANCE (CAR)**

- 14.0** Site Investigation Reports: N/A
- 21.0** The Site Possession Date shall be _____
- 25.0** Fees and types of reimbursable expenses to be paid to the Adjudicator:
SHALL BE RATES AS APPROVED BY Gh.I.S
- 25.0** Arbitration will take place in accordance with ²¹ **ALTERNATIVE DISPUTE
RESOLUTION ACT 798 OF 2010**
- 26.0** Appointing Authority ²² for the Adjudicator: **IET.**
- 27.0** The Contractor shall submit a revised Programme for the Works within **14** days of delivery of the Letter of Acceptance.
- 27.0** The period between Programme updates is 30 days. The amount to be withheld for late submission of an updated Programme is **GHC 1,000.00**
- 35.0** The Defects Liability Period (DLP) is 180 days ²³ .
- 41.0** The Contractor shall submit an Updated Cash Flow Estimate for the Works within **14** days of delivery of the Letter of Acceptance.
- 44.0** The following events shall also be Compensation Events: N/A

47.0 The Contract **IS NOT** subject to price adjustment in accordance with Clause 47 of the Conditions of Contract,

48.0 The proportion of payments retained is **10% of the value of works**

49.0 The liquidated damages for the whole of the Works **shall be 0.05 percent of the final contract price per day. The maximum amount of liquidated ascertained damages for the whole works is 5% of the final contract price**

50.0 The Advance Payment shall be N/A

51.0 The Performance Security shall be for the following minimum amounts equivalent as a percentage of the Contract Price:

(a) Bank Guarantee **10%** or Performance Bond **30%**

The standard form(s) of Performance Security acceptable to the Employer shall be of the type presented in Section 8 of the Tender Documents.

58.0 The date by which operating and maintenance manuals are required is **as agreed**

The date by which “as built” drawings are required is **as agreed**
The amount to be withheld for failing to produce “as built” drawings and/or operating and maintenance manuals by the date required is – **GHS 15,000.00**

60.0 The percentage to apply to the value of the work not completed, representing the Employer’s additional cost for completing the Works, is **10%**

Section V. Specifications

SECTION V

TECHNICAL SPECIFICATIONS

FOR THE WORKS

S P E C I F I C A T I O N S

1.0 GENERAL

The Technical specifications are intended to be descriptive only and not restrictive. The bidder may substitute alternative standards, brand names and/or catalogue numbers in its bid, providing it demonstrates to the employer's satisfaction that the substitutions are substantially equivalent or superior to those designated in the technical specifications.

In the following specifications unless the context otherwise requires, the following expressions shall have the meanings hereby assigned to them:

- 1.1 "Employer" is the **THE MINISTRY OF EDUCATION- ACCRA**
- 1.2 "Contractor" means the party whose Tender has been accepted by the Employer.
- 1.3 "Consultant" means the authorized representative of **ASDA**
- 1.4 'Works' means the works to be executed in accordance with the Contract, and includes all labour, materials, supplies, plant and equipment, and other items necessary for the performance, and the maintenance of all work to be executed under the contract.
- 1.5 Drawings" means all drawings, plans sketches, and maps issued to the Contractor and such other drawings as may from time to time be provided or approved by the Consultant.
- 1.6 "Site" means the land upon which are to be constructed the facilities shown and delineated on the contract drawings.

2.0 EARTHWORK

- 2.1 Visit to the Site
The contractor is advised to visit the site and satisfy himself as to the nature of the soil to be excavated and the level of the water table.

The contractor's price for excavation shall include for excavating in any type of ground (except rock as defined hereunder).

2.2 Excavation

- 2.2.1 Excavation for foundation and trenches shall be carried out to the lines and levels shown on the drawings or as may be required by the Consultant. The excavation shall be taken out to the minimum beyond the lines and levels as shown so as to reduce the amount of backfill required, due allowance to be made for working space and all necessary timbering.

- 2.2.1 Excavation over 1800mm deep shall be properly supported to prevent collapse. Slips which occur as a result of the contractor's failure to take due precautions will be taken out and made good at the contractor's own expense.
- 2.2.2 Where loose soil or weak pockets occur below the intended foundation level, they shall be taken out to the satisfaction of the Consultant and made up in mass concrete or other materials as shall be directed by the Consultant.
- 2.2.3 Where the excavation is exceeded, the levels are to be made up in mass concrete or other material as specified by the Consultant and at the Contractor's expense.
- 2.2.4 Excavation, backfilling and compaction by mechanical means will be permitted only where it is reasonably practicable and will not endanger or damage other structures or property.
- 2.2.5 The Contractor shall take all steps to keep the excavations free of water and give due regard to the possibility of floods and provide all pumps, timbering, sheet piling and other equipment necessary for the correct execution thereof.
- 2.2.6 No concrete or permanent works shall commence upon the excavation bottom until the excavation has been inspected and approved by the Consultant.
- 2.2.7 Should the Consultant so decide, soil at the building site shall be treated with sodium pentachlorophenate or other approved chemical.

2.3 Rock Excavation

- 2.3.1 The term "rock" where used in the Bills of Quantities shall be deemed to be geological formation which in the opinion of the Consultant can only be removed by means of pneumatic drills or similar mechanical plant or explosives.
- 2.3.2 The contractor's rates for excavation in rock shall include the getting out and disposal of extra material arising from such excavation and for backfilling with approved concrete to the lines and levels shown on the drawings.
- 2.3.3 Where excavation is in rock, the contractor shall cut back to the required inclination, trim, remove or support all projections as instructed by the Consultant.

2.4 Use of Explosives

- 2.4.1 The Consultant's express permission must be given for the use of explosives for this purpose. If permission is given, the contractor will be held responsible to ensure that charges are not excessive, that charge boreholes are adequately protected before being fired and that proper precautions are taken for the protection of the works, persons employed on the works, members of the public and adjoining property.

- 2.4.2 Should the presence of rock be such that foundation excavation or concrete foundation be unnecessary to the extent of the requirement stated on the drawings, the Consultant's approval must be given for any such omission.

2.5 Disposal of Materials

- 2.5.1 Excavated material which is suitable for re-use shall be stacked on site at such places as agreed with the Consultant.
- 2.5.2 All excavated material not required for re-use shall be removed from site to such places of disposal as shall be previously agreed with or indicated by the Consultant.

2.6 Backfilling

- 2.6.1 No backfilling is to commence until the foundation and permanent works have been inspected and passed as correct by the Consultant, otherwise the drawings shall be used to compute the quantities of any hidden work.
- 2.6.2 The material used as backfill shall be free from vegetable and other deleterious matter. It shall be of such quality as to be free of excessive voids when watered and compacted and should not contain rocks or lumps over 75mm in greatest dimension.

2.7 Placing and Compacting

- 2.7.1 The backfilling material shall be spread in layers not exceeding 150mm before compaction. The contained water shall be distributed uniformly through the soil and the water content shall be that which will permit proper compaction.

2.8 Hardcore

- 2.8.1 The hardcore filling under floors shall be approved laterite, hand broken stone or concrete, free from deleterious matter and evenly graded from 75mm down to 20mm ring. Hardcore shall be laid in layers not more than 150mm thick, well watered, rammed and consolidated and blinded with fine material where necessary.
- 2.8.2 The contractor's attention is drawn to the fact that the volume of fill has been measured net and that allowance should be made for loss in bulk that will occur due to consolidation, etc.

3.0 CONCRETE WORK

3.1 Generally

The materials, mixing, placing and curing of concrete works, reinforcement and formwork shall be in accordance with the recommendation laid down by the latest British Standard Code of Practice for the structural use of reinforced concrete in buildings.

3.2 Cement and Cement Storage

- 3.2.1 The cement shall be ordinary Portland Cement from approved manufacturers or their agents, and shall conform in every way with the provisions of British Standard 12 for normal setting Portland cement or other approved equivalent standards.
- 3.2.2 The cement shall be delivered in the unbroken, original packages of the manufacturers, plainly branded and must be stored in a well ventilated, watertight shed on a floor raised at least 300mm from the floor. Sufficient quantities must be stored to ensure continuous supplies and each consignment shall be kept separately and plainly marked for identification purposes so that it may be used in proper sequence.
- 3.2.3 No cement other than normal setting Portland cement may be used, and no admixtures may be added to the cement or the formwork unless specified or approved by the Consultant.

3.3 Fine Aggregate (Often Termed “Sand”)

- 3.3.1 Fine aggregate shall consist of hard siliceous sand or other approved inert material with similar characteristics having clean, hard, uncoated grains, free from lumps, soft or flaky particles, tree roots, shale, mica, crusher dust, silt, alkali, loam, organic matter, or other deleterious substance. The amount of silt, loam clay etc. in the fine aggregate must not exceed 10% to be determined as described in the Public Works Department Standard Site Instruction No.8.
- 3.3.2 Fine aggregate shall be uniformly varying in size and must pass through a mesh of 5mm square measured in the clear and not more than 10% shall pass through a No. 100 British Standard Sieve.

3.4 Coarse Aggregate (Often Termed “Stone”)

- 3.4.1 The coarse aggregate shall consist of gravel, crushed stones, or other approved material with similar characteristics, having lean, hard, uncoated particles, free from soft, friable, porous, elongated or laminated pieces, crusher dust, alkali, loam, mica, organic matter or other deleterious substances.
- 3.4.2 The particles shall be uniformly varying in size and must pass through a screen with a mesh of 20mm square measured in the clear, and be retained on a screen with a mesh of 5mm square measure in the clear. The grading of the coarse aggregate shall be considered satisfactory if, by sieve analysis, the percentages by weight passing through the sieves measured square in the clear are as follows:

Sieve Opening (Square opening mm)	Percentage Passing by Weight
20	100
12	90 – 100
10	25 – 55
5	0 – 10

3.5 Samples of Aggregates

Samples of both fine and coarse aggregates are to be submitted to the Consultant for testing at least two weeks before commencing deliveries. No deliveries in bulk are to be commenced until such samples are approved by the Consultant as complying with this specification.

3.6 Storage of Aggregates

The aggregate shall be stored on clean, hard surfaces so as to prevent any contamination and admixture with foreign material, and in way such that aggregates of different type and size do not become mixed.

3.7 Steel Reinforcement

The steel reinforcement shall conform to British Standard 4449 for rolled steel bars British standard 4482 for hard drawn steel wire, and British Standard 4461 for cold twisted steel bars or other approved equivalent standards. The steel fabric reinforcement is to be hard drawn steel wire fabric and shall conform to British Standard 4482 or other approved equivalent standards.

3.8 Water

Water shall be clean and free from oil, acid, alkali, earth, salt, vegetable or organic matter, or other deleterious substance in suspension or in solution. Sea water shall not be used in any part of the works.

3.9 Rejected materials

3.9.1 All condemned materials shall be removed from the site within 24 hours.

3.10 Steel Reinforcement, Bending and Fixing

- 3.10.1 All steel bending is to be in accordance with BS 4466. The bending of reinforcing steel shall be carried out cold. No welding or heating of steel is permitted without the written consent of the Consultant. All reinforcement shall, prior to placing, be free from loose mill scale, loose rust, oil, grease, dirt or other foreign matter.
- 3.10.2 All reinforcement shall be placed in the exact position indicated on the drawings and shall be securely wired with 18 gauge soft iron wire at all intersections, and shall be supported in position in such a manner as to ensure that no movement will take place before the concrete has set.

3.11 Concrete Cover

- 3.11.1 The covers to bars as specified on the drawings are to be obtained by placing steel or spacer blocks (made of cement and sand mortar mix 1:3) supplied by the contractor, of approved size and shape and tied to the reinforcement. Where cover to bars is not shown on the drawings, the bars shall be so placed that in no case shall any main reinforcement have a cover of less than:

(a)	Column	40mm
(b)	Beam	25mm
(c)	Slab	13mm or the thickness of the bar whichever is the greater.

3.12 Construction of Formwork

- 3.12.1 **Timber formwork shall be used only twice.**
- 3.12.2 The formwork shall be of timber, steel or other suitable and approved material, which must be sufficiently strong, impervious and resistant to the action of cement. The formwork shall be true to line and level and adequately supported by struts and shores in such a manner that there will be no deflection under the liquid and solid pressure exerted by the concrete. The faces of formwork shall be constructed so as to avoid all leakage of liquid from the concrete and any joints in the formwork must be flushed up so as to avoid any marking appearing on the finished work. All rubbish and loose materials shall be removed from the inside of the formwork before concreting. The face of the formwork in contact with the concrete shall be wetted with clean water or approved shutter oil immediately prior to concreting. The formwork for beams and slab is to be so designed that sides of beams or slabs can be struck first, leaving shuttering to beam soffit and supporting props in position. In the case of beams exceeding 7500mm in span, the soffit shall be given a camber towards the center as specified on the drawings or as directed.

- 3.12.3 In the case of columns, the formwork shall be so constructed that the height of pour does not exceed 15000mm (this can usually be achieved by cutting a “window” in the formwork on a lightly reinforced side of the column at a height of 1500mm; pouring to this height; closing the window, and then continuing the concreting from the top. When this cannot be done, instructions will be given on the drawings).

3.13 Removal of Formwork

- 3.13.1 All formwork shall be struck without jarring the concrete or subjecting same to sudden shock.
- 3.13.2 Before striking any formwork, the contractor shall satisfy himself that the concrete is sufficiently hardened to bear its own load and any other loads that may be placed upon it. No formwork is to be removed if in the opinion of the Consultant the concrete has not set sufficiently. Approval of the Consultant shall not relieve the contractor of his liability to make good any concrete which may be damaged by premature removal or collapse of formwork.
- 3.13.3 Subject to the foregoing provisions and the concrete test cube results, the minimum periods for the removal of formwork generally are as follows:

SLABS	Soffit (Props left under)	-	4 days
	Props to Slabs	-	10 days
BEAMS	(Up to 6000mm span) sides	-	3 days
	Props and Soffits	-	16 days
BEAMS	(Over 6000mm span) sides	-	3 days
	Props and Soffits	-	16 days
	Plus ½ day for every 300mm In excess of 6000mm.		
COLUMNS	and walls (unloaded) sides	-	3 days
COLUMNS	and walls (loaded) as stated On drawing		

(These periods may be reduced only with the written approval of the Consultant).

In the case of special types of formwork, striking times are to be approved by the Consultant.

- 3.12.4 If a beam or slab is required to support a construction load in excess of its design load, the beam or slab is to be propped until the supported construction has reached the age when its propping may be removed.

3.12.5 No supports for the shuttering may be left in the finished concrete without the written permission of the Consultant.

3.13 Normal Finish to Structural Concrete Surfaces

3.13.1 After removal of the shuttering, the surface of all concrete shall be brought to a true surface and all defective portions of the face repaired, all cavities filled and any projections removed. In the event of parts of the concrete being honey-combed, such portions shall be cut out to a depth and shape required by the Consultant and made up with fine concrete of equal quality.

3.14 Concrete Making

3.14.1 Proportions of Concrete Mix

3.14.2 The concrete mixes will be specified on the drawing by strength requirements as specified in paragraph 3.20.6.

3.14.3 The batches shall be gauged as follows:

Concrete Mix Described as	Dry Cement	Fine Aggregate	Coarse Aggregate	Grade
1:3:6	50 kg.	0.11m ³	0.21m ³	15
1:2:4	50 kg.	0.07m ³	0.14m ³	20

3.14.4 **The Consultant shall have the right to vary slightly the volume of fine aggregate from time to time as required to obtain a denser mix. Any adjustment will be made so that the combined volume of fine and coarse aggregate remains unaltered. The contractor shall comply with this condition without extra charge.**

3.15 “Bulking” of the Aggregate

3.15.1 The Consultant may require allowance to be made in the gauging of the fine aggregate to counteract the increase in volume (often termed “bulking”) due to moisture content.

3.16 Gauge Boxes

3.16.1 When the aggregates are gauged by volume, accurate gauge boxes must be used. The boxes must always be completely filled, and the top struck off level. All such boxes shall be approved by the Consultant.

3.17 Weight-batching

- 3.17.1 When the aggregates are gauged by weight, the weights of aggregate per batch must be accurately determined and agreed with the Consultant.

3.18 Cement

- 3.18.1 The quantity of cement in a concrete mix is always to be measured by weight, and the mixer is to be of sufficient size to ensure that a batch of the specified mix may be made using whole bags of cement. The 50 kg. Bag is to be considered as 0.0355 m³ of volume in calculating volumetric proportions.

3.19 Mixing of Concrete Materials

- 3.19.1 All concrete is to be mechanically mixed in a batch mixer of approved type. The dry concrete material shall be mixed for at least three turns in the mixer, after which the gauged amount of water shall be gradually added while the mixer is turning. When the water has been added, the concrete is to be mixed for at least two minutes or other such periods as the Consultant shall direct to ensure thorough mixing of the ingredients but on no account shall mixing be carried out until segregation of the ingredients occurs. On the cessation of work, the mixer and all handling plant shall be washed clean. The contractor shall not mix any concrete by hand unless permission has been obtained from the Consultant and in the event of this being given twice the amount of cement required shall be used without extra charge by the contractor.

3.20 Consistency

- 3.20.1 The consistency of the concrete shall be determined at all times by means of the standard slump test. The slump cone shall be supplied by the contractor.
- 3.20.2 For normal concrete, the slump shall not exceed 100mm; for mechanically vibrated concrete, the slump shall not exceed 38mm.
- 3.20.3 The maximum slump of concrete for floor slabs placed on soil sub-grade shall not exceed 75mm.

3.21 Testing

- 3.21.1 Concrete shall have a minimum compressive as indicated in item 3.20b.
- 3.21.2 The strength of the concrete shall be determined by the testing of 150mm specimen test cubes taken from the concrete during the progress of the work.

Nine such cubes shall be taken for each day's concreting or for each 15m³ of concrete placed, whichever is the lesser. Three cubes are to be tested at 7 days, and at 20 days, and three are to be held in reserve.

- 3.21.3 The standard method of naming, curing and testing the cubes shall be adopted and agreed with the Consultant.
- 3.21.4 All cubes made are to be marked and recorded as shall be agreed on with the Consultant.
- 3.21.5 The contractor shall supply the cube moulds and the testing facilities required. The contractor shall also supply the concrete required for the cubes and his prices shall include all costs for this work.
- 3.21.6 The test cubes above referred to, made, cured and tested in accordance with the provisions of this specification shall show, to the satisfaction of the Consultant that the concrete from which the samples were taken and the concrete used on the contract generally, complies with the following minimum requirements.

Concrete Mix Described as	Compressive Strength	
	7 days After Mixing	28 days After Mixing
1:3:6	10.0N/mm ²	15.0N/mm ²
1:2:4	14.0N/mm ²	20.0N/mm ²

3.22 Water Cement Ratios

- 3.22.1 With the approval of the Consultant, concrete mixes may be designed for the required 28 days compressive strength using the water cement (w/c) ratio (in lieu of volumetric proportions based on cement content). Permissible maximum water cement ratios by weight, which include all free surface moisture carried by the aggregates, for the several 28 days compressive strengths of mixes are as follows:

Required Minimum 28-day Compressive Strength in N/mm²	Water-Cement Ration (W/C) by Weight
15	0.710
20	0.578

3.23 Notice of concreting to be given

- 3.23.1 Before concreting any portion of the work, the contractor shall give written notice to the Consultant and obtain his written approval.

If due notice is not given, the Consultant may require the contractor to remove any concrete so placed at the contractor's expense.

3.24 Distribution of Concrete

- 3.24.1 The concrete may be distributed in barrows, concrete cars or by means of chutes or head pan or by any other approved methods which will prevent aggregation or loss of the ingredients.
- 3.24.2 When shutting is used, the slope of such shutting shall be uniform throughout and shall not exceed 45 degrees. The shute is to be kept clean and free at all times from the gradual deposition of concrete.

3.25 Placing and consolidation of concrete

- 3.25.1 The concrete must be placed into position as rapidly as possible after wetting and in any case before any setting is commenced. The concrete shall be thoroughly compacted when in position so that it will, with the aid of Roding and tamping, flow entirely and solidly around the reinforcement without leaving any voids.
- 3.25.2 Mechanical vibration and pre-vibration will be permitted, on the application of the contractor, subject to the following conditions:
 - a) Methods of vibration shall not cause separation or segregation of the aggregate and cement components of the wet concrete;
 - b) Vibration shall not disturb concrete which has recently begun to set;
 - c) All details of the proposed vibration plant and manner of application shall be subject to the approval of the Consultant. Permission and/or approval do not release the contractor from his liability to make good work which may be damaged by excessive or ill-applied vibration or pre-vibration.

3.26 Construction Joints

- 3.26.1 Immediately prior to concreting up to the joint, its face shall be soaked with water and covered with a thin layer of freshly made cement and sand mortar consisting of equal proportions.

3.27 Exposed Corners

- 3.27.1 All exposed concrete shall be chamfered 20mm.

3.28 Expansion Joints

- 3.28.1 The expansion joints are to be made as shown on the drawings or as instructed by the Consultant.

3.29 Curing

- 3.29.1 All concrete shall be kept thoroughly moist for the first 7 days of setting by means of wet sand or wet sacks.

3.30 Workmanship

- 3.30.1 The work is to be carried out strictly in accordance with the details and no deviation whatsoever will be allowed except by written permission of the Consultant.

3.31 Embedded items

- 3.31.1 Structural steel shapes anchor bolts, steel plates, etc., and other similar items to be embedded in concrete shall conform to accept British Standards for such material.
- 3.31.2 No openings, holes, chases, mortices, boxings, etc. shall be formed in the concrete without the approval of the Consultant. Details of fixings or fixtures to be permanently built into concrete shall be submitted to the Consultant for approval.

3.32 Monolithic Floors – Trowel Finish

- 3.32.1 Concrete surfaces which form finished floors shall be struck off and consolidated by screeding and tamping to exact elevations and slopes shown on the drawings or as directed. The concrete shall then be further smoothed and consolidated to a uniform, close textured surface by means of a wood float or power floating machine and all high and lower spots exceeding 6mm under a 5000mm straight edge eliminated. Floating and testing of the surface shall be continued until all high and low spots are corrected and a dense uniform surface obtained. Floating in excess of that required to level and consolidate the surfaces and bring a small amount of grout to the surface will be prohibited. In addition to the above, the floor shall be finished by steel troweling after the concrete has hardened sufficiently (30 – 45 minutes depending on weather conditions) to prevent excess fine material from working to the surface. The final finish shall be smooth and free from defects and blemishes. Finish shall be polished or unpolished as directed.

3.33 Tamped Finish

- 3.33.1 Where a tamped finish is specified, the surface of the concrete shall be leveled and tamped with a timber screed board.

3.34 Float Finish

- 3.34.1 Where a float finish is specified, the surface of the concrete shall first be tamped. After hardening sufficiently, the concrete shall be smoothed with a wood float so as to produce a uniform surface. Cement shall not be sprinkled on the surface before floating.

3.35 Ready Mixed Concrete

- 3.35.1 Ready mixed concrete shall be manufactured and delivered in accordance with B.S. 1926, "Ready Mixed Concrete".
- 3.35.2 The concrete shall comply with this specification. Works cube tests and slump tests shall be made once each day for each concrete grade delivered to site.

3.36 Precast Concrete

- 3.36.1 Precast concrete shall comply with the preceding sections of the concrete specifications except where modified by the following paragraphs.

3.37 Construction

- 3.37.1 The manufacture and installation of precast units shall comply with the recommendations made in British Standard Code of Practice C.P. 116, "The Structural use of Precast Concrete".
- 3.37.2 Precast concrete units are to be cast in one length where practicable. Where this is not possible, members shall be cast in lengths convenient for handling purposes as agreed with the Consultant and between such lengths as may be required.

3.38 Handling

- 3.38.1 Before removal from the casting beds, the concrete shall have attained sufficient strength to avoid any damage or distortion or overstressing of the precast units. The contractor shall provide and incorporate all necessary lifting devices which shall be subject to the approval of the Consultant.

3.39 Erection

- 3.39.1 Prior to erection in the works, the contractor shall submit to the Consultant for approval, details of his proposed arrangement for lifting and erecting the units.

3.40 Jointing

- 3.40.1 All joint surfaces shall be thoroughly cleaned. Dry packed mortar joints shall be formed by compacting the mortar with a steel tool in layers not exceeding 20mm in thickness. Bedded mortar joints shall be formed by bedding the precast units on a firm layer of mortar. The unit shall be supported in such a way as to prevent extrusion of the mortar.

- 3.40.2 Thin bedded mortar joints shall be formed with neat cement mortar spread evenly to form a bed sufficiently thick only to make up any low points on the bedding surface.

4.0 **BRICKWORK AND BLOCK WORK**

- 4.1 The cement and sand shall be as described under CONCRETE.

4.2 **Sandcrete Blocks**

- 4.2.1 Sandcrete blocks shall be solid and ungrooved blocks made on the site in a n approved machine or purchased form an approved manufacturer. They shall be composed of one part of cement to six parts sand.

- 4.2.2 All blocks shall be finished with smooth surfaces and clean sharp arises. All mixture shall be made into block within 20 minutes of water being added and the mixture not used within this time shall be removed from the site.

4.3 **Curing of Sandcrete Block**

- 4.3.1 The blocks shall be matured for twenty-four hours in a shed protected from direct sunlight, rain and drying winds. They must be kept moist during the twenty-four hours if necessary by gently spraying with water.

- 4.3.2 After twenty-four hours the blocks shall be carefully removed and laid on the ground in one layer. They shall be covered with polythene sheets, and kept thoroughly soaked for ten days.

4.4 **Dimensions of Blocks**

- 4.4.1 The external dimensions of blocks within the tolerance specified shall be as follows:

Length	...	450mm	$\pm 3\text{mm}$
Height	...	225mm	$\pm 3\text{mm}$
Thickness (solid blocks)	...	100 – 150mm	$\pm 3\text{mm}$
Thickness (hollow blocks)	...	100 – 225mm	$\pm 1.6\text{mm}$

- 4.4.2 Blocks shall be true to shape and be left with good sharp, clean arises.

4.5 **Mix and Quality**

- 4.5.1 Block shall be produced using 1:6 mix or such other mix as the Consultant may direct to meet the requirements specified below.

4.6 Extract from B.S. 2028

4.6.1 The following extract from B.S. 2028 shall be the guiding factor as to the strength, etc. required:

- | | |
|-----------------------|--|
| (a) Density | The density of the solid or hollow blocks shall not exceed 1600 kg/m ³ determined on dry specimens. |
| (b) Strength | The compressive strength of block shall not be less than:

Average of 12 blocks - 2.8N/mm ²
Lowest individual block – 2.18N/mm ² gross area |
| (c) Dry Shrinkage | The average value of dry shrinkage of three test specimen shall not exceed 0.06%. |
| (d) Moisture Movement | The average moisture movement of specimen shall not exceed 0.05%. |

4.7 Mortar

4.7.1 The jointing mortar for sandcrete blocks shall be composed of one part cement and four parts sand. Up to 10% by volume of hydrated lime may be added to provide a workable mix.

4.8 Block laying

4.8.1 Block work shall be generally laid in stretcher bond and properly bedded and jointed. Joints shall be thoroughly flushed up while laying the blocks and joints shall not exceed 12 mm.

4.8.2 Walls are to be carried up in a uniform manner and no part of the walls shall be carried more than 1000mm above another part at anytime. All courses shall be level and all perpend, quoins and the like kept strictly true.

4.9 Pointing

4.9.1 Where block walls are to be left unplastered, all joints shall be struck flush and compressed to a dense surface with a piece of 12mm diameter bent rod.

4.9.2 Where block walls are to be plastered or are to receive ceramic tile, joints shall be raked out to a depth of 12mm.

4.10 Reinforcing

4.10.1 Where indicated on the drawings, block work shall be reinforced with bar reinforcement conforming to British Standard 4449. Cells in the block in which vertical reinforcement is placed shall be filled with Portland cement mortar as specified herein.

Bars in filled cells shall not be moved or otherwise disturbed until the mortar has set. Where horizontal reinforcement is called for, the cells in the blocks in the course above and below the joint in which the reinforcement is placed shall likewise be filled with mortar. Wall intersections and corners shall be tied with reinforcement and the cells filled with mortar as specified for horizontal reinforcement.

4.11 Clay Bricks, Blocks and Facing Tiles

4.11.1 Clay bricks and facing tiles are to be obtained from approved manufacturer and are to be laid in accordance with the manufacturer's recommendations. The external dimensions of bricks within the tolerances specified shall be as follows:

4.11.2

	Lengths (3mm)	Width (3mm)	Thickness (1.6mm)
Hollow blocks	300mm	225mm	100 – 125mm
<i>Standard Perforated Bricks</i>	225mm	100mm	75mm
Standard Bricks (Solid)	225mm	100mm	75mm
Decorative Bricks slips	225mm	75mm	12mm
Roofing Tiles	265mm	165mm	12mm

5.0 ROOFING

5.1 Corrugated Sheet Roofing

5.1.1 Corrugated sheets for roofing shall be corrugated chromium plated aluminium sheets, of gauges and thicknesses specified on the Drawings or Bills of Quantities. Roofing sheets and accessories are to be obtained from approved manufacturers and are to be fixed in strict accordance with the manufacturer's instructions. In no case shall side laps be less than two corrugations.

5.2 Aluminium Hips, Ridges and Valleys

5.2.1 Hips, ridges and valleys may be plain or preformed units, formed with 0.7mm flat aluminium sheet, fixed in accordance with the manufacturer's instructions for aluminium sheet roofing.

5.3 Concrete Hips and Ridges

5.3.1 Hips and ridges for corrugated asbestos sheet roofing shall be preformed asbestos units, or precast or in-situ concrete units as specified on the Drawings and Bills of Quantities. Precast or insitu concrete ridges and hips shall all have a two layer felt underlay.

5.4 Bituminous Felt Roofing

- 5.4.1 Roofing felt shall be three layers of self-finished bitumen felt to B.S. 747: 1968 IC, laid with 50mm side and 75mm end laps staggered, the layers bonded together with hot bitumen bonding compound as described in C.P. 144 Part 1: 1968.

5.5 Flintkote

- 5.5.1 Flintkote roofing materials shall be obtained from the Shell Company of Ghana Limited, Accra, and shall be applied in strict accordance with the manufacturer's instructions to the following specifications.
- 5.5.2 Brush all surfaces thoroughly and remove all loose dirt, dust, etc. and apply priming coat consisting of equal volumes of flintkote type 3 emulsion and water (1 litre of emulsion per 4 square metres). The primary coat shall be well brushed into the surface and allowed to dry.
- 5.5.3 Apply a heavy brush coat of Flintkote type 3 emulsion (3 litres of emulsion per 4 square metres) and immediately embed "Tyglasses" or similar open mesh woven glass fibre membrane lapped 75mm at all joints).
- 5.5.4 Apply a light fibre brush coat of Flintkote type 3 emulsions (2 litres of emulsion per 4 square metres). Allow to dry.
- 5.5.5 Apply a heavy brush coat of Flintkote Type 5 emulsion (3 litres of emulsion per 4 square metres). Allow to dry.
- 5.5.6 Finish surfacing with two coats of Flintkote Decoralt "F" consisting of two parts Decoralt "F" to one part of water (1 litre of Decoralt "F" per 9 square metres per coat). The first coat shall be brushed on in one direction and allow to dry. The second coat is to be applied at right angles to the first.

5.6 Clay Roof Tiles (Where Applicable)

- 5.6.1 Clay roofing tiles, hips, ridges and valley tiles are to be obtained from approved manufacturer and are to be laid in accordance with the manufacturer's instructions.

5.7 Micro Precast Concrete Roofing Tiles

- 5.7.1 Micro precast concrete roofing tiles and accessories are to be obtained from approved manufacturer and are to be laid in accordance with the manufacturer's instructions.

5.8 Eaves

- 5.8.1 The fascia board projection below the eaves boarding shall not be less than 20mm and not more than 25mm. In no circumstances shall the fascia and the eaves boarding flush.

6.0 CARPENTRY AND JOINERY

6.1 General

6.1.1 This section covers furnishing, protecting, fabricating, and installation and surfacing of all framing, blocking, sheating and finish lumber. All rough hardware, facings laminated to wood surfaces, and other millwork and all supplies and services appurtenant to such materials are covered hereby.

6.2 Timber

6.2.1 The whole of the timber for the Carpentry and Joinery work shall be approved by the Consultant. Unless otherwise described the contractor shall submit samples clearly labeled and stating the proposed usage of each specimen to the Consultant.

6.2.2 The whole of the timber for Carpentry and Joinery work shall be made thoroughly termite proof to the satisfaction of the Consultant with an approved preservative and used strictly in accordance with the manufacturer's instructions.

6.2.3 After thorough immersion the timber shall be withdrawn and stacked to dry out before being used.

6.3 Sawn Timber

6.3.1 Timber required for carpentry shall be ordered sawn and carefully stacked under cover so as to allow air to freely circulate around it and shall hold up to the full scantling specified.

6.4 Wrot Timber

6.4.1 The whole of timber for joinery work shall be wrot and unless described as "Finished", the sizes stated are those before planning and 3mm will be allowed on each wrot face from all specified thickness.

6.5 Workmanship

6.5.1 Each of the various classes of carpentry and joinery hereby shall be performed by craftsmen skilled in that class.

6.5.2 Every item shall be rigidly anchored or attached, square, plumb and true in other planes and shapes shown on the drawings. All joints shall be tight, even and free of offsets. All surfaces shall be sanded, filled or otherwise prepared to receive paint where indicated.

6.5.3 Where timber for carpentry and Joinery is described as plugged the fixing is to mean plugging to concrete, or block work or any other material requiring plugging by means of "Rawplugs" or timber plugs and the contractor is to include for the same in his prices.

6.6 Materials

6.6.1 Species

- 6.6.2 Timbers shall be West African hardwood and softwood selected for their durability and allowable working stresses best suited for the intended use. Mixed species for the same structural or finish use in any one building will not be permitted without approval of the Consultant. Where possible, timber shall be one of the type specified in the following table:

Botanical Name	Trade Name	Local Name
Chlorophora Excelsa	Iroko	Odum
Cylicodiscus Gabunensis	<i>Okan</i>	Denya
Erythrophleum Geuinese	Tali	
Piptadenia Africana	Dahoma	<i>Potrodum</i>
Sarcocephalus Dederrichi	Opepe	Dahoma Kusia

6.7 Other types of lumber

- 6.7.1 Other types of lumber than those herein specified shall be used if so indicated on the drawings or specified elsewhere and may be used if approved. A complete list of grades of such other types of lumber, along with three copies of the grading rules under which such lumber will be furnished, shall be submitted and approved before such other types of lumber are delivered to the site.

6.8 Protection of Materials

- 6.8.1 All lumber shall be handled, stacked, stored, cut and installed according to the best recognized practices of the manufacturer of each type and grade of lumber.

6.9 Seasoning of Timber

- 6.9.1 Timber for building purpose should always be seasoned. Timber delivered green or semi-green should be stacked under cover in an approved manner and allowed to season before use. The length of time required to season from green in West Africa is approximately two months per 25mm of thickness. Timber shall be seasoned in the locality where it will be used for a period of 6 months or until the moisture content is reduced to 20% or less, whichever occurs first.

6.10 Timber for Polishing

- 6.10.1 Where timber is to be polished, or stained and oiled, or stained and varnished, such timber shall be specially selected for grain, figuring and marking and approved by the Consultant.

6.11 Exterior Use

- 6.11.1 Timbers for exterior use where durability under exposure to the elements is of prime importance will be of one of the following species: Opepe or Iroko (Odum).
- 6.11.2 The required species selected for structural requirements will be indicated on the drawings or specified by the Consultant. Other suitable species will be permitted upon approval by the Consultant.

6.12 Interior Use

- 6.12.1 Timbers for interior use may be of the less durable woods of other species approved by the Consultant. The required specie selected for structural requirements or finish will be indicated on the drawings or specified by the Consultant.

6.13 Structural Requirement

- 6.13.1 Timbers for structural use shall be of a specie suitable for exterior or interior exposure as required, and shall have minimum working stresses based on factors of safety as shown in the following table:

Bending	Max . Strength	Allowable Working Stress N/mm²
Compression parallel to grain	8	8.0
Compression at right angles to grain	Hardness 3	3.0
Shear parallel to grain	Shear 8	1.5
Tension parallel to grain	Bending + 50%	12.0
Modulus of Elasticity	Individual Modulus 2	4600

6.14 Doors

- 6.14.1 Doors shall be paneled and obtained from Wood Dizens, Kumasi or any other approved source of equal quality.

6.15 Plywood

- 6.15.1 Plywood shall conform to the provision of British Standard 1455 and shall be either Interior or Exterior type as defined on the drawings, or as directed by the Consultant, and shall be of an approved manufacture preferably from Bondplex Ghana Ltd., Kumasi or other approved source of equal quality.

6.16 Laminated Plastic Sheeting

- 6.16.1 Laminated plastic sheeting is to be Formica as manufactured by Formica Limited, De la Rue House, 84/86 Regent Street, London W.1, England or other similar equal and approved and shall be fixed with an approved adhesive in strict accordance with the manufacturer's instructions.

6.17 Tongued-and-Grooved Boarding

- 6.17.1 Tongued-and-grooved boarding shall be 20mm thick hardwood strips in 75 mm. maximum face widths or as otherwise stated on the drawings, samples from manufacturers must be submitted to the Consultant for selection and approval. Selected timber for lining shall be kept clean for polishing.

6.18 Insect Screen Cloth

- 6.18.1 Insect screen cloth shall be aluminium wire conforming to Federal Specification L.S. 139 unless otherwise specified and shall be 20 mesh per 25mm width.

6.19 Burglar-Proofing

- 6.19.1 Burglar-proofing for panned windows shall be 20mm square tabular yield rods conforming to British Standard 4449 for steel bars. Rods shall be fixed through block work as indicated in the drawings and shall not disturb opening of the windows.

6.20 Nails and Screws

- 6.20.1 All nails and screws shall conform with B.S. 1202 and 1210. Oval or round brands of nails shall be used for fixing all face work and heads shall be properly punched in and neatly puttied.

6.21 Glass Paper

- 6.21.1 All woodwork to be painted is to be thoroughly glass papered and care must be taken to ensure that plane marks do not occur.

6.22 Priming

- 6.22.1 All joinery specified to be painted is to be knotted and primed (see Painting and Decoration) before leaving the Joiner's shop.

7.0 IRONMONGERY

7.1 Scope

- 7.1.1 This section covers all rough and finish hardware and the requirements thereof apply to any items indicated on the drawings and hardware schedule which, in accordance with accepted trade practices, require the installation of rough or finish hardware for proper operation or appearance. Quality of hardware shall be as specified in the Bills of Quantities stating acceptable manufacturing model or catalogue designation for the functions specified, herein.

7.2 Samples

- 7.2.1 Samples of all locks, latch sets, door handles, hinges closers and the like shall be submitted to the Consultant for approval before any finish hardware is installed.

7.3 Finish

- 7.3.1 Finish of all hardware within the Building shall match unless otherwise specified. Ironmongery is to be fixed with screws of the same metal and finish as the fitting except that all steel or iron ironmongery is to be fixed with brass screws. All screws damaged during fixing, or from any other cause, are to be withdrawn and replaced with undamaged ones.

7.4 Material

- 7.4.1 In general, hardware shall be manufactured of brass or bronze as specified below. Substitution of aluminium in place of brass or bronze will be acceptable subject to approval by the Consultant.

7.5 Design of Trim

- 7.5.1 Unless otherwise specified, door trim shall be of a commercial plain design. Large items, such as escutcheons, shall have straight sides, square corners, and medium beveled edges. Small items, such as roses, key plates, etc. shall have smooth rounded edges and corners.

7.6 Master Key Systems

- 7.6.1 Key lock and padlocks specified herein shall be, master keyed to conform to the system requirements of the Consultant. The contractor shall furnish 3 keys for each lock and 6 master keys for each system.

7.7 Hinges – General

- 7.7.1 These shall be non-template butt hinges, ball bearing type, unless otherwise specified. Hinges shall be made from wrought brass or bronze with stainless steel pins. 100mm pairs of hinges shall be used at all doors unless otherwise specified.
- 7.7.2 All locks and other fittings are to be oiled, and adjusted and left in perfect working order.
- 7.7.3 Prior to the handing over of the works, or any section thereof, the contractor shall fit wooden tabs to each set of keys, clearly showing to which lock they belong and all the sets of keys shall be delivered to the Consultant mounted on a suitable plywood key-board.

8.0 STRUCTURAL STEELWORK AND METALWORK

8.1 Mild Steel

- 8.1.1 Mild steel shall conform to B.S. 15

8.2 Holes

- 8.2.1 Holes in metal for fixing are to be drilled clean, burns removed and filed smooth on face. All counter-sinking is to be concentric and to the required depths.

8.3 Bends

- 8.3.1 All bends shall be evenly forged.

8.4 Welding

- 8.4.1 Welding is to be carried out by the use of the “Metallic Arc Method” and is to be executed by skilled and fully competent operatives under careful supervision.

8.5 Bolts

- 8.5.1 Bolts shall be best screw bolts with Whitworth threads and hexagonal heads and fitted with washers under the nuts and with tapered washers under heads and nuts where such bear on a tapered surface. The threaded portion of each bolt shall project through the nut at least two threads.

8.6 Priming

- 8.6.1 All steelwork shall be primed before fixing with red lead oil primer or other approved paint.

8.7 “Naco” Louvre Carriers

- 8.7.1 All louvre carriers and surround shall be approved by the Consultant. The carrier shall be of aluminium or consist of zinc plated and passivated mild steel clips and side channels finished with an aluminium lacquer. The louvre panels shall be operated by means of manual lever controls except where otherwise stated and shall be capable of being locked when in the closed position.

8.8 Aluminium Windows and Doors

- 8.8.1 Supply and installation of aluminium doors and windows shall be carried out by a Nominated Sub-contractor who shall be responsible to the Main Contractor in all respects.
- 8.8.2 The main contractor will be required to provide adequate storage facilities for the Nominated Sub-contractor.
- 8.8.3 The Nominated Sub-Contractor shall by site visit agree with the Main Contractor about time for execution of work, time limited etc.

9.0 PLUMBING AND ENGINEERING INSTALLATIONS

9.1 Generally

9.1.1 The whole of the plumbing work is to be carried out strictly in accordance with the requirements of the Local Authority and to the approval of the Consultant and shall conform with the relevant British Standard.

9.2 P.V.C. Pipes and Fittings

9.2.1 P.V.C. pipes and Fittings shall be obtained from approved manufacturer.

9.2.2 “U” P.V.C. rainwater, soil and ventilating pipes, waste and overflows are to comply with B.S. 3505 Class “B”.

9.2.3 “u” P.V.C. pressure pipes are to comply with B.S. 3505 Class “C”.

9.3 Mild Steel Pipes and Fittings

9.3.1 The mild steel tubing is to be galvanized screwed and socketed and to comply with the B.S. 1387 or other equal and approved and to be “Heavy” Grade for services laid in the ground and “Medium” Grade for other services all jointed in red lead cement and fine spun yard. The fittings are to be malleable iron plain fittings to B.S. 143 and 1256.

9.4 Copper Pipes and Fittings

9.4.1 Copper pipes shall be fixed with brass pipe brackets in accordance with B.S. 659 Table “A”.

9.5 Cast Iron Drain Pipes and Fittings

9.5.1 The cast iron pipes shall be spigot and socket type to B.S. 437 made from a suitable pig iron with a mixture of clean scrap with fittings to B.S. 1130. The pipes shall ring clearly when struck with a light hammer and protected by being coated with a composition having a tar base. Joints shall be made in caulked lead and yarn.

9.6 Asbestos Cement Pipe

9.6.1 Asbestos cement pipe shall be obtained from approved manufacturer.

9.7 Fixing of Pipes and Tubings

9.7.1 All pipes and tubings are to be fixed 25mm clear of all faces and 75mm clear of floors or ceilings. Joints are not to be made in the thickness of any wall or floor.

9.7.2 Holderbats, pipe clips, brackets, straps and hangers etc., are to be provided as required and as directed by the Consultant.

9.8 Valves and Fittings

9.8.1 All valves and bib cocks are to be of the best quality and equal to the samples to be submitted and approved by the Consultant.

9.9 Copper Pipes and Fittings

9.9.1 Copper pipes shall be solid drawn seamless copper and shall be of compression type conforming to B.S. 864.

9.10 Sanitary Fittings

9.10.1 Sanitary fittings shall be of approved pattern and be obtained from a supplier to be approved by the Consultant.

9.11 Testing

9.11.1 The whole of the Plumbing system is to be tested in the presence of and to the satisfaction of the Consultant. The method of testing is to be at the discretion of the Consultant and the Contractor is to allow for providing all necessary equipment, labour, etc. Any fittings working unsatisfactorily shall be removed and replaced at the Contractor's expenses to the satisfaction of the Consultant.

10.0 ELECTRICAL INSTALLATION

10.1 Regulations for Installation and Erection

10.1.1 The whole of the Electrical Installations shall be carried out in accordance with the latest Edition of the Regulations for the Electrical Equipment of Buildings, as issued by the Institute of Electrical Engineers, London, the latest Code of Practice for the Electrical Equipment of Buildings issued by the Electricity Corporation of Ghana, and any such Regulations as may be published by the Electricity Corporation of Ghana, and any appropriate Insurance firm regulations.

10.1.2 The Electrical Contractor shall be responsible for giving all the necessary notification to the various authorities involved and for paying all fees.

10.1.3 The contractor shall provide all necessary tools, plant scaffolding and equipment and be responsible for the safety of such during the work.

10.1.4 All workmen engaged on the works shall be skilled workmen and the contractor shall guarantee work performed for a period of six (6) months, starting after issuance of a Certificate of Completion, against any defects.

10.2 Power Supply

- 10.2.1 The Electrical Power Supply will be made by the Electricity Corporation of Ghana via the existing sub-station.

10.3 Cables

- 10.3.1 All cables and flexible cords shall comply, in respect to current carrying capacity with the latest edition of the Ghana Electricity Corporation's Regulations for the Electrical Equipment of Building.

- 10.3.2 All lights shall be controlled by individual wall switches, samples of which should be shown to the Consultant, and shall be mounted 1200mm above floor level.

- 10.3.3 All cables shall be pvc insulated only 250 volts grade, single core, to B.S. 2004/1953 with minimum sizes as follows:

Lighting Circuits	3/036 (1.5mm ²)
Ring Mains for 13 AMP fuse Switch socket outlets	7/029 (2.5mm ²)
Water Heaters and Window Air-conditioners	7/036 (4.0mm ²)
15A socket Outlets	7/036 (4.0mm ²)
Cooker Circuits Sub-mains to distribution	7/044 (6.0mm ²)
Boards	19/064 (25.0mm ²)

- 10.3.4 All cables shall be supplied on suitable drums and shall be delivered to site with labels showing origin and specification. Such labels shall be retained by the Electrical Contractor for checking by the Engineers.

- 10.3.5 3-Phase P.V.C. cables shall have insulation identified by the usual colour coding for phases and neutral.

- 10.3.6 1-phase PVC cables shall have red-colouring for phase, and black-colouring for neutral.

- 10.3.7 Single-core cables shall be installed in a manner that shall eliminate circulating currents. Cable ways through ferrous plates shall be slotted and all cable glands and sockets shall be made of brass.

10.3.8 To avoid distortion under short circuit conditions all single core cable should be firmly secured.

10.3.9 All cables shall be made of copper.

10.4 Main Switch Board

10.4.1 The Electrical Contractor shall provide and install the Main Switch Board which shall be a framework comprising a main Busbar chamber, the main-incoming, fuse-switch, and the outgoing fuse-switches and switch fuses.

10.4.2 The rating of the fuse-switches and switches has been indicated in the Bill of Quantities.

10.4.3 Adequate space shall be provided on the main switch board for the Electricity Corporation of Ghana to fix and connect a 3-ph KWH meter and all necessary current transformers.

10.5 Conduits

10.5.1 Wiring shall be carried out in PVC insulated cables installed in rigid PVC conduits and trunking.

10.5.2 The conduits shall comply with B.S. 2004 and shall not be less than 20mm in diameter. Trunking shall be 100 x 100mm. Conduit junction boxes shall be malleable iron and of adequate size to enable cables to be drawn in without damage to insulation. The use of elbows or tees of any type will not be permitted. All conduit ends and accessory boxes liable to become blocked with wet concrete or plaster shall be stopped with suitable plugs to keep the conduits clean during construction work.

10.5.3 Conduits shall be swabbed to clear all traces of moisture before laying. Provision shall be made for drainage of conduit and fittings in situation liable to condensation.

10.5.4 Conduit boxes laid in or under concrete floors shall have traps of approved design fitted with flanged outer frames for keying into concrete and recessed cover suitable for fitting in with the floor materials.

10.5.5 Cover of boxes fixed in walls shall be fitted flush with plaster at all points.

10.5.6 All conduits threads shall be cut clean, be of correct length and conduit ends shall be cut square and have internal burrs removed with a reamer.

10.5.7 Connections between conduits and boxes shall be screwed metal to metal. Exposed places where galvanizing has been damaged, shall be thoroughly cleaned and then painted with two coats of anti-corrosion paint.

- 10.5.8 Joints and runners in conduit runs shall be kept to a minimum and running sockets shall be secured with hexagonal lock-nuts.
- 10.5.9 Conduits boxes and running joints with locknuts shall be provided at suitable places to allow subsequent extension without undue dismantling of the system.
- 10.6 Wiring**
- 10.6.1 The wiring shall be in PVC insulated cables of the 250V grade and shall comply with B.S. 2004.
- 10.6.2 Final sub-circuit wiring for lights and fans shall be of the “loop-in” system, with the loop connections made at lighting points and not at local switches. Lighting and fan point conductors shall not be less than the 1.5mm² size.
- 10.6.3 Final sub-circuit wiring for 13Amp switch socket outlets/socket outlets shall be carried out with P.V.C. insulated single conductors not less than 2.5mm² size and shall have up to six in ring circuits of 30Amp, rating with not more than two spur-units.
- 10.6.4 Final sub-circuit wiring for 15Amp switch socket and outlets shall be carried out with PVC insulated single conductors not less than 2.5mm² size and shall be one point per way of 20Amp rating.
- 10.6.5 Final sub-circuit wiring for 10A S.P.N. or 30A TPN switch fuse shall be carried out with P.V.C. insulated single conductors not less than 4mm² size and shall be one point per way of 30Amp rating.
- 10.6.6 Plates of flush type switches and socket outlets must overlap the hole and fit flush with the plaster at all points.
- 10.7 Distribution Fuse boards**
- 10.7.1 Distribution fuse boards shall be metal-clad, wall-mounted, with hinged door, and with gaskets fitted to the doors to prevent the ingress or moisture, dirt and vermin.
- 10.7.2 Distribution fuse boards shall all be surface mounted, at a height to be determined on site.
- 10.8 Fuse Switch and Switch fuses**
- 10.8.1 Fuse switches and switch fuses, whether provided as separate items or part of the main switch board shall be capable of carrying continuously, making and breaking their rated current without deterioration.
- 10.8.2 Fuse switches and switch fuse shall be of the metal clad totally encased type.
- 10.8.3 Switch fuses may be of the T.P. and N and S.P. & N types.

- 10.8.4 Fuse switches and switch fuses of the T.P. & N type shall have the three phase poles linked together.
- 10.8.5 Fuse switches and switch fuses shall have their cover interlocked with the operating handle so that it cannot be opened with the handle if in the “ON” position.
- 10.8.6 Fuses shall be of the H.R.C. Cartridge or rewirable types, except where a specific type has been specified by the Engineers.

10.9 Labels and Circuit Charts

- 10.9.1 At the completion of installation all switchgear, distribution boards, etc. shall be clearly marked with engraved labels firmly secured with screws to the cases.
- 10.9.2 On switchgear the inscription should read designation number and circuit controlled.
- 10.9.3 On distribution fuse boards inscription should read designation number, voltage, and phase of supply.
- 10.9.4 On T.P. & N Distribution fuse boards and switchgears, an additional label reading “DANGER 415 VOLTS” written in red, shall be fixed.
- 10.9.5 A circuit chart typed on stiff cards held in transparent compartments fitted inside the covers of each distribution fuse board shall be provided by the Electrical Contractor.
- 10.9.6 The circuit chart shall show the location and number of all points controlled by each circuit, and the capacity type and class of each fuse.

10.10 Earthing

- 10.10.1 All electrical equipment, such as metal-clad switchgear, bus bar chamber, distribution fuse boards, conduits and cable sheaths shall form a continuous bonded earthing system. Any part not solidly connected to the system shall be bonded with 10mm x 1.5mm hard drawn copper tapes having its ends bolted to the frame of the equipment and the termination of the local conduits. The tapes are required to run either along walls suitably clamped at 1200mm spacing or in duct or buried in the ground or concrete.
- 10.10.2 The metal work of all lighting fittings shall be solidly bonded to the conduit system. The Earthing system shall consist of 20mm diameter, 3000mm long, copper rod buried in a mixture of 0.20m³ of charcoal and 20 kg., of common salt.
- 10.10.3 The copper rod shall be connected to the Main Switch board by 25mm x 6mm hard drawn copper tape. The tape be taken to ground and turned out with an easy sweep at about 300mm below ground and continued to a distance about 5 metres from the beginning and bonded to the earth terminal.

10.11 Switch Socket Outlets

- 10.11.1 Switch socket outlets shall be of the 13Amp and 15Amp types as indicated on the drawings.
- 10.11.2 Switch socket outlets shall be flush with B.S. gauge shuttered sockets and controlled by single-pole A.C. switches.

10.12 Switches

- 10.12.1 The switches shall be 5 Amp, single-pole, rocker-operated, ivory-insulated and flush and shall be as described in the Bills of Quantities.

10.13 Lighting Fittings

- 10.13.1 The Electrical Contractor shall supply and install all lighting fittings complete as detailed on the drawings.
- 10.13.2 No lighting fittings other than the ones specified shall be ordered without the written approval of the Engineers.
- 10.13.3 Mounting positions of all lighting fittings shall be determined on site. The Electrical Contractor shall be responsible for the accurate location of all lighting fittings and shall obtain approval of the Engineers in consultation with the site Consultant for all such fittings before fixing. All lighting fittings shall be adequately supported from the Structure of the building.
- 10.13.4 The metal work of all lighting fittings shall be solidly bonded to the earthing system.
- 10.13.5 All fluorescent fittings shall be of the quick start, high temperature control gear type. They shall have power factor correction condensers to suit tropical conditions. All fluorescent tubes shall be of the “white” type except where it is otherwise specified.

11.0 PLASTERWORK AND OTHER FLOOR, WALL AND CEILING FINISHINGS

11.1 Cement

- 11.1.1 Cement shall be as described in “Concrete Work”.

11.2 Sand

- 11.2.1 Sand is to be river or pit sand complying with B.S. 1199 natural occurring sand, and is to be washed free from all organic matter, clay or other deleterious material.

11.3 Preparation of Surfaces

11.3.1 Adequate drying out time shall be allowed for block walls and concrete surfaces. Plastering shall not commence until walls are mature and completely dried out.

11.3.2 Immediately before applying rendering, wall surfaces shall be thoroughly wetted with clean water and joints of block work raked out 15mm deep to provide key. Concrete surfaces are to be hacked.

11.4 Cement and Sand Rendering

11.4.1 Rendering of walls and ceilings shall be executed in cement and sand mixed in the proportions of one part cement to four parts sand (1:4). The rendering shall be 12mm thick, or as otherwise stated, and executed in one coat and finished fair and perfectly smooth and even using a steel trowel.

11.4.2 The rendering of external walls shall be executed in cement and sand mixed in the proportions of one part cement to four parts sand (1:4). Waterproofing compound approved by the Consultant shall be added to the mix in the proportions laid down by the manufacturer. The rendering shall be 20mm thick or as otherwise stated and is to be executed in one coat and finished fair and even using a wooden float.

11.4.3 No mortar shall be used after more than 30 minutes has elapsed from the time of mixing. No knocking-up for re-use will be allowed.

11.4.4 All arrises and angles in wall rendering are to be finished straight and true and all external angles and arrises to reveal or openings are to be “pencil” rounded. Rendering shall be kept damp for at least seven days after being applied.

11.5 Cement and Sand Paving

11.5.1 Cement and sand paving unless otherwise described shall be composed of 1 part of cement to 3 parts of sand by volume laid in bays not exceeding 15 square metres and finished smooth with a steel trowel.

11.6 In-situ Terrazzo Paving

11.6.1 In-situ terrazzo paving shall be laid in bays not exceeding four square metre between 3mm thick ebonite dividing strips and shall be of approved colour and composed of 1 ½ parts of marble chippings graded from 13mm to 3 mm ring and 1 part coloured cement, finished fair on exposed faces and rubbed down on completion to a grit finished surface free from hole and blemishes and polished with a three-disc fine grain carborundum grinding machine.

11.6.2 The paving shall be laid on cement and sand screeded bed after this has set. Immediately after laying, the floor shall be covered with damp sacks and kept damp until ready for polishing.

11.7 Precast Terrazzo Tiles

- 11.7.1 The quality of materials and mix for precast terrazzo shall be as described for in-situ work. The sizes and colour shall be as the Consultant shall approve. Tiles shall be bedded and pointed in cement and sand (1:3) and polished to a fine smooth finish to the satisfaction of the Consultant.

11.8 Glazed Wall Tiling

- 11.8.1 Wall tiles shall be 150mm x 150mm x 6mm white glazed unless otherwise stated, true to shape, free from blemishes and conforming to B.S. 1281. Tiles shall be soaked in clean water and brushed on the underside with Portland cement slurry 24 hours before fixing.
- 11.8.2 Tiles shall be bedded with straight joints throughout in cement mortar (1:3) and pointed in neat white cement.

11.9 Ceramic Floor Tiles

- 11.9.1 Ceramic tiles shall be the non-slip type and of colour to be approved by the Consultant. In all cases, tile sizes shall be 20 cm. X 20 cm. Unless otherwise stated, samples from manufacturer must be submitted to the Consultant for selection and approval.

11.10 Beds and Backings

- 11.10.1 The screeds and backings shall consist of one part cement to three parts sand by volume otherwise stated and finished to receive the finishes specified.

12.0 CLEANING

- 12.1 During the course of the work, all debris and misplaced plaster as well as material scraps shall be cleaned up. Packaging materials shall be promptly removed from the premises or burned or wasted upon the premises if so directed. Upon completion, plaster shall be removed from all finished surfaces, particular care being taken to protect all finished surfaces from damage. All scaffolding, equipment and extra material shall be removed and the premises left broom clean.

13.0 GLAZING

13.1 Quality, Sizes, Etc.

- 13.1.1 Glass shall be of approved manufacture and shall conform to S.S. 952. It shall be supplied by the manufacturer in cut sizes and in packages bearing their name and/or trade mark and marked as to the quality of the contents. All packages containing glass shall be kept dry.

13.2 Sheet Glass

13.2.1 Sheet glass shall be “O.Q” quality – free from defects.

13.3 Polished Plate Glass

13.3.1 Polished plate glass shall be 6mm ordinary glazing quality.

13.4 Obscure Glass

13.4.1 Obscure glass shall be 5mm cast of approved quality and pattern.

13.5 Putty

13.5.1 The putty for glazing in metal frame shall be approved tropical metallic mastic. The putty for glazing in wood frames shall conform to B.S. 544.

13.6 Mirrors

13.6.1 Mirrors are to be 6mm thick silver drawn sheet glass mirror quality “A” with electro copper red varnished back with tropical climate resisting silvering.

13.7 Fixing

13.7.1 All glass shall be cut to fit the rebates with at least 2.5mm clearance all round and bedded in putty or mastic, back puttied and sprigged in position as necessary.

14.0 PAINTING AND DECORATING

14.1 Scope

The works under this specification consists of the preparation of surfaces and furnishing and applying paint coats as shown in the Bills of Quantities and as specified herein.

All paints and distempers shall be of the best quality obtainable and of approved manufacture guaranteed anti-fungus and suitable for use in tropical countries and equal to samples to be submitted to the Consultant. Such samples when approved shall become the standard for the work and immediately upon being so approved the contractor shall place orders for and obtain his total requirements for the works.

14.2 Delivery

All paints and distempers shall be delivered on site intact and in the manufacturer’s drums and tins, and shall be mixed and applied strictly in accordance with the manufacturer’s instructions.

The only addition which may be allowed to be made locally to oil paints will be liquid thinning and driers, supplied by approved makers for the purpose.

The priming, undercoats and finishing coats for all painted work shall be of differing tints as directed by the Consultant.

Paint shall be thoroughly stirred up in their original containers and strained into kettles. Kettles shall be kept clean of skins and dirt and the paint kept stirred during use. Any skins which may form shall be entirely removed before paint is used.

14.3 Preparation of Surfaces

14.3.1 General

14.3.2 All surfaces requiring paint shall be thoroughly cleaned of all dirt, grease, or oil before knotting or priming. Oil or grease film shall be washed off with an acid that is non-injurious to the surface or stop primers and rinsed off completely with plain or soapy water. Surfaces shall be dry unless dampening is required for a particular finish material.

14.4 Creosoted Lumber

14.4.1 Lumber which has been treated with creosote shall be permitted to weather until the surface is dry. Remaining deposits of creosote shall be wiped or scraped off from the surface before priming.

14.5 Concrete on Masonry

14.5.1 Work of this nature which is scheduled to receive paint shall be neutralized using zinc sulphate in solution of 4 oz. ZnSO₄ per gallon of water. The solution shall be applied liberally off before painting. Masonry shall be free of all mortars of efflorescent and other foreign material.

14.6 Wood to be painted

14.6.1 All finishing nails shall be set. All dents, chips and similar damage shall be filled with wood dough. All nails, splits, checks and similar holes shall be puttied. All knots, pitch pockets shall be sealed with wood dough, putty or shellac. All surfaces shall be prepared to receive paint.

14.7 Wood to be stained or Natural Finished

14.7.1 All nails shall be set. Holes shall be filled with tinted putty. Open grained woods shall be filled using tinted filler. The filler shall be rubbed off immediately after application and allowed to dry 24 hours before coating. All irregularities shall be sanded.

14.8 Plaster

- 14.8.1 Plaster surfaces shall be done dry before application of sealer or other paint.

14.9 Metal Surfaces

- 14.9.1 All unprimed metalwork, except stainless steel or aluminium shall be cleaned down by wire brushing and scraping to remove all possible scale, dirt or grease, and shall immediately be primed with metal primer.
- 14.9.2 Metal surfaces which have been shop primed before delivery, shall be inspected, unsatisfactory priming cleaned off and damaged part touched up with the appropriate primer.

14.10 Application

- 14.10.1 Application shall be by hand brushing, rolling or air spray. Shop prime coats shall be restored wherever damaged by abrasion, burning, or other cause, after removing loose or burned paint. All bare areas shall be completely coated after thorough cleaning so that a continuous full-bodied film of primer covers all surfaces and laps the shop coat, if any. Primer shall be well brushed into connections, corners, depressions and around and over bolts or other ferrous attachments to completely seal off inaccessible areas.
- 14.10.2 When more than one coat of the same paint is scheduled, the first application, including primers, shall be tinted slightly different from the selected finish colour. Finished surfaces shall be uniform in colour, free from holidays, pin-holes, sags, runs, rippings or other imperfections. Surfaces which will be inaccessible after erection of other elements of the structure shall be painted prior to the installation of the interfering work.
- 14.10.3 The thickness of each coat of paint shall be strictly in accordance with the manufacturer's directions as to coverage per gallon and no thinning beyond that named in such direction or this specification shall be done.
- 14.10.4 Surfaces which by material or nature, require painting pursuant to this specification, although not particularly specified, shall be coated the same as similar items or surfaces in each location.
- 14.10.5 Any end grain cut on the job shall be primed before installing in accessible locations.

14.11 Cleaning

- 14.11.1 Cleaning of paint dropping, films and smudges from finished surfaces and areas not to be painted shall be carried on concurrently with the work.

At completion, all equipment, excess containers shall be removed and the premises cleaned of all painted waste and debris.

14.12 Priming

- 14.12.1 When surfaces are to be finished in oil paint the correct primer shall be used according to the type of surface i.e. wood primer for all timbers, chromate metal primer for iron and steel, zinc galvanizing, aluminium and alkaline – resisting primer for cement and sand renderings and asbestos cement sheets.

14.13 Undercoats

- 14.13.1 Undercoats where specified, shall be obtained from the same manufacturer as the finishing paint and shall be the manufacturer's recommended undercoat for the finish.

14.14 Knotting

- 14.14.1 Knotting shall be an approved patent knotting consisting of shellac dissolved in methylated spirit only, free from resins and naphtha.

14.15 Preliminary Trials

- 14.15.1 Preliminary trials of colour proportions shall be made and approved by the Consultant and when approved the whole batch to be used on any surface shall be prepared at once in order to avoid colour variations. The contractor shall provide an ample supply of clean dust sheets to protect the work during progress.
- 14.15.2 The contractor shall include for carrying out the work in multi-colours including cutting in all edges.

14.16 Protection of Surfaces

- 14.16.1 Surfaces not to be painted e.g. switches, ironmongery, etc. shall be masked or removed and replaced when painting is dry. Surfaces shall be evenly coated and free from runs, sags, skins, grit and bristles. Floors shall be protected from droppings.

14.17 Materials

- 14.17.1 Paints shall be in accordance with the specification.

14.18 Quality of Material

- 14.18.1 Paint shall be furnished in unbroken original containers bearing the manufactures' brand name and colour designations. Paints shall be warranted to so conform by acceptance of a contract to perform their work specified and shall conform to applicable British Standards.

14.19 Colours

- 14.19.1 The colours, shades and textures of all coatings except aluminium, black and bituminous paint, are subject to selection and approval by the Consultant. After colours have been selected, two 125 x 200mm samples of each colour applied on 3mm thick wrought hardwood in accordance with the painting system specified shall be submitted along with the exact locations where each will be applied. Application of the final coat to any surface shall not be commenced until written approval of the colour has been obtained. The finished work must conform to the approved sample.

14.20 Mixing

- 14.20.1 Paints shall be ready-mixed unless otherwise specified except that any coating in paste or powder form shall be field-mixed in accordance with the directions of the manufacturer.

14.21 Recommendations

- 14.21.1 Unless otherwise approved in writing by the manufacturer, the application of each material shall be in strict accordance with directions and recommendations of the manufacturer thereof.

14.22 Clear Varnish

- 14.22.1 Polyurethane lacquer shall be obtained from approved manufacturer and shall be applied in accordance with their instructions.

15.0 ROADS, DRAINS AND PAVED WALKWAYS

15.1 Definitions

- 15.1.1 As used herein “provided” shall be understood to mean “provided complete in place”, i.e. “furnished and installed”.

15.2 Lines and Grades

- 15.2.1 The Consultant will establish roadway center lines and center line grades at 30,000mm intervals only. Contractor shall lay out all work from established center lines and grades, shall furnish and place all additional stakes, templates, and bench marks necessary for marking and maintaining points, lines and elevations, and shall be totally responsible for the accuracy of all lines and grades established by his employees.

15.3 Grading and Excavation

Grading includes all excavation and the construction of fill required to grade the site, roadways and walkways to elevations and slopes indicated on the drawings or established in the field. Cuts and fills shall be finished to grades, slopes and lines indicated with a plus or minus tolerance of 60mm, which shall not result in any low undrained areas or sharp ridges. Final finish for roadways shall be cut to a smooth uniform surface with a grader blade.

- 15.3.1 Before each stage of grading commence, the contractor shall satisfy himself as to the correctness of all elevations shown on the drawings and shall agree to the same elevations with the Consultant. If the contractor is not satisfied with accuracy of the elevation shown on the drawings, he must give written notice thereof; otherwise no claim shall be entertained in this respect.

15.4 Excavation

- 15.4.1 All excavation shall be accurately and neatly cut to lines, sections, and grades shown on the drawings or established in the field. All suitable materials excavated shall be used as far as practicable in forming the embankments and at such other places as directed. No excavated material shall be wasted unless so ordered.

- 15.4.2 Excavation carried below the depths indicated, without specific directions, shall be refilled to the proper grade with thoroughly compacted suitable fill. Where excavation is in rock, the contractor shall cut back to the required inclination, trim and remove or support all projections as instructed by the Consultant.

15.5 Blasting

- 15.5.1 No explosives are to be used without the written permission of the Consultant. The use, transport and storage of the explosive shall be subject to the prior approval of the Consultant and shall comply with all legislation governing the use, transport and storage of explosives. The contractor shall provide, store and transport all explosives and other materials, stores and equipment required for the blasting operation.

- 15.5.2 The contractor shall, at his own expense, provide safety means and take all other necessary precautions for the protection of any person in the vicinity.

- 15.5.3 Full arrangements for blasting and blasting hours shall be agreed in writing with the Consultant before the commencement of such operations.

15.6 Test for Quality of Materials, Thickness and Control of Construction

- 15.6.1 Before any section of road works is commenced and during the construction, tests as required by the Consultant shall be carried out in order to determine the quality of materials, the required degree of compaction in the fills, subgrade, and pavement, and the required total thickness of the pavement.

The Consultant may make use of the following tests:

1. Plasticity index tests
2. Grading tests
3. Moisture content tests
4. In-situ dry density measurement
5. Compaction tests
6. In-situ and laboratory C.B.R.

15.6.2 Tests 1, 2, 3 and 4 shall be carried out in accordance with B.S. 1377 & 1961, the sand replacement method being used for the measurement of dry density in-situ.

15.6.3 The compaction shall be carried out in a mould 150mm internal diameter and 125mm internal height. The mould shall be filled in five equal layers, each layer being (Ghana Compaction Standard) Modified A.A.S.H.O. Compaction Rammer).

15.6.4 The conditions of tests for the laboratory C.B.R. test shall be agreed with the Consultant before the commencement of the works. Failing this, laboratory C.B.R. test shall be carried out on materials compacted to the maximum dry density and at the optimum moisture content given by the compaction tests. The C.B.R. tests shall be repeated on similar specimens after 24 hours repeated on soaking in the case of sub-base and base materials and after 48 hours in the case of sub-grade materials.

15.7 Preparation of Ground Before Placing Embankment, etc.

15.7.1 If, after the soil has been stripped, the ground in any area is not suitable in the opinion of the Consultant for placing the fill, the contractor shall excavate this area to such additional depth as directed by the Consultant and shall dispose of the excavated material as directed by the Consultant.

15.8 Fill material for Top 600mm of Earth Embankments

15.8.1 Materials for the top 600mm of earth fill embankment shall be free from clay lumps and reasonably free from vegetable matter and perishable material.

15.8.2 Lumps of rock or earthy materials shall be broken down to such size that they will not interfere with the compaction of the material. The material shall be approved by the Consultant, and when compacted in the laboratory at the maximum dry density and optimum moisture content shall have a CBR of not less than 10% (determined after 48 hours soaking). The fill material shall be compacted in layers not exceeding 225mm loose depth or 150mm compacted.

15.9 Compaction

- 15.9.1 Compaction shall be carried out at a moisture content as directed by the Consultant, for fills, embankments and subgrades, the imported material shall be dug, spread and compacted with a minimum of delay so that the material is compacted at its natural moisture content without being allowed either to dry or wet up.
- 15.9.2 For sub-base material, the moisture content for compaction shall be the optimum content as determined by the laboratory compaction test under test 5 at Clause 15.6.1. Where it is necessary to add water to adjust the moisture content of the material before compaction, the water shall be added by a water cart fitted with an approved sprinkler and the water shall be mixed into the full depth of the loose material by means of a blade grade or other mixing equipment approved by the Consultant. During compaction, additional water shall be added to the surface where necessary to prevent excessive drying out.
- 15.9.3 Compaction shall, be carried out by means approved by the Consultant. Irrespective of compaction carried out by special equipment, the maximum use shall be made of all construction traffic to assist in the compaction of all earthworks. All construction equipment must operate over the whole area to ensure uniform compaction. All filling shall be deposited in layer of not greater than 225mm loose depth. Longitudinal and transverse joints in any two successive layers shall be staggered by a minimum distance of 3000mm.
- 15.9.4 For base materials the state of compaction to be obtained shall be 100% of the maximum dry density as measured in the compaction test. For all other materials 95% of the maximum dry density measured in the laboratory compaction test shall be obtained.

15.10 Sub-grade

- 15.10.1 In cuttings, except rock cuttings, the sub-grade shall be compacted for a depth of not less than 150mm below the finished level, or as required by the Consultant. Where the sub-grade is heavy clay, a light roller only should be used to smooth the surface of the clay, such soils cannot be compacted beyond their normal state of compaction and rolling with a heavy roller would only result in the remoulding and consequent weakening of the soil.

15.11 Services

- 15.11.1 Where possible, all services, etc. shall be laid prior to the construction of the road base, and all trenches backfilled to the approval of the Consultant.

15.12 Subbase and Base

- 15.12.1 The subbase and base material shall be compacted separately to the state of compaction laid down in 12.6.6 above.

In addition, the CBR value of the subbase (in-situ test) shall not normally be less than 40% and the CBR value of the base measured in-situ shall not be less than 80%. When the materials are tested in the laboratory at the maximum dry density these values shall be normally obtained after 24 hours soaking. Rolling shall be carried out with a 10-12 ton roller but shall not be continued to the point where the stone aggregate becomes unduly rounded or crushed.

15.13 Material for subbase and base

- 15.13.1 The sub-base shall be of gravel or other approved material. The base shall be constructed of gravel or of crushed rock, and its quality and grading shall be approved by the Consultant. Where the base material is gravel, it shall normally comply with the conditions of grading and plasticity given below:

B . S . S I E V E	P E R C E N T A G E P A S S I N G		
<i>Nominal Maximum Size</i>	<i>75mm</i>	<i>38mm</i>	<i>18mm</i>
75mm	100	-	-
38mm	80 – 100	100	-
18mm	60 – 80	80-100	100
10mm	56-65	55-80	80-100
5mm	30-50	40-60	50-75
No.7	-	30-50	35-60
No.14	-	-	-
No.25	10-20	15-30	15-35
No.52	-	-	-
N0.200	0-10	0-10	0-10

Note

- (i) Not less than 10% should be retained between each successive pair of sieves specified for use, except the large pair.
- (ii) The material passing the No.36 sieve shall have the following characteristics (B.S. 1377: 1961):
 - (a) Liquid limit not exceeding 25%
 - (b) Plasticity index not exceeding 10%

The grading of crushed rock is not critical but when laid, it shall be such that there is minimum of voids present in the compacted layer.

The maximum size of the stone used shall be 50mm. Crusher – run materials will normally be found to be deficient in fine material when laid, and during compaction, stone fines 5mm to dust shall be fed into the surface until the whole layer is choked and a close well knit surface obtained. During the final part of the compaction, water shall be added as directed by the Consultant.

15.14 Provision of Road Shoulders

- 15.14.1 Well compacted shoulders of sub-base material with vertical face for the full depth of the base shall be prepared in advance of spreading the base or sub-base so as to permit the roller to overlap at least one half width of the rear wheel when rolling the edge of the work.

15.15 Spreading of Base and Sub-base Material

- 15.15.1 The base and sub-base material shall be spread longitudinally in a uniform layer to produce the correct finished thickness. It shall, where possible, be spread by a mechanical spreader of approved type and care shall be taken to ensure that no segregation occurs. Loads of aggregate should be dumped outside the areas on which it is spread.

15.16 Bituminous surfacing

- 15.16.1 Bituminous surfacing shall comprise:

- (a) Surface preparation
- (b) Application of a hot sprayed bituminous seal coat and spreading and rolling of stone chippings into the seal coat.

- 15.16.2 Bitumen or cut-back coat above the base shall not be placed on any surface until it has been thoroughly cleaned and finished to the levels and cross falls shown on the drawings.

15.17 Cutback Bitumen Prime Coat

- 15.17.1 The prime coat shall be low viscosity cut-back bitumen MC-2. If dry, the base shall be slightly damped (not wetted as directed by the Consultant. MC-2 shall then be spread at the rate of 1 to 1.751 litres/m² at a temperature of (65-107 deg. C.) left not less than 6 hours before blinding with 6mm chippings or clean sharp coarse sand.
- 15.17.2 Should the specified rate of spray appear to be incorrect, the contractor shall immediately stop spraying, inform the Consultant and amend the spray rate as may be instructed.

15.17.3 Coarse sand for blinding shall be of 6mm maximum size with not more than 20% passing a No. 25 sieve, applied at the rate of one cubic metre of chippings or sand per 118 square metres of road surface or such other rate as may be found necessary to secure adequate coverage.

15.17.4 The chippings or coarse sand shall be brushed if necessary to secure even coverage. The chippings or coarse sand shall be thoroughly rolled with a light roller (4 to 6 tons) and allowed to stand overnight. Further-rolling shall be carried out the next day and the surface opened to traffic. Care should be taken to see that the chippings are not appreciably crushed. Barriers shall be erected and moved periodically to ensure that the traffic uses the whole width of the road, after which repair work shall be done on the road.

15.18 Wearing Coat with Cutback Bitumen

15.18.1 After all repair work has been allowed sufficient time to harden, the surface shall be swept clean of all loose material and Shelmec S.125 or similar approved cut-back bitumen having a viscosity of 100-150 seconds at 40 degrees Celsius shall be applied to the previously treated section at the rate of 1.1-1.9 litres/m² at a temperature of 132-160 deg. C. (Recommended 143 deg. C) and blinded immediately with a 20mm chippings to BS. 63 applied at the rate of 24-28 kg/m² of chippings or such other rate as may be found necessary to secure adequate coverage.

15.18.2 The chippings shall be brushed to ensure even coverage and then shall be thoroughly rolled with a light roller (4-6 ton) and allowed to stand overnight. Further rolling is then carried out after which Shelmec S.125 having similar viscosity as indicated above is applied at a rate of 0.8 – 1.2 litres/m² at a temperature of 132 – 160 deg. C and blinded with 10mm chippings at a rate of 12-15kg/m² and rolled with light roller (4-6 ton). Smooth wheeled rollers should not be used on second and subsequent dressings. Further rolling shall be carried out before the surface is opened to traffic, barriers shall be erected and moved as directed for a period of 3 weeks to ensure maximum traffic speed of 20 mph.

15.19 Precautions During Rains

15.19.1 Adequate measures are to be taken by the Contractor during periods of rains to protect all work, providing drainage of all exposed surfaces of earthworks and to limit erosion. No placing of fill will be permitted until the surface on which the fill is to be laid is dry. Eroded areas shall be made good and where necessary the top layer of previous work shall be harrowed to the required depth and re-compacted. The sub-base is to be laid as soon as possible after the C.B.R. and density of the sub-base has been measured and found adequate. In no case shall the sub-base or base be laid if the previous surface has been affected by rain until it has recovered or been made good to the satisfaction of the Consultant.

15.20 Prime Coat to Follow Immediately on Compaction of Base

- 15.20.1 The laying of the prime coat is to follow immediately after the base has been compacted and its C.B.R. and density measured and approved.

15.21 Drains

- 15.21.1 All drains including headwalls shall be constructed to the required shapes, lines and elevations as shown on the drawings. All stones forming rubble drains shall be of approved type and shall be carefully laid in 1:3 cement and sand mortar.

16.0 SEWER AND WATER MAINS

16.1 EXCAVATION GENERAL

16.2 Excavation for Pipe Laying

- 16.2.1 Trenches shall not be excavated more than one day in advance of pipe laying except by written permission of the Consultant or his representative. Open trenches shall be barricaded and lighted at night as directed and/or required by statute or regulations.
- 16.2.2 Trenches shall be accurately excavated to alignment and grades shown on the drawings furnished to the contractor, and shall be of sufficient width to enable properly jointing and laying of pipes.
- 16.2.3 Where pipes are not laid on concrete the bottoms of the trenches as excavated shall be absolutely smooth and shall be free from stones or other projections. Holes cut at the joints shall be of as small a size as possible and the pipes shall have a uniform and solid bearing throughout their entire length. The trench shall firstly be excavated to within 150mm of its formation and proper grade pegs shall then be set in the bottom of the trench by the Contractor for the accurate taking out of the rest of the excavation.
- 16.2.4 Pipe clearance in rock excavation – Large rock, boulders and large stone shall be removed to provide clearance to each side of and below all pipes and accessories. This clearance for pipes and accessories shall be 100mm. Adequate clearance shall be provided in rock trenches for proper jointing of the pipe.
- 16.2.5 The minimum clear width of unsheeted or sheeted trenches measured at the horizontal diameter of the pipe shall be 450mm, or 300mm greater than the outside diameter of the barrel of the pipe, whichever is greater. Where the natural bottom of a pipe trench is unsuitable for the proper bearing of pipes the Consultant may instruct the Contractor to excavate the trench to an additional depth of 100mm and refill with well tamped soft approved soil.

- 16.2.6 Where spoil from excavation is required for re-use as refill or for the formation of embankment, the material shall be kept separate and stored in convenient and approved places. Soil surplus to requirement shall be removed from the site and disposed of within 24 hours.
- 16.2.7 No explosives are to be used without the written permission of the Consultant. The use, transport and storage of the explosives shall be subject to the prior approval of the Consultant and shall comply with all legislation governing the use, transport and storage of explosives. The contractor shall provide, supply, store and transport all explosives and other materials, stores and equipment required for the blasting operations.
- 16.2.8 The contractor shall, at his own expense, provide safety means and take all other necessary precaution for the protection of any person in the vicinity.
- 16.2.9 Full arrangement for blasting and blasting hours will be agreed in writing with the Consultant before the commencement of such operation.
- 16.2.10 Where required to prevent sliding and for protection of workmen, trenches shall be sheeted and braced in a safe, substantial manner. Unless ordered to be left in place all sheeting and bracing shall be removed before backfilling.
- 16.2.11 Adequate pumping facilities shall be provided and maintained to keep trenches dry.

16.3 Pipe-laying

- 16.3.1 All pipes shall be carefully brushed out inside and shall be tested for soundness before being laid. The pipes shall be laid separately to true inverts, straight lines and falls, each pipe being separately boned between sight rails and bearing evenly upon the solid ground or concrete for its full length. Any defects in the internal or external coating of the pipes especially, valve, etc. shall be made good. After inspection and any necessary attention, the carefully lowered to their final positions. No pipes shall be dragged along the trench bottom.
- 16.3.2 No surface water or other extraneous matter shall be permitted to enter the pipes during or after laying. Except where necessary for jointing, the ends of the pipe - line shall be kept closed with tightly fitting wooden or expanding stoppers. IN the event of dirty water or extraneous matter entering the pipe, the contractor shall immediately arrange for the necessary cleaning as may be instructed by the Consultant.

16.4 Pipe Jointing

- 16.4.1 Flanged joints shall be made with the joint rings and nuts, washers, and bolts. Two washers shall be used per bolt, one under the bolt head and the other under the nut.

The tightening of the bolts shall be evenly done all round by tightening at one time diametrically opposite pairs. In no case shall excessive tightening be exerted on any nut or bolt. After the satisfactory conclusion of the water-tightness test, all flanged joints shall be cleaned and given two coats of an approved bituminous paint.

16.4.2 Valves and other fittings shall be securely fixed, properly aligned and fixed on a vertical position. They shall be tested for ease of operation and water-tightness and valve glands shall be repacked where necessary. Any damages to protective coating shall be made good and they shall be left clean in all aspects.

16.4.3 Concrete thrust and anchor blocks shall be formed at bends tees and valves as directed by the Consultant. The additional excavation shall be made after the bends, etc. have been jointed and the concrete shall then be placed with all possible speed. The back of supports and blocks shall abut on the solid ground all loose material being removed before concreting. After placing concrete no pressure shall be applied in any section of the pipe until concrete has set and had at least 3 days curing.

16.5 Communication Pipe

16.5.1 The pipe being the main water service to the building should be large enough to supply adequate water to the service pipe. It should be of not less than 32mm diameter and of pvc type.

16.6 Cold Service Pipe

16.6.1 The cold water service pipes should be 25mm diameter and branches to the draw offs to be 20mm and 12mm diameter respectively as designed to the fittings. The piping should be tested to the mains pressure before joints are sealed in the wall.

16.7 Hot Water Pipe

16.7.1 The water heater outlets, inlets and draw off points should be 20mm and 12mm diameter copper pipe respectively and tested to the water mains pressure before joints are sealed in the wall.

16.8 Waste Water Pipes

16.8.1 All waste pipes should be of copper or polyvinyl chloride and the sizes should be as designed to the fittings. They should enter a BSS type floor gulleys and well ventilated.

16.9 Soil Pipes

16.9.1 All soil pipes should be of 100mm diameter pvc or other approved material. They should enter a BSS type manholes, inspection chambers and be well ventilated.

16.10 Branch Sewer Pipe

- 16.10.1 Sewer pipes to be of 100mm diameter pvc or other approved material pipe. BSS type manholes should be built at junctions, curves and at intervals, well ventilated and the invert well designed to BS standards,

16.11 Testing

- 16.11.1 The contractor shall furnish all equipment, water and labour and test all piping as follows:

16.12 Water-Supply Line

- 16.12.1 The mains shall be slowly filled and all air expelled and subjected to a hydrostatic pressure equal to 150% of the maximum service pressure but in no case to less than 1.0N/mm^2 which shall be held for a period of two hours without loss of pressure. All joints shall be examined for leakage and all leaks repaired. All tests shall be carried out in the presence of the contractor's representative.

16.13 Sanitary Sewers

- 16.13.1 The test pressure for bituminous fibre pipe shall be 1200mm head of water measured above the highest point of the invert of the length of pipeline under test, i.e. manhole to manhole. The test shall be applied by fitting a suitable stopper at the lowest point and plugging the highest point with a stopper having an outlet and tube connected to a test tank. The system shall be filled with water to the required level and 15 minutes allowed for absorption. The pipe shall then be subjected to a 24 hour infiltration test, during which the infiltration as measured by leakage of the section under test shall not exceed 4.5 litres per hour per M of diameter per 30.0m length of sewer. Excessive leakage shall be corrected by the contractor and the section shall be re-tested.

16.14 Disinfection of Domestic Water Lines

- 16.14.1 When the treated water mains are completed and satisfactorily tested the contractor shall on the instructions of the Consultant wash out and then sterilize them. The contractor shall introduce at a slow rate of water flow, by a portable chlorinator or other approved means, a solution of sterilizing agent containing 30 parts chlorine per million part of water and shall be held in the line for a period of 24 hours under a head of at least 1525mm above the highest point in the line. During the retention period, all valves shall be operated. Following the retention period, the lines shall be thoroughly flushed using the supply water until the residual chlorine is approximately but not less than 2/10 parts per million. When flushing has been satisfactorily completed, samples of water will be taken by the Consultant's Representative for bacteriological analysis. If any of the samples taken from the mains are inferior in quality to that of the control samples of the supply water, the operation of sterilization shall be repeated and another set of samples taken. The procedure shall be repeated as many times as may be necessary in order to produce satisfactory results.

16.15 Manholes

- 16.15.1 Manholes shall be of precast concrete if readily available at the job site. Otherwise, manholes shall be constructed of solid ungrooved blocks made in an approved concrete block-making machine and shall conform generally to British Standard 2028 – Type ‘A’.
- 16.15.2 The jointing mortar for precast concrete blocks shall be composed of 1 part cement and 4 parts sand. Up to 10% by volume of hydrated lime may be added to provide a workable mix.
- 16.15.3 Mortar shall be mixed on a clean platform or in an approved mixer. No mortar which has started to set shall be used or knocked-up for re-use.
- 16.15.4 Block work shall be generally laid in stretcher bond and properly bedded and jointed. Joints shall be thoroughly flushed up while laying the blocks.
- 16.15.5 The walls are to be carried up in a uniform manner and no part of the wall shall be carried more than 1000 mm above another part at anytime.
- 16.15.6 Upon completion of the block work, the interior surface of the wall shall be plastered with a 12mm thick coat of cement and sand mortar of approved mix.
- 16.15.7 All benching in manholes shall be carried out in sulphate resisting concrete.
- 16.15.8 Unless otherwise specified, manhole covers and frames shall comply with British Standard 497: 1955 and be of the type specified or shown on the drawings.
- 16.15.9 Step iron shall be galvanized and shall comply with British Standard 1247.

SECTION VI
DRAWINGS

CLIENT: AFADZATO SOUTH DISTRICT
A S S E M B L Y

PROJECT: Plan of a 6-Unit chamber and hall self-contained
single storey staff bungalow at TAFI MADOR in
the AFADZATO SOUTH DISTRICT of the VOLTA
REGION of the Republic of GHANA

DESCRIPTION: A r c h i t e c t u r a l D r a w i n g s

DATE: May, 2026

DESIGNED AND DRAWN BY:

FRANCOS

Date:

May,
2026

Ref. No.

F D L
08 / 26

Client:

AFADZATO SOUTH DISTRICT ASSEMBLY

Description:

floor plan

Project:

Plan of a 6-Unit chamber and hall self-contained single storey staff bungalow at TAFI MADOR in the AFADZATO SOUTH DISTRICT of the VOLTA REGION of the Republic of GHANA

Scale:

1 : 100
(all dimensions are in mm)

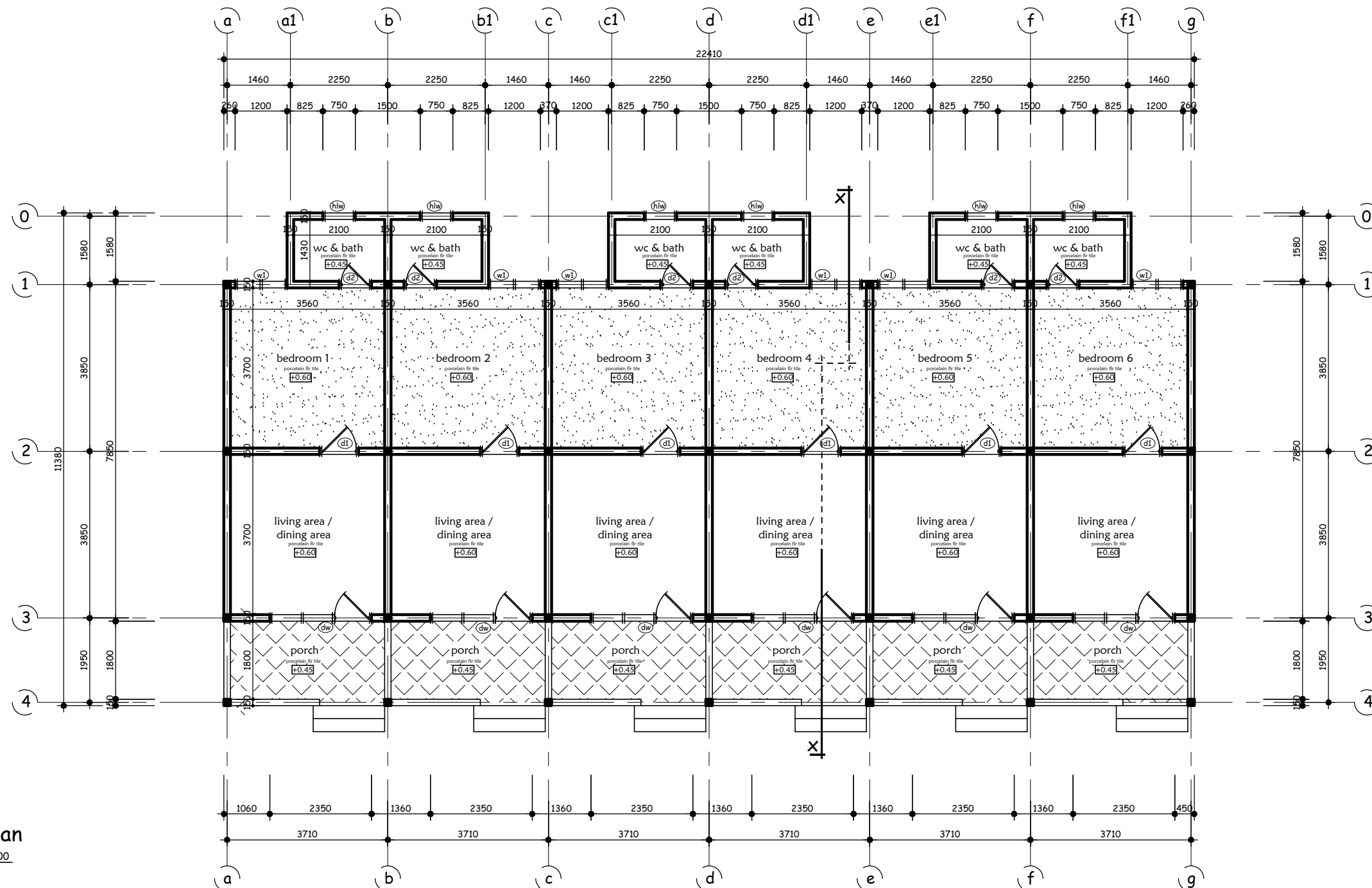
Sheet No.

ARC. 01

NOTES:

1. DO NOT SCALE FROM DRAWING
2. USE DIMENSION AS SHOWN ON PLAN
3. CONSULT THE DESIGNER BEFORE IMPLEMENTING ANY CHANGES

floor plan
scale 1:100



DESIGNED AND DRAWN BY:

FRANCOS

Date:

May,
2026

Ref. No.

F D L
08 / 26

Client:

AFADZATO SOUTH DISTRICT ASSEMBLY

Description:

foundation plan

Project:

Plan of a 6-Unit chamber and hall self-contained single storey staff bungalow at TAFI MADOR in the AFADZATO SOUTH DISTRICT of the VOLTA REGION of the Republic of GHANA

Scale:

1 : 100
(all dimensions are in mm)

Sheet No.

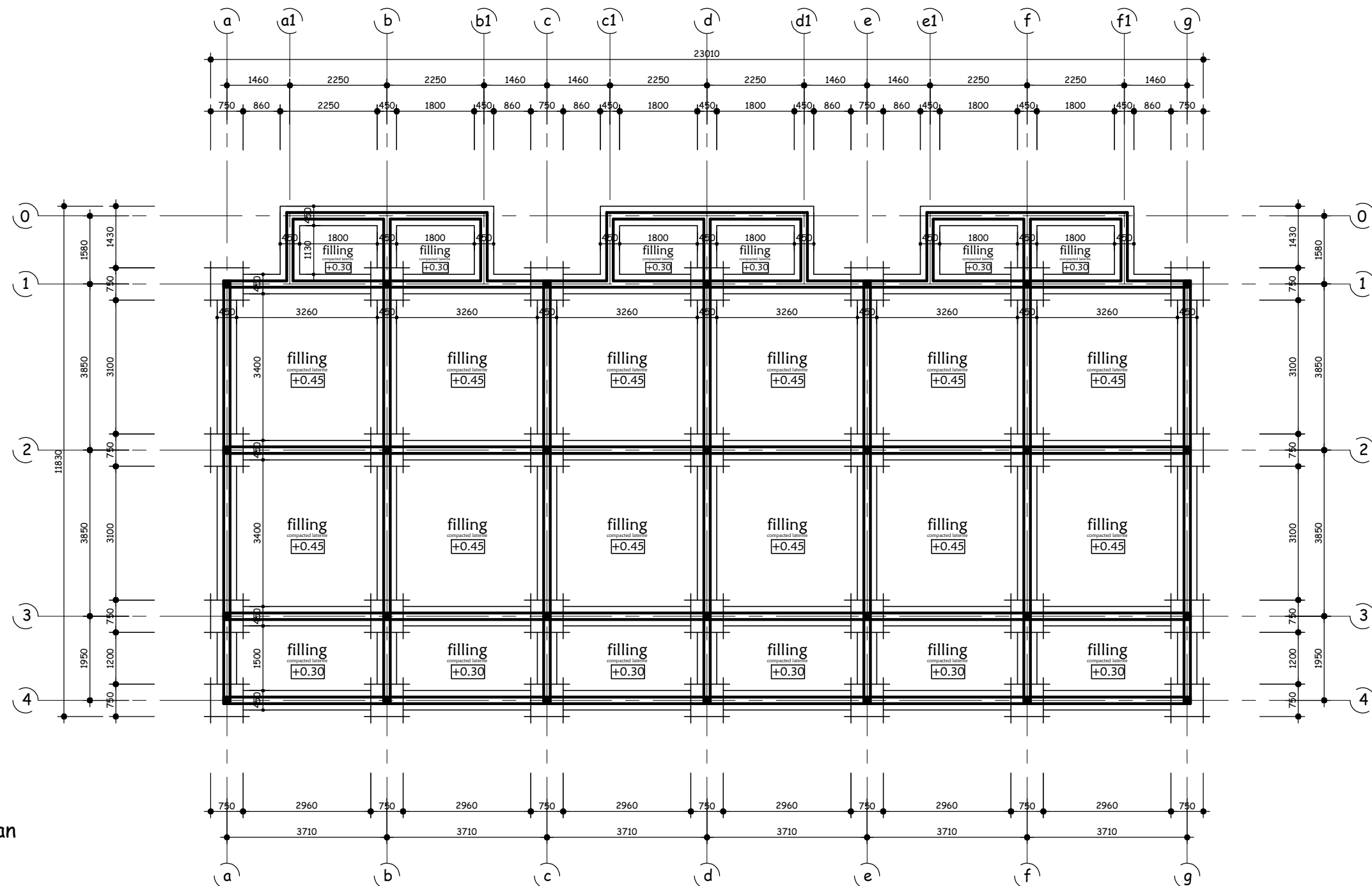
ARC. 02

NOTES:

1. DO NOT SCALE FROM DRAWING
2. USE DIMENSION AS SHOWN ON PLAN
3. CONSULT THE DESIGNER BEFORE IMPLEMENTING ANY CHANGES

foundation plan

scale 1:100



DESIGNED AND DRAWN BY:

FRANCOS

Date:

May,
2026

Ref. No.

F D L
08 / 26

Client:

AFADZATO SOUTH DISTRICT ASSEMBLY

Description:

roof framing plan

Project:

Plan of a 6-Unit chamber and hall self-contained single storey staff bungalow at TAFI MADOR in the AFADZATO SOUTH DISTRICT of the VOLTA REGION of the Republic of GHANA

Scale:

1 : 100
(all dimensions are in mm)

Sheet No.

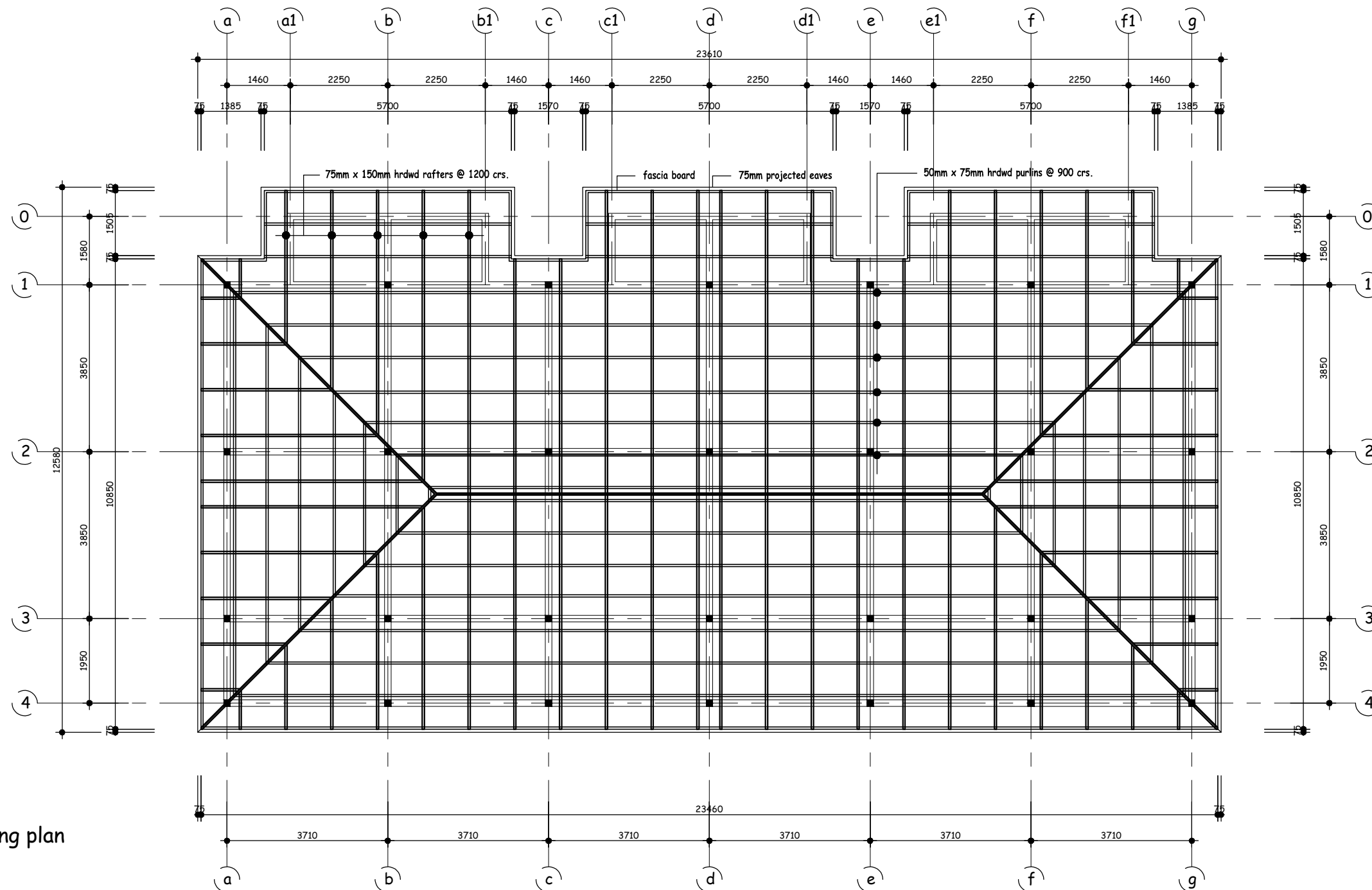
ARC. 03

NOTES:

1. DO NOT SCALE FROM DRAWING
2. USE DIMENSION AS SHOWN ON PLAN
3. CONSULT THE DESIGNER BEFORE IMPLEMENTING ANY CHANGES

roof forming plan

scale 1:100



DESIGNED AND DRAWN BY:

FRANCOS

Date:

May,
2026

Ref. No.

F D L
08 / 26

Client:

AFADZATO SOUTH DISTRICT ASSEMBLY

Description:

roofing sheet plan

Project:

Plan of a 6-Unit chamber and hall self-contained single storey staff bungalow at TAFI MADOR in the AFADZATO SOUTH DISTRICT of the VOLTA REGION of the Republic of GHANA

Scale:

1 : 100
(all dimensions are in mm)

Sheet No.

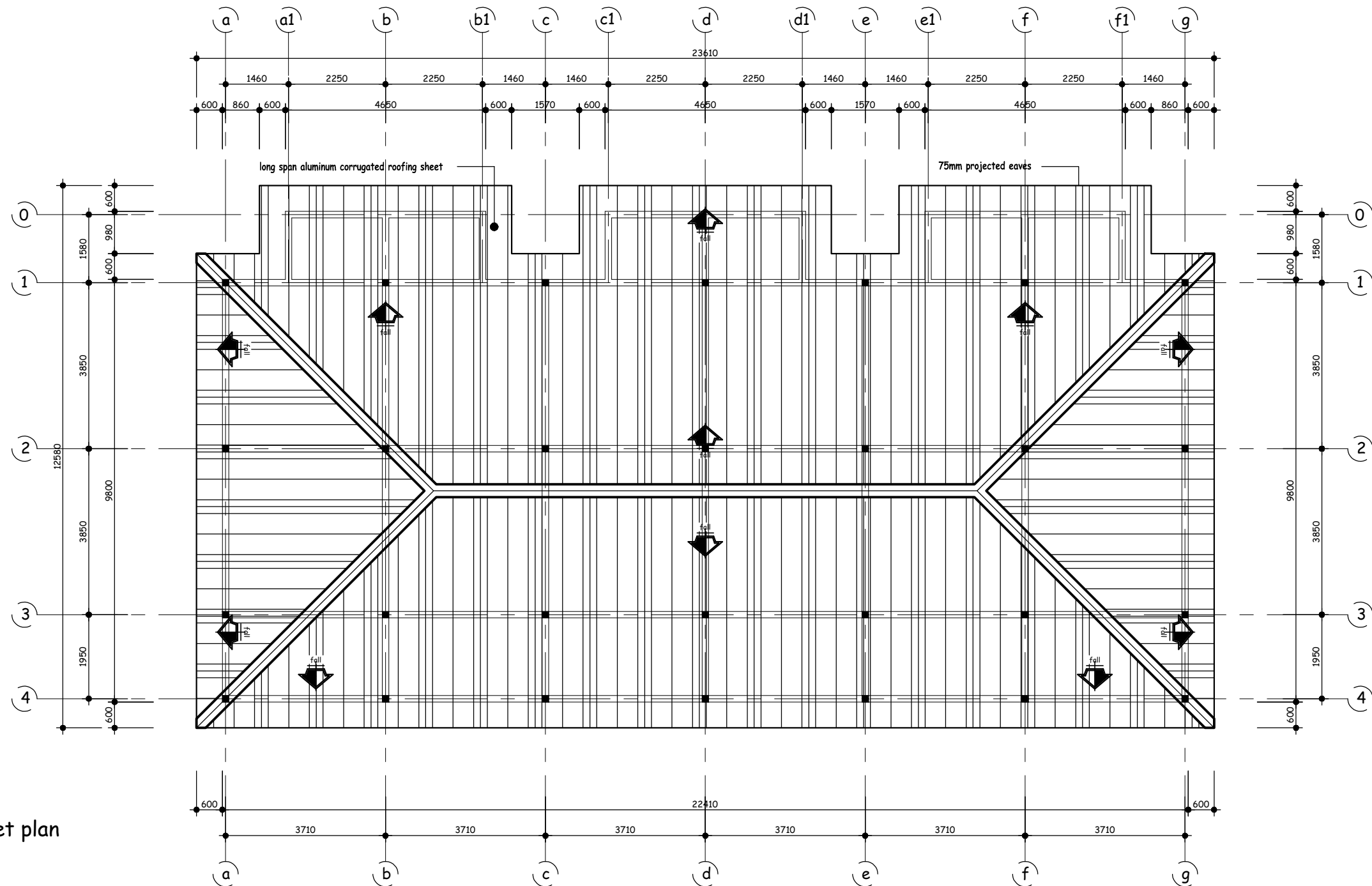
ARC. 04

NOTES:

1. DO NOT SCALE FROM DRAWING
2. USE DIMENSION AS SHOWN ON PLAN
3. CONSULT THE DESIGNER BEFORE IMPLEMENTING ANY CHANGES

roofing sheet plan

scale 1:100



DESIGNED AND DRAWN BY:

FRANCOS

Date:

May,
2026

Client:

AFADZATO SOUTH DISTRICT ASSEMBLY

Description:

left elevation & front elevation plan

Ref. No.

F D L
08 / 26

Project:

Plan of a 6-Unit chamber and hall self-contained single storey staff bungalow at TAFI MADOR in the AFADZATO SOUTH DISTRICT of the VOLTA REGION of the Republic of GHANA

Scale:

1 : 100
(all dimensions are in mm)

Sheet No.

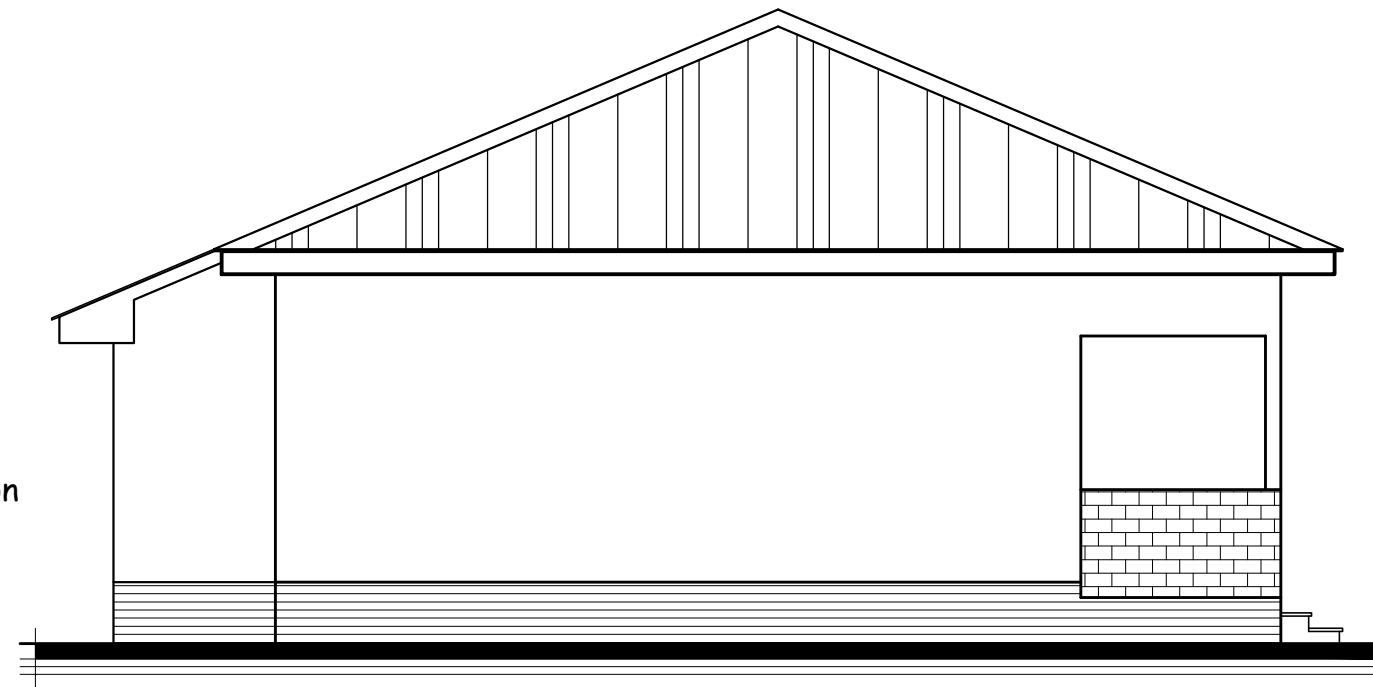
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NOTES:

1. DO NOT SCALE FROM DRAWING
2. USE DIMENSION AS SHOWN ON PLAN
3. CONSULT THE DESIGNER BEFORE IMPLEMENTING ANY CHANGES

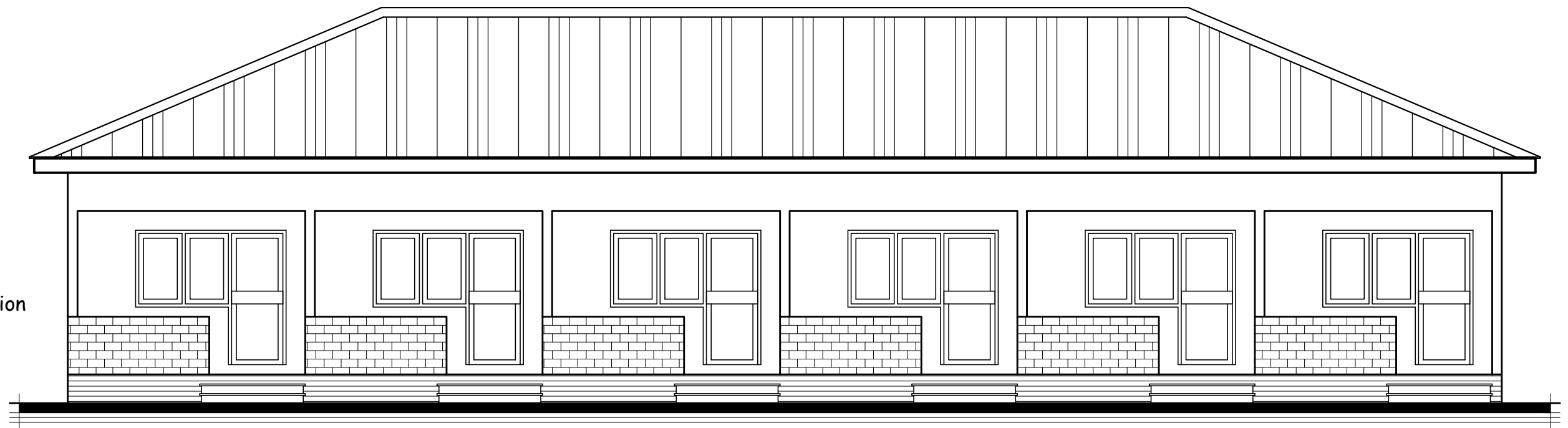
left elevation

scale 1:100



front elevation

scale 1:100



DESIGNED AND DRAWN BY:

FRANCOS

Date:
May,
2026

Ref. No.
F D L
08 / 26

Client:
AFADZATO SOUTH DISTRICT ASSEMBLY

Description:
right elevation & back elevation

Project:
Plan of a 6-Unit chamber and hall self-contained single storey staff bungalow at TAFI MADOR in the AFADZATO SOUTH DISTRICT of the VOLTA REGION of the Republic of GHANA

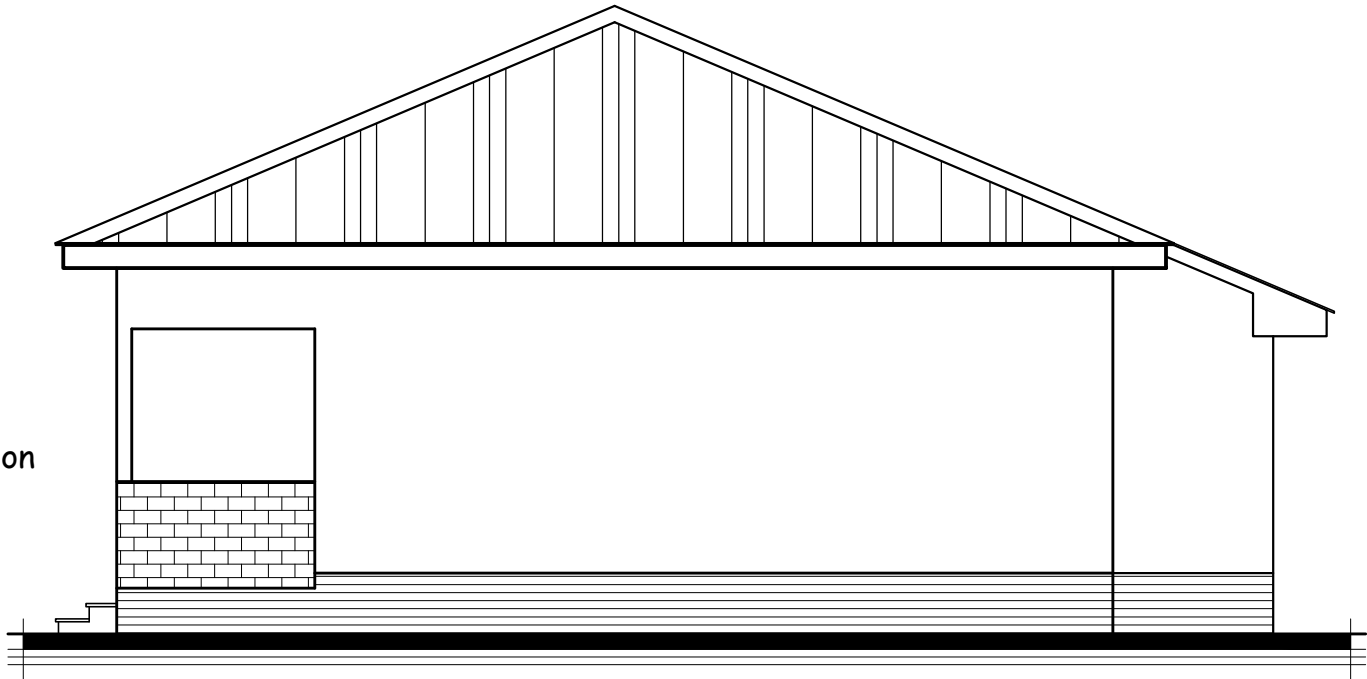
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1 : 100
(all dimensions are in mm)

Sheet No.
ARC. 06

- NOTES:
1. DO NOT SCALE FROM DRAWING
 2. USE DIMENSION AS SHOWN ON PLAN
 3. CONSULT THE DESIGNER BEFORE IMPLEMENTING ANY CHANGES

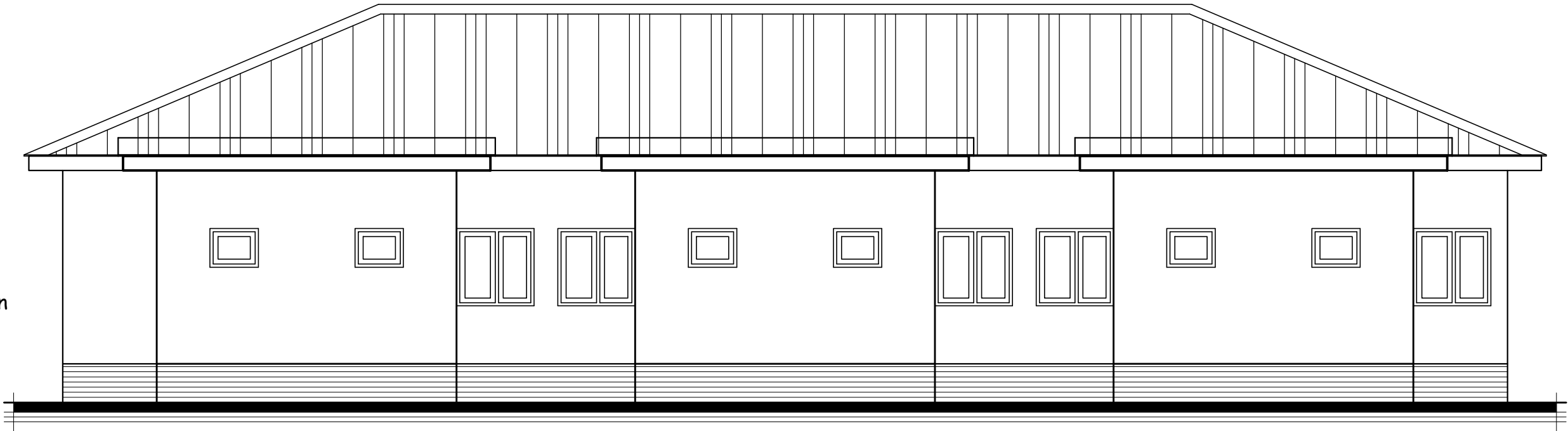
right elevation

scale 1:100



back elevation

scale 1:100



DESIGNED AND DRAWN BY:

FRANCOS

Date:
May,
2026

Ref. No.
F D L
08 / 26

Client:
AFADZATO SOUTH DISTRICT ASSEMBLY

Description:
section x - x & other relevant details

Project:
Plan of a 6-Unit chamber and hall self-contained single storey staff bungalow at TAFI MADOR in the AFADZATO SOUTH DISTRICT of the VOLTA REGION of the Republic of GHANA

Scale:
1 : 50
(all dimensions are in mm)

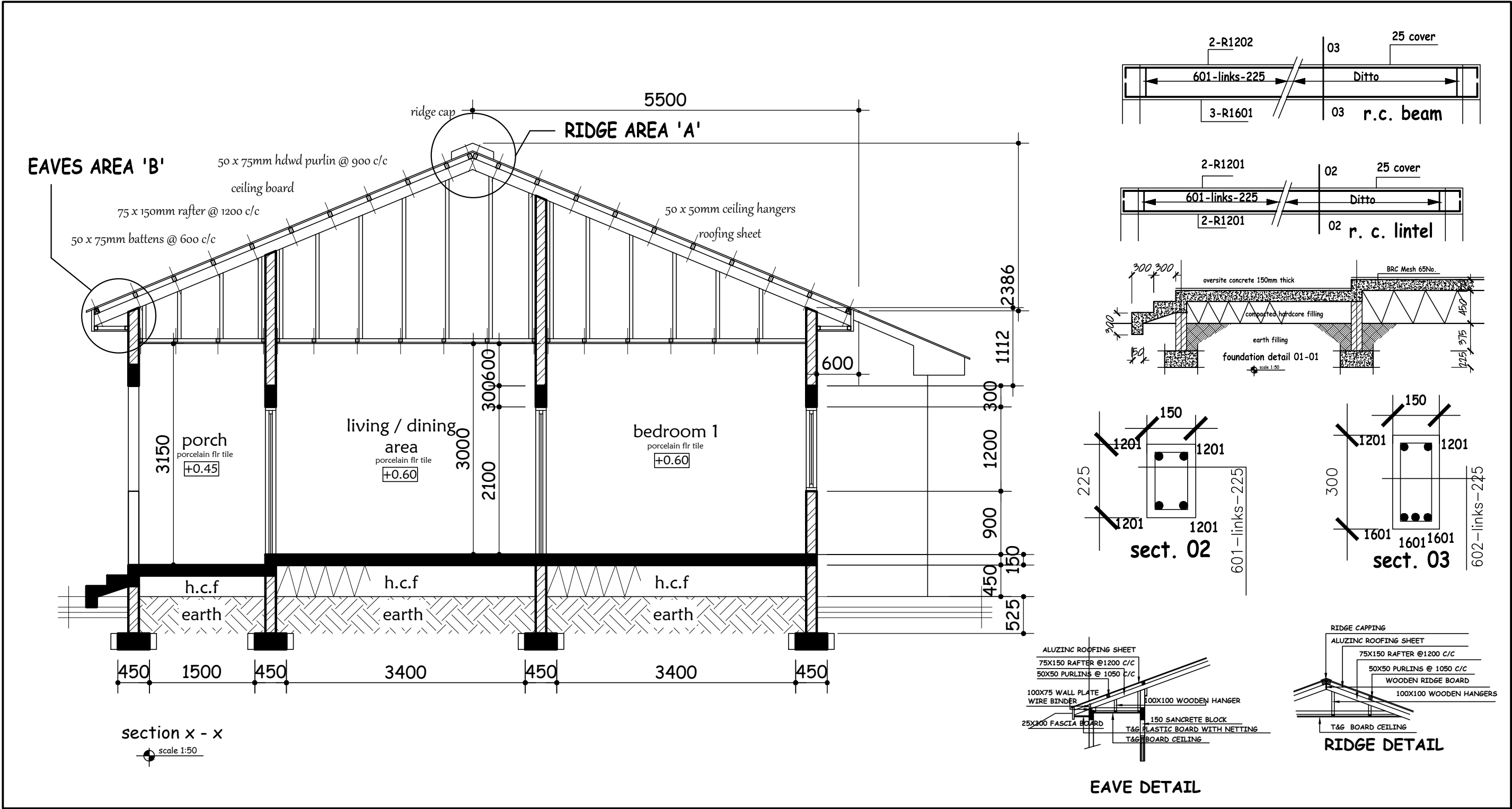
Sheet No.
ARC. 07

NOTES:

1. DO NOT SCALE FROM DRAWING

2. USE DIMENSION AS SHOWN ON PLAN

3. CONSULT THE DESIGNER BEFORE IMPLEMENTING ANY CHANGES



DESIGNED AND DRAWN BY:

FRANCOS

Date:
May,
2026

Ref. No.
F D L
08 / 26

Client:
AFADZATO SOUTH DISTRICT ASSEMBLY

Description:
doors and windows schedule & relevant details

Project:
Plan of a 6-Unit chamber and hall self-contained single storey staff bungalow at TAFI MADOR in the AFADZATO SOUTH DISTRICT of the VOLTA REGION of the Republic of GHANA

Scale:
1 : 50
(all dimensions are in mm)

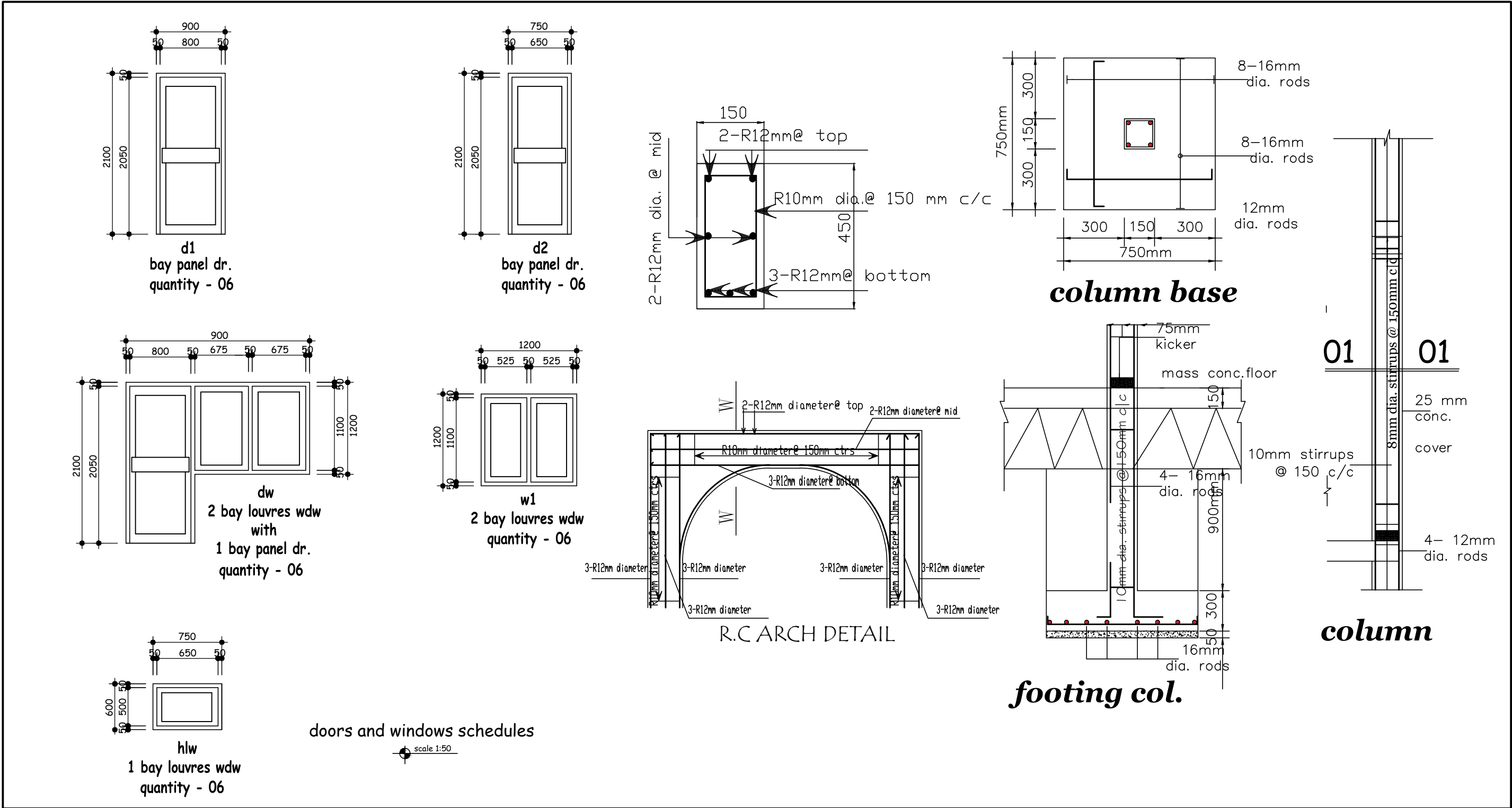
Sheet No.
ARC. 08

NOTES:

1. DO NOT SCALE FROM DRAWING

2. USE DIMENSION AS SHOWN ON PLAN

3. CONSULT THE DESIGNER BEFORE IMPLEMENTING ANY CHANGES



SECTION VII
BILLS OF QUANTITIES

ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
	<u>COMPLETION OF 1NO. 6-UNIT TEACHERS BUNGALOW AT TAFI-MADOR</u>				
	<u>PRELIMINARIES AND GENERAL CONDITIONS OF CONTRACT</u>				
	<u>CONTRACTUAL REQUIREMENTS</u>				
A	Performance Security		Item		
B	Insurance		Item		
	<u>SPECIFIC REQUIREMENTS</u>				
	<u>General Scaffolding</u>				
C	Allow for general scaffolding for the whole of the works		Item		
	<u>Safety, Health and Welfare</u>				
D	Allow for safety, health and welfare of the people (First Aid)		Item		
	<u>Transport</u>				
E	Allow for transport for work-people		Item		
	<u>Water for the Works</u>				
F	Include for providing the whole of the water required for execution of the works		Item		
	<u>Watching and Protecting</u>				
G	The Contractor from time of being placed in possession must include for watching light and protecting the works		Item		
H	Allow for the architecture drawing		Item		
J	Remove for removing rubbish from time to time as may be directed to leave the work clean on completion		Item		

Carried to Collection					
ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
A	<u>Agent / Foreman In-charge</u>				
	Include for the provision for establishment and maintenance of temporary site office and store		Item		
B	<u>Temporary Shelters for Workmen</u>				
	The Contractor shall provide, erect and maintain shelters for the use of the workmen, furnished with tables, benches, etc. as may be reasonably required by the workmen for the preparation and consumption of their meals together with an adequate supply of clean drinking water		Item		
C	<u>Progress Photographs</u>				
	Provide one set of progress photographs to the Consultant each month during the duration of the Works. Each photograph shall be taken from at least four (4) different vantage points on the site		Item		
D	<u>Project Sign Board</u>				
	The Contractor is to allow for providing a timber or wooden board size 1.20m x 1.20m overall in mounted on 2No. 2x4 hardwood of total height 2.8m (of which 0.6m will be buried in ground) in prominent position on the Site bearing the title of the Project, the names of the Employer and Consultant and such other information as the Consultant may direct		Item		
E	<u>Testing Materials</u>				
	Including the Provisional Sum of One -Thousand Ghana Cedis (GH¢1,000.00) for Testing Materials and Tester's cost in respect of Testing Materials		Item		1,000.00
Carried to Collection					
<u>COLLECTION</u>					
Page 1					
Page 2					

	BILL No. 1: GENERAL CONDITIONS AND PRELIMINARIES CARRIED TO GENERAL SUMMARY				
ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
	<u>BILL No. 2 : MAIN BUILDING</u>				
	<u>ELEMENT No. 2</u>				
	<u>STRUCTURAL FRAME</u>				
	<u>Reinforced concrete</u>				
	<u>Reinforced in situ vibrated concrete (1:2:4-19mm aggregate) as described in</u>				
A	Column	5	CM		
B	Lintel	8	CM		
	<u>Reinforcement</u>				
	<u>Rolled mild steel round bar reinforcement to BS 449 as described in:</u>				
C	12mm diameter bar in column	587	KG		
D	10mm ditto in stirrups in column	281	KG		
E	12mm diameter bar in lintel	697	KG		
F	10mm ditto in links in lintel	467	KG		
	<u>Sawn formwork to:</u>				
G	Sides and soffit of beam or lintel	128	SM		
H	Vertical Sides of Column	101	SM		
	<u>ELEMENT NO. 2 - STRUCTURAL FRAME</u>				
	<u>Carried to summary</u>				

ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
<u>ELEMENT No. 3</u>					
<u>WALLING</u>					
<u>BLOCKWORK</u>					
<u>Solid sandcrete blockwork in cement mortar (1:4)</u>					
<u>as described in:</u>					
A	150mm wall	451	SM		
<u>Sundries</u>					
C	200mm wide bituminous felt strip on blockwork wall filled between corrugated roofing sheets	18	LM		
D	350 x 250mm bituminous felt piece fixed to sides and base of timber trusses	12	No.		
ELEMENT No. 3 - WALLING					
<i>Carried to summary</i>					
<u>ELEMENT NO. 4</u>					
<u>CARCASSING/ROOFING</u>					
<u>0.35mm thick corrugated "aluzinc" longspan roofing sheet fixed with one and half corrugations side laps to hardwood purlins (measured separately) with aluminium drive screws and washers</u>					
A	Sloping roofing sheets	404	SM		
B	600mm girth aluminium ridge capping	29	LM		
C	600mm girth aluminium hip capping	29	LM		

D	Extra over 2 hips	2	No.		
<i>Carried to to collection</i>					
ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
<u>Sawn hardwood treated with preservative</u>					
A	50mm x 150mm rafter	294	LM		
B	50mm x 50mm ceiling nogging	830	LM		
C	50mm x 50mm ceiling hangers	146	LM		
D	50mm x 150mm hip rafter	21	LM		
E	50mm x 100mm purlin	463	LM		
<u>The following in 5 No. roof trusses approximately 7.05m maximum span and 2.20m high hoisted 3.35m above ground level</u>					
F	50mm x 150mm strut	102	LM		
G	50mm x 150mm bottom chord	88	LM		
H	50mm x 150mm top chord	54	LM		
J	50mm x 150mm tie beam	10	LM		
K	12mm thick plywood gusset plate	32	SM		
<u>Sawn hardwood treated with preservative</u>					
L	25mm x 300mm fascia or barge board	76	LM		
<u>Anchorage works & hoisting</u>					
M	All a provisional sum of Three Thousand Five hundred Ghana Cedis (GH¢3,500.00) for metalwork in roofing		Item		3,500.00
<i>Carried to collection</i>					
<u>COLLECTION</u>					
Page 4					

	Page 5				
	ELEMENT No. 4 - CARCASSING/ROOFING <i>Carried to summary</i>				
ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
	<u>ELEMENT No. 5</u> <u>WINDOWS AND DOORS</u>				
	<u>Windows</u> <u>Sawn hardwood treated with preservative</u>				
A	12mm x 50mm louvre stop	41	LM		
B	15mm x 20mm cover batten	90	LM		
C	50mm x 150mm window frame (Including bedding)	90	LM		
	<u>Screens</u> <u>Supply and fix the following screen to windows</u> <u>Burglar Proof screen</u>				
D	Mild Steel bars, 16mm diameter cut to specified lengths and threaded through holes in hardwood at 150mm centres,	141	LM		
E	50 x 50 x 4mm square welded mesh fixed to window openings with battens (measured separately)	25	SM		
	<u>Insect proof screens</u>				
F	Mosquito-proof woven plastic gauze cut to size and fixed to hardwood with battens (measured separately)	25	SM		
	<u>Supply and fix the following 'Naco' or approved equal anodised aluminium louvre carrier as described</u>				
G	<u>Pair</u> louvre carrier 600mm long with clips for 4 No. blades	6	No.		
H	<u>Pair</u> louvre carrier 1200mm long with clips for 8 No. blades	24	No.		

A	<u>6mm float glass, 150mm wide fixed in aluminium carriers screwed to hardwood (measured separately)</u>	216	No.		
	Clear louvre blade over 600mm but not exceeding 750mm long				
	Carried to collection				
ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
	<u>Doors</u>				
	<u>Sawn hardwood treated with preservative</u>				
A	12mm x 38mm planted stop	90	LM		
B	50mm x 150mm door frame	90	LM		
	<u>45mm (Finished) Panel door comprising 45 x 150mm top, middle fixed into groove and clamped together in approved adhesive</u>				
C	Door size 900mm x 2100mm high	6	Nr		
D	Ditto 800mm x 2100mm high	6	Nr		
E	Ditto 750 X 2100mm high	6	Nr		
	<u>Supply and fix the following ironmongery to hardwood with suitable screws</u>				
F	Pair brass butt extended hinges	18	No.		
H	Approved mortice lock with cylindrical anodized aluminium lever handled furniture	18	No.		
	Carried to Collection				
	<u>COLLECTION</u>				
	Page 6				
	Page 7				
	ELEMENT NO. 5 - WINDOWS AND DOORS				

	Carried to summary				
ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
	ELEMENT No. 6 ELECTRICAL INSTALLATIONS <u>LV Distribution</u> <u>Supply, install, test and commission the following electrical works:</u> <u>PVC heavy gauge conduit pipe</u> <u>Lay PVC conduit pipes in chases in blockwork, or in floor screed or concrete floor or through ceiling.</u> A 50mm diameter 30 LM - <u>Cables</u> B Lay 2x16mm² PVC cable in conduit 50 LM - <u>Copper Earthing components</u> C 16mm² green/yellow copper earthwire drawn in to conduit 50 LM D 20mm diameter 1.5m long earthrod with clamp driven in to Furse or equal 1 No. E 1m long air terminal complete; Furse or equal 2 No. F 3mmx25mm copper tape, clips and clamps 15 LM <u>LV Switchgear and Distribution Boards</u> G 100A Double pole and neutral moulded case circuit breaker (MCCB) complete with earthbar and enclosure; Crabtree or equal. 1 No.				

H	12-way 100A 230V, SPN flush mounted memshield distribution board incorporating: 100A SPN Isolator incomer 6Nos. 6A SP MCB outgoing 2Nos. 20A SP MCB outgoing 4Nos. 32A SP MCB outgoing	1	No.		
	<i>Carried to collection</i>				
ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
	<u>General lighting and fans</u> <u>PVC heavy guage conduit and fittings</u>				
A	20mm diameter straight conduit in chases in block work or in floor screed or in concrete floor or in ceiling	600	LM		
B	Circular boxes	72	No.		
C	75mmx75mmx35mm rectangular flush steel boxes	36	No.		
	<u>Supply and wire in PVC conduit pipes the following as directed:</u> <u>PVC Insulated cable, single core stranded copper conductors</u>				
D	1.5mm ² cable drawn in to conduit Red insulation	1,400	LM		
E	Black insulation	1,400	LM		
F	Green/yellow insulation	1,400	LM		
	<u>Fittings</u> <u>Supply and install the following lighting fittings complete with bulbs and tubes including all connections</u>				
G	(CFL)/approved equal	6	No.		
H	1x36W, 1200mmx105mm, 230V, surface fluorescent luminaire with lamp, capacitor, electronic starter Philips TCS 058 or equal	6	No.		
J	1x36W, 1200mmx105mm, 230V, surface jet-proof corrosion-resistant fluorescent with lamp, capacitor and				

	electronic starter. Philips TCW 058 with IP65	10	No.		
K	100W, 230V ceiling light fitting complete with CFL	6	No		
L	230V, 1420mm (56in) sweep ceiling fan with regulator complete Relite or Revo or equal	12	No.		
	<i>Carried to collection</i>				
ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
	<u>Accessories</u>				
A	5A single pole flush plate switches 1-gang 1-way; MEM or equal	18	No.		
B	5A single pole flush plate switches 1-gang 2-way MEM or equal	6	No.		
	<u>General power</u>				
	<u>Final Circuits 230V, 13A Switch Socket Outlet for General Power</u>				
C	20mm diameter PVC rigid conduit laid in chases in block work or in floor screed or in concrete floor	300	LM		
D	2.5mm ² PVC red and black insulated single core copper cable drawn in to conduit	2,400	LM		
E	133mmx75mmx35mm flush steel conduit boxes	30	No.		
F	2.5mm ² green/yellow copper cable drawn into conduit	1,200	LM		
G	13A, 230V twin (2-gang) switch socket outlet MEM or equal	30	No.		
	<u>Meter and electric Power extension to building</u>				
J	Allow for the provision of meter and connection of facility to electricity mains		Item		
	<i>Carried to collection</i>				
	<u>COLLECTION</u>				

	Page 8				
	Page 9				
	Page 10				
	ELEMENT No. 6- ELECTRICAL INSTALLATION <i>Carried to summary</i>				
ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
	<u>ELEMENT No. 7</u>				
	<u>WALL, FLOOR AND CEILING FINISHINGS</u>				
	<u>13mm thick cement and sand (1:4) render</u>				
A	Wall	724	SM		
B	Wall and surfaces not exceeding 300mm wide	33	SM		
	<u>Beds and Backing</u>				
	<u>Cement and sand (1:3)</u>				
C	50mm floated paving	219	SM		
	<u>TILE , SLAB OR BLOCK FINISHING</u>				
	<u>Floor</u>				
D	400 X 400 X 10mm non-slip porcelain floor tiles laid with continuous joint in with tile adhesive	201	SM		
E	Ditto in width not exceeding 100mm	207	LM		
F	300mm x 300mm ceramic floor tile laid with continuous joint in with tile adhesive	18	SM		
	<u>Wall</u>				
G	White glazed wall tiles 450mm x 250mm laid with continuous continuous joint in with tile adhesive	77	SM		
	<u>Ceiling Finishing</u>				
	<u>Plain Sheet Finishing</u>				

H	1200mm x 1200mm x 6mm thick exterior quality plywood fixed to hardwood soffits (measured elsewhere)	264	SM		
	<u>Wrought treated hardwood</u>				
J	12mm x 50mm ceiling cover batten	778	LM		
	ELEMENT No. 7- WALL, FLOOR AND CEILING FINISHING <i>Carried to summary</i>				
ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
	<u>ELEMENT NO. 8</u>				
	<u>PAINTING AND DECORATING</u>				
	<u>Prepare and apply one undercoat and two finishing coats of emulsion paint as described on:</u>				
A	Rendered Walls (internal)	478	SM		
B	Rendered Walls (external)	246	SM		
D	Plywood Ceiling Soffits	264	SM		
	<u>Prepare and apply one undercoat and two finishing coats of oil gloss paint on woodwork</u>				
E	General Surfaces (Doors)	62	SM		
F	Door and window frames not exceeding 300mm girth	180	LM		
G	Fascia or barge board not exceeding 300mm girth	76	LM		
	<u>Prepare, prime with etching primer and apply two coats of oil gloss paint on metalwork</u>				
H	Metal rods not exceeding 300mm girth	136	SM		
	ELEMENT No. 8 - PAINTING AND DECORATING <i>Carried to summary</i>				

ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
<u>ELEMENT NO. 9</u>					
<u>SANITARY APPLIANCES/FITTINGS</u>					
<u>Supply and install the following Sanitary Appliances and Fittings</u>					
A	Twyford P-trap syphonic type fireclay viterios finish inside and outside with heavy duty plastic seat and cistern	6	No.		
B	Wash hand basin 450 complete with: White basin with one centre tap hole Wall bolts(pair) Chrome plated basin Monobloc complete with pop up waste 1 1/4" bottle trap and extension	6	No.		
C	Satin finished toilet roll holder	6	No.		
D	Satin finished dual towel rail, length 700mm	6	No.		
E	Plate glass mirror with S/S fixing screws Size: 600 x 450mm	6	No.		
<u>Pipes, Fittings & Fixtures in appliance installations</u>					
F	Allow for provision pipes, fitting & fixture to appliances and other necessary items e.g- shower rose, floor drains stop valves, taps etc in building		Item		
ELEMENT NO. 9: SANITARY APPLIANCES/FITTINGS					

	Carried to summary				
ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
	<u>ELEMENT No. 10</u>				
	<u>EXTERNAL WORKS AND DRAINAGE</u>				
	<u>Works in Aprons, Drains and steps</u>				
F	Include a provisional Sum of Thirty Thousand Ghana Cedis (GH¢30,000.00) for the construction of Aprons drains , kerbs and steps to buildings		Item		30,000.00
	<u>Cold water supply to building</u>				
G	Allow a Provisional Sum of Ten Thousand Ghana Cedis (GH¢10,000.00) for the provision of pipe and accessories including extension of cold water supply to building		PS		10,000.00
H	Allow for the Provision and installation of 4000 litres of water storage tank	1	nr		
	<u>Septic tanks or bio-digesters and waste pipes in building</u>				
J	Allow a Provisional Sum of Fifteen Thousand Ghana Cedis (GH¢20,000.00) for the provision of waste pipes, septic tank or bio-digesters for connection to building		Item		20,000.00
	ELEMENT NO. 10 - EXTERNAL WORKS AND DRAINAGE				
	Carried to summary				

ITEM	DESCRIPTION	QTY	UNIT	RATE GH¢	AMOUNT GH¢
	<u>BILL NO. 2</u> <u>MAIN BUILDING</u> <u>SUMMARY</u> ELEMENT No. 2 STRUCTURAL FRAME ELEMENT No. 3 WALLING ELEMENT No. 4 CARCASSING/ROOFING ELEMENT No. 5 WINDOWS AND DOORS ELEMENT No. 6 ELECTRICAL INSTALLATION ELEMENT No. 7 WALL, FLOOR AND CEILING FINISHINGS ELEMENT No. 8 PAINTING AND DECORATING ELEMENT No. 9 SANITARY APPLIANCES/FITTINGS ELEMENT No. 10 EXTERNAL WORKS BILL NO. 2: MAIN BUILDING				

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SECTION VIII
SECURITY FORMS

ANNEX A FORM:

BID SECURITY (INSURANCE BOND)

Whereas, (name of Bidder) hereinafter called “the Bidder) has submitted his Bid dated (date) for the construction of (name of Contract) hereinafter called “the Bid”).

Know all people by these presents that We (name of Bank) of (name of country) having our registered office at (address) hereinafter called “the Bank”) are bound unto name of Employer) (hereinafter called :the Employer”) in the sum of (amount) for which payment well and truly to be made to the said Employer, the Bank binds itself, its successors, and assigns by these presents.

Sealed with the Common Sealed of the said Bank this (day) day of (month), (year).

The conditions of this obligation are:

- (1) If, after Bid opening, the Bidder withdraws his Bid during the period of Bid validity specified in the Form of Bid; or
- (2) If the Bidder having been notified of the acceptance of his Bid by the Employer during the period of Bid validity;
 - (a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or
 - (b) fails or refuses to furnish the Performance Security, in accordance with the Instruction to Bidders; or
 - (c) does not accept the correction of the Bid Price pursuant to Clause 27,

we undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer’s having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the three conditions, specifying the occurred condition or conditions.

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

Date _____ Signature of the Bank _____

Witness _____ Seal _____

(Signature, name, and address)

ANNEX B FORM (ALTERNATIVE 2): PERFORMANCE BOND GUARANTEE (UNCONDITIONAL)

By this Bond, (Name and address of Contractor) as Principal (hereinafter called “the Contractor”) and (name, legal title, and address of surety, bonding company, or insurance company) as Surety (hereinafter called “the Surety”), are held and firmly bound unto (name and address of employer) as Obligee (hereinafter called “the Employer”) in the amount of (amount of Bond) (amount of Bond in words), 3 for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

Whereas the Contractor has entered into a Contract with the Employer dated ⁴ the (day) day of (month), (year) for (name of contract) in accordance with the document, plans, specifications, and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinunder referred to as the Contract.

Now, therefore, the Condition of this obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise it shall remain in full force and effect. Whenever the Contractor shall be and declared by the Employer to be, in default under the contract, the Employer having performed the Employer’s obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) complete the Contract in accordance with its terms and conditions; or
- (2) obtain a Bid or bids from qualified bidders for submission to the Employer for completing the Contract in accordance with its terms and conditions, and upon determination by the Employer and the Surety of the lowest responsive Bidder, arrange for a Contract between such Bidder and Employer and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract Price; but not exceeding including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term “Balance of the Contract Price,” as used in this paragraph, shall mean the total amount payable by the Employer to the Contractor under the Contract, less the amount properly paid by the Employer to the Contractor; or
- (3) pay the Employer the amount required by the Employer to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

¹ An amount is to be inserted by the Surety, representing the percentage of the Contract Price specified in the Contract Data, and denominated either in the currency(ie) of the Contract or in a freely convertible currency of type and amount acceptable to the employer.

⁴ Date of Letter of Acceptance or Agreement.

Any suit under this Bond must be instituted before the expiration of one year from the date of issuance of the Certificate of Completion.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Employer named herein or the heirs, executors, administrators, successors, and assigns of the Employer.

In testimony whereof, the Contractor has hereunto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its legal representative, this (day) day of (month), (year).

Signed by _____

On behalf of (name of contractor) in the capacity of _____

In the presence of _____

Date _____

Signed by _____

On behalf of (name of Contractor) in the capacity of _____

In the presence of _____

Date _____

Annex C Form: Bank Guarantee for Advance Payment

To: (name and address of Employer)

(name of Contract)

Gentlemen:

In accordance with the provisions of the Conditions of Contract, Clause 51 (“Advance Payment”) of the above-mentioned Contract, (name and address of Contractor) hereinafter called “the Contractor”) shall deposit with (name of Employer) a Bank Guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in an amount of (amount of Guarantee) amount in words).⁵

We, the (Bank of Financial Institution), as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to (name of Employer) on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, in the amount not exceeding (amount of Guarantee) (amount in words).⁶

We further agree that no change or addition to or other modification of the terms of the Contract or of Works to be performed thereunder or of any of the Contract documents which may be made between (name of Employer) 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 shall remain valid and in full effect from the date of the advance payment under the Contract until (name of Employer) receives full repayment of the same amount from the Contractor.

Yours truly,

Signature and seal: _____

Name of Bank/Financial Institution: _____

Address: _____

Date: _____

¹ An amount is to be inserted by the Bank or Financial Institution representing the amount of the Advance Payment, and denominated either in the currency (ies) of the Advance Payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

⁶ An amount is to be inserted by the Bank or Financial Institution representing the amount of the Advance Payment, and denominated either in the currency(ies) of the Advance Payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.