TENDER FOR EXCAVATION, INSTALLATION OF A RAISED FLOORING SYSTEM, TILING AND SANITARY WARE USING ENVIRONMENTAL FRIENDLY PRODUCTS AT THE SIXTH FORM COLLEGE VICTORIA

IMPORTANT NOTE:

- Participation Fee is Free
- No Bid Bond is requested for this tender
- Tenderers are bound by their offers as per the period detailed in clause 19.1 of the tender document.
- Clarifications issued after the publication of tender will be uploaded on the FTS website: www.fts.com.mt under the respective tender number.

- Submission of Financial Offer:- Tenderers must quote all components of the price inclusive of taxes/charges, customs and import duties and any discounts BUT excluding VAT. VAT shall be paid in accordance with the current VAT regulations.

FOUNDATION FOR TOMORROW’S SCHOOLS
SIR ADRIAN DINGLI STREET,
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PBK 1940

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2015
CONTENTS

PART ONE, SECTION 1  -  INSTRUCTIONS TO TENDERERS
PART ONE, SECTION 2  -  TENDER FORM
PART ONE, SECTION 3  -  LITERATURE / LIST OF SAMPLES
PART ONE, SECTION 4  -  GLOSSARY

PART TWO, SECTION 1  -  CONDITIONS OF CONTRACT
PART TWO, SECTION 2  -  GENERAL CONDITIONS OF CONTRACT

PART THREE, SECTION 1  -  SPECIFICATIONS BY CONTRACTING AUTHORITY
PART THREE, SECTION 2  -  TENDERER’S TECHNICAL OFFER IN RESPONSE TO SPECIFICATIONS

PART FOUR  -  BILLS OF QUANTITIES
PART FIVE  -  ANNEXES
PART SIX  -  LIST OF DRAWINGS
A. GENERAL PART

1. General Instructions

1.1 There is no participation fee for this tender.

A prospective bidder shall download and print the tender document from the FTS website: www.fts.com.mt under the heading “Tenders” and the respective tender number.

When submitting an offer, bidders are to abide by the respective articles which regulate the tender submission.

In submitting a tender, the tenderer accepts in full and in its entirety, the content of this tender document, including subsequent Clarifications issued by the Contracting Authority, whatever his own corresponding conditions may be, which he hereby waives. Tenderers are expected to examine carefully and comply with all instructions, forms, contract provisions and specifications contained in this tender document.

No account can be taken of any reservation in the tender as regards the tender document; any disagreement, contradiction, alteration or deviation shall lead to the tender offer not being considered any further.

The Evaluation Committee shall, after having obtained approval by the Departmental Contracts Committee, request rectifications in respect of incomplete/non-submitted information pertinent to the documentation as outlined in Article 16 (Content of Tender) of these Instructions to Tenderers. Such rectification/s must be submitted within five (5) working days from notification, and will be subject to a non-refundable administrative penalty of €50: failure to comply shall result in the tender offer not being considered any further.

No rectification shall be allowed in respect of the documentation as outlined in Article 16 (Content of Tender) of these Instructions to Tenderers.

1.2 This is a call for tenders for excavation, installation of a raised flooring system, tiling and sanitary ware using environmental friendly products at the Sixth Form College, Victoria Gozo

1.3 This is a unit-price (Bill of Quantities) contract.

1.4 The tenderer will bear all costs associated with the preparation and submission of the tender. The Contracting Authority will in no case be responsible or liable for such costs, whatever the conduct or outcome of the procedure.

1.5 The Contracting Authority retains ownership of all tenders received under this tender procedure. Consequently, tenderers have no right to have their tenders returned to them.

2. Timetable

<table>
<thead>
<tr>
<th>Clarity Meeting/Site Visit (Refer to Clauses 9.2)</th>
<th>DATE</th>
<th>TIME *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Applicable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deadline for request for any additional information from the Contracting Authority</th>
<th>4th January 2016</th>
<th>16:30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last date on which additional information are issued by the Contracting Authority</td>
<td>6th January 2016</td>
<td>17:00</td>
</tr>
<tr>
<td>Deadline for submission of tenders / Tender Opening Session (unless otherwise modified in terms of Clause 11.3)</td>
<td>12th January 2016</td>
<td>10:00am</td>
</tr>
</tbody>
</table>

* Malta Time
3. Lots

3.1 This tender is not divided into lots, and tenders must be for the whole of quantities indicated. Tenders will not be accepted for incomplete quantities.

4. Financing

4.1 The project is financed by the Foundation for Tomorrow’s Schools.

4.2 The beneficiary of the financing is Foundation for Tomorrow’s Schools.

5. Eligibility

5.1 Participation in tendering is open on equal terms to all natural and legal persons of the Member States of the European Union, the beneficiary country, any other country in accordance with Regulation 76 of the Public Procurement Regulations.

5.2 Natural persons, companies or undertakings who fall under any of the conditions set out in Regulation 50 of the Public Procurement Regulations, 2010 (Legal Notice 296 of 2010) may be excluded from participation in and the award of contracts. Tenderers or candidates who have been guilty of making false declarations will also incur financial penalties representing 10% of the total value of the contract being awarded.

5.3 Tenders submitted by companies forming a joint venture/consortium must also fulfil the following requirements:

- One partner must be appointed lead partner and that appointment confirmed by submission of powers of attorney signed by legally empowered signatories representing all the individual partners. The tender must include a preliminary agreement or letter of intent stating that all partners assume joint and several liability for the execution of the contract, that the lead partner is authorised to bind, and receive instructions for and on behalf of, all partners, individually and collectively.

- All partners in the joint venture/consortium are bound to remain in the joint venture/consortium until the conclusion of the contracting procedure. The consortium/joint venture winning this contract must include the same partners for the whole performance period of the contract other than as may be permitted or required by law.

5.4 All materials, equipment and services to be supplied under the contract must originate in an eligible country. For these purposes, “origin” means the place where the materials and/or equipment are mined, grown, produced or manufactured and/or from which services are provided.

6. Selection Criteria

6.1 In order to be considered eligible for the award of the contract, tenderers must provide evidence that they meet or exceed certain minimum qualification criteria described hereunder.

   In the case of a joint venture, the joint venture as a whole must satisfy the minimum qualifications required below.

6.1.1 No evidence of economic and financial standing is required.

6.1.2 Information about the tenderer’s technical capacity.

   (An economic operator may, where appropriate and for a particular contract, rely on the capacities of other entities, regardless of the legal nature of the links which it has with them. It must in that case prove to the contracting authority that it will have at its disposal the resources necessary for the execution of the contract, for example, by producing an undertaking by those entities to place the necessary resources at the disposal of the economic operator)
This information must follow the respective forms of the tender documents and include:

A) A list of “Key Experts” being proposed for the execution of the contract. The Evaluation Committee reserves the right to request tenderers to substantiate their claims in respect to the staff proposed by requesting CVs of Key Experts during the evaluation stage [as per Part 5, Annex 3].

Provide data concerning key experts that will be utilised by the bidder to carry out the works as per Form “Key Experts” [as per Part 5, Annex 3].

**Key Experts**

**The list of Key Experts must include at least:**

a) A warranted architect.
b) A Site manager / Supervisor
c) A Foreman
d) A Health and Safety Officer

B) Provide data concerning subcontractors and the percentage of works to be subcontracted as per Form marked Sub-contracting:

The maximum amount of sub-contracting must not exceed 49% of the total contract value.

The main contractor must have the ability to carry out at least 51% of the contract works by his own means.

In so listing the end clients, the tenderer is giving his consent to the Evaluation Committee, so that the latter may, if it deems necessary, contact the relevant clients, with a view to obtain from them an opinion on the works provided to them, by the tenderer.

**7. Only One Tender Per Tenderer**

7.1 Submission or participation by a tenderer in more than one tender for a contract will result in the disqualification of all those tenders for that contract in which the party is involved.

7.2 A company may not tender for a given contract both individually and as a partner in a joint venture/consortium.

7.3 A company may not tender for a given contract both individually/partner in a joint venture/consortium, and at the same time be nominated as a sub-contractor by any another tenderer, or joint venture/consortium.

7.4 A company may act as a sub-contractor for any number of tenderers, and joint ventures/consortia, provided that it does not participate individually or as part of a joint venture/consortium, and that the nominations do not lead to a conflict of interest, collusion, or improper practice.

**8. Tender Expenses**

8.1 The tenderer will bear all costs associated with the preparation and submission of the tender.

8.2 The Contracting Authority will neither be responsible for, nor cover, any expenses or losses incurred by the tenderer through site visits and inspections or any other aspect of his tender.

**9. Site Inspection**

9.1 A tenderer may visit the site of the works and its surroundings for the purpose of assessing, at
his own responsibility, expense and risk, factors necessary for the preparation of his tender and the signing of the contract for the works.

9.2 A clarification meeting and/or a site visit will not be held by the Contracting Authority

B. TENDER DOCUMENTS

10. Content of Tender Document

10.1 The set of tender documents comprises the following documents and should be read in conjunction with any clarification notes issued in accordance with Clause 24:

Part 1 Instructions to Tenderers
  Tender Form
  List of Literature / Samples
  Glossary

Part 2
  • Conditions of Contract
  • General Conditions

Part 3 Technical Specifications

Part 4 Bill of Quantities

Part 5 Annexes

Part 6 Drawings (If any)

10.2 Tenderers bear sole liability for examining with appropriate care the tender documents, including those design documents available for inspection, and any clarification notes to the tender documents issued during the tendering period, and for obtaining reliable information with respect to conditions and obligations that may in any way affect the amount or nature of the tender or the execution of the works. In the event that the tenderer is successful, no claim for alteration of the tender amount will be entertained on the grounds of errors or omissions in the obligations of the tenderer described above.

10.3 The tenderer must provide all documents required by the provisions of the tender document. All such documents, without exception, must comply strictly with these conditions and provisions and contain no alterations made by the tenderer.

11. Explanations/Clarification Notes Concerning Tender Documents

11.1 Tenderers may submit questions in writing to the Contracting Authority through:
  • sending an email to info.fts@gov.mt
  • through http://www.fts.com.mt - Contact us
  • fax number +356 21387660

up to the date and time mentioned in the timetable under article 2, PART ONE, SECTION 1 – INSTRUCTIONS TO TENDERERS.

The Contracting Authority must reply to all tenderers' questions, and amend the tender documents by publishing clarification notes, up to the date and time mentioned in the timetable under article 2, PART ONE, SECTION 1 – INSTRUCTIONS TO TENDERERS.

11.2 Any alterations to the tender document or clarifications will be published as a clarification note on the website of the Foundation for Tomorrow’s Schools (www.fts.com.mt) under the heading “Tenders” and the respective tender number.

Clarification notes will constitute an integral part of the tender documentation, and it is the responsibility of tenderers to visit the FTS’s website and be aware of the latest information published online prior to submitting their Tender.

11.3 The Contracting Authority may, at its own discretion, as necessary and in accordance with Clause 24, extend the deadline for submission of tenders to give tenderers sufficient time to
take clarification notes into account when preparing their tenders.

12. Labour Law

12.1 Particular attention is drawn to the conditions concerning the employment of labour in Malta and the obligation to comply with all regulations, rules or instructions concerning the conditions of employment of any class of employee.

13. Law

13.1 By submitting their tenders, tenderers are accepting that this procedure is regulated by Maltese Law, and are deemed to know all relevant laws, acts and regulations of Malta that may in any way affect or govern the operations and activities covered by the tender and the resulting contract.

C. TENDER PREPARATION

14. Language of Tenders

14.1 The tender and all correspondence and documents related to the tender exchanged by the tenderer and the Contracting Authority must be written in English.

14.2 Supporting documents and printed literature furnished by the tenderer may be in another language, provided they are accompanied by an accurate translation into English. For the purposes of interpretation of the tender, the English language will prevail.

15. Presentation of Tenders

15.1 Tenders must satisfy the following conditions:

(a) The tender documents appearing on FTS webpage page (www.fts.com.mt) are the original tender document published by the FTS. Prospective bidders are to download and print the tender document from this webpage.

The tender must be submitted on the original downloaded document duly signed in blue ink. (No copies are to be submitted).

Downloaded original documents are to be used and any instance of alteration (re-typing) or modification of tender documents used in the submission of a tender will result in disqualification.

(b) All documentation is/are to be placed in a sealed envelope/package so that the bid can be identified as one tender submission.

(c) All tenders must be received by date and time indicated in the timetable at Clause 2 and deposited in the tender box at the offices of the Foundation for Tomorrow’s Schools, Sir Adrian Dingli Street, Pembroke PBK1940, Malta.

(d) The package, as per (b) above, must bear only:
   (i) the above address (vide c);
   (ii) the reference of the invitation to tender concerned.

16. Content of Tender (Single-Envelope System)

16.1 The tender must comprise the following duly completed documents, inserted in a single, sealed envelope:

(a) Bid-bond - Not required. (Note 1)

(b) General/Administrative Information
**TENDER FOR EXCAVATION, INSTALLATION OF A RAISED FLOORING SYSTEM, TILING AND SANITARY WARE USING ENVIRONMENTAL FRIENDLY PRODUCTS AT THE SIXTH FORM COLLEGE, VICTORIA GOZO**

(i) Statement on Conditions of Employment (Part 5, Annex 1) (Note 2)
(ii) Occupational Health & Safety Declaration Waiver & Indemnity (Part 5, Annex 2) (Note 2)
(iii) Key Expert Declaration Form (Part 5, Annex 10) (Note 2)
(iv) Data on Joint Venture/Consortium [Part 5, Annex 8] (Where applicable) (Note 2)

**Selection Criteria**

(c) **Financial and Economic Standing**

*No evidence is required* (Note 2)

(d) **Technical Capacity**

(i) Key Experts (Part 5, Annex 3) (Note 2)
(ii) Subcontractors as per Form marked Sub-contracting (Part 5, Annex 11) (Note 2)

(e) **Technical Specifications**

(i) Literature as per the Form marked Literature (Part 1, Section 3) (Note 2)
(ii) Tenderer’s Technical Offer in response to specifications (Part 3, Sect. 2) (Note 3)
(iii) Samples as listed in the table at Section 3 - Technical Specifications (Note 3) - Not Applicable
(iv) Works Programme (Part 5, Annex 4) (Note 3)

(f) **Financial Offer/Bill of Quantities**

(i) The Tender Form in accordance with the form provided in Part 1, Section 2; a separate Tender Form is to be submitted for each option tendered, each form clearly marked ‘Option 1’, ‘Option 2’ etc. (Note 3); and
(ii) A financial bid calculated on a basis of Delivered Duty Paid (DDP)2010 for the works tendered including the breakdown of the overall price, in the form provided in Part 4 (Bill of Quantities) (Note 3)

Tenderers must indicate where the above documentation is to be found in their offer by using an index. All documentation is to be securely bound or filed. Tenderers are NOT required NOR expected to submit, with their offer, any components of the tender document except those specifically mentioned in Clause 16.

**Notes to Clause 16.1:**

1. Tenderers will be requested to clarify/rectify, within five working days from notification, the tender guarantee only in the following two circumstances: either incorrect validity date, and/or incorrect value.
2. Tenderers will be requested to either clarify/rectify any incorrect and/or incomplete documentation, and/or submit any missing documents within five working days from notification.
3. No rectification shall be allowed. Only clarifications on the submitted information may be requested.

**17. Tender Prices**

17.1 The tenderer must provide a breakdown of the overall price in Euro (€). Before submitting their tender, tenderers are to ensure its correctness and completeness and to have taken account of all that is required for the full and proper performance of the contract, and to have included all costs in their rates and prices.

17.2 Tenderers must quote all components of the price inclusive of taxes / charges, customs and import duties and any discounts but exclusive of VAT. VAT shall be paid in accordance with the applicable VAT Regulations.

17.3 The prices for the contract must include all of the works to be provided. The prices quoted are fixed and not subject to revision or escalation in costs, except for revision of prices due to Cost of Living Adjustment (COLA) and any other increases determined by Government in respect to its policies or as otherwise provided for in the Special Conditions.
17.4 Different options are to be clearly identifiable in the technical and financial submission; a separate Tender Form (as per Part 1, Section 2) marked ‘Option 1’, ‘Option 2’ etc. for each individual option clearly outlining the price of the relative option is to be submitted.

18. Currencies of Tender and Payments

18.1 The currency of the tender is the Euro (€). All sums in the breakdown of the overall price, in the questionnaire and in other documents must be expressed in Euro (€), with the possible exception of originals of bank and annual financial statements.

18.2 Payments will be made upon certification of works by the Contracting Authority, based on the invoice issued by the Contractor, in accordance with the timeframes, terms and conditions of the contract.

18.3 All correspondence relating to payments, including invoices and interim and final statements must be submitted as outlined in the contract.

19. Period of Validity of Tenders

19.1 Tenders must remain valid for a period of 90 days after the deadline for submission of tenders indicated in the contract notice, the tender document or as modified in accordance with Clauses 11.3 and/or 24. Any tenderer who quotes a shorter validity period will be rejected.

19.2 In exceptional circumstances the Contracting Authority may request that tenderers extend the validity of tenders for a specific period. Such requests and the responses to them must be made in writing. A tenderer may refuse to comply with such a request without forfeiting his tender guarantee (Bid Bond). However, his tender will no longer be considered for award. If the tenderer decides to accede to the extension, he may not modify his tender. He is, however, bound to extend the validity of his tender guarantee for the revised period of validity of the tender.

19.3 The successful tenderer must maintain his tender for a further 60 days from the date of notification of award.

20. Tender Guarantee (Bid Bond)

20.1 No tender guarantee (bid bond) is required.

21. Variant Solutions

21.1 No variant solutions will be accepted. Tenderers must submit a tender in accordance with the requirements of the tender document.

22. Preparation and Signing of Tenders

22.1 All tenders must be submitted in one original, clearly marked “original” including all other requested documentation. Tenders must comprise the documents specified in Clause 16 above.

22.2 The tenderer’s entries must be typed in, or handwritten in indelible ink. Any pages on which entries or corrections to his submission have been made must be initialed by the person or persons signing the tender. All pages must be numbered consecutively by hand, machine or in any other way acceptable to the Contracting Authority.

22.3 The tender must contain no changes or alterations (refer also to article 15.1 a above), other than those made in accordance with instructions issued by the Contracting Authority (issued as clarification notes) or necessitated by errors on the part of the tenderer. In the latter case, corrections must be initialed by the person signing the tender.
The tender will be rejected if it contains any alteration / tampering (refer also to article 15.1 above), addition or deletion to the tender documents not specified in a clarification note issued by the Contracting Authority.

D. SUBMISSION OF TENDERS

23. Sealing and Marking of Tenders

23.1 The tenders must be submitted in English and deposited in the Department’s tender box before the deadline specified in Clause 2 or as otherwise specified in accordance with Clause 11.1 and/or 24.1.

They must be submitted to:

Foundation for Tomorrow’s Schools
Sir Adrian Dingli Street,
Pembroke, PBK 1940
Malta

Tenders submitted by any other means will not be considered.

23.2 Tenderers must seal the original as outlined in Clause 15.

23.3 If the outer envelope is not sealed and marked as required in Sub clause 15.1 (including the correct FTS tender reference number), the Contracting Authority will assume no responsibility for the misplacement or premature opening of the tender.

23.4 Any variant proposal/s must be submitted in a separate, sealed inner envelope, clearly marked “variant”.

24. Extension of Deadline for Submission of Tenders

24.1 The Contracting Authority may, at its own discretion, extend the deadline for submission of tenders by issuing a clarification note in accordance with Clause 11. In such cases, all rights and obligations of the Contracting Authority and the tenderer regarding the original date specified in the contract notice will be subject to the new date.

25. Late Tenders

25.1 All tenders received after the deadline for submission specified in the contract notice or these instructions will be kept by the Contracting Authority. The associated guarantees will be returned to the tenderers.

25.2 No liability can be accepted for late delivery of tenders. Late tenders will be rejected and will not be evaluated.

26. Alterations and Withdrawal of Tenders

26.1 Tenderers may alter or withdraw their tenders by written notification prior to the above deadline. No tender may be altered after the deadline for submission.

26.2 Any notification of alteration or withdrawal must be prepared, sealed, marked and submitted in accordance with Clause 23, and the envelope must also be marked with “alteration” or “withdrawal”.

26.3 The withdrawal of a tender in the period between the deadline for submission and the date of expiry of the validity of the tender will result in forfeiture of the tender guarantee provided for in Clause 20.
E. OPENING AND EVALUATION OF OFFERS

27. Opening of Tenders

27.1 Tenders will be opened in public session on the date and time indicated in the timetable at Clause 2 (or as otherwise specified in accordance with Clause 11.1 and/or 24.1) at the Foundation for Tomorrow’s Schools, Sir Adrian Dingli Street, Pembroke, PBK 1940, Malta. A ‘Schedule of Tenders’ will be published on the notice board at the FTS offices and shall also be available to view on the Foundation’s website, www.fts.com.mt , under the respective tender number.

27.2 At the tender opening, the tenderers’ names, the tender prices, variants, written notification of alterations and withdrawals, the presence of the requisite tender guarantee and any other information the Contracting Authority may consider appropriate will be published.

27.3 Envelopes marked “withdrawal” will be read out first and returned to the tenderer.

27.4 Reductions or alterations to tender prices made by tenderers after submission will not be taken into consideration during the analysis and evaluation of tenders.

28. Secrecy of the Procedure

28.1 After the opening of the tenders, no information about the examination, clarification, evaluation or comparison of tenders or decisions about the contract award may be disclosed before the notification of award.

28.2 Information concerning checking, explanation, opinions and comparison of tenders and recommendations concerning the award of contract, may not be disclosed to tenderers or any other person not officially involved in the process unless otherwise permitted or required by law.

28.3 Any attempt by a tenderer to approach any member of the Evaluation Committee/Contracting Authority directly during the evaluation period will be considered legitimate grounds for disqualifying his tender.

29. Clarification of Tenders

29.1 When checking and comparing tenders, the evaluation committee may, after obtaining approval from the Departmental Contracts Committee, ask a tenderer to clarify any aspect of his tender.

29.2 Such requests and the responses to them must be made by e-mail or fax. They may in no circumstances alter or try to change the price or content of the tender, except to correct arithmetical errors discovered by the evaluation committee when analysing tenders, in accordance with Clause 31.

30. Tender Evaluation Process

30.1 The following should be read in conjunction with Clause 27.

30.2 Part 1: Administrative Compliance

The Evaluation Committee will check the compliance of tenders with the instructions given in the tender document, and in particular the documentation submitted in respect of Clause 16.

The Evaluation Committee shall, after having obtained approval by the Departmental Contracts Committee, request rectifications in respect of incomplete/non-submitted information pertinent to the documentation as outlined Article 16.1 (Content of Tender) of these Instructions to Tenderers. Such rectification/s must be submitted within five (5) working days from notification, and will be subject to a non-refundable administrative penalty of €50: failure to comply shall result in the tender offer not being considered any further. No rectification shall be allowed in respect of the documentation as outlined Article 16.1 (Content of Tender) of these Instructions to
30.3 Part 2: Eligibility and Selection Compliance

Tenders which have been considered administratively compliant shall be evaluated for admissibility as outlined below:

(i) Eligibility Criteria
- Tender Form (Part 1, Section 2)

(ii) Selection Criteria
- Evidence of financial and economic standing (only if requested)
- Evidence of technical capacity

30.4 Part 3: Technical Compliance

At this step of the evaluation process, the Evaluation Committee will analyse the administratively-compliant tenders’ technical conformity in relation to the technical specifications (Part 3, and the documentation requested by the Contracting Authority as per sub-Clause 16(e)), classifying them technically compliant or non-compliant.

Tenders who are deemed to be provisionally technically compliant through the evaluation of their technical offer (especially the specifications) shall be requested to submit samples (if requested) so that the Evaluation Committee will corroborate the technical compliance of the offers received.

In the case of a bidders who are already supplied/installed a product that is being offered, the tenderer may be exempted from submitting samples (if the FTS deems so). However the specific brand name and the respective reference of the Letter of Acceptance/Contract must be clearly indicated in the tender submission.

30.5 Part 4. Financial Evaluation

The financial offers for tenders which were not eliminated during the technical evaluation (i.e., those found to be technically compliant) will be evaluated.

The Evaluation Committee will check that the financial offers contain no arithmetical errors as outlined in Clause 31. The financial evaluation will have to identify the best financial offer.

31. Correction of Arithmetical Errors

31.1 Admissible tenders will be checked for arithmetical errors by the Evaluation Committee. Errors will be corrected as follows:
(a) where there is a discrepancy between a unit price and the total amount derived from the multiplication of the unit price and the quantity, the unit price as quoted will prevail.
(b) where there is a discrepancy between amounts in figures and in words, the corrected amount in figures will prevail;

31.2 If arithmetical errors are found, the amount stated in the tender will be adjusted by the Evaluation Committee and the tenderer will be bound by the corrected amount. In this regard, the Evaluation Committee shall seek the prior approval of the Departmental Contracts Committee to communicate the revised price to the tenderer only in the event where such correction has placed the offer as the cheapest. If the tenderer does not accept the adjustment, his tender will be rejected and his tender guarantee forfeited.

31.3 When analysing the tender, the evaluation committee will determine the final tender price after adjusting it on the basis of Clause 31.1.
F. CONTRACT AWARD

32. Criteria for Award

32.1 The sole award criterion will be the price. The contract will be awarded to the cheapest priced tender satisfying the administrative and technical criteria.

33. Right of the Contracting Authority to Accept or Reject Any Tender

33.1 The Contracting Authority reserves the right to accept or reject any tender and/or to cancel the whole tender procedure and reject all tenders. The Contracting Authority reserves the right to initiate a new invitation to tender.

33.2 In the event of a tender procedure's cancellation, tenderers will be notified by the Contracting Authority. If the tender procedure is cancelled before the outer envelope of any tender has been opened, the sealed envelopes will be returned, unopened, to the tenderers.

33.3 Cancellation may occur where:
   (a) the tender procedure has been unsuccessful, namely where no qualitatively or financially worthwhile tender has been received or there has been no response at all;
   (b) the economic or technical parameters of the project have been fundamentally altered;
   (c) exceptional circumstances or force majeure render normal performance of the project impossible;
   (d) all technically compliant tenders exceed the financial resources available;
   (e) there have been irregularities in the procedure, in particular where these have prevented fair competition.

In no circumstances will the Contracting Authority be liable for damages, whatever their nature (in particular damages for loss of profits) or relationship to the cancellation of a tender, even if the Contracting Authority has been advised of the possibility of damages. The publication of a contract notice does not commit the Contracting Authority to implement the programme or project announced.

34. Notification of Award, Contract Clarifications

34.1 Prior to the expiration of the period of validity of tenders, the Contracting Authority will notify the successful tenderer, in writing, that his tender has been recommended for award by the Departmental Contracts Committee, pending any appeal being lodged in terms of Part XIII of the Public Procurement Regulations (being reproduced in Part 1, Section 6).

34.2 Unsuccessful bidders shall be notified with the outcome of the evaluation process, and will be provided the following information:
   (i) the criteria for award;
   (ii) the name of the successful tenderer;
   (iii) the recommended price of the successful bidder;
   (iv) the reasons why the tenderer did not meet the technical specifications/notification that the offer was not the cheapest (if applicable);
   (v) the deadline for filing a notice of objection (appeal);
   (vi) the deposit required if lodging an appeal.

34.3 The recommendations of the Departmental Contracts Committee shall be published on the Notice Board of the Foundation for Tomorrow’s Schools, and published online on the FTS’s website, www.fts.com.mt under the respective tender number.

35. Letter of Acceptance and Performance Guarantee

35.1 After the lapse of the appeals period, and pending that no objections have been received and/or upheld, the FTS shall issue in writing a letter of acceptance to the successful tenderer.

No Tender shall be deemed to have been accepted until such acceptance has been notified to the
35.2 The performance guarantee shall be regulated by article 2.26 of the Conditions of Contract.

35.3 If the selected tenderer fails to submit the performance guarantee required (if applicable) within the prescribed 7 calendar days, the Contracting Authority may consider the acceptance of the tender to be cancelled without prejudice to the Contracting Authority's right to seize the guarantee, claim compensation or pursue any other remedy in respect of such failure, and the successful tenderer will have no claim whatsoever on the Contracting Authority.

The tenderer whose tender has been evaluated as second cheapest may be recommended for award, and so on and so forth.

35.4 The performance guarantee is set at 4% of the amount of the contract and must be presented in the form specified in Part 5, Annex 6, to the tender document the performance guarantee shall be released within 30 days of the signing of the Final Statement of Account (Final Bill), unless the Special Conditions provide otherwise.

For the purpose of clarity the amount of the performance guarantee should reflect the contract value plus the amount of the Value Added Tax (VAT).

36. Commencement of Works (Order to Start Works)

36.1 The FTS will issue a written notice of commencement of the works in accordance with the Conditions of Contract article 2.01c.

G. MISCELLANEOUS

37. Ethics Clauses

37.1 Any attempt by a candidate or tenderer to obtain confidential information, enter into unlawful agreements with competitors or influence the committee or the Contracting Authority during the process of examining, clarifying, evaluating and comparing tenders will lead to the rejection of his candidacy or tender and may result in administrative penalties.

37.2 Without the Contracting Authority's prior written authorisation, the Contractor and his staff or any other company with which the Contractor is associated or linked may not, even on an ancillary or sub-contracting basis, supply other services, carry out works or supply equipment for the project. This prohibition also applies to any other programmes or projects that could, owing to the nature of the contract, give rise to a conflict of interest on the part of the Contractor.

37.3 When putting forward a candidacy or tender, the candidate or tenderer must declare that he is affected by no potential conflict of interest, and that he has no particular link with other tenderers or parties involved in the project.

37.4 The Contractor must at all time act impartially and as a faithful adviser in accordance with the code of conduct of his profession. He must refrain from making public statements about the project or services without the Contracting Authority's prior approval. He may not commit the Contracting Authority in any way without its prior written consent.

37.5 For the duration of the contract, the Contractor and his staff must respect human rights and undertake not to offend the political, cultural and religious morals of Malta.

37.6 The Contractor may accept no payment connected with the contract other than that provided for therein. The Contractor and his staff must not exercise any activity or receive any advantage inconsistent with their obligations to the Contracting Authority.

37.7 The Contractor and his staff are obliged to maintain professional secrecy for the entire duration of the contract and after its completion. All reports and documents drawn up or received by the Contractor are confidential.
37.8 The contract governs the Parties’ use of all reports and documents drawn up, received or presented by them during the execution of the contract.

37.9 The Contractor shall refrain from any relationship likely to compromise his independence or that of his staff. If the Contractor ceases to be independent, the Contracting Authority may, regardless of injury, terminate the contract without further notice and without the Contractor having any claim to compensation.

37.10 The tender(s) concerned will be rejected or the contract terminated if it emerges that the award or execution of a contract has given rise to unusual commercial expenses. Such unusual commercial expenses are commissions not mentioned in the main contract or not stemming from a properly concluded contract referring to the main contract, commissions not paid in return for any actual and legitimate service, commissions remitted to a tax haven, commissions paid to a recipient who is not clearly identified or commissions paid to a company which has every appearance of being a front company.

38. Data Protection and Freedom of Information

38.1 Any personal data submitted in the framework of the procurement procedure and/or subsequently included in the contract shall be processed pursuant to the Data Protection Act (2001). It shall be processed solely for the purposes of the performance, management and follow-up of the procurement procedure and/or subsequent contract by the Contracting Authority without prejudice to possible transmission to the bodies charged with a monitoring or inspection task in conformity with National and/or Community law.

38.2 The provisions of this contract are without prejudice to the obligations of the Contracting Authority in terms of the Freedom of Information Act (Cap. 496 of the Laws of Malta). The Contracting Authority, prior to disclosure of any information to a third party in relation to any provisions of this contract which have not yet been made public, shall consult the contractor in accordance with the provisions of the said Act, pertinent subsidiary legislation and the Code of Practice issued pursuant to the Act. Such consultation shall in no way prejudice the obligations of the Contracting Authority in terms of the Act.

39. Gender Equality

39.1 In carrying out his/her obligations in pursuance of this contract, the tenderer shall ensure the application of the principle of gender equality and shall thus ‘inter alia’ refrain from discriminating on the grounds of gender, marital status or family responsibilities. Tenderers are to ensure that these principles are manifest in the organigram of the company where the principles aforementioned, including the selection criteria for access to all jobs or posts, at all levels of the occupation hierarchy are amply proven. In this document words importing one gender shall also include the other gender.
TENDER FOR EXCAVATION, INSTALLATION OF A RAISED FLOORING SYSTEM, TILING AND SANITARY WARE USING ENVIRONMENTAL FRIENDLY PRODUCTS AT THE SIXTH FORM COLLEGE, VICTORIA GOZO

PART 1 SECTION 2 - TENDER FORM
(A separate, distinct Tender Form must be submitted for EACH OPTION - if applicable - submitted)

Publication reference: FTS 184-2015

Excavation, Installation of a Raised Flooring System, Tiling and Sanitary Ware using environmental friendly products at the Sixth Form College, Victoria Gozo

A. TENDER SUBMITTED BY: (This will be included in the Summary of Tenders Received)

<table>
<thead>
<tr>
<th>Name(s) of Leader/Partner(s)</th>
<th>Nationality</th>
<th>Proportion of Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leader ¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner ¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Etc ...</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Add/delete additional lines for partners as appropriate. Note that a sub-contractor is not considered to be a partner for the purposes of this tender procedure. If this tender is being submitted by an individual tenderer, the name of the tenderer should be entered as ‘leader’ (and all other lines should be deleted).

2. Proposed proportion of responsibilities between partners (in %) with indication of the type of the works to be performed by each partner (the company acting as the lead partner in a joint venture/consortium, they must have the ability to carry out at least 50% of the contract works by its own means. If a company is another partner in a joint venture/consortium (i.e. not the lead partner) it must have the ability to carry out at least 10% of the contract works by its own means).

B. CONTACT PERSON (for this tender)

<table>
<thead>
<tr>
<th>Name</th>
<th>Surname</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Telephone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

C. TENDERER’S DECLARATION(S)

To be completed and signed by the tenderer (including each partner in a consortium).

In response to your letter of invitation to tender for the above contract, we, the undersigned, hereby declare that:

1. We have examined, and accept in full and in its entirety, the content of this tender document (including subsequent Clarifications Notes issued by the Contracting Authority) for invitation to tender No FTS 184/2015 of (Publication Date) 15/12/2015. We hereby accept the contents thereto in their entirety, without reservation or restriction. We also understand that any disagreement, contradiction, alteration (to be read in conjunction with Articles 15 and 22 of Volume 1) or deviation shall lead to our tender offer not being considered any further.
2 We offer to execute, in accordance with the terms of the tender document and the conditions and time limits laid down in the tender document, without reserve or restriction, the following works:

   Excavation, Installation of a Raised Flooring System, Tiling and Sanitary Ware using environmental friendly products at the Sixth Form College, Victoria Gozo

3 The total price of our tender (inclusive of any discounts and other taxes / charges but excluding VAT (Delivered Duty Paid - DDP\(^{10}\)) is as per the total amount in the Bills of Quantities.

4 This tender is valid for a period of 90 days from the final date for submission of tenders.

5 If our tender is accepted, we undertake to provide a performance guarantee of 4% of the contract value as detailed in the tender document. For the purpose of clarity the amount of the performance guarantee should reflect the contract value plus the amount of the Value Added Tax (VAT).

6 We are making this application in our own right and [as partner in the consortium led by \[<	ext{name of the leader / ourselves}>\]] for this tender.

   We confirm that we are not tendering for the same contract in any other form. [We confirm, as a partner in the consortium, that all partners are jointly and severally liable by law for the performance of the contract, that the lead partner is authorised to bind, and receive instructions for and on behalf of, each member, and that all partners in the joint venture/consortium are bound to remain in the joint venture/consortium for the entire period of the contract's performance]. We are fully aware that, in the case of a consortium, the composition of the consortium cannot be modified in the course of the tender procedure.

7 We are not bankrupt or under an administration appointed by the Court, or under proceedings leading to a declaration of bankruptcy. We also declare that we have not been convicted criminally, or found guilty of professional misconduct. Furthermore, we are up-to-date in the payment of social security contributions and other taxes.

8 We accept that we shall be excluded from participation in the award of this tender if compliance certificates in respect of declarations made under Clause 7 of this declaration are not submitted by the indicated dates.

9 We agree to abide by the ethics clauses of the instructions to tenderers and, in particular, have no potential conflict of interests or any relation with other candidates or other parties in the tender procedure at the time of the submission of this application. We have no interest of any nature whatsoever in any other tender in this procedure. We recognise that our tender may be excluded if we propose key experts who have been involved in preparing this project or engage such personnel as advisers in the preparation of our tender.

10 We will inform the Contracting Authority immediately if there is any change in the above circumstances at any stage during the implementation of the contract. We also fully recognise and accept that any false, inaccurate or incomplete information deliberately provided in this application may result in our exclusion from this and other contracts funded by the Government of Malta and the European Communities.

11 Our tender submission has been made in conformity with the Instructions to Tenderers, and in this respect we confirm having included in the appropriate packages as required, the following documentation:

   (a) **Tender Guarantee** (Note 1)

       o Bid Bond (Annex 5) - Not Applicable

   (b) **General / Administrative Information**

       Statement on Conditions of Employment (Part 5, Annex 1) (Note 2)

       Occupational Health And Safety Declaration Waiver And Indemnity (Part 5, Annex 2) (Note 2)

       Key Expert Declaration Form (Part 5, Annex 10) (Note 2)

       Data on Joint Venture/Consortium [Part 5, Annex 8] (Where applicable) (Note 2)
TENDER FOR EXCAVATION, INSTALLATION OF A RAISED FLOORING SYSTEM, TILING AND SANITARY WARE USING ENVIRONMENTAL FRIENDLY PRODUCTS AT THE SIXTH FORM COLLEGE, VICTORIA GOZO

Selection Criteria

(c) **Financial and Economic Standing**
No evidence is required.

(d) **Technical Capacity**
Key Experts (Part 5, Annex 3)\(^{(Note 2)}\)
Subcontractors as per Form marked Sub-contracting (Part 5, Annex 11)\(^{(Note 2)}\)

(e) **Technical Specifications**
Literature as per the Form marked Literature (Part 1, Section 3)\(^{(Note 2)}\)
Tenderer’s Technical Offer in response to specifications (Part 3, Sect. 2)\(^{(Note 2)}\)
Samples as listed in the table at Part 3 - Technical Specifications (Note 3) - Not Applicable
Works Programme (Part 5, Annex 4)\(^{(Note 3)}\)

(f) **Tender Form (Part 1 Section 2) and Bill of Quantities (Part 4)**
The Tender Form (a separate Tender Form for each option tendered, each form clearly marked ‘Option 1’, ‘Option 2’ etc.)\(^{(Note 3)}\); and
A financial bid calculated on a basis of Delivered Duty Paid (DDP)\(^{2010}\) for the works tendered including the breakdown of the overall price - Part 4 (Bill of Quantities)\(^{(Note 3)}\)

**Notes:**

1. Tenderers will be requested to clarify/rectify, within five working days from notification, the tender guarantee only in the following two circumstances: either incorrect validity date, and/or incorrect value.
2. Tenderers will be requested to either clarify/rectify any incorrect and/or incomplete documentation, and/or submit any missing documents within five working days from notification.
3. No rectification shall be allowed. Only clarifications on the submitted information may be requested.

12 I acknowledge that the Contracting Authority shall request rectifications in respect of incomplete/non-submitted information pertinent to the documentation as per the above Clauses of this Tender Form. We understand that such rectification/s must be submitted within five (5) working days, and will be subject to a non-refundable administrative penalty of €50, and that failure to comply shall result in our offer not being considered any further.

13 We note that the Contracting Authority is not bound to proceed with this invitation to tender and that it reserves the right to cancel or award only part of the contract. It will incur no liability towards us should it do so.

Name and Surname: __________________________________________

I.D. / Passport Number: ______________________________________

Signature of tenderer: ________________________________________

Duly authorised to sign this tender on behalf of: ____________________

Company/Lead Partner VAT No (if applicable): ____________________

Stamp of the firm/company: ______________________________________________

Place and date: ________________________________________________
1. List of manufacturer’s technical literature to be submitted with the tender:

Supporting documents and printed manufacturer’s technical literature furnished by the tenderer may be in another language, provided they are accompanied by an accurate translation into English. For the purposes of interpretation of the tender, the English language will prevail.

ALL BIDDERS ARE TO NOTE THAT PHOTOS SUBMITTED AS MANUFACTURER’S TECHNICAL LITERATURE SHALL NOT SUFFICE AND ACCORDINGLY THESE MUST BE DULY ACCOMPANIED BY THE RESPECTIVE DETAILED MANUFACTURER’S TECHNICAL LITERATURE.

The submission shall be in a structured form and is to be in the same sequence as listed hereunder for ease of reference and evaluation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Reference in Technical Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Raised Flooring System</td>
<td>Spec 3</td>
</tr>
<tr>
<td>1.2</td>
<td>Ceramic Tiling</td>
<td>Spec 19</td>
</tr>
<tr>
<td>1.3</td>
<td>Sanitary Facilities</td>
<td>Spec 3.2</td>
</tr>
</tbody>
</table>

TO FACILITATE COMPLIANCE WITH THE SPECIFICATIONS THE FOLLOWING IS TO BE FILLED IN BY THE TENDERER (All shaded cells are to be filled in):

<table>
<thead>
<tr>
<th>Item</th>
<th>AS SPECIFIED BY FTS</th>
<th>PRODUCT OFFERED BY THE BIDDER</th>
<th>REFERENCE IN SPECIFICATION SHEET (TO BE PROVIDED BY THE BIDDER)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length x Width x Thickness</td>
<td>450x450x 9mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length and Width</td>
<td>STANDARD</td>
<td>+/- 0.6%</td>
<td></td>
</tr>
<tr>
<td>Thickness</td>
<td>ISO 10545-2</td>
<td>+/- 5%</td>
<td></td>
</tr>
<tr>
<td>Straightness of Edges</td>
<td>+/- 0.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rectangularity</td>
<td>+/- 0.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flatness</td>
<td>+/- 0.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Absorption</td>
<td>ISO 10545-3</td>
<td>≤ 0.5%</td>
<td></td>
</tr>
<tr>
<td>Breaking Strength for tiles &gt; 7.5mm thick</td>
<td>ISO 10545-4</td>
<td>≥ 1300N</td>
<td></td>
</tr>
<tr>
<td>Resistance to Staining (Glazed)</td>
<td>ISO 10545-4</td>
<td>≥ 3</td>
<td></td>
</tr>
<tr>
<td>Surface Slip Resistance (Unglazed)</td>
<td>DIN 51130</td>
<td>≥ R9 (low static friction)</td>
<td></td>
</tr>
</tbody>
</table>

Signature: ................................................................. Date: ..........................  
(the person or persons authorised to sign on behalf of the tenderer)
TO FACILITATE COMPLIANCE WITH THE SPECIFICATIONS THE FOLLOWING IS TO BE FILLED IN BY THE TENDERER (All shaded cells are to be filled in):

1.2 Wall Tiles: ceramic (glazed)

<table>
<thead>
<tr>
<th></th>
<th>AS SPECIFIED BY FTS</th>
<th>PRODUCT OFFERED BY THE BIDDER</th>
<th>REFERENCE IN SPECIFICATION SHEET (TO BE PROVIDED BY THE BIDDER)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length x Width x Thickness</td>
<td>600 x 300 x 6mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length and Width</td>
<td>ISO 10545-2</td>
<td>+/- 0.5%</td>
<td></td>
</tr>
<tr>
<td>Thickness</td>
<td></td>
<td>+/- 10%</td>
<td></td>
</tr>
<tr>
<td>Straightness of Edges</td>
<td></td>
<td>+/- 0.3%</td>
<td></td>
</tr>
<tr>
<td>Rectangularity</td>
<td></td>
<td>+/- 0.5%</td>
<td></td>
</tr>
<tr>
<td>Flatness</td>
<td></td>
<td>+/- 0.5%</td>
<td></td>
</tr>
<tr>
<td>Water Absorption</td>
<td>ISO 10545-3</td>
<td>≤ 18%</td>
<td></td>
</tr>
<tr>
<td>Breaking Strength for tiles &lt; 7.5mm thick</td>
<td>ISO 10545-4</td>
<td>≥ 200N</td>
<td></td>
</tr>
</tbody>
</table>

Signature: ............................
Date: .............................

(the person or persons authorised to sign on behalf of the tenderer)
Definitions

Note: the present definitions are given here for convenience only, in the context of the tender procedure. The definitions set out in the contract as concluded are determining for the relations between the parties to the contract.

**Administrative order**: Any instruction or order issued by the Engineer to the Contractor in writing regarding the execution of the works.

**Breakdown of the overall price**: A heading-by-heading list of the rates and costs making up the price for a lump sum contract.

**Contracting Authority**: means the final beneficiary - Foundation for Tomorrow’s Schools

**Conflict of interest**: Any event influencing the capacity of a candidate, tenderer or supplier to give an objective and impartial professional opinion, or preventing him, at any moment, from giving priority to the interests of the Contracting Authority. Any consideration relating to possible contracts in the future or conflict with other commitments, past or present, of a candidate, tenderer or supplier, or any conflict with his own interests. These restrictions also apply to sub-contractors and employees of the candidate, tenderer or supplier.

**Contract**: The letter of acceptance or signed agreement by which the two parties enter into agreement for the performance of the works, including all attachments thereto and all documents incorporated therein.

**Contract value**: The total value of the contract to be paid by the Contracting Authority in terms of the agreed terms and conditions.

**Contractor**: The successful tenderer, once all parties have signed the contract.

**Day**: Calendar day.

**Dayworks**: Varied work inputs subject to payment on an hourly basis for the Contractor’s employees and plant.

**Defects Notification Period**: The period stated in the contract immediately following the date of provisional acceptance, during which the Contractor is required to complete the works and to remedy defects or faults as instructed by the Engineer.

**Drawings**: Drawings provided by the Contracting Authority and/or the Engineer, and/or drawings provided by the Contractor and approved by the Engineer, for the carrying out of the works.

**Engineer’s representative**: Any natural or legal person, designated by the Engineer as such under the contract, and empowered to represent the Engineer in the performance of his functions, and in exercising such rights and/or powers as have been delegated to him. In this case, references to the Engineer will include his representative.

**Equipment**: Machinery, apparatus, components and any other articles intended for use in the works

**Evaluation committee**: a committee made up of an odd number of voting members (at least three) appointed by the Central Government Authority and possessing the technical, linguistic and administrative capacities necessary to give an informed opinion on tenders.

**Final acceptance certificate**: Certificate(s) issued by the Engineer to the Contractor at the end of the defects notification period stating that the Contractor has completed his obligations to construct, complete, and maintain the works concerned.

**Final Beneficiary**: The Department/Entity or other government body on whose behalf the Department of Contracts has issued this tender.
TENDER FOR EXCAVATION, INSTALLATION OF A RAISED FLOORING SYSTEM, TILING AND SANITARY WARE USING ENVIRONMENTAL FRIENDLY PRODUCTS AT THE SIXTH FORM COLLEGE, VICTORIA GOZO

Foreign currency: Any currency permissible under the applicable provisions and regulations other than the Euro, which has been indicated in the tender.

General conditions: The general contractual provisions setting out the administrative, financial, legal and technical clauses governing the execution of contracts.

General damages: The sum not stated beforehand in the contract, which is awarded by a court or an arbitration tribunal, or agreed between the parties, as compensation payable to an injured party for a breach of the contract by the other party.

In writing: This includes any hand-written, typed or printed communication, including fax transmissions and electronic mail (e-mail).

Liquidated damages: The sum stated in the contract as compensation payable by the Contractor to the Contracting Authority for failure to complete the contract or part thereof within the periods under the contract, or as payable by either party to the other for any specific breach identified in the contract.

Modification: An instruction given by the Engineer which modifies the works.

National currency: The currency of the country of the Contracting Authority.

Period: A period begins the day after the act or event chosen as its starting point. Where the last day of a period is not a working day, the period expires at the end of the next working day.

Plant: appliances and other machinery, and, where applicable under the law and/or practice of the state of the Contracting Authority, the temporary structures on the site required to carry out the works but excluding equipment or other items required to form part of the permanent works.

Provisional sum: A sum included in the contract and so designated for the execution of works or the supply of goods, materials, plant or services, or for contingencies, which sum may be used in whole or in part, or not at all, as instructed by the Engineer.

Site: The places provided by the Contracting Authority where the works are to be carried out and other places stated in the contract as forming part of the site.

Conditions of Contract: The conditions of contract laid down by the Contracting Authority as an integral part of the tender document, amplifying and supplementing the general conditions, clauses specific to the contract and the terms of reference (for a service contract) or technical specifications (for a supply or works contract).

Supervisor/Engineer: The legal or natural person responsible for administering the contract on behalf of the Contracting Authority.

Tender document/s: The dossier compiled by the Contracting Authority and containing all the documents needed to prepare and submit a tender.

Tender price: The sum stated by the tenderer in his tender for carrying out the contract.

Works: Works of a permanent or temporary nature executed under the contract.

Written communications: Certificates, notices, orders and instructions issued in writing under the contract.
These conditions amplify and supplement, if necessary, the General Conditions governing the contract. Unless the Conditions of Contract provide otherwise, those General Conditions remain fully applicable. The numbering of the Articles of the Conditions of Contract is consecutive but do not follow the numbering of the Articles of the General Conditions.

2.0 Conditions of Contract.

2.01 a) General responsibility of the contractor

The successful bidder shall be considered and held responsible for all types of materials and equipment as described in the Bill of Quantities, the Specifications, Instructions to Tenderers, Conditions of Contract, Annexes and Drawings (if any).

2.01 b) Completion of Works / Period of Performance

The period of performance shall be six (6) Calendar Weeks from the date of the order to start work.

The successful bidder has to commence works as detailed in article 2.01 c below (Commencement Date).

The successful contractor is also bound with the following conditions:

1. The quantities given in the bill of quantities are provisional and reflect the estimates made at the time of approval to provide a basis for this document and tenders.

2. There is no guarantee to the successful Contractor that he will be required to carry out all the quantities indicated under any one particular item in the bill of quantities or that the quantities will not differ in magnitude from those stated. In this respect, articles 2.09 and 2.25 in the Conditions of Contract shall also apply.

3. Therefore, when pricing the items, reference should be made to the conditions of contract, the specifications and relevant directions and descriptions of items / materials or equipment involved or required to fulfil all obligations listed in this tender.

2.01 c) Commencement Date

After the contractor abides with article 2.26 (performance guarantee) of these conditions, a written notification will be issued to the contractor stating that works have to commence within five (5) working days.

Should there be no queries from the Contractor, the necessary work shall proceed and be completed as soon as possible, respecting the deadlines specified in the tender document.

2.02 Drawings and Specifications

The extent of the work shall be in accordance with the Bills of Quantities, Drawings (if any) and Specifications or as directed by the Architect / Engineer, and such further work or direction as may from time to time be given by the Architect / Engineer. If the work indicated is in the opinion of the contractor, extra to that described in the Specifications, Bill of Quantities and Drawings (if any) he shall, before proceeding with such work, give notice to this effect to the Architect / Engineer; but if no notice is given to the Architect / Engineer before the execution of the work, the contractor shall have no claim to any extra payment. All works shall be carried out to the instructions and to the satisfaction of the Architect / Engineer.
2.03 Documents for use by Contractor.

A copy of the Tender Document shall be furnished to the Contractor for his own use. The Foundation for Tomorrow’s Schools shall furnish to the Contractor at his request, any details which, in the opinion of the Architect / Engineer are necessary for the execution of any part of the work. Such request shall be made only within a reasonable time (not more than 48 hours) before it is necessary to execute such work in order to fulfil the contract.

2.04 Interpretation of Drawings.

The Contractor shall provide everything necessary for the proper execution of the works according to the true intent and meaning of the Drawings, General Clauses and Conditions, Bills of Quantities and Specifications taken together provided that the same be reasonably inferred there from; and if the Contractor finds any discrepancy in the drawings or between the Drawings and the Specifications, he shall immediately refer the matter to the Foundation for Tomorrow’s Schools who shall decide which shall be followed, and the Contractor shall be held responsible for any errors that may occur in the work through the neglect of this precaution. Figured dimensions and particulars are to be taken in preference to scaled dimensions, and all dimensions and particulars are to be taken from the actual work. It must be distinctly understood that the whole Specification is intended to be strictly enforced and that no extra charge in respect of extra work will be allowed unless they are clearly outside the spirit of this Specification.

2.05 Tendered rate to include.

The tendered rates shall be inclusive of all work as described in the Specifications, Bills of Quantities and Drawings (if any) as well as other works which are of a contingent or indispensable nature for completing the work in its entirety. The rates shall be inclusive of all materials necessary, all expenses, profits, use of plant and machinery required, inclusive of any discounts and other taxes / charges but excluding VAT (Delivered Duty Paid – DDP2010) as well as transporting of material from site to where directed.

2.06 Contractor To Keep The Site Clean

During the progress of the Works the Contractor shall, at his own cost, take all steps to keep the Site clean at all times and free from all unnecessary obstruction and shall store or dispose of any materials and clear away and remove from the Site any temporary works no longer required, and any debris or rubbish.

On completion of the Works or part thereof, the Contractor shall, at his own cost, clear away and remove from the Site all surplus, debris and rubbish and leave the whole of the Works clean and in a workmanlike condition to the satisfaction of the Client.

Should the Contractor fail to comply with the provisions of this clause, the Client shall be empowered to employ other persons to carry out the removal of the surplus material, debris and rubbish, and the relative cost shall be deducted from moneys due to the Contractor under the Agreement. Moreover, no Certificate of Practical Completion will be issued until the above mentioned works are completed.

2.07 Fixed tender rates

The tendered rates shall be fixed rates except for variations allowed within this Contract but otherwise no allowance will be made for fluctuations in rates, prices, or for any increase in the cost of labour (excluding COLA) and materials, and any discounts and other taxes / charges but excluding VAT (Delivered Duty Paid - DDP2010) and Eco Contribution.

2.08 Compliance with the Law and Regulations to be observed

The Contractor shall comply with and fulfil all obligations imposed by Art. 19 of the Police Laws and shall give all notices, obtain all permits, pay all fees that may be lawfully demanded by Public Officers in respect of works and comply with all requirements of the law and lawful authority.
The Contractor further understands and agrees that if, in the course of the duration of the contract, the Contractor is charged before a court of criminal jurisdiction with an alleged breach of any of the provisions of the Employment and Industrial Relations Act, the Occupational Health and Safety Authority Act, the Employment and Training Services Act or any of the provisions of their subsidiary legislation, (hereinafter referred to as “labour laws”),

a) the contract may, at the sole discretion of the Contracting Authority be suspended or terminated. No action for damages shall lie against the entity issuing the tender with respect to any such suspension;

b) where the contract has been suspended in accordance with (a) above, if the judicial decision becomes res judicata and the Contractor is found guilty of the charges brought against the person,

I. the contract shall be terminated with effect from the date of suspension of the contract, or from the date of the judicial decision, as appropriate, and no action for damages shall lie against the Contracting Authority with respect to such termination;

II. the Contractor will be precluded from submitting offers for any eventual tender/tenders issued by the government for a period of two years commencing, as applicable, from the date of the suspension of the contract, or from the date of the judicial decision which has become res judicata, whichever is the earlier;

III. any bids submitted by the Contractor for any other tender/s which are pending on the date of the judicial decision will not be considered in, and be excluded from, the tendering process/es;

IV. the government may, at its sole discretion, after giving one month’s notice, either terminate any other contract which had already been awarded to the Contractor or exact a financial penalty equivalent to up to 20% of the total value of the contract or contracts;

c) the person in whose favour the contract is awarded shall under all circumstances be responsible to ensure that all his subcontractors and other persons engaged to do work or to render services in terms of the awarded contract are aware of the penalties provided in this clause, which penalties are also applicable to them.

2.09 Variations to the Contract Sum

Variations or extra work which individually and collectively, imply an increase in excess of 5% on the original contract value, require the prior written approval of the Chief Finance Officer of the Foundation for Tomorrow’s Schools.

2.10 Penalties for Delays in Performance / Execution

The works shall be completed within the stipulated period as stated in clause 2.01b from the date of order to start work issued in writing to the Contractor.

If the Contractor fails to mobilise and start work when envisaged in the plan of works mentioned in Annex 4- Works Programme, a penalty of five hundred Euros (€500) per day including Sundays and public holidays shall be imposed until the works have commenced.

Moreover, should the Contractor not complete the works within the stipulated period as stated in clause 2.01b, a penalty of Two Hundred Euros (€200) per day inclusive of Sundays and Public Holidays shall apply.

2.11 Payment to the Contractor

a) Payments shall be authorised and paid by the Contracting Authority in Euro currency.

b) Payments due by the Contracting Authority shall be made to the Contractor.

c) Payment shall be made on the following conditions and shall be made for permanent work only as indicated hereunder:
1) No advances will be made for materials purchase and availability on site, for formwork, installation, the hiring or purchase of plant and machinery and temporary works. Payments will only be effected in respect of actual permanent works completed;

2) An interim payment certificate may be issued as per the following conditions:

i) The Contractor shall be entitled to be paid from time to time during the progress of the execution of the works up to 85% (eighty-five percent) of the value of permanent works carried out to the satisfaction of the FTS.

ii) Ten percent (10%) of the value of the works executed / installed on site on the issue of the Interim Payment Certificate or the Final Payment Certificate as applicable.

iii) the balance i.e. 5 percent of the contract sum will be retained for twelve (12) months after completion (starting from the date of the Final Payment Certificate) and refunded only if defective work, if any, had been made good to the satisfaction of the Foundation for Tomorrow’s School. Final measurements of all the works carried out shall be prepared within a reasonable period after the works are completed.

d) The Contractor shall submit his claim for progress payments to the FTS in writing. Such claims are to be supported by evaluation of the works delivered to site. All claims shall be evaluated by the FTS in relation to the Bills of Quantities and contract rates and documentation produced by the Contractor and on the basis that such works have been executed in accordance with the Contract Documents and to the satisfaction of the FTS.

e) Claims for payments are subject to a credit term of sixty calendar days starting from the day on which the claim is received at the Contracting Authority.

f) VAT shall be paid in accordance with the current VAT regulations.

2.12 General Conditions.

The General Conditions in Part 2, Section 2 shall also apply in so far as they are not inconsistent with the conditions set in this tender document.

2.13 Scaffolding And Other Equipment/Watchman

The Contractor shall provide the whole of the necessary equipment, scaffolding, tackle, cartage and labour necessary for the prompt and efficient execution of the Works, and remove the said equipment, etc., at the completion thereof. It shall be the Contractor’s obligation to ensure that such equipment, scaffolding, tackle, cartage will not damage any or all parts of the totality of the completed Works included in the programme. Should any such damage ensue, then the Client shall, without prejudice to any other rights competent to him, have the right to deduct the costs for effecting the necessary repairs or replacements of the damage parts from moneys which may be due to the Contractor under the Contract.

The Contractor shall also provide his own watchman and his own watchman’s access to the Site all at his own cost. The Client undertakes to impose the same condition regarding watchmen of other contractors directly engaged by them on other works on the Site.

The Contractor shall provide proper signage during the course of work and sufficient light during the night to illuminate the excavations and the site occupied by the works.
2.14 Misconduct of workmen.

The Contractor shall, at the request of the Architect / Engineer, immediately dismiss from the works any of his employees who, in the opinion of the Architect / Engineer, is incompetent or for misbehaviour. Such persons shall not be employed again on the works without permission of the Architect / Engineer.

2.15 Work Instructions

The Client may issue to the Contractor such instructions as they think fit in regard to the Works and the Contractor shall forthwith comply with such instructions.

2.16 Workmanship

2.16.1 Without prejudice to the generality of the provisions of Clause 2.15, the Client may:

(a) Order the removal from the Site, within such time or times as may be specified in the order, of any materials which in the opinion of the Client are not in accordance with the Contract;
(b) Order the substitution for improper or unsuitable materials or proper and suitable materials;
(c) Order the removal and proper re-execution of any work which, in respect of materials or workmanship is not in the opinion of the Client in accordance with the Contract.

2.16.2 Without prejudice to the generality of the provisions of Clause 2.15, should it appear to the Client that any work in progress is being executed in a faulty manner, with unsuitable materials, by unskilled workmen (when skilled workmen should be employed), or by any means or manner not in accordance with the Contract Documents, then he or they may order immediate suspension of such faulty work, by direct written order to the Contractor’s senior supervisory staff on site at the time, until such time as the Contractor shall adopt remedial measures to the satisfaction of the Client. Such orders shall be complied with immediately, and the Contractor will not be entitled to any extra payment, compensation or extension of time, for the completion, on account of such suspension.

2.16.3 Any instructions by the Client if not issued in writing shall be so confirmed as soon as possible, but in no case later than three (3) working days after being given.

2.16.4 If within seven (7) days from receipt of a written notice from the Client requiring compliance with an instruction, the Contractor does not comply therewith or does not give a justifiable reason to the Client for not complying, then the Client may employ and pay other persons to execute any work whatsoever which may be necessary to give effect to such instruction and all costs incurred in connection with such employment shall be recoverable from the Contractor by the Client as a debt due or may be deducted by him from any moneys due or to become due to the Contractor under the Contract.

2.16.5 Failure on the part of the Client to exercise any of his powers under this clause shall not in any way relieve the Contractor from his obligations to satisfy the requirements of the specifications listed out in the Contracts Documents and to achieve the purpose for which the Works are intended.

2.16.6 In the event that faulty work has been carried out by the Contractor and it has been unnoticed by the Client, then the Client can issue a late instruction to the Contractor to rectify such work, including the rebuilding of all work built thereon, all to the satisfaction of the Client. All costs of rectifying such faults and reconstruction of work thereon shall be borne by the Contractor.

2.17 Method of Tendering.

The tendering process shall be the rate per delivered item and the tender shall be the sum total of the items in the Bills of Quantities.
2.18 **Measurements.**

All works shall be measured as specified in the Specifications, Bills of Quantities or any other part of this tender document.

2.19 **Detailed Programme of works.**

Before proceeding with the execution of the work, the contractor shall obtain the Foundation for Tomorrow's Schools' approval for the manner in which he proposes to carry out each portion of the work.

In this respect, a detailed programme of works showing how, week by week, the contractor proposes to divide his work from the time of the award of this contract up to the completion date as herein indicated.

2.20 **General requirements.**

2.20.1 Whenever possible, the tenderer is to submit with his tender all possible information regarding the materials which are to be employed in the finishing of this project.

2.20.2 All materials and methods of finishing shall be in the form and nature as specified herein or indicated in the drawings and no variations whatsoever will be permitted unless it has been previously agreed to in writing with the Client.

2.20.3 All imported materials (except where otherwise stated) shall conform to the relevant European Standard as indicated by the Client.

2.21 **Temporary suspension of works.**

The Contractor shall, if ordered in writing by the Client, suspend the works or any part thereof for such periods and at such times as so ordered and shall not, after receiving order, proceed with the work until he receives written authority from the Client to proceed therewith. The Contractor shall not be entitled to claim compensation for any loss or damage sustained as aforesaid provided, however, that the Foundation for Tomorrow’s Schools shall be liable to pay to the Contractor any cost incurred by him on the site by way of normal running expenditure resulting from the suspension of the works on the order of the Architect / Engineer as aforesaid unless such suspension is:

(a) necessary for the proper execution or by reason of weather conditions threatening to affect the safety, or by reason of some default on the part of the Contractor,

or

(b) necessary for the safety of the works or any part thereof.

The Client shall decide the normal running expenditure and the amount of such expenditure. With some exceptions, an extension of time for completion, corresponding with the delay caused by suspension of the works as aforesaid, will be granted to the Contractor should he apply for same.

2.22 **Extension of time for completion of contract.**

Should the amount of extra or additional work of any kind or other special circumstances of any kind whatsoever which may occur, be such as fairly entitle the Contractor to an extension of time for the completion of the works, the Foundation for Tomorrow’s Schools shall determine the amount of such extension. Such approval is not to be unreasonably withheld.

2.23 **Guarantee, Retention Sum and Retention Guarantee**

(a) The Contractor shall guarantee the works for a minimum period of twelve (12) calendar months or for longer periods as per Specifications or the Special Conditions against any defects. The guarantee period shall commence from the date of the Final Payment Certificate (i.e. the Final Bill issued by the FTS).
(b) The Tenderer shall guarantee that within a reasonably short time and at his own expense he makes good, repairs or replaces any defects and defective parts.

(c) Any defects or other faults which may appear within twelve (12) calendar months or any other periods that may be specified in the Specifications from the date of issue of the Final Payment Certificate (guarantee period) and arising in the opinion of the Architect / Engineer from materials and workmanship not in accordance with the Drawings, Specifications or instructions of the Architect / Engineer, shall within such reasonable time as specified by the Foundation for Tomorrow’s Schools be rectified, replaced, or made good by the Contractor at his own expense.

(d) Should the Contractor fail to replace, make good or repair defects in the equipment or in case of default, the Foundation for Tomorrow’s Schools shall reserve the right to engage Third Parties to amend and make good such effects, faults or damages or to carry out all necessary works. All such expenses incurred shall be borne by the Contractor and shall be deducted from any monies due to the Contractor.

(e) A sum amounting to 5% (five percent) of the Contract value shall be retained after delivery until the guarantee period of twelve months expires.

(f) Retention Guarantee

Once the Final Certificate (Bill) of payment is issued (as per article 2.23 a), the Contractor is required to present a retention guarantee issued by a local bank guaranteeing repayment of the full amount of the balance [vide article 2.23 (e)]. As soon as the Contractor has presented the original retention guarantee at the Contracting Authority, the balance retained shall released.

The Retention guarantee shall be valid for 30 days after the warranty period expires. Should the Contractor fail to fulfil his obligations during the guarantee period, the Contracting Authority will request that the retention guarantee is extended. The expenses related to the extension shall be borne by the Contractor. If such extension cannot be arranged, the amount guaranteed would be remitted to the Contracting Authority.

2.24 Instructions in Writing

Instruction by the Architect / Engineer shall be in writing provided that if for any reason the Architect / Engineer consider it necessary to give any such instructions orally, the Contractor shall comply with such instructions. Confirmation in writing of such oral instructions given by the Architect / Engineer, whether before or after the carrying out of the instruction, shall be deemed to be instruction within the meaning of this Sub-Clause. Provided further that if the Contractor, within 7 days confirms in writing to the Architect / Engineer, any oral instruction of the Architect / Engineer and such confirmation is not contradicted in writing within 7 days by the Architect / Engineer, it shall be deemed to be an instruction of the Architect / Engineer.

The provisions of this Sub-Clause shall equally apply to instructions given by the Architect / Engineer’s representative and any of the assistants of the Architect / Engineer.

2.25 Variations

The Client shall make any variation of the form, quality or quantity of the Works or any part thereof that, may in his opinion be necessary for that purpose or if for any other reason it shall, in his opinion be appropriate, he shall have the authority to instruct the Contractor to do and the Contractor shall do any of the following:

a) increase or decrease the quantity of any work included in the Contract subject to the condition in Article 2.09.

b) omit any such work

c) change the character or quality or kind of any such work

d) change the levels, lines, positions and dimensions of any part of the works
TENDER FOR EXCAVATION, INSTALLATION OF A RAISED FLOORING SYSTEM, TILING AND SANITARY WARE USING ENVIRONMENTAL FRIENDLY PRODUCTS AT THE SIXTH FORM COLLEGE, VICTORIA GOZO

2.26 **Performance Bond**

a) For the due performance of the Contractor, the Contractor shall submit an irrevocable and unconditional Performance Bond (as per the specimen provided with this tender document) from a local bank approved by the Chairman of the Foundation for Tomorrow’s Schools. The said performance Bond shall warrant the Contractor’s obligations in terms hereof. The Contractor authorises the Foundation for Tomorrow’s Schools who accepts to call upon the Bank issuing the said Bond for payment of any sum that may become due by the Foundation for Tomorrow’s Schools by virtue of this Contract.

b) The Performance Bond shall represent 4% (four percent) of the total Contract Price. Should such total Contract Price be duly increased, the Contractor undertakes to increase the amount of the Performance Bond by 4% (four percent) of this increase. For the purpose of clarity the amount of the performance guarantee should reflect the contract value plus the amount of the Value Added Tax (VAT).

c) The Performance Bond shall be delivered by hand to the Foundation for Tomorrow’s Schools within 7 (seven) days from the day following the day of receipt of the Letter of Acceptance.

d) The Performance Bond shall be retained by the Foundation for Tomorrow’s Schools during the period of the Contract and if not called upon shall be released within 30 calendar days after the Works are satisfactorily completed.

e) The validity of the Performance Bond will be extended to the extent of any delays in the Works, whether or not an extension of time has been granted, without affecting any of the rights of the Foundation for Tomorrow’s Schools under this Contract.

f) The Performance Bond shall be issued, extended or renewed at the sole expense of the Contractor.

2.27 **Arbitration**

Any dispute, controversy or claim arising out of or relating to this contract, or the breach, termination or invalidity thereof, shall be settled by arbitration in accordance with rules of the Malta Arbitration Centre as at present in force. Any reference in the attached General Conditions to other arbitration procedures shall not apply.

2.28 **Occupational Health and Safety**

The Contractor shall comply with all safety regulations and shall be solely responsible for the safety of his workmen or subcontractors, the general public, and employees of the Foundation for Tomorrow’s Schools and Education Division. He shall also be responsible for any damage to the Education Division, or Third Party property that may be caused by him or his employees.

The contractor shall be bound to conform and comply with Chapter 424 of the Laws of Malta (Occupational Health and Safety Authority Act) as well as any national legislation, regulations, standards and/or codes of practice, in effect during the execution of the contract, regarding health and safety issues, as they apply for the contractor’s particular operating situation and nature of work activities.

Each Tenderer is to Fill in and submit the attached Form “**OCCUPATIONAL HEALTH AND SAFETY DECLARATION WAIVER AND INDEMNITY**” with the Tender Document/Offer.
2.29 Special Controls

a) Dust Control
The Contractor shall, for the duration of the Contract, maintain all roads, plant sites, waste disposal areas and all other work resulting from finishing works. Dust shall be controlled by the sprinkling of water.

b) Noise Control
The Contractor shall acquaint himself with the recommendations set out in BS5228: Noise Control on Construction and Open Sites together with any mandatory specific requirements as may be stipulated by the Architect / Engineer-in-Charge.

c) Housekeeping
The Contractor shall keep the site orderly, clean and in a safe condition at all times, immediately removing all waste and rubbish. The Contractor shall provide on-site containers for the collection of rubbish or dispose of rubbish off site at frequent and regular intervals during the progress of the works.

During the progress of the Works, the Contractor shall keep the Site free from all unnecessary construction and shall store or dispose of any constructional plant, scaffolding and surplus materials and clear away and remove without delay any items no longer required.

d) Clearance of Site on Completion
Prior to the date of Substantial Completion, the Contractor shall clear away and remove from Site all constructional plant, surplus materials, rubbish and temporary works of every kind, and leave the whole of the Site and the works clean and in a condition to the satisfaction of the Architect / Engineer-in-Charge.

e) Storage of Materials and Equipment
No equipment, materials, vehicles, temporary works or construction plant of the Contractor shall at any time be placed or stored other than the Site. It shall be placed or stored behind a visual barrier or fence of such design and construction as to screen it from view.

f) Noise and Dust Pollution
No machine dressing of stone blocks shall be allowed on site. All masonry blocks shall be brought to the site on pallets already machine dressed and ready for laying. The Contractor shall take all necessary precautions to keep noise and dust pollution to the minimum. The Architect / Engineer shall have the right to stop the Contractor from proceeding with the works if he considers that the Contractor has not taken the necessary precautions and / or has not followed his instructions to reduce noise and dust pollution.

g) Safety
The Contractor shall take every precaution to ensure safety of the pupils and staff at the School. He shall be responsible to erect such fences and scaffolding as may be necessary and in accordance with the instructions issued from time to time by the Architect / Engineer.

h) Fencing
The Contractor shall erect suitable fencing around the site of works to provide protection of the works and to ensure that no unauthorised personnel have access to the site.

i) Temporary Sanitary Facilities
The Contractor shall provide temporary sanitary facilities for the duration of the project.

j) Cleaning of Site
The Contractor shall on completion of all works be responsible for cleaning of the whole premises and external areas including roofs, floors, aluminium, joinery works, glazing, etc., such as to leave the site tidy and ready for occupation.

In the event that such actions or steps as ordered by the Architect / Engineer-in-Charge are not carried out within the specified time required, the Foundation for Tomorrow’s School shall, without further notice, appoint others to carry out such instructions at the Contractor’s expense.
2.30 **Progress Reports**

The Contractor shall submit to the Architect / Engineer-in-Charge on approved forms, progress reports, at agreed intervals, giving the date, weather conditions, the number and classification of the staff employed, the number and classification of sub-contractors on site, quantities of materials delivered on-site and incorporated into the Works and the progress of the Works. These reports shall be submitted at the time and in a manner as directed by the Architect / Engineer-in-Charge.

2.31 **As-built Drawings / Manuals (if applicable)**

a) The Contractor shall, at all times, keep on Site one copy of all Drawings, Specifications and approved Shop Drawings.

b) In addition, the Contractor shall at all times keep at the site a separate set of prints on which he shall note neatly, accurately and promptly as the work progresses, all significant changes between the work shown on the Drawings and that which is actually constructed.

c) The Contractor shall each keep at the Site at all times, a separate set of prints of the Drawings showing the parts of his Work on which the Contractor, if any, shall note neatly, accurately and promptly as Work progresses, the exact physical location and configuration of works completed as actually installed, including any revisions or deviations from the Contract Drawings.

d) On the completion of the works, the Contractor shall at his expense, supply the Chairman, Foundation for Tomorrow’s Schools with reproducible hard and electronic copies of the as-built Drawings (if applicable). The Contractor shall revise these reproducible copies neatly and legibly, so as to show clearly in the way in which the work was finally executed. The Contractor shall provide, in the same format as the original Drawings, any additional sheets required to record the work.

e) The as-built drawings must be fully detailed and accurately dimensioned.

f) On completion of the works (if applicable), the Contractor shall handover to the Foundation for Tomorrow’s Schools:
   i. One original and two bound copies of the operating and maintenance manuals and other relevant technical literature of all equipment used in the works in the English Language.
   ii. a spare parts lists as may normally be supplied by the manufacturer.

2.32 **Testing and Commissioning**

(a) The Contractor shall carry out the necessary tests on all the works covered under this Contract to ensure correct functioning, freedom from faults and safety. All systems, equipment, and the whole installation shall be tested in accordance with the IEE Regulations and the relevant British Standards and Codes.

(b) The Contractor shall provide all necessary skilled personnel, testing instruments and other equipment for the proper testing of their systems and equipment installed under this Contract. The standard reached shall not be lower than that called for in these Specifications, Regulations and Codes.

(c) All tests shall be carried out in the presence of and to the satisfaction of the Architect / Engineer or his representative.

(d) The tests shall be carried out and a record made and submitted to the Architect / Engineer on the completion of the Works before handover or at any time as requested by the Architect / Engineer. All defects which become apparent during the tests shall be logged and rectified by the Contractor at his own expense and in accordance with the instructions issued by the Architect / Engineer.
Each part of the installation shall be commissioned for performance. This shall include the adjustment of circuit breaker trips, thermostats, settings and other control devices to ensure safe and efficient operation of the entire installation.

2.33 Test Certificates

(a) Whenever a test has been successfully carried out and on completion of the Works, the Contractor shall issue and submit to the Architect / Engineer, tests certificates together with details of test results upon which the certificates are based. Test certificates shall bear the date, time of test and relevant technical parameters as requested by the Architect / Engineer.

(b) All fees and expenses in connection with tests and certification including the rectification of faults and defects arising thereof shall be borne by the Contractor. All approval certificates shall be submitted to the Architect / Engineer before taking over.

(c) The Architect / Engineer will only assume and take full responsibility for the Works after being satisfied that all test certificates and that all Works are in accordance with the Tender Documents.

2.34 Take-Over Inspection

1) The Contractor shall advise the Architect / Engineer of a suitable date for the final inspection after the Works have been completed in accordance with the Specifications, Drawings and any subsequent details. Should the Contractor receive, during the progress of Works any instructions for carrying out additional works which he maintains he will not be able to complete within the Contract period he shall advise the Architect / Engineer in writing within 7 days of receipt of such instructions.

2) The Works will not be considered ready for inspection unless the following items are completed:

a. All equipment and installations have been cleaned inside and outside and any damages, faults, defects, adjustments and damages to the building and paintwork made good.

b. All tests have been adequately carried out in accordance with the relevant Regulations and Codes and records of these tests produced.

c. The Architect / Engineer may also call for any or all tests to be repeated in his presence to verify the recorded results.

d. All labelling on the Switchgear, cabling and other apparatus and equipment has been completed.

e. All equipment and outlets are in situ and trucking lids and equipment and accessories covers are in place and secured.

f. All cables and wires securely fixed and properly terminated, all cable glands well tightened and earthing and bonding of switchgear, metal enclosures and cable sheaths completed in compliance with the Regulations.

g. All builders’ work made good around outlets.

2.35 Co-ordination

The Contractor shall be responsible to coordinate and dove tail his work with that of the sub-contractors.

In case of problems occurring which affect the quality and progress of works, these shall be referred immediately to the Architect / Engineer-in-Charge and a meeting held with the parties concerned to find a solution.

The decision of the Architect / Engineer-in-Charge in such matters shall be final.
2.36 Design and Implementation of a Quality Assurance Plan

The following clauses are to be read in conjunction with the conditions set out in the Conditions of Contract (Part Two).

2.36.1 Quality Representative

The Contractor shall appoint a senior staff member who, irrespective of other duties, shall be his Quality Representative with responsibility for the design and implementation of a Quality Assurance Plan.

2.36.2 Quality Personnel

The Contractor’s Quality Representative shall be assisted by qualified inspection and testing staff who, irrespective of other duties, shall be deployed in ensuring compliance of the works with approved Contract Documents. Their number shall be such that the provision of the Quality Plan can be met inclusive of any activities carried out outside normal work hours. They shall be the sole signatories of inspection request submitted to the Architect / Engineer. A register of such staff shall be maintained by the Contractor.

2.36.3 Material Testing Laboratory

The Contractor shall provide certification for the testing of materials in the Contractor’s own in-house laboratory. Sub-contracting of tests to external testing facilities shall be subject to such facilities having been approved by the Architect / Engineer in-Charge.

2.36.4 Measuring and Test Equipment

All such equipment shall be covered by a calibration and maintenance schedule as approved by the Architect / Engineer in-Charge.

2.36.5 Inspection and Testing

Notification for inspection and testing of the works shall generally be made in writing to the Architect / Engineer in-Charge or his representative. Adequate time shall be allotted for inspection or testing of the works commensurate with the relevant task complexity and duration. Minimum times shall be established and agreed with the Architect / Engineer-in-Charge. Inspection shall cover all processes identified in the approved Quality Plan. Specific “Hold” points for inspection and testing shall be agreed and established for all processes. The Contractor shall present detailed list of processes and related “Hold” points for the Architect / Engineer-in-Charge’s approval. Work procedures shall be provided for all approved processes and shall include any relevant checklists / approval sheets. No materials shall be allowed to be integrated in the permanent works unless inspected / tested / certified.

2.36.6 Inspection and Test Status

Irrespective of any provisions contained in the project Quality Plan, the Contractor shall provide for suitable means which clearly indicate to all operations and at all times, the conformance or otherwise of all products with regards to inspection and testing.

2.37 Material / Product Non-Conformances and Preventive Action

All such non-conformances shall be investigated and action taken for prevention of recurrence. Clear provisions for dealing with non-conformance and related re-work and re-approvals shall exist.

2.38 Responsibility

The Contractor shall be responsible for the safety of the works including materials and plant until they are taken possession of by the Foundation for Tomorrow's Schools and shall stand the risk and be responsible for, and must with all possible speed make good, all damage caused by accident, weather, storm or any other cause at his own expense.
All materials and methods of Installation shall be in the form and nature specified herein and/or as indicated in the Drawings to the satisfaction of the Architect / Engineer-in-Charge. All materials and methods (except where otherwise stated) shall conform to the relevant BSS or its continental equivalent.

2.39 Protection of the Works

The Contractor must cover up and protect from damage from any cause existing buildings which are to be retained. He must supply protection for the whole works executed, and any damage caused must be made good by the Contractor at his own expense. The Contractor shall erect temporary protective walls, hoardings, screens, guard rails and the like as may be necessary for the protection of persons and property for the proper execution of the works and for meeting the requirements of the Planning Authority or other Authority.

2.40 Insurance Policies

2.40.1 The Contractor shall take out insurance in both his own name and of the Contracting Authority's against any loss or damage for which he is liable under the contract. Such insurance shall provide cover as detailed hereunder:

a) All risks insurance:

The contractor is to insure in the joint names of the Contracting Authority (the Foundation for Tomorrow’s Schools), the works against loss and damage by fire, storm tempest, lightning, floods, earthquake, aircraft or anything dropped there from aerial objects, riot and civil commotion for the full value thereof plus 15% of all the works executed and all unfixed materials intended for, delivered to or placed on or adjacent to the works and shall keep such works, materials so insured until the completion of the works.

b) Third party insurance:

Without in any way limiting his responsibility under paragraph (a) above, the contractor shall effect a policy of insurance against the risks mentioned therein to cover an amount of not less than € 1,200,000 (one million two hundred thousand Euros) for any one occurrence with the number of occurrences unlimited. The policy shall be in the joint names of the Contracting Authority (the Foundation for Tomorrow’s Schools) and the contractor and shall include cross liabilities clauses.

2.40.2 If no insurance policy will be in place and an accident occurs, the contractor will be held responsible to make good all damage at his own expense.
PART TWO, SECTION 2 - GENERAL CONDITIONS

General Conditions of Contract

The full set of General Conditions for Works Contracts (Version 1.05 dated 20 January 2015), can be viewed/downloaded from www.etenders.gov.mt under the section Resources.

It is hereby construed that the tenderers have availed themselves of these general conditions, and have read and accepted in full and without reservation the conditions outlined therein, and are therefore waiving any standard terms and conditions which they may have.

These general conditions will form an integral part as part of the contractual obligations with the successful tenderer.
PART 3, SECTION 1

3.1.1 As specified by the Contracting Authority.

The following documents form an integral part of this tender document.

<table>
<thead>
<tr>
<th>FTS Ref</th>
<th>Description</th>
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<tbody>
<tr>
<td>FTS/Specs/2</td>
<td>Earthworks</td>
</tr>
<tr>
<td>FTS/Specs/3.2</td>
<td>Plumbing &amp; Sanitary Ware</td>
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<td>FTS/Specs/3.13</td>
<td>Mechanical Specifications</td>
</tr>
<tr>
<td>FTS/Specs/3</td>
<td>Raised Flooring System</td>
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<tr>
<td>FTS/Specs/19</td>
<td>Ceramic Tiling</td>
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NOTE:

ALL THE BRITISH STANDARDS OR ANY OTHER STANDARDS QUOTED IN THE SPECIFICATIONS MAY BE REPLACED BY THE EQUIVALENT EUROPEAN STANDARD. However, it will be the responsibility of the respective bidders to prove that the standards they quoted are equivalent to the standards requested by the Contracting Authority.
2 EARTHWORKS

2.1 General
2.1.1 Earthworks shall generally comply with BS 6031 – Code of Practice for Earthworks.

2.2 Compliance – Sample Size and Frequency of Sampling (Where Applicable)
2.2.1 Where applicable, sample size and frequency of sampling for compliance shall be established on the basis of standard statistical guidelines.

2.3 Compliance – Testing and Certification
2.3.1 Compliance shall be demonstrated through testing and/or certification of products and/or processes as outlined in the ensuing clauses.

2.4 Preliminary inspection for Existing Services
2.4.1 The Contractor, subject to any instructions or contrary directions in accordance with the Contract, shall inspect the site, take all actions necessary to establish and/or verify the presence or absence of existing services, pipes, drains, cabling and supplies and precisely identify and document such findings on detailed plans and cross-sectional drawings. These shall be presented to the Project Manager for review.

2.5 Works to commence only on Instructions
2.5.1 The Contractor shall commence or proceed with excavations only on instructions from the Project Manager.

2.6 Caution
2.6.1 The Contractor, subject to any instructions or contrary directions in accordance with the Contract, shall take all actions, measures and precautions required by any recognised public entity or owners of privately owned services or supplies, for rendering safe, disconnecting and properly sealing off of all pipes, drains, cabling, services and supplies.

2.7 Excavations
2.7.1 All excavation shall be carried out in any extractable materials encountered to the lines and levels shown on the Drawings or as directed by the Project Manager.
2.7.2 Excavation shall be carried out by hand or machine as found expedient for the work to be executed, including grading and trimming the bottom of the excavations to the precise levels required. The Contractor shall take all precautions necessary to avoid damage to existing services.
2.7.3 The sides of excavations in open cut shall be trimmed and made safe to the satisfaction of the Project Manager.

2.8 Organic Topsoil
2.8.1 Topsoil which is stripped from the natural ground surface and which contains sufficient organic matter for the germination of grass seed shall be stockpiled in a distinct and separate stockpile and under no circumstance shall it be used for fill operations. Disposal shall be subject to the local regulations.
2.9 **Soft Areas**

2.9.1 Soft areas which, in the opinion of the Project Manager, are unsuitable for bearing the overlying construction and applied loadings, shall be removed to such depths and widths as directed, and the material excavated shall be removed from the Site. The excavation shall be backfilled with fill material approved by the Project Manager. The Contractor may be requested to provide a Method Statement for backfilling and compaction operations for the approval of the Project Manager.

2.10 **Stability of Existing Structures**

2.10.1 All excavation shall be carried out in such a way as not to endanger the stability or safety of any existing structure or any part of the permanent or temporary works. Any temporary measures necessary in order to comply with this requirement shall be agreed with the Project Manager. The Contractor is to allow in his rates for excavation, all the necessary planking and strutting. The Contractor is at all times responsible for the safety of the excavations; He is to provide all necessary planking and strutting to ensure this. Should any damage result to the excavations or works, the Contractor will be held entirely responsible and any extra work required by virtue of this will be entirely at his own expense.

2.11 **Control of Water**

2.11.1 Excavation for foundations of structures shall be carried out, generally, "in the dry". Water shall not be allowed to accumulate in the excavations and the Contractor shall install and maintain such pumping or other water control measures as are necessary, due regard being paid to the stability of adjacent structures. Any subsidiary water run-off systems shall be approved by the Project Manager and must be of a temporary nature. Any damage caused by inadequacy of these water control measures shall be made good at the Contractor's own expense.

2.12 **Over-Excavation**

2.12.1 In the event of the Contractor over excavating below the appropriate levels or beyond the alignments shown on the Drawings or directed by the Project Manager, the Contractor shall, at his own expense, fill the excavation to the proper level specified with concrete of the same quality used in the foundation.

2.13 **Earthworks Fill Material over Subgrade**

2.13.1 Earthworks fill material shall comply with Table 6/1 of the ADT Specification for Roadworks. The general requirements as indicated in clause 602, 603, 608, 610, 611 and 612 of the ADT Specification for Roadworks shall also apply.

2.13.2 Earthworks material testing shall be carried out in accordance with BS 1377, Parts 1 to 9.

2.13.3 The requirements for grading shall comply with Table 6/2 of the ADT Specification for Roadworks.

2.13.4 The Contractor shall adopt either the Method or End product procedure for compaction as indicated in the ADT Specification for Roadworks, clause 612.

2.14 **Subbase Material**

2.14.1 Granular Subbase Type 1 material shall comply with ADT (Malta) Specification for Roadworks, Volume 1, Series 800, clause 803.
2.14.2 Granular Subbase Type 2 material shall comply with ADT (Malta) Specification for Roadworks, Volume 1, Series 800, clause 804.

2.14.3 Granular Subbase Type 4 material shall comply with ADT (Malta) Specification for Roadworks, Volume 1, Series 800, clause 806.

2.14.4 The material shall be placed and compacted as indicated in ADT (Malta) Specification for Roadworks, Volume 1, Series 800, clause 801 with particular reference to Table 8/1.

2.14.5 Compaction shall be carried out at the optimum moisture content (+/- 2%). Segregation of material shall be avoided.

2.14.6 The finished surface levels of subbase material shall have a tolerance of +/- 20mm.

2.15 Aggregates

2.15.1 Aggregates for unbound and hydraulically bound layers shall comply with EU Directive 89/106/EEC. The technical characteristics shall comply with EN 13383-1.

2.16 Level Surveys

2.16.1 A level survey is mandatory prior to and on completion of excavations and fill operations. This shall be extended to include any superimposed new layer. This survey shall be along an adequate grid to be jointly established with the Project Manager.

2.17 Contractor's Responsibility

2.17.1 Cultivated trees, shrubs, and grass in rights-of-way or easements, but outside the specified limits for excavation, shall be protected and preserved during the entire period of construction. Site preparation shall be considered incidental to the construction work and no specific payment will be made therefore, unless otherwise noted in the contract documents.

2.17.2 The Contractor shall be responsible for all notifications for inspections and testing as outlined in the specifications.

2.17.3 The Contractor is responsible for the disposal of all debris resulting from clearing, grubbing, and demolition work in a manner and location satisfactory to the Project Manager. If stockpiling is done adjacent to excavations, the Contractor is responsible for ensuring they are placed in such a manner that no damage will result to the work or property in the event of rain.

2.18 Site Work

2.18.1 All large roots and stumps shall be removed to a depth of at least 600mm below the original surface. Pits or cavities resulting from the grubbing which extend beyond the excavation limits shall be backfilled as specified herein.

2.18.2 In the presence of underground services, utilities or structures the Contractor shall use a high degree of caution. The Contractor shall bear all costs of repairing underground utilities or structures damaged in the work and shall be fully responsible for all damage to other property and persons resulting from damage to the underground utilities and structures. All damages shall be repaired within a reasonable time.
2.19 Areas outside the Construction Limits

2.19.1 Areas outside the designated construction limits shall not be disturbed.

2.20 Types of Excavations

2.20.1 The sites for structures shall be excavated large enough to permit proper erection of the forms, de-watering, and placement of concrete, but the excavation shall not be excessively large.

2.20.2 Banks shall be sloped to a safe angle except where such sloping would endanger or damage existing or proposed facilities. The bottom of the excavation shall be true to the required shape and elevations shown on the drawings. Backfilling with excavated material under structures will not be permitted.

2.21 Trenching

2.21.1 Trenches shall be cut to the lines and grades shown on the Drawings or established by the Project Manager. The banks of trenches shall be cut in vertical, parallel planes equidistant from the centerline of the pipe, except where conditions will not permit vertical banks.

2.21.2 Where it is not practical to cut vertical banks, or where unprotected vertical banks would create dangerous conditions, the banks may be sloped to any width providing existing and proposed facilities will not be damaged or endangered. Sloped surfaces shall terminate at a level that will permit the achievement of the required surround depths shown on the Drawings.

2.21.3 Where trench excavation may damage roadways, utility poles, pipelines, conduits, or private property or create conditions dangerous to workmen, the Contractor shall install suitable shoring for their protection. No specific payment will be made for shoring except for that which the Project Manager orders to remain in place.

2.21.4 The bottom of all trenches shall be cut level in cross section and shaped to conform to the bottom of the pipe so as to afford full bearing on the pipe barrel, except where concrete cradles and surrounds, foundation material, or embedment material is to be installed. Bell holes shall be excavated so as to relieve pipe bells of all load, but small enough to ensure that support is provided throughout the length of the pipe barrel.

2.21.5 Trenches shall not be excavated excessively in advance of pipe laying. The work shall be performed so as to prevent any serious interruption of travel by the public and also to afford necessary access to public and private premises. Temporary bridges or cross walks shall be built where necessary to maintain traffic in a safe manner.

2.21.6 The sides of all trenches and excavations for pipelines and structures shall be securely held in place by stay bracing or by skeleton or solid shoring and bracing, as necessary to prevent slides, settlement, or movement of the unexcavated material. Wood or sheet steel piling shall have sufficient strength and rigidity to withstand the pressures and maintain the walls of the excavation and protect all persons and property from injury or damage.

2.21.7 Where excavations are made adjacent to buildings or other structures, or in paved street, the Contractor shall take particular care to sheet and brace the sides of the excavation adequately so as to prevent any settlement beneath the structures or pavement. The Contractor shall be solely responsible for any damage to any structure or injury to any person that results from his operations.
2.21.8 Bracing and sheeting may be removed in units when the level of the backfilling has reached the elevation necessary to protect the pipe work and adjacent property. When, in the opinion of the Project Manager, sheeting or shoring above this level cannot be safely remove, it shall be left in place and the Contractor will be paid for the material left in place. Sheetimg so ordered to be left in place shall be cut off at least 300mm below the surface.

2.22 Rock

2.22.1 Rock shall be defined as any material, not of a granular nature, which occurs in its original position in ledges or bedded deposits of such hardness or texture that cannot be loosened, broken, or removed without the use of special equipment. The rock shall be completely stripped of all overburden. The Project Manager or his representative will then make the necessary measurements and take elevations on the rock to determine the volume of rock to be removed.

2.22.2 In trenches for pipelines, rock shall be removed for the overall width of the trench, which shall be as shown on the Drawings, and to a minimum depth of 150mm below the bottom of the pipe for pipes smaller than 600mm in diameter.

2.23 Blasting with Explosives

2.23.1 Blasting with explosives is strictly PROHIBITED.

2.24 Backfilling Trenches

2.24.1 The backfilling of trenches shall commence immediately after the pipes have been installed, inspected and approved by the Project Manager. In general, trenches shall be backfilled as shown on the Drawings for and mechanically compacted to the specified requirements as the material is placed in layers.

2.24.2 The Contractor shall replace all surface materials and restore all paving, kerbing, sidewalks, fences, shrubs, and grass damaged or removed in the work, to a condition equal to that before the excavations.

2.25 Disposal of Materials

2.25.1 On completion of any part of the work disposal shall be made of all surplus or unused material within the construction limits of such work and the surface of the work left in a neat and workmanlike condition.

2.25.2 Disposal of excavated materials shall be considered an integral part of the excavation work.

2.26 Maintenance

2.26.1 All excavated areas, backfill, embankments, trenches, access roads, and ditches shall be maintained by the Contractor in good condition at all times until final takeover by FTS.
3 Specification for raised flooring system

Material: Polypropylene

Shape: modular elements with a spherical or concave upper plate supported on 4 arched supports

Height: 250–450mm height

Colour: Any

Loading: To be ready to receive a reinforced concrete floor 100mm thick, ceramic tiles and loading from school usage

Underlay: Rate is to include for any levelling required beneath the modular elements. Existing surface may be uneven.

Ventilation: To allow for air to flow between the modular elements

Laying: May be laid on flat or inclined surfaces.
3.2 Plumbing and Sanitary Ware

3.2.01 FUSION WELDED PPR POTABLE WATER SYSTEM FOR PIPE SIZES FROM 15mm to 60mm

Fusion welded pipes and fittings shall mean that connections of pipes and fittings of such a system shall be by heating of both ends that are to be connected by means of specialized machinery in such a way that the melting point of the PP-R material of both ends is reached and therefore forms one homogenously fused material, thus achieving a permanent, non-porous, leak-proof bond that shall withstand the original pressure limits and have the same physical and chemical characteristics of the original parent material.

The fusion-welding machine shall be as recommended by the pipe system manufacturer, which shall be kept clean by means of cleaning agents as recommended by the manufacturer.

All pipes and fittings shall be procured from the same manufacturer and be of the same specifications as recommended by the manufacturer.

No pipes or fittings of a different trade name, even though from the same manufacturer, shall be utilized in the works.

Pipe supports, bracketing and anchoring shall be according to manufacturer’s recommendations as shall be found in the manufacturer’s installation manual for that material.

The system shall carry a Manufacturer’s declaration that the system shall have an expected life of not less than 50 years.

The system shall comply with BS 6920 or equivalent or better.

Pipes and fittings shall comply with the requirements of the fire classification B2 (normal inflammable).

Pipe sizes shall nominally be according to the following table for a nominal working pressure of 15 bar.

<table>
<thead>
<tr>
<th>External ø mm</th>
<th>15 or 16</th>
<th>20 or 22</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>75</th>
<th>90</th>
<th>110</th>
</tr>
</thead>
</table>

The pipe system shall carry a 10 year guarantee period which shall include all the fusion-welded connected joints.

The contractor shall provide samples of welded joints from time to time and as requested by the Engineer, during the execution of the works.

Testing of the system shall be carried out according to the engineer’s instructions.
3.2.02 POTABLE WATER STORAGE TANKS

The water storage tanks shall comply with the local health and safety regulations and the COSHH standards. These shall be manufactured of HDPE thermoplastic, UV stabilised, zero light transmittance in direct sunlight and be guaranteed to be totally resistant to the formation of algae. They shall have an air tight manhole to facilitate periodic cleaning and disinfection of the insides. Compliance to BS EN 12573 or equivalent is essential.

3.2.03 VITREOUS CHINA SANITARY WARE

Vitreous China sanitary ware colour shall be manufacturer’s standard white and shall comply with BS EN 997:2003 or equivalent standards. Sanitary ware for people with special needs shall also comply with local regulations and the latest guidelines issued by the K.N.P.D. (Kummissjoni Nazzjonali Persuni b’Dizabilita’).

Flushing units shall be of the dual type and shall have a maximum of 4 litres for full flush and 2.6 litres for urine flush. These shall be clearly submitted as part of the technical literature. Disabled toilets to be single 4 litre flush.

Water cisterns shall be equipped with water saving devices to achieve a 30% saving for the flushing. These shall be clearly submitted as part of the technical literature.

All water taps including one for kitchenettes shall be equipped with tap inserts to save at least 50% of water (maximum flow 5.7 l/min) when compared to the normal tap use. These shall be clearly submitted as part of the technical literature.

3.2.04 SPECIFICATIONS FOR WATER TAPS

These specifications are applicable for monoblock temporised taps

I. Cold-only taps
II. Hot & Cold taps

The taps shall allow a flow pressure of a minimum of 0.5bar and a recommended pressure of between 1 and 4 bar.

The flow rate at about 3bar pressure shall be at least 5.7 litres per minute.

The water taps shall be of a chrome finish and supplied with flexible connection hoses.

All water taps including one for kitchenettes shall be equipped with tap inserts to save at least 50% of water when compared to the normal tap use. These shall be clearly submitted as part of the technical literature. Maximum flow to be 5.7 litres per minute.

3.2.5 SEWAGE SYSTEM AND RAIN WATER CATCHMENTS

3.2.12.1 Rainwater

A. U-PVC pipes shall be utilised in the works for the construction of a gravity drain system for the drainage of rainwater. Pipes and fittings shall comply with the following specifications or equivalent or better:


C. BS EN 607: 2004 - Eaves gutter fittings of PVC-U

D. BS EN 1462: 2004 - Brackets for eaves gutters

E. BS EN 12200-1: 2000 - Plastic rainwater piping systems for above ground external use - Unplasticized poly vinyl chloride (PVC-U)
3.2.12.2 Soil and Waste

A. BSI Kitemark number: KM 512471 - BS EN 12380 Air Admittance Valves
B. BBA Certificate number: 06/4343 - Air Admittance Valves
C. BS EN 1455-1: 2000 - Plastic piping systems for soil and waste DISCHARGE (low and high temperature) within the building structure - ABS
D. BS EN 1451-1: 2000 - Plastic piping systems for soil and waste DISCHARGE (low and high temperature) within the building structure - Polypropylene (PP). Specifications for pipes, fittings and the system
E. BS EN 1329-1: 2000 - Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure. Unplasticized poly vinyl chloride (PVC-U). Specifications for pipes, fittings and the system
F. BS 4514: 2001 - Unplasticized PVC soil and ventilating pipes of 82.4 mm minimum mean outside diameter, and fittings and accessories of 82.4 mm and of other sizes. Specification
G. BS EN 5254: 1976 - Specification for polypropylene waste pipe and fittings (external diameter 34.6 mm, 41.0 mm and 54.1 mm)
H. BS 274-1: 2002 - Waste fittings for sanitary appliances. Requirements
I. BS 5255: 1989 - Specification for thermoplastics waste pipe and fittings
J. BS 5627: 1984 - Specification for plastics connectors for use with horizontal outlet vitreous china WC pans
K. BS 6209: 1982 - Specification for solvent cement for non-pressure thermoplastics pipe systems
L. BS EN 681-1: 1996 - Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications. Part 1 vulcanised rubber
M. BS 476-20: 1987 - Fire tests on building materials and structures. Method for determination of the fire resistance of elements of construction (general principles)

3.2.12.3 Underground Drainage Systems

A. BS EN 1401-1: 1989 - Plastics piping systems for non-pressure underground drainage and sewerage. Unplasticized poly(vinylchloride) (PVC-U). Specifications for pipes, fittings and the system
B. BS 4660:2000 - Thermoplastics ancillary fittings of nominal sizes 110 and 160 for below ground gravity drainage and sewerage
C. BS EN 5254: 1976 - Specification for polypropylene waste pipe and fittings (external diameter 34.6 mm, 41.0 mm and 54.1 mm)
D. BS 6209: 1982 - Specification for solvent cement for non-pressure thermoplastics pipe systems
E. BS EN 681-1: 1996 - Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications. Part 1 vulcanised rubber
F. BS 5955-6: 1980 - Plastics ipewear (thermoplastics materials). Code of practice for the installation of Unplasticised PVC pipe work for gravity drains and sewers
G. BS 7158: 2001 - Plastic inspection chambers for drains and sewers
I. BS EN 752-1: 1996 - Drain & Sewer Systems outside buildings.

J. BS EN 1295-1: 1998 - Structural design of buried pipelines under various conditions of loading. General requirements.

K. BS EN 1610: 1998 - Construction & Testing of Drains & Sewers

L. BS EN 12056-1: 2000 - Gravity drainage systems inside buildings. General and performance requirements


N. BS EN 12056-3: 2000 - Gravity drainage systems inside buildings. Roof drainage, layout and calculation
3.13 Mechanical Installations

3.13.1 PREAMBLE
This section of the Specification generally indicates the minimum acceptable standards of workmanship and materials to be applied in providing the Engineering Services Installation(s) described in the Specification and Drawings and shall be read in conjunction with other sections of this specification.

3.13.2 WORKMANSHIP
The Installation(s) shall comply with the standards of good practice and Workmanship generally acknowledged in the relevant industry, and only labour qualified by trade test (where applicable) or of accepted grade for the particular works shall be employed.

3.13.3 MATERIALS
All materials shall be new, of good quality and manufactured or fabricated to comply with the current requirements of the relevant British Standard Specification as a minimum, but in any case, to approval of the Services Consultant.

3.13.4 REGULATIONS
The whole of the work shall be executed in accordance with the requirements of the following:

A) EN Standards, British Standards and Code of Practice issued by the British Standards Institution or other approved institutions.
B) Health and/or safety at Work Act, 1974.
C) Regulations relating to LPG installations as published by the Malta Resources Authority.
D) Building Regulations.
E) The requirements of Enemalta Corporation
G) The Electricity Supply Regulations.
H) Requirements by the Water Services Corporation

3.13.5 PIPEWORK

3.13.5.1 General
Generally all pipework, ducting, etc., shall be concealed, except in plant-rooms, tank rooms, etc., where all services shall be exposed. It is the Contractor's responsibility to ensure that adequate access is provided to all concealed services.

3.13.5.2 Tubing General
Tube materials for the various services shall comply with the following tables.
<table>
<thead>
<tr>
<th>SERVICE</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Heating Systems</td>
<td></td>
</tr>
<tr>
<td>Circulation Pipework up to 150mm NB</td>
<td>Heavy Weight Quality Black Steel</td>
</tr>
<tr>
<td>Circulation pipework 175mm NB and above</td>
<td>Black Carbon Steel Class C</td>
</tr>
<tr>
<td>b) Chilled Water Systems</td>
<td></td>
</tr>
<tr>
<td>Circulation Pipework up to 150mm NB</td>
<td>Heavy Weight Quality Black Steel</td>
</tr>
<tr>
<td>Circulation pipework 175mm NB and above</td>
<td>Black Carbon Steel Class C</td>
</tr>
<tr>
<td>c) Heating and Chilled Water Systems</td>
<td></td>
</tr>
<tr>
<td>Safety valves discharges, cold feeds, open vents.</td>
<td>Galvanised Steel</td>
</tr>
<tr>
<td>Manual &amp; Automatic Air Vent discharges.</td>
<td>Heavy Weight Quality</td>
</tr>
<tr>
<td>Drains from pumps.</td>
<td>Light Gauge Copper</td>
</tr>
<tr>
<td>Other drains from plant.</td>
<td>Light Gauge Copper</td>
</tr>
<tr>
<td>d) Gas and Oil Services</td>
<td></td>
</tr>
<tr>
<td>Gas and oil pipes in building or above ground.</td>
<td>Black Steel</td>
</tr>
<tr>
<td>Oil pipes below ground.</td>
<td>Heavy Weight Quality</td>
</tr>
<tr>
<td>Gas Pipes below ground.</td>
<td>All tubes shall be black steel of heavy weight quality which shall be PVC machine wrapped to give corrosion protection. An unbroken barrier shall be provided by double wrapping the joints and fittings with an approved tape after installation.</td>
</tr>
<tr>
<td>Compressed Air</td>
<td>Yellow medium density polyethylene Pe80 of standard dimension ratio of SDR11 or SDR 17.6</td>
</tr>
</tbody>
</table>

NOTE: The open trenches will be cut and backfilled by the Main Contractor but the Sub Contractor shall be responsible for ensuring that the bottom of the trenches have a true gradient as required, are adequately rammed and have correct pipe bedding material before pipe laying is commenced. Joint positions are to be adequately supported.

3.13.5.3 Steel Pipework

Steel pipe, black and galvanised or sizes up to and including 150mm N.B. shall comply with BS1387 and be of heavy weight grade.

Steel pipework over 150mm bore shall be of Class C black carbon steel manufactured in accordance with BS3601 with flanges to BS4504. The wall thickness and outside diameters shall be:-
<table>
<thead>
<tr>
<th>Diameter</th>
<th>Thickness</th>
<th>OD</th>
</tr>
</thead>
<tbody>
<tr>
<td>175mm</td>
<td>5.6mm</td>
<td>194mm</td>
</tr>
<tr>
<td>200mm</td>
<td>6.35mm</td>
<td>219mm</td>
</tr>
<tr>
<td>250mm</td>
<td>6.35mm</td>
<td>273mm</td>
</tr>
<tr>
<td>300mm</td>
<td>7.14mm</td>
<td>324mm</td>
</tr>
<tr>
<td>350mm</td>
<td>10.00mm</td>
<td>356mm</td>
</tr>
</tbody>
</table>

All tubes shall be of even bore, clean and smooth throughout, commercially straight and free from grooving, blistering and rust. Tube shall be colour banded.

All steel tubing shall receive one coat of primer protecting paint before despatch from works. If the tubing is delivered oiled but not painted then the Contractor shall take the necessary precautions to protect them from inclement weather and paint them on site with an approved oxide paint.

3.13.5.4 Light Gauge Copper Pipework

Pipework shall be to BS2871 Part 1, Table X

All copper tubing shall be produced free of all harmful films or scales as recommended by the British Non-Ferrous Metals Research Association.

All tubes shall be scoured to remove all oxides formed during manufacture and shall bear the British standard "Kite Mark".

3.13.5.5 Fitting General

Pipe fitting such as bends, tees, etc., shall be provided as specified hereunder for the various services and tube materials.

Throughout the pipe runs long sweep bends are to be used in preference to elbows wherever practicable. All made or set bends shall have as large a radius as is possible and shall be free from buckling. Short radius elbows shall be used where pipework is exposed within offices.

Tees shall be of the easy sweep or twin elbow pattern except where square tees will facilitate venting and draining.

Where a gradual reduction or increase in pipe diameter is required, i.e. pump connections, taper pieces at least 150mm long shall be used.

Bushes shall not be used and where a reduction in size of the pipes is required, reducing sockets or tees shall be used. Eccentric reducing sockets shall be used wherever necessary to ensure proper drainage or elimination of air pockets.

Concentric reducing sockets shall be used in vertical pipework.

Where bends are inserted to take up expansion and contraction of the pipework these bends must be wrought iron and not malleable iron. Pulled bends should be used where practical for offsets and expansion loops.

Tees shall be sweep pattern, except in the following circumstances:-

a) Where the use of a sweep tee would result in the formation of an airlock.

b) Where vent pipes are taken off the ends of tees and the circulation is directed through the tee branches.

c) At low points where drainage would be impeded.

At any other position where, in the opinion of the Services Consultant, the use of a square tee would simplify or improve the pipework assembly.
All pipework in false ceilings up to 50mm bore shall have welded joints and connections if steel or soldered capillary joints if copper, for pipework over 50mm bore connections shall be as specified below.

3.13.5.6 Fittings for Steel Pipework

Fittings for steel pipework shall comply with the following table:

**Black Steel Tubes**

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>Wall Thickness</th>
<th>Outside Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>50mm N.B. and below</td>
<td>5.6mm</td>
<td>194mm</td>
</tr>
<tr>
<td>Over 5.2 bar or</td>
<td>6.3mm</td>
<td>219mm</td>
</tr>
<tr>
<td>65mm to 150mm NB</td>
<td>7.1mm</td>
<td>273mm</td>
</tr>
<tr>
<td>175mm to 300mm NB</td>
<td>10.0mm</td>
<td>324mm</td>
</tr>
</tbody>
</table>

**Galvanised Steel Tube**

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>Wall Thickness</th>
<th>Outside Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>50mm N.B. and below</td>
<td>5.6mm</td>
<td>194mm</td>
</tr>
<tr>
<td>65mm N.B. and above</td>
<td>6.3mm</td>
<td>219mm</td>
</tr>
<tr>
<td>65mm N.B. and above</td>
<td>7.1mm</td>
<td>273mm</td>
</tr>
<tr>
<td>175mm to 300mm NB</td>
<td>10.0mm</td>
<td>324mm</td>
</tr>
</tbody>
</table>

Wrought iron fittings for expansion bends shall be heavy quality and comply with BS1387: 1967.

3.13.5.7 Fittings for Copper Pipework

Fittings for copper pipework shall comply with the following table:

**Copper Tube**

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>Wall Thickness</th>
<th>Outside Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>50mm N.B. and below</td>
<td>5.6mm</td>
<td>194mm</td>
</tr>
<tr>
<td>65mm N.B. and above</td>
<td>6.3mm</td>
<td>219mm</td>
</tr>
<tr>
<td>65mm N.B. and above</td>
<td>7.1mm</td>
<td>273mm</td>
</tr>
<tr>
<td>175mm to 300mm NB</td>
<td>10.0mm</td>
<td>324mm</td>
</tr>
</tbody>
</table>

It should be noted that all copper tube fittings must be of a non-dezincifiable quality.
3.13.5.8 Flanges

Mating flanges shall be provided on all services to items of Plant and Equipment and valves 65mm bore and over. Pairs of flanges shall also be provided on all services pipe lines of 65mm bore and over, in intervals approximately 15m and wherever necessary to facilitate dismantling.

Flanges shall be machined full face, to BS10, or BS4504 to the pressure table compatible with the item to which the joint shall be made and suitable for the working pressures to which they will be subjected and shall conform to the appropriate BSS table.

On copper pipework, they shall be of naval brass bronze, gunmetal or brazing metal, on steel pipework, they shall be of carbon steel and shall be galvanised when used on galvanised pipework. BS10 flanges shall only be used when connecting to equipment utilising BS10 flanges. BS4504 flanges shall be utilised for dismantling, at valves, etc.

Flanges on black steel tube shall be back and base welded to the tube according to BS806 Type 6 or 7. Flanges on galvanised tube shall be screwed in accordance with BS21 Flanges on copper tubes shall be of copper alloy not subject to dezincification.

Flanges on light gauge copper tube shall be back and base bronze welded on to the tube.

3.13.5.9 Unions

Unions shall be installed on all services (except where specified otherwise) in pipework up to and including 50mm bore at intervals of approximately 15m and wherever necessary to facilitate dismantling, and adjacent to each valve.

All unions shall be of malleable iron with two conical bronze seats and with hexagon nuts on both parts. Unions on galvanised pipework shall be galvanised. Unions on copper pipework shall be of bronze or gunmetal not subject to dezincification. Long screw connections will not be permitted.

3.13.5.10 Pipework Installation

All pipework shall be installed in a first-class workmanlike manner through-out, with full provision for venting, expansion and contraction, maintenance and renewals.

Open ends left during the progress of the work shall be protected with purpose made metal, plastic or wood plugs, caps and blank flanges to prevent dirt or rubbish entering. Before setting to work all sections of pipework shall be thoroughly flushed out. Should any stoppage in the circulation occur after the various systems have been put into operation, owing to non-compliance with this requirement, the Sub Contractor shall attend and rectify the matter at his own expense.

All pipework shall be fixed mutually parallel where adjacent and all vertical pipes shall be parallel to adjacent vertical walls.

Pipework shall follow the lines of walls and shall be graded to ensure venting and draining. The clearance between pipework or its covering (if insulated) and the wall or any other fixture shall be not less than 25mm.

Where pipework is to be insulated, it shall be fitted in such a manner as to allow each pipe to be insulated around the full circumference, and also to allow the prescribed clearances, after insulation, on other pipes, and any other surface.

Joints shall not be made in the thickness of any wall, floor or ceiling and pipework shall not be solidly embedded in brickwork or floors unless specially ordered. Where tubes pass through walls, floors or ceilings, sleeves shall be fitted, providing 13mm gap between the pipe or lagging with this space packed with Rockwool or similar.
Locate and arrange horizontal pipes and ducts, unless otherwise noted above at the ceilings or floors on which they are shown, arranged so that under considerations of all other work in the area, the maximum ceiling height and/or useable space is maintained.

All pipes passing through floors or walls where visible to be provided with pipe escutcheon plates.

Pipework shall be reamed after cutting and shall be free from flattening or distortion. If hot bending is used on galvanised tubing, the tubing must be re-galvanised throughout after the bend has been manufactured.

Where pipework is buried underground it shall be double wrapped with Denso tape. All such wrapping shall be only completed after successfully witnessed pressure tests and shall be approved by the Services Consultant before the trench is filled in.

Where this Specification calls for welding on galvanised services, all special sections of pipework must be pre-fabricated and welded, and these shall be galvanised after manufacture.

The Contractor shall be deemed to have included in his Tender for work in setting up piers, wastes, drains, beams etc.

Any pipework which, in the opinion of the Services Consultant or his representative, is not fixed in accordance with the foregoing shall be removed and refixed at the expense of the Sub Contractor.

Pipework shall be installed with due allowance for expansion and contraction, complete with guides, anchors, etc, to ensure correct, quiet operation, with no undue stress applied to pipework or joints.

Gas pipes should be run at least 150mm away from power cables and conduit. If this is not possible, contact between the two must be prevented by means of insulating distance pieces and sleeves.

Immediately after installation all black tube shall be painted with two coats of red oxide primer, including all fittings. Where galvanised pipework has been screwed any damaged galvanising caused by screwing (exposed threads) and installation marks (Stilson damage) shall be painted with two coats of galvafoird paint.

3.13.5.11 Jointing

Screwed joints shall be made to BS21 and 1S0/R7 with approved jointing materials.

Flanged joints shall be bolt made with Taylors Rings or “Klingerite” lying within the bolts, and approved jointing paste. Bolts, nuts and washers to be bright and/or plated mild steel and be suitable for the system/service being installed. Bolts shall only project between 5 and 10mm past the nuts. For brass or gunmetal flanges, “Klingerite” joints may be used. Bolts and nuts shall be selected with sufficient tensile strength/ performance applicable to the particular system/service in which they are being installed. Welded joints shall be made as specified in Clause 2/2/5/12.

The following methods shall be used for jointing straight lengths of tube subject to the terms of Clauses 2/2/5/8 & 9 concerning flanges, and unions unless otherwise specified in reference to particular sections of the work.

Joints on straight runs are not to be closer than 3 metres except where tees or changes of direction are necessary.

a) Black Steel Tubes
50mm N.B. and below       Screwed sockets
65mm N.B. and above       Welded and flanged

b) Galvanised Steel Tubes

50mm N.B. and below       Screwed sockets
65mm and above             Screwed flanged or welded flanged (galvanised after manufacture)

C) Light Gauge Copper Tube

50mm and below            Capillary fittings
65mm N.B. and above       Bronze or Autogenous welding

Steel sockets shall comply with BS1387. Copper capillary joints shall comply with BS864 and copper compression joints shall be of the non manipulative type to BS864 type “A”.

Flanges of up to 65mm bore shall be screwed or welded to pipework and before expanding to seal, welded around the hub. Flanges of 65mm bore and over shall be back and bore welded to the pipework.

The Contractor shall ensure that all soldered joints on copper capillary fitting are carried out to the manufacturers recommendations. Both copper tube end and inside of fitting shall be thoroughly cleaned, with wire wool or similar, prior to jointing to provide complete capillary action.

All soldered joints shall be made using manufacturers recommended cleaning and jointing fluxes, and solder type. All fluxes and solder used shall be applicable to the type and pressure rating of system/service on which they are used.

The Contractor shall ensure that following soldering, all jointing flux is thoroughly cleaned and removed for pipework and fitting, to prevent any corrosion or discolouring.

The Contractor must take care to provide copper joints which are suitable for the maximum working pressure and temperature of the service for which they are to be used. All fitting for copper tube must be proof against dezincification.

All surplus jointing materials shall be cleaned off at the time of making the joint. The Services Consultant shall require the remaking of any joint not considered correctly made and/or cleaned in accordance with this specification.

The Contractor must ensure that any jointing compound used is suitable for the material being conveyed. This is of particular importance with regard to gas and oil services.

3.13.5.12 Welding

Before commencing welding on the site, evidence shall be produced proving the competence of the welder to execute the work required. Such evidence shall be by way of a certificate of competency issued by the Association of Heating, Ventilating and Domestic Engineering Employers.

The Contractor shall ensure that all welders used on the contract hold a current Grade “A” Certificate issued by the Heating and Ventilating Contractors’ Association/National Joint Industrial Council and shall produce such a certificate on demand.

Oxy-acetylene welding shall be carried out in accordance with the standard recommended by the Association of Heating, Ventilating and Domestic Engineering Employers.

Arc welding shall be carried out in accordance with the standard recommended by the Welding Research Council and/or British Standard Institution.
All welding shall be carried out to no less than the standard laid down in "Welding of Mild Steel Pipework 1970".

The manual relates to welding of low carbon steel pipework and provides for standards for water and steam pressures up to and including 17.2 bar and/or temperatures up to and including 22°C.

Welding rods shall be good quality and for copper pipework welded joints are to be made by the Oxy-acetylene bronze welding process, using "Phosphor Bronze" rods and fluxes as recommended by the rod manufacturers.

Pipes shall be properly aligned and spaced before the weld is commenced and be held in position whilst welding by jigs or tack welds. The distance between the centres of any two adjacent branch welds shall not be less than twice the diameter of the larger branch.

The hole in the main pipe shall be equal to the bore of the branch. All loose scale and oxide shall be removed from the inside of the main before the branch boss is welded into position. Generally sweep branches shall be made except for tees on headers and as excepted for sweep tees in the foregoing clause.

Pipework shall generally be machine cut but where pipes are cut by flame, all oxide shall be cleaned off with a file, grinder, or hammer and chisel and all irregularities on outer edges shall be removed by filing, to satisfaction of Services Consultant.

All joints other than those specified shall be butt welded, and pipe ends shall be correctly prepared for same as recommended in previously noted regulations. Such butt welds shall completely fuse the walls of the pipe without leaving notches at the edges or undercutting at the sides of the weld on the external surfaces.

The finished surface shall be slightly convex and where one weld joins another there shall be no bump. Internally there shall be complete penetration and root fusion with a bead more than one half of the thickness of the end tube.

Where branches are to be welded in, the ends of the branch pipes shall be correctly shaped to the main pipe and the hole for the branch pipe cut in the main shall be to the full diameter of the branch pipe and be executed with the aid of a template.

Pipes out of alignment shall, where possible, be produced by fire made sets and under no circumstances shall pipes be joined by welding when more than 5° out of alignment. Sleeve type welded joints will not be permitted.

Branches welded in shall not be less than an angle of 60° to the main pipe or shall be made using manufactured branch swept shoe fittings accurately profiled to fit the main.

The opening in the main shall be correctly shaped to coincide with the branch and both pieces shall have bevelled edges. All burrs shall be removed before welding is commenced and the branch piece shall not project into the bore of the main. Bends shall be factory made or produced by fire-sets; cut and shut and lobster back method shall not be acceptable. Factory made reducers are to be used and no improvisation in producing a reduction in the diameter of pipes will be permitted.

The Services Consultant shall be at liberty to order the cutting out of up to 2½ % of the welded joints for inspection and test, without cost to the employer, or not less than two welds from each of the welders used on project.

Specimens shall be cut from the work at the Services Consultant's direction and subjected to visual examination and bending tests. Work which, in the opinion of the Services Consultant, is defective, shall be rewelded at the Sub Contractor's expense.
Defective work shall be considered to include work which, in the opinion of the Services Consultant, has not been satisfactorily prepared, nor achieved complete penetration, or is found to be unsatisfactory under bending tests, or unsatisfactory in any other way. The Services Consultant shall nevertheless reserve the right to order further tests, at no cost to the Employer, if it is found that any welded sample inspected fail to comply with the full requirements of the specification.

Non-destructive weld testing may also be considered by the Services Consultant instead of cutting out on certain welds. Such tests may be required by the Services Consultant, at no additional cost to the Employer, should, in the opinion of the Services Consultant, an unreasonably high percentage of welds fail test.

The Services Consultant may call upon the Sub Contractor to:

a) Demonstrate the quality of the Welders work according to BS2645 Part 2.

b) Submit samples for further examination.

No welding shall be carried out under the following conditions:

a) When surfaces of materials are wet.

b) In rain or high wind.

c) When the temperature of the parent metal is 5°C or below.

3.13.5.13 Pipe Brackets, Supports Etc

All necessary hangers, brackets, rollers, guides, anchors and supports for the piping are to be provided of approved purpose made types and manufacture. The spacing, details and types are to be agreed with the Services Consultant and as specified herein under. Supports are generally to be of black steel or malleable iron for steel piping, galvanised for galvanised piping, and brass, copper or gunmetal for copper tubing.

Support shall allow adequate movement for expansion and contraction and shall be forged. Special brackets and supports shall be permitted where necessary, subject to their approval by the Services Consultant.

Vertical rising pipework shall be supported at the base or as indicated to carry the total weight of the riser. Branches from risers shall not be used as a means of support.

All heavy valves and similar fittings shall be provided with suitable brackets or hangers.

The method of securing the brackets, hangers or clips to the structure shall be as agreed with the Structural Engineer. Where fixing to solid concrete structure set anchor fixings shall be used, the hole in the structure being drilled by the correct size of bit for the anchor used.

Where brackets are to support insulated pipe close to the structure sufficient clearance is to be provided between the pipe and the structure to allow insulation and vapour sealing to be applied.

Pipework mounted horizontally above false ceiling and similar positions shall be supported on R.S angle or channel supports hung from drop rods at either end. Pipework shall be supported to allow for expansion and contraction, without stress being applied to other equipment (i.e. boilers, valves, fan coils, etc). Heating pipework shall be suitably anchored, and guided to meet manufacturers requirements, and to Services Consultants satisfaction.
Where pipework expansion is provided by expansion loops, the brackets, supports and installation shall be such as to allow full lateral and longitudinal movement, without placing excess strain or stress on pipework, fittings, connections, brackets, etc.

The 'U' bolts around heating, chilled water and H.W.S pipework shall have a minimum clearance of 1/16". Brass or sheet lead bearers shall be provided where copper pipework rests on steel supports, with brass 'U' bolts, or copper flat iron straps around the pipework.

The diameter of the rods from which 'U' bolts shall be made is as follows:-

- 32 mm bore pipework and under: 3/8" 10mm
- 40 mm and 50 mm pipework: 1/2" 12mm
- 80 mm to 125 mm pipework: 5/8" 15mm
- 150 mm bore pipework and above: 3/4" 18mm

Where horizontal support brackets are impracticable or inexpedient, steel pipes shall be supported by malleable pipe rings, or fabricated steel, made in halves and secured by bolts or screws. Calliper hooks shall not be permitted.

The support rods for the pipe rings shall be bolted to cleats fixed to the under-side of the floor slab, as previously described. Copper pipework may also be supported in a similar manner but the ring clips shall be made from brass.

Where pipework up to 50 mm bore is fixed to solid walls, brackets may be of the screw-on or long shank built in type, except where the walls are plastered when only the long shank built in type shall be used. For fixing to woodwork and light weight partitions or walls they shall be screw-on pattern and may be adjustable two-piece type.

Brackets for mild steel pipework shall be mild steel or malleable iron, and brackets for copper pipework shall be brass or gunmetal. The upper half of the pipe clip shall be detachable without disturbing the fixing.

Chilled water brackets shall be complete with hard wood blocks, the same thickness as insulation, and galvanised steel sleeve to maintain continuous vapour barrier.

Individual suspended pipes or group support pipes on steel channel or angle, or unistrut etc., shall be supported by drop rods/studding. All drop rods/studding shall be mild steel, either galvanised or plated, and shall be complete with securing and locking nuts and washers. The drop rods/studding shall be of sufficient size and strength to cater for particular service/system in which they are installed.

The diameter of drop rods/studding for supports shall be not less than the following:-

- Individually Supported piped up to 20mm: 6mm studding
- Individually Supported piped up to 100mm: 10mm studding
- Individually Supported piped up to 200mm: 12mm studding
- Group Supported pipes up to 4 No.: 10mm studding
- Group Supported pipes up to 8 No.: 12mm studding

The spacing of support shall not exceed the centres given in the following:-

A) SUPPORTS FOR STEEL PIPEWORK

<table>
<thead>
<tr>
<th>TUBE SIZE (mm)</th>
<th>INTERVALS FOR HORIZONTALS RUNS</th>
<th>VERTICAL RUNS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BARE m</td>
<td>LAGGED m</td>
</tr>
<tr>
<td>15</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>20</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>TUBE SIZE (mm)</td>
<td>INTERVALS FOR HORIZONTALS RUNS</td>
<td>VERTICAL RUNS</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td></td>
<td>BARE m</td>
<td>LAGGED m</td>
</tr>
<tr>
<td>15</td>
<td>1.2</td>
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<td>2.4</td>
</tr>
<tr>
<td>108</td>
<td>3.0</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Brackets screwed to walls shall be secured by expanding plugs or other purpose designed fixing devices. Softwood plugs shall not be permitted.

Pipe clips on two or more vertical pipes shall be fixed side by side in line horizontally, and all supports so arranged that each pipe can be removed separately without affecting the adjoining pipework.

No structural steelwork shall be drilled for fixing of brackets or supports.
No concrete (slabs, soffits, walls etc) shall be drilled for fixing of brackets or supports without the Structural Engineers written approval.

"Redhead" or other equal and approved type bolts may be used for fixing pipe supports to underside of floor slabs subject to the Structural Engineers approval. The bolts shall be adequately sized to take the load to be supported. Special brackets/supports shall be included by the Contractor to suit detailed structural requirements and requirements of the tender documents.

Pump Suction and Discharge lines shall be adequately supported, and so arranged that no weight or stress is imposed on the pump connections under any working conditions, and shall be such as to not bypass any anti-vibration or flexible connection provisions installed.

A minimum clearance of 25mm shall be allowed between pipes, and where pipes are insulated, this clearance shall be maintained between the finished surface of the insulation to each pipe.

Insulation binding pipes together shall not be permitted.

All brackets, supports, channels etc. located external to the building be hot dipped galvanised after all holes have been drilled.

3.13.5.14 Provision for Expansion

Due allowance and adequate provision shall be made for the expansion and contraction of the pipework, whether indicated on the tender/contract drawings or not. Branches from the main pipe runs shall be installed so that expansion can take place without unduly stressing the welds or pipe fittings, and supports shall be designed to allow the correct expansion of the pipework.

This particularly applies to branches from main pipes in the vertical pipe ducts. Provision for expansion by means of bends, extended runs, etc, shall be made before connecting to the vertical pipes.

Where expansion cannot be taken up by changes in direction of pipework, bellows or articulated expansion joints shall be provided. These shall be selected and installed in accordance with the manufacturers’ instructions.

To ensure correct expansion of pipework, special mild steel anchor brackets shall be provided where necessary.

These anchors shall be rigidly fixed to the building structure and to the pipework. Distortion of the pipe runs shall be avoided. Anchor brackets shall be of similar materials to that of the pipework.

All anchor brackets, special fixing details, and fixing to structure shall be agreed and approved by the Structural Consultant and Services Consultant prior to manufacture. All bolts, washers, fixings etc, shall be of sufficient strength and of correct type for the type of installation in which they are installed.

Pipe guides shall be fitted both sides and adjacent to each bellows expansion joint, and also at intervals along the pipe runs to avoid buckling and distortion, to meet manufacturers requirements.

Details of all expansion and anchorage arrangements including guides shall be submitted to the Services Consultant for approval.

3.13.5.15 Pipe Sleeves

Each pipe passing through a wall, or floor, shall pass through a sleeve cut from a length of mild steel or copper pipe to suit the material of pipework to which it is fitted, and built
into the wall or floor. The sleeves shall finish not less than 2 mm proud of the finished face of the plaster or finished surface. Sleeves fitted to pipework passing through plant room floors, (or similar) shall finish not less than 80 mm proud of the finished floor level.

The annular space between the pipes and sleeves shall be adequately caulked with fire proof material to meet Building Regulation and Fire Officers approval, and to reduce noise penetration to maintain same sound reduction as main structure.

In non fire walls, the annular space between the sleeve and pipe shall be adequately caulked with material to maintain the same sound reduction of the wall/floor through which the pipe passes and still allow free movement of the pipe.

Sleeves shall be of sufficient size to allow free movement of pipes and furthermore where pipes are insulated the sleeves are to be oversized to allow the insulation (and vapour barrier where applicable) to be carried through the sleeves in accordance with the requirements for such insulation detailed elsewhere in this specification. The annular space then to be caulked as above.

The Sub Contractor shall provide puddle flanged sleeves for building into retaining walls for incoming gas and water mains and all other utilities or services forming part of his works.

All pipe sleeves where exposed shall be fitted with approved chromium plated floor and/or ceiling escutcheon plate to Architects and Services Consultants approval. These cover plates must not be affixed to the pipes but only to the sleeves or to the building fabric. These must be submitted for approval before fixing.

3.13.5.16 Air Venting

On all circulating water services at points where air is liable to collect, automatic air vents with isolating cock, shall be fitted unless the use of air bottles and manual air cocks is approved by the Services Consultant. Discharges shall be run to suitable non-hazardous positions. Pipework shall be arranged to avoid the need for such air vents as far as practicable.

3.13.5.17 Drain Piping

Drip piping from pump glands or other machinery shall discharge to a copper tundish and a drain pipe of suitable size shall be run from there to the nearest gully.

All changes of direction shall be made with square plugged tees or crosses to permit rodding, and unions shall be provided to each 3m of length.

Drip and drain piping shall be in copper tube.

Boiler, cylinders and other vessels shall be provided with emptying gland cocks, with loose keys delivering to common drain pipe not less than 25 mm diameter, which shall have a visible discharge to sump or gully.

Alternatively, if approved by the Services Consultant, a hose union may be provided to the drain cock.

Valved dirt pockets shall be provided at base of each flow and return riser positions and as indicated on tender/contract drawings. These shall be not less than line size up to 32mm bore, and line size with 32mm drain valve 40mm and above. Dirt pocket shall not be less than 300mm long, with isolating gate type valve with capped or flanged end to suit pipe size. Dirt pockets shall also be formed in the connecting flow pipework to all A.H.U. coils and H.W.S. cylinders.

3.13.5.18 Painting and Polishing

Unless specified to the contrary in Section 2/1 of this specification (Particular Specification) all decorative painting and finishing of services shall be by others.
The Sub-Contractor shall however be responsible for painting with two coats of red oxide primer, immediately after installation all black tube and fittings, non finished brackets and supports and all ferrous materials supplied and installed as part of the contract.

The touching up of all damaged galvanising on pipework and fittings (bare threads, Stilson marks etc) with two coats of galvafroid paint shall be included by the Mechanical Contractor.

After priming with red oxide, all gas pipework and fittings, excluding valves and supports shall be painted with two coats of yellow ochre gloss paint to colour BS4800 Code 08C35, so as to give a solid colour. Any streaking or bleeding through of the primer colour, will result in the Sub-Contractor applying one or more coats of yellow ochre, to the satisfaction of the Services Consultant, at no additional cost to the contract.

3.13.5.19  Use of Dissimilar Metals

The Sub Contractor shall ensure that dissimilar metals that will promote chemical or electro-chemical action, causing a weakening or failure, are not included within any system, either in contact or at a distance.

3.13.5.20  Pipework and Electrical Services

The Sub Contractor shall ensure that pipework is not located above or directly adjacent to any electrical switch or control panel and any pipework so erected will be removed and re-routed at the Sub Contractor's expense.

3.13.6   VALVES, COCKS, STRAINERS AND GAUGES

3.13.6.1  General

All valves, cocks, etc, installed for the work specified herein shall be of the best quality and made by approved Manufacturers, and be suitable for the type and pressure rating of service/system installed.

It is important that the Sub Contractor includes for all necessary valves for the proper completion, working, isolation and regulation of all services and equipment and elsewhere where necessary, whether detailed on tender drawing or not, and they are to be suitable for the duty in question.

Generally, isolating valves shall be fitted to all items of plant including heaters, coolers, air handling units, chillers, pumps etc.

Regulating valves shall be fitted on branch lines, by-passes etc. where regulation of flow is required for balancing the system.

Unless agreed and approved by Services Consultant, valves shall not be bolted together, spacer sections shall be installed to allow correct installation of valves and securing bolts, nuts etc.

Valves provided shall, where ever practical, be provided by one common manufacturer, subject to design and installation conditions, to the approval of the Services Consultant. Valves shall be installed in such a manner as to ensure no undue forces or stress are placed on the valves.

All isolating valves are to be fitted with hand wheels which shall have direction arrows "open" and "shut" cast into wheel, and all regulating valves with lockshields, with dust caps.

3.13.6.2  Pipework Valves All Types

a) Isolating Valves with Hand Wheel (I.V.)  Typical Valve References
Up to and including 50 mm - Bronze, ends screwed B.S.P.

65 mm and over, cast iron - Flanged to PN10 or equal

b) Isolating Valves with Lockshield (L.S.V.)
Up to and including 50 mm - Bronze, ends screwed B.S.

65 mm and over

Orifice valves (O.V.)
Commissioning Station (C.S.)
Up to and including 50 mm - Bronze, screwed ends B.S.P.

65 mm and over - flanged cast iron

d) Double Regulating Valves (D.R.V.)
Up to and including 50 mm - Bronze ends screwed B.S.P
65 mm and over, ends - flanged to PN16 or equal

e) Terminal Valve Connectors and Fan Convector Units
Up to and including 32 mm - ends screwed B.S.P.
Flow - Isolating As Item a)
Return & Isolating As Item d)

f) Non-Return Valves (N.R.V.)
Up to and including 50 mm - Bronze, ends screwed B.S.P.
65 mm and over, - cast iron

g) Automatic Air Valves (A.A.V.) - with Lockshield Valve

h) Drain Valves (D.O.C.)
With hose union connection - bronze, ends screwed 1/2" B.S.P.
20 mm and over, with hose - union connection, bronze, ends screwed B.S.P.

i) Safety Valves (S.V.)
Totally enclosed spring loaded with padlock and key suitable for pressure rating of system.

Discharge pipe from valves shall terminate approximately 300mm above floor level, in a non-hazardous location with mitred end.

j) Stopcocks (S.C.)
Up to and including 54 mm - double union copper x copper gunmetal to B.S. 1010/1969
76mm and above - brass stopcock to BS1010.

k) Strainers
These shall be of the bronze inline ‘Y’ type up to 50mm and cast iron bucket type 65mm and above and shall be installed as shown on the contract drawings as detailed. They shall be complete with gunmetal or similar straining mesh of suitable size, compatible with service/system in which they are installed, complete with integral pressure tappings and hose union draincock.

l) Ball Type Valves
On 15mm and 22mm copper pipework ball type valves may be installed on heating circuits for balancing and isolation only where indicated on tender/contract drawings. These shall be copper compression end jointing type only, installed as indicated. These valves supplied with B.S.P. connection will not be permitted.

m) Radiator Valves
All radiators, convectors etc., shall be provided with angled or straight radiator valves, 15mm or 22mm hand wheel on flow, lockshield on return. Exposed valves shall be polished bronze or chromium plated, as indicated on tender/contract drawings.

3.13.6.3 Flexible Connections
Flexible couplings shall be fitted to all pump suction and discharge connections, water chillers, dry coolers and general centrifugal or reciprocating equipment.

Couplings shall be line sized, made from a multi-ply nylon fabric carcass with wire reinforced collars and liners designed to suit the fluid conveyed and the working and shock temperatures/pressures that will be experienced in the various systems.

Up to 50 mm - Engineering Appliances screwed to BSP to suit working pressure and temperature, or equal and approved.

65 mm and over - Engineering Appliances flanged to appropriate BSS type and over ‘S’, or equal and approved.

Note: on flanged connections, face of flange should be ground flush and nuts, bolts and washer installed in accordance with manufacturers requirements, with spacer pieces either side of flexible connection.

During testing, the Contractor shall ensure that flexible connections are removed to avoid damage to the unit.

3.13.6.4 Pressure Gauges and Thermometers
This Section refers to local direct mounted instruments used throughout the installation.

The Contractor shall provide a mild steel or polished wood gauge board for mounting each set of gauges which shall be wall mounted in an accessible position.
A) Pressure Gauges

These shall be provided and installed on pump sets (suction and discharge) and on all other items of plant (boilers, chillers, etc.) and equipment (flow and return), and shall be dial pattern of the bourdon tube type calibrated in kilo pascals and pounds per square inch. The working pressure shall be indicated on the dials by red lines. The casing of the gauges shall be finished in matt black and shall be complete with isolating cocks and syphons.

B) Thermometers

Thermometers shall be provided and installed on flow and return connections on all plant and equipment (boiler, chillers, pump circuits, etc.) and on all return branches of circulation systems.

They shall be the mercury in steel type and bulb or where required of the rigid stem pattern. The thermometers shall be finished in matt black and shall be suitably calibrated in degrees centigrade 150 mm (6") diameter dial type.

The pocket of the thermometer shall be positioned in the pipeline so as to accurately measure the contents.

Where thermometers are fitted along the axis of a pipe, the pipeline size shall be increased for 500mm either side of the pocket, in accordance with the following table.

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Increased Size</th>
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<tbody>
<tr>
<td>15/15</td>
<td>25/28</td>
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<tr>
<td>20/22</td>
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<tr>
<td>50/54</td>
<td>No increase and above</td>
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</tbody>
</table>

C) Capillary Tubes

Capillary tubes shall be of copper and shall where possible be collected together and in all cases be neatly fixed and run in cable trays supported by the building structure.

3.13.6.5 Radiator Valves

All radiator connections shall be fitted with angle wheelhead or lockshield valves. Radiator return connections shall be fitted with thermostatic control valves, where called for in the contract drawings.

3.13.6.6 Valve Labels

All valves shall be provided with engraved laminated black on white plastic labels with the valve number and service engraved thereon, securely fixed in an approved manner.

3.13.6.7 Completion

On completion of the various systems and prior to handing them over, all valve glands shall be systematically tightened as necessary and re-packed if required.

After this has been completed, the Contractor shall hand over to the building owner two complete sets of all necessary lockshield, air vent, drain and plug cock keys and wrenches.

Test point tappings shall be provided on the flow and return connections at the following locations:-
Main plant items (either side boilers, pumps, water chillers, dry coolers, computer room A.C. units, etc.)

Water Coils (inlet and outlet)
Control Valves (all ports)
Strainers (inlet and outlet)
Orifice Valves (inlet and outlet)

Test points shall be of the type as manufactured by "Binder Engineering Co. Limited" or equal and approved. They shall be fully suitable for the pressures, temperatures and water systems encountered.

When these test plugs are installed in insulated pipework, the pipework system shall be extended beyond the thickness of the insulation.

These test points should not be installed on the underside of the pipework or any other location in which sludge or debris could interfere with the pressure readings being obtained.

One set of 100mm dial thermometer and pressure gauges, suitable for use with the test points, shall be provided in each plant room.

### 3.13.7 HEATING APPLIANCES

#### 3.13.7.1 Fan Convectors

Ratings stated shall be actual outputs as obtained from tests carried out in accordance with the Standard Codes for Testing and under the design conditions stated.

Convectors shall be provided with air cocks accessible without dismantling any part of the casing.

Fan assisted convectors shall have casings lined with sound absorbent material.

Motors shall be of two speed or multi-speed type with a maximum speed not exceeding 720 rpm and mounted on sound insulating material. They shall be single or three phase as necessary for their duty.

Equipment shall be inaudible under normal working conditions.

#### 3.13.7.2 Electrical Connections

Each fan assisted convector shall have a fuse spur box connection. A maximum of six units may be grouped on one electrical circuit subject to the load, but no more than two controlled by one switch or thermostat. All fan convectors shall be fitted with L.W.T. cut out thermostat.

#### 3.13.7.3 Valves

Each appliance or continuous run of convectors shall be provided with a control valve with union and non-metallic wheel handle on the flow connection and lockshield valve with union and dust cover on the return connection. Valves which will be normally visible shall be chromium plated.

### 3.13.8 VENTILATION DUCTWORK AND PLANT

#### 3.13.8.1 Air Quantity

Unless otherwise stated, duties given shall refer to a temperature of 20°C and an air pressure of 101.325 KPa.
If for equipment such as heater batteries, filters, silencers etc, alternatives from those specified are approved and the circuit resistance is thereby altered, the Mechanical Contractor shall make such adjustment as necessary to the fan speed (or fans), motor size accordingly, and also to comply with the Mechanical contractors working/installation layouts.

3.13.8.2 Air Speeds

Air velocity at the minimum area of discharge of a centrifugal fan shall not exceed 9 m/s.

The tip speed of propeller type fans shall not exceed 10 m/s.

Fan inlets and outlets in exposed positions shall be fitted with wire guards. Propeller type fans in exposed positions shall be shielded with safety guards. Wire guards shall be fitted to pulleys and drives of belt-driven fans.

3.13.8.3 Fan Guards

Fans installed in roof plant rooms shall be provided with discharge ducts, weathering aprons, skirts, flashing plates, and cowls.

Main air intakes and discharges shall be provided with bird guards and louvres as necessary to prevent ingress of rain and vermin.

3.13.8.4 Filters

Where unit or cell type filters are specified spare cells amounting to 100% of the number installed shall be supplied.

An indicator calibrated in inches w.g. shall be provided to show pressure drop and shall be marked to indicate when replacement or cleaning is necessary.

3.13.8.5 Heater Batteries

Ratings stated shall be actual outputs under the design conditions stated. Adequate access shall be provided for cleaning, and for removal.

3.13.8.6 Ductwork

The Contractor shall be required to supply and erect ductwork and associated equipment in such positions and in such order as is necessary to comply with the main contractor's programme of works e.g. where ducts are built in false ceiling and void spaces with outlets to rooms adjacent, it shall be necessary to erect part of the ducting, leave whilst false ceilings, partitions etc., are completed, and return to complete ducting, fix grilles and other items, and complete the installation.

Mild steel sheet metal ducts exposed to outside weather conditions shall be of at least 16 gauge mild steel, galvanised after manufacture. Where ducts pass through walls, they shall have 25mm space on four sides packed with suitable approved material to allow movement of ducts, but to be airtight and prevent transmission of noise from one room to another.

Bends on ductwork shall have a throat radius of at least one half the duct width, but where this is impossible, turning vanes shall be fitted. Turning vanes shall be purpose made double thickness aluminium sheet complete with top and bottom plates for fixing to the duct and be smooth and free from burrs. Transformation and taper sections shall be constructed where possible so that the angle on any side does not exceed 15 degrees to the axis of the duct.

Sharp edges or corners on ductwork, flanges and supports shall not be permitted.

All ductwork shall be suitably stiffened to prevent distortion or drumming. Mild steel angle flanged joints shall be provided where necessary for site joints, etc., and shall have two layers of suitable gasket material between each joint. Mild steel angle stiffeners and
flanges shall be sealed with suitably approved jointing compound and 50 mm wide adhesive duct sealing tape.

Slip joints shall be used with small sectional ductwork, length of inserted sections shall be not less than 50mm and the spigot carefully sealed circumferentially to act as a stiffener and a register for the female end, and shall be fitted so that the male end of the joint is facing downstream to the air flow.

Joints shall be sealed with an approved semi-liquid bedding and jointing plastic compound. Joints in large ducts shall be made with mating flanges secured and sealed to ductwork with gutter bolts. Flanges shall be of the sizes indicated on Table X and edges of sheet metal are to be rolled over the corner of the angles.

All ductwork shall be adequately stiffened and braced by means of flats or angles bolted to ducting and, where necessary, angles shall be extended and drilled for hangers, or alternatively where ducts (e.g. in plant rooms) are near floor, the stiffeners may be extended to form feet, which shall be adequately cross-braced and provided with bottom cleats to give a bearing on the floor.

Site joints other than angle joints when ever possible shall be looped rivetted. Elsewhere site joints, including flanged joints, shall be made with gutter bolts; heads of bolts beyond, nuts on outside of duct to be nipped off flush where visible.

The Contractor shall allow for setting up each range of ductwork at works for checking of assembly and for marking each individual mating.

Ends of sections where connecting to grilles, etc, shall be flanged or shaped according to the connection required. Sharp edges or corners on ducts, associated equipment, supports, angle stiffeners etc. shall not be permitted, and these shall be removed to the satisfaction of the Services Consultant. All cut edges shall be painted with aluminium paint.

Open ends of ducts shall be covered during erection to prevent ingress of dirt and rubbish.

All dimensions shall be checked on site and fabrication drawings shall be submitted to the Services Consultant for approval before manufacture is commenced.

Supports and brackets for the ductwork shall be of mild steel, provided at least every 3m or less if otherwise required by DW142, to give adequate support, be adjustable for height, painted one coat of red oxide before and after erection all to the approval of the Services Consultant. The Contractor is to allow for supporting the duct hangers from the underside of concrete slabs the method to be agreed at a later date with the Structural Engineer.

The ductwork shall not be supported from the false ceiling under any circumstances. Nuts and bolts shall be zinc/cadmium plated or Sherardized. Pop-rivets shall be unacceptable.

Galvanised 12 mm square mesh bird wire grilles shall be provided on all intake and extract ductwork and louvres to atmosphere.

Access doors shall be provided on both sides of all major plant equipment, at intervals of 10 metres on all main ducts for cleaning and internal inspection, and for access to all fire dampers, filters, etc. Doors shall have slotted hinges and substantial clamping handles and provided with rebate housing jointing material so as to make an airtight joint when closed, with either an insulated door panel or recess for insulation on supply air conditioning ductwork.

Size of door shall be as large as possible, to suit size and form of duct, but to ensure adequate access to fire dampers etc.
Circular access doors for cleaning purposes or small duct test holes with covers are to be provided where necessary. Covers to bed down on rebate housing jointing material stuck to duct.

The Mechanical Contractor shall allow plugged sockets on ductwork in positions to be agreed for insertion of portable thermometers, pitot tubes, etc.

All air ductwork passing through floors, walls etc., shall be provided with sleeves and the space between the ductwork and sleeve shall be packed with suitable sound insulating and fire proof material to ensure the noise is not transmitted to other areas.

a) Low Velocity Ductwork

All low velocity ductwork shall conform in all respects with and shall be constructed from strip mill cold reduced sheet continuously hot dipped galvanised to BS2989 : 1967, Group 2 Class 2A.

b) High Velocity Ductwork.

Ductwork shall be constructed from strip mill cold reduced sheet continuously hot dipped galvanised to BS2989 : 1967, Group 2.

Leakage tests to Class "C" shall be carried out by the Contractor who will provide the necessary test equipment. The test pressure shall be 250N/m² above the fan static pressure maintained for 15 minutes. The total leakage shall be less than 1% of the system design volume flow rate. Audible leaks will not be permitted.

3.13.8.7 Flexible Ductwork

The Contractor shall provide and install on connections to terminal fittings, lengths of flexible ductwork, capable of withstanding the air pressure of the system in which they are installed. The type of flexible ductwork shall be to the approval of the Services Consultant and Local Fire regulations, and shall be of fire resistant material. The ductwork shall not be stretched and the maximum permitted length shall be 1000mm, which shall be adequately supported.

Jubilee type fixing clips shall be used on each end of the flexible ducts to ensure an airtight joint, complete with sealant.

Flexible ductwork shall always pre-insulated.

3.13.8.8 Flexible Connections

All air handling systems shall be provided with heavy duty fireproof flexible connections of not less than 200mm long, properly secured by heavy duty straps. Similar provision shall be provided in the ductwork distribution networks at building movement joints.

3.13.8.9 Regulating/Balancing Dampers

These shall be provided in low velocity ductwork and in sufficient numbers where necessary to enable regulation and balancing of the various systems. Dampers on grilles or air diffusers shall be used for fine or secondary control only.

All dampers shall be sufficiently rigid to prevent fluttering, and air leakage past dampers in the fully closed position shall not exceed 5% off the maximum design air flow in the duct.

All dampers shall be fitted with locking device and position indicator showing 'Open' and 'Closed' position and shall be in accessible positions.

Multi-leaf aerofoil dampers shall be fitted in all rectangular ducts 300mm and above and single skin blade dampers in rectangular ducts below 300mm.
Iris dampers shall be fitted to circular ducts.

After final testing and adjustment, all dampers shall be clamped in correct positions which are to be marked on the quadrant in a permanent manner and stops fitted.

3.13.8.10 Fire Dampers

Fire dampers shall be provided on all ductwork passing through fire break walls, builder’s work shafts and in fire/cavity barriers above false ceilings, as indicated on the Tender/Contract Drawings.

Fire dampers shall be of the folding shutter type and the blades shall be constructed of stainless steel contained within a casing made from galvanised mild steel. The shutters shall be outside the air flow so as not to reduce the cross sectional area of the duct and air flow.

All dampers must be capable of operating in the vertical or horizontal position and shall be operated by a stainless steel Tensator type spring.

All fire dampers shall be held in the ‘open’ position by a fusible link set to break in the event of the air temperature rising to 65 °C. The fusible link shall be capable of being replaced and the damper tested and reset from both the upstream and downstream air sides, through access door/panels provided in connecting ductwork.

Fire dampers shall have a two hour fire rating as manufactured by "Actionair" or equal and approved.

Fire dampers shall comply in all respects with the requirements laid down in BS476 Part 8 and also to the requirements of the Local Authority.

Fire dampers shall be supplied with building-in frames, to ensure correct installation and to allow for expansion movement.

3.13.8.11 Motorised Dampers

Motorised dampers shall be provided as indicated on the drawings.

3.13.8.12 Test and Control Holes in Ducting

Test Holes for plant and system commissioning shall be provided on the downstream side of each supply fan and upstream side of each extract fan and at other positions in the ductwork system to be agreed on site with the Services Consultant. Test holes will also be required on all air handling units to allow test readings to be taken across each item of equipment i.e. cooling coil, heater battery, filter, silencer etc.

Test Holes shall be in accordance with Specification DW/142 of 25 mm diameter and fitted with an effective removable seal.

Brass screwed pockets and/or bosses for pipe and ductwork mounted thermostats and controls shall be provided as specified herein.

3.13.8.13 Electrical Equipment

Unless otherwise indicated, motors shall be wound for three-phase, rated for continuous operation and controlled by approved triple pole contactor starters as specified later.

All electric motors within the plant enclosures to be of totally enclosed pattern. It should be noted that motors within the open roof plant room areas exposed to the atmosphere must be of fully weatherproof construction (not drip proof). All wiring details and diagrams shall be supplied to other sub-contractors for their information.

All electrical equipment shall comply in all respects with the "Regulation for the Electrical Equipment of Building - 17th Edition", BS 7671: 2008 as published by the Institute of Electrical Engineers.
3.13.8.14 Steel Boiler Flues

To be stainless steel double skin flue with insulated lining, Sygrams, Selkirk Metalbestos or equal/approved, complete with fittings, supports, connections, flashing plates, sleeves, weathering cowls, terminals etc., to provide complete natural draught. Disposal of boiler combustion products in accordance with Local Authority regulations and requirements, and flue terminal in accordance with the boiler manufacturers requirements.

3.13.9 TESTING AND COMMISSIONING

3.13.9.1 Procedure

Testing and commissioning shall be as specified under the relevant clauses of Section 1 & 2 of this Specification and the following details clauses.

Subject to any additional requirements stated in the Specification, the following procedure shall be followed:

Note: In sub-clause a) to f) inclusive of this clause the term "the installations" shall be read to include the complete installation or any part of them which it may be required to commission, test, operate etc., as separate entities.

As soon as practicable after the completion of the installation the Mechanical Contractor shall give notice to the Main Contractor that it is required to operate them and shall request the Main Contractor to clean out all plant spaces, builder’s work ducts, sumps, sub-ways and the like, remove all rubbish and generally leave them and the access ways to them in a tidy and finished state.

The contractor shall thoroughly clean and blow out all airways, casings, switchboards, panels, cabinets and other items of plant and equipment, flush all pipework systems and vessels and generally prepare the installations for operation.

The Mechanical Contractor shall check the availability of water, fuel, electricity etc. as appropriate and where necessary shall arrange with other parties concerned for testing to be carried out jointly.

The Mechanical Contractor shall then flush, clean, test, balance and commission the installations and shall generally satisfy himself that they are operating according to the intent and meaning of the Contract.

The installations having been in use for a reasonable time to allow for the observation of results and subsequent adjustment if required, the Mechanical Contractor shall then, by a repetition of the relevant parts of the procedure of Sub-clause d) above, demonstrate to the satisfaction of the Services Consultant that the installations which have been set to work comply in all respects with the requirements of the Contract.

If it is not possible at the time of the demonstration as e) above, to operate the installations under full load conditions or such reasonable approximation of such conditions as may be acceptable to the Services Consultant, the Mechanical Contractor shall repeat the requisite portions of the demonstration under full load conditions at such time(s) as it may be possible to do so.

The procedure for commissioning and testing in accordance with sub-clause d) above shall be agreed with the Services Consultant. The Mechanical Contractor shall similarly agree with the Services Consultant the precise method of carrying out the demonstration and tests called for in sub-clause e) to h) above inclusive and shall, when he has satisfied himself that the installations comply with his requirements of the Contract, give the Services Consultant adequate notice that he is ready to perform the demonstrations and tests. The Mechanical Contractor shall provide all facilities for the Services Consultant or his representatives to witness and check all such tests.
The Mechanical Contractor shall provide all necessary skilled and unskilled labour and also all necessary instruments for carrying out the commissioning and testing.

The Mechanical Contractor shall make complete records of the tests as carried out and when the tests have been successfully completed he shall provide to the Services Consultant test records and reports in a form to be agreed, and incorporated within maintenance documentation detailed elsewhere in this specification.

In cases where the overall building programme is such that the Mechanical Contractor will need to return for the purpose of testing, regulation, adjustment etc., to portions of the buildings which by that time may be in the occupation of the Client, the Mechanical Contractor shall allow in his tender accordingly and shall take all necessary precautions against damage when working in such areas.

The Mechanical contractor shall allow for fully demonstrating to the client, or his representatives, the operation and maintenance of all systems, plant, equipment, etc., to the satisfaction of the Services Consultant. The Mechanical Contractor shall provide all necessary staff, equipment, manufacturers’ representatives, etc., to comply with this requirement.

3.13.9.2 Hydraulic Testing

Upon completion of each suitable section of pipework and as otherwise specified the Mechanical Contractor shall subject the section to a hydraulic pressure test and demonstrate to the satisfaction of the Engineer that the section is sound and watertight.

The test shall be applied by filling the section to be tested with water, venting and raising its pressure to the figure specified hereafter, the whole of the testing gear required being supplied by the Mechanical Contractor, but the water by the Main Contractor.

The section shall then be left without further strokes of the pump and all joints must remain tight for a period of not less than two hours, the decision as to whether or not the section is sound being governed by the rate at which the pressure falls. Completion of a successful pressure test will not relieve the Mechanical Contractor of his responsibility regarding water tightness of pipework systems.

Any fault discovered during the tests shall at once be rectified by the Mechanical Contractor at his own expense and the test re-applied until the Services Consultant is satisfied that the section under test is sound.

On completion of the test the water shall be released and drained completely away as rapidly as possible, the section then being thoroughly sluiced through to ensure the removal of all weld metal, sand, sediments, dirt etc. before being refilled and put into service.

In cases where the installations are commissioned and tested portion by portion, the Mechanical Contractor shall repeat the procedure a) to e) above in regard to each portion of the installations.

The Mechanical Contractor shall finally demonstrate to the satisfaction of the Services Consultant that all the portions of the installations already demonstrated separately are capable of simultaneous operation in accordance with the requirements of the Contract.

The test pressure to be applied to the various services shall be as follows and the pressure gauge readings for these tests shall be taken at the highest points in the respective systems.

LTHW heating, including vents 1.5 times maximum working pressure of system feeds and drains.

Chilled water system, 1.5 times maximum working pressure of system, including vents, feeds and drains.
Gas Mains 2 bars (29 psi) Also to the requirements of the local Gas Authority.

Oil Pipework 7 bars (103 psi)

Ductwork This work shall be pressure tested in accordance with CIBSE recommendations or similar or as may be recommended by the site engineer or his delegate.

The Contractor shall provide to the Services Consultant test certificates in triplicate giving details of each test carried out, including the duration of test and the services on which the test was carried out. The test certificates shall be forwarded to the Services Consultant.

All plugs, caps, tees and drain fittings required to enable the tests to be carried out shall be provided by the Mechanical Contractor.

Boilers, air heater batteries, automatic valves etc., shall be isolated from their respective pipelines during the tests unless the manufacturers of the various items of equipment allow the test pressures stated above. The Mechanical Contractor shall be responsible for making good damage caused to equipment should he fail to take these precautions during testing, 'free of charge' to the contract.

3.13.9.3 Commissioning

Specified performance tests will be required to demonstrate the satisfactory functioning of each system installed and records of these are to be furnished to the Services Consultant. Main systems shall be cleaned, tested and commissioned in accordance with the following standard documents:

- Air Distribution System In accordance with CIBSE Code A
- Boiler Plant In accordance with CIBSE Code B
- Automatic Control Equipment In accordance with CIBSE Code C
- Water Distribution In accordance with CIBSE Code W

3.13.9.4 Results of Tests

If the test results show that the plant and equipment is not installed and/or functioning in a satisfactory manner, the Services Consultant shall decide whether this is due to incorrect or faulty work by the Mechanical Contractor and if this is the case the Mechanical Contractor shall, when called upon, carry out at his own expense remedial measures and/or adjustments as may be required to the Services Consultant’s complete satisfaction. The Services Consultant’s decision as to what constitutes a satisfactory test shall be final.

3.13.9.5 Testing of Materials

The Contractor shall, at his own expense, when called upon, test and prove the weight, structural stamina, thermal duty, output rating, thickness, gauge or any other components of any of the materials proposed to be used on the works at either the manufacturer’s or on his own premises, or when delivered to site before installation, and
shall make all necessary preparation for such tests, providing any cartage, labour and plant required as well as deliver up performance diagrams, certified weight, test pressure certificates, or any such evidence in respect of the required tests. Similarly the Mechanical Contractor shall submit to the Services Consultant, free of charge, any samples of materials proposed for his approval or rejection.

The Services Consultant reserves the right to reject any of the materials offered by the Mechanical Contractor which do not precisely conform in all and every respect to the requirements of the Specification.

Where the requirements of any gas, water or electricity authority call for the submission to them of any component part of the works for approval, testing, stamping or certifying, the Mechanical Contractor shall at his own expense, submit and deliver such component part to a place required by such authority and shall after such component part has been found satisfactorily approved, tested, stamped and certified, return any such component part to the site for incorporation in the works and shall at his own expense, pay to the authorities any charges required by them.

3.3.10 ACOUSTIC & VIBRATION ISOLATION

3.13.10.1 Silencers (Absorptive)

Performance:

Each silencer shall provide an insertion loss under operating conditions of not less than that indicated on the relevant acoustic schedule. Manufacturers shall specify the insertion losses expected from the silencers offered, under the operating conditions, and this data shall be derived from tests carried out in accordance with BS 4781:1971.

Each silencer shall have a pressure loss at the design flow and temperature of not greater than that shown in the schedules. The manufacturer’s quoted pressure losses shall be derived from tests carried out in accordance with BS 4781:1971.

Where the silencer location is known, the supplier shall indicate the expected effect of turbulence due to adjacent duct elements on the quoted pressure losses.

Suppliers of silencers shall provide, with the certified insertion loss data, information relating to the silencer generated octave band sound power levels (125 - 8kHz) at the operating conditions.

Construction:

The outer casing of all duct silencers shall be constructed in accordance with H.V.C.A. specification DW/142 or its equivalent.

Unless otherwise indicated in the schedule, the casing shall conform to the “high velocity” code in DW/142, in terms of its thickness, seams, materials and leakage performance.

All silencers will be fitted with drilled angle flange connections, unless alternative connections are specified in the schedule or by the Mechanical Services Consultant. Flanges should also conform to DW/142 or its equivalent.

Acoustic elements in rectangular silencers of length equal to or greater than 900mm shall incorporate faired leading and trailing edges (not square ends), and the inert, rot and vermin proof, non-hygroscopic and non-combustible mineral wool or glass fibre acoustic medium shall be packed to a density of not less than 48kg/m3 and retained by a perforated steel sheet facing.
The manufacturer will also note any particular requirements, e.g. painting, special materials, etc., that are indicated on the schedule or drawings. Splitters shall be constructed so that no egress of acoustic medium will occur into the gas stream under the operating conditions.

Where acoustic elements form splitters within the silencer, the arrangement will usually be with the splitters vertical and with a half-width splitter fixed to each side wall of the casing. However, it is the responsibility of the supplier to ensure that the parallel splitter elements in the silencer are correctly orientated for the adjacent duct geometry, particularly when silencers are located near bends, bifurcations, etc. Horizontal splitters should be suitably stiffened to prevent flexing and restriction of the airways.

In the case of circular silencers, all internal acoustic elements shall comprise mineral or glass fibre as the acoustic medium, as specified above for rectangular silencers, retained by a perforated metal facing.

When silencers are actually manufactured in modules, each unit shall be shop assembled (unless the Mechanical Services Consultant instructs to the contrary) and this specification, together with the manufacturer’s own guarantee and performance ratings, shall apply to the unit as a whole.

Silencer units shall be delivered to site with blocked ends to prevent ingress of rubble, etc., while on site, and to reduce the risk of damage. The direction of airflow through the silencer shall be clearly marked on the casing.

Silencers for high temperature applications (e.g. generator exhausts, diesel or turbine exhausts, boiler flues, etc.) should have casings manufactured from a suitable gauge steel, with adequate precautions taken to cater for expansion and thermal shock. These internal elements shall be packed with an inert, rot and vermin proof, non-hygroscopic and non-combustible mineral or glass fibre acoustic medium of at least 96kg/m³ density, and faced with a layer of glass fibre cloth behind the perforated metal facing.

For very high temperatures, steel wool or equivalent materials may be used as the acoustic medium.

The silencer sizes shown in the schedules are indicative only, and the supplier may modify these in line with his own standard sizes, provided the acoustic and aerodynamic requirements are met.

It is the supplier’s responsibility to ensure that the Client is advised of the actual sizes being offered, where these differ from the schedules.

3.13.10.2  Silencers (Reactive)

Performance:

All silencers shall provide an insertion loss at the operating temperature of not less than that indicated on the relevant acoustic schedules. All silencers shall have a static pressure loss, under maximum operating conditions, of not greater than that shown in the schedules.

Construction:

The outer casings of all silencers shall be constructed from a suitable heavy gauge steel with all seams and joints continuously welded. Acoustic elements within the silencer shall be designed and constructed with due allowance for differential expansion and thermal shock.

All silencers shall also be fitted with suitable flanges and drain plugs and shall be manufactured and finished with due allowance made for the operating temperatures and environmental conditions.
Silencers shall be delivered to site with blocked ends to prevent ingress of rubble, etc., during installation, and to reduce the risk of damage. The direction of gas flow through the silencer shall be clearly marked on the casing.

The silencer sizes shown in the schedules are indicative only, and the supplier may modify these in line with his own standard sizes, provided the acoustic and aerodynamic requirements are met. It is the supplier’s responsibility to ensure that the Client is advised of the actual sizes being offered, where these differ from the schedules.

### 3.13.10.3 Acoustic Weather Louvres

**Performance:**

All acoustic weather louvres shall provide an insertion loss under the operating conditions of not less than that indicated in the relevant acoustic hardware schedules. In addition, the static pressure loss, under maximum operating duty, shall not exceed that shown in the schedules.

The louvre shall be designed to prevent the ingress of rain, etc., under normally encountered meteorological conditions.

**Construction:**

The louvre frame shall be constructed from a suitable gauge of galvanised mild steel, or aluminium, supporting louvre blades of like material. The acoustic material in the blades shall have a density of 60-100 kg/m³ and be inert, rot and vermin proof, non-hygroscopic and incombustible mineral fibre, faced with mineral fibre tissue and retained on the lower blace face by perforated, galvanised mild steel or aluminium.

When the louvres are actually manufactured in sections, each unit shall be shop assembled as a whole unit (unless the Mechanical Services Consultant instructs to the contrary), and this specification, together with the manufacturer’s own guarantee and performance ratings, must apply to the unit as a whole.

Acoustic weather louvres shall be supplied with an integral bird screen of galvanised mild steel or aluminium mesh, fixed to its internal face (unless otherwise specified). The mesh pitch shall be a maximum of 25mm.

The louvres shall be supplied complete with all necessary fixings, flanges, etc., for fitting into the louvred opening as required.

All gaps between the outside of the louvre frame and the wall or duct shall be made good and sealed with a heavy grout and/or non-hardening, dense mastic.

### 3.13.10.4 Anti-Vibration Mountings

**General:**

Where so indicated in the schedules, the mountings/hangers shall be provided with a positioning or restraining device, which will prevent the equipment position changing if its load changes; for example, during draining down of the equipment or other maintenance.

All mountings shall provide the static deflection, under the equipment weight, shown in the schedules. Mounting selection should allow for any eccentric load distribution or torque reaction, so that the design deflection is achieved on all mountings under the equipment, under operating conditions.

It is the supplier’s responsibility to ensure that all mountings offered are suitable for the loads operating and environmental conditions which will prevail.

All mountings shall be colour coded, or otherwise marked, to indicate their load capacity, to facilitate identification during installation.
Where use of resilient supports allows omission of pipe flexibles for vibration/noise isolation, it shall be the Mechanical Service Consultant's or Contractor's responsibility to decide whether such devices are required to compensate for misalignment or thermal strain.

Enclosed Spring Mountings:

Each mounting shall consist of cast or fabricated telescopic top and bottom housings enclosing one or more helical steel springs as the principle isolation elements, and shall incorporate a built-in levelling device.

The springs shall have an outside diameter of not less than 75% of the operating height, and be selected to have at least 50% overload capacity before becoming coil-bound.

The bottom plate of each mounting shall have bonded to it a rubber/neoprene pad designed to attenuate any high frequency energy transmitted by the springs.

Mountings incorporating snubbers or restraining devices shall be designed so that the snubbing, damping or restraining mechanism is capable of being adjusted to have no significant effect during the normal running of the isolated machine.

All nuts, bolts or other elements used for adjustment of a mounting shall incorporate locking mechanisms to prevent the isolator going out of adjustment as a result of vibration or accidental or unauthorised tampering.

Open Spring Mountings:

Each mounting shall consist of one or more helical steel springs as the principal isolation elements, and shall incorporate a built-in levelling device.

The springs shall be fixed or otherwise securely located to cast or fabricated top and bottom plates, shall have an outside diameter of not less than 75% of the operating height, and shall be selected to have at least 50% overload capacity before becoming coil-bound.

The bottom plate shall have bonded to it a rubber/neoprene pad designed to attenuate any high frequency energy transmitted by the springs.

Rubber/Neoprene-in-Shear Mountings:

Each mounting shall consist of a steel top plate and base plate completely embedded in oil resistant rubber/neoprene. Each mounting shall be capable of being fitted with a levelling device, and bolt holes in the base plate and tapped holes in the top plate so that they can be bolted to the floor and equipment where required.

3.13.10.5 Resilient Hangers

Unless otherwise specified, all resilient hangers shall be of the two element type, having a helical steel spring and a rubber/neoprene-in-shear element securely located in a steel cage.

The clearance hole in the bottom of the cage should allow a lateral movement of the lower hanger rod of at least 15 degrees included angle.

Where hangers incorporate a positioning device, the adjustment system should incorporate a locking mechanism to prevent the hanger going out of adjustment as a result of vibration, or accidental or unauthorised tampering.

3.13.10.6 Plant Bases

A.V. Rails
An A.V. Rail shall comprise a steel beam with height-saving brackets at each end. The steel sections must be sufficiently rigid to prevent undue strain in the equipment.

Steel Plant Bases

Steel plant bases shall comprise an all-welded steel framework of sufficient rigidity to provide adequate support for the equipment. The frame depth shall be approximately 1/10 of the longest dimension of the equipment with a minimum of 150mm.

Concrete Inertia Base

These shall consist of an all-welded steel framework with height saving brackets, and a frame depth of approximately 1/12 of the longest dimension of the equipment, with a minimum of 150mm. The bottom of the frame should be blanked off, and concrete (2300 kg/m3) poured in over steel reinforcing rods positioned 35mm above the bottom.

The inertia base should be sufficiently large to provide support for all parts of the equipment, including any components which overhang the equipment base, such as suction and discharge elbows on centrifugal pumps.

### 3.13.10.7 Acoustic Doors

**Performance:**

All acoustic doors shall provide a sound reduction index (SRI) of not less than that shown in the relevant schedule. Where the schedule refers to a mean SRI, the equivalent SRI spectrum should not be less than that indicated below:

<table>
<thead>
<tr>
<th>MEAN SRI dB (100-3150 Hz)</th>
<th>SRI (dB) at Octave Band Centre Frequencies (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>125 250 500 1k 2k 4k</td>
</tr>
<tr>
<td>30</td>
<td>21 26 30 33 35 36</td>
</tr>
<tr>
<td>35</td>
<td>24 30 35 38 39 40</td>
</tr>
<tr>
<td>40</td>
<td>27 35 40 2 6 47</td>
</tr>
<tr>
<td>45</td>
<td>3 36 44 8 52 4</td>
</tr>
<tr>
<td>50</td>
<td>5 0 0 54 60 60</td>
</tr>
</tbody>
</table>

The manufacturer or supplier of acoustic doors shall guarantee the specified SRI, and ensure that the method of installation does not detract from the guaranteed performance.

Any failure to meet the specification because of faulty design, manufacture or installation, will result in the manufacturer or supplier being held liable for remedial or replacement costs including consequential liability.

**Construction:**

The acoustic doors shall be of hardwood or steel, and be complete with all seals and frames, and with furniture as specified by the Architect.

It is recommended that where a mean SRI equal to or greater than 35dB is required, the door should be of steel construction with double neoprene/rubber compression, or knife-edge, seals to head, jambs and threshold. Double doors should incorporate a central jamb or overlapping leaves to ensure a good seal at the middle joint.
The door fastener or lock should be designed to ensure that the seals operate over the whole periphery of the door.

### 3.13.10.8 Acoustic Enclosures (Modular)

**Performance:**

The acoustic enclosure shall provide in its as-installed condition an overall sound reduction index (SRI) of not less than that shown in the relevant schedule. Full allowance shall be taken of any loss of insulation due to doors, windows, ventilation openings and panel joints. The manufacturer or supplier shall guarantee the specified SRI, and ensure that the method of installation does not detract from the guaranteed performance.

**Construction:**

The enclosure panels shall be constructed from galvanised mild steel sheet at least 1.6mm thick (16swg) or as otherwise specified. The absorbent internal lining shall be faced with galvanised perforated mild steel sheet having an open area preferably in excess of 25%, and the whole panel should not be less than 50mm thick. Provision shall be made inside the panel to prevent settling of the acoustic medium.

Doors, access panels, windows and ventilation duct or electrical cable penetrations shall be treated so as to maintain the specified acoustic insulation of the assembled enclosure.

Demountable sections shall be designed to allow easy dis-assembly and re-assembly by unskilled personnel without affecting the acoustic performance.

The supplier shall ensure that the assembled enclosure is designed and constructed to withstand site operating conditions such as wind and snow loads, roof mounted plant, etc., as appropriate, and if outside, to be suitably weatherproofed.

### 3.13.10.9 Insulation

Based on the required building performance within the framework of the EPBD, the thermal conductivity of the thermal insulation product must be less than 0.044W/mK.

**Verification**

Where the listed criteria for a product are included in a relevant harmonised European standard, under the Construction Products Directive (89/10/EEC), for CE marking, the supplier must provide the information accompanying the required CE marking to demonstrate compliance with the listed criteria.

Where the listed criteria for a product are not included in the accompanying information to CE marking under the Construction Products Directive (89/10/EEC), products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof or a signed declaration will also be accepted.

**Further specifications**

The product will not release or leach out any substances above existing limit values set in the following regulations:

a) Substances regulated in the EU through the Regulation 842/2006/EC on fluorinated gases.

b) Any substances or preparations that are classified according to Directive 1999/45/EC and 67/548/CEE as carcinogenic (R40, R45, R49), harmful to the reproductive system (R60, R61, R62, R63), mutagenic (R46, R68), toxic (R23, R24, R25, R26, R27, R28, R29, R51), allergenic when inhaled (R42), cause heritable genetic damage (R46), danger of
serious damage to health by prolonged exposure (R48), possible risks of irreversible effects (R68) shall not be released.

c) Any substances or preparations that are classified according to CLP Regulation (EC) 1272/2008 as carcinogenic (H350-351), harmful to the reproductive system (H360-361), mutagenic (H340-341), toxic (H300- H301, H310-H311, H330-H331, H411), allergenic when inhaled (H334), cause heritable genetic damage (H340), danger of serious damage to health by prolonged exposure (H372-373), possible risks of irreversible effects (H371) shall not be released.

Verification

The bidder must provide appropriate proof that this criterion is met.
19  SPECIFICATION FOR CERAMIC TILING

19.1  COMPLIANCE - SAMPLE SIZE AND FREQUENCY OF SAMPLING (WHERE APPLICABLE)

19.1.1  Where applicable, sample size and frequency of sampling for compliance shall be established on the basis of standard statistical guidelines.

19.2  COMPLIANCE – TESTING AND CERTIFICATION

19.2.1  Compliance shall be demonstrated through testing and/or certification of products and/or processes as outlined in the ensuing clauses.

19.3  GENERAL

19.3.1  Ceramic tiles shall comply with EU Directive 89/106.

19.4  CLASSIFICATION AND TESTING

19.4.1  The classification of ceramic tiles shall be in accordance with ISO 13006.

19.4.2  The testing of ceramic tiles shall be in accordance with ISO 10545.

19.5  CERAMIC TILES (FLOOR)

19.5.1  Ceramic floor tiles shall be full body, impervious, generally single-pressed, single fired fine gres (first quality).

19.5.2  Ceramic floor tiles shall either be Glazed or Unglazed as indicated in the Bill of Quantities and/or the Drawings.

19.5.3  The specific surface texture (and colour) shall be as indicated in the Drawings or Bills of Quantities and is to be agreed with the Project Manager.

19.5.4  Ceramic floor tiles shall be supplied with all the necessary special pieces, trims and special connecting pieces so as to eliminate any sharp edges. This shall include pieces for skirting, inserts, step tiles of various kinds (eg. Tread, Bullnose and Double Bullnose), L-shaped elements, border tiles, balcony lipping, flutes, ribbings, jollies, ogees, and sill elements.

19.6  CERAMIC TILES (FLOOR) FOR GENERAL AREAS – SIZE AND THICKNESS

19.6.1  The typical floor tile dimensions shall be as indicated in the Drawings or Bills of Quantities and shall be agreed with the Project Manager.
### 19.7 CERAMIC TILES (FLOOR) FOR GENERAL AREAS - CHARACTERISTICS

19.7.1 Ceramic floor tiles have the following characteristics.

#### Table 1 - Floor Tiles for General Areas

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Standard</th>
<th>Limiting Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>ISO 13006</td>
<td>Bla</td>
<td>NA</td>
</tr>
<tr>
<td>Length and Width</td>
<td>ISO 10545-2</td>
<td>+/- 0.6</td>
<td>%</td>
</tr>
<tr>
<td>Thickness</td>
<td></td>
<td>+/- 5</td>
<td>%</td>
</tr>
<tr>
<td>Straightness of Edges</td>
<td></td>
<td>+/- 0.5</td>
<td>%</td>
</tr>
<tr>
<td>Rectangularity</td>
<td></td>
<td>+/- 0.6</td>
<td>%</td>
</tr>
<tr>
<td>Flatness</td>
<td></td>
<td>+/- 0.5</td>
<td>%</td>
</tr>
<tr>
<td>Water Absorption</td>
<td>ISO 10545-3</td>
<td>≤ 0.5</td>
<td>%</td>
</tr>
<tr>
<td>Breaking Strength for tiles</td>
<td>ISO 10545-4</td>
<td>≥ 700</td>
<td>N</td>
</tr>
<tr>
<td>&lt; 7.5mm thick</td>
<td></td>
<td>≥ 1300</td>
<td>N</td>
</tr>
<tr>
<td>Modulus of Rupture</td>
<td>ISO 10545-4</td>
<td>≥ 35</td>
<td>N/mm²</td>
</tr>
<tr>
<td>Deep Abrasion (Unglazed)</td>
<td>ISO 10545-6</td>
<td>≤ 175</td>
<td>mm³</td>
</tr>
<tr>
<td>Surface Abrasion (Glazed)</td>
<td>ISO 10545-7</td>
<td>V</td>
<td>PEI</td>
</tr>
<tr>
<td>Surface Hardness (Unglazed)</td>
<td>EN 101</td>
<td>≥ 6</td>
<td>MOHS Scale</td>
</tr>
<tr>
<td>Surface Hardness (Glazed)</td>
<td></td>
<td>≥ 5</td>
<td></td>
</tr>
<tr>
<td>Thermal linear Expansion Coefficient</td>
<td>ISO 10545-8</td>
<td>≤ 9</td>
<td>MK⁻¹ (20°C to 100°C)</td>
</tr>
<tr>
<td>Thermal Shock Resistance</td>
<td>ISO 10545-9</td>
<td>No Alteration</td>
<td>10 cycles from 105°C to 15°C</td>
</tr>
<tr>
<td>Resistance to Chemical Attack</td>
<td>ISO 10545-13</td>
<td>GA - No Visible Effect</td>
<td>Class</td>
</tr>
<tr>
<td>Resistance to Staining (Glazed)</td>
<td>ISO 10545-14</td>
<td>≥ 3</td>
<td>Class</td>
</tr>
<tr>
<td>Characteristic</td>
<td>Standard</td>
<td>Limiting Value</td>
<td>Unit</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>-------------------</td>
<td>-----------------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Resistance to Staining (UnGlazed)</td>
<td>Internal</td>
<td>Stains removable with hot water</td>
<td>-------------</td>
</tr>
<tr>
<td>Resistance to Light (UV)</td>
<td>ISO 10545-16</td>
<td>No Change</td>
<td>NA</td>
</tr>
<tr>
<td>Surface Slip Resistance (Unglazed)</td>
<td>DIN 51130</td>
<td>≥ R9 (low static friction)</td>
<td>Factor</td>
</tr>
</tbody>
</table>

19.8 CERAMIC TILES FOR HIGH GRIP AREAS - CHARACTERISTICS

19.8.1 The limiting values shall be the same as for Ceramic tiles for General Areas except for the following values exclusively restricted to spaces specifically indicated in the Drawings or Bills of Quantities as high grip areas (typically with relief, ribbing or studded):

Table 2 - Tiles for Industrial Floors, High Grip Areas

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Standard</th>
<th>Limiting Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slip resistance R value (Unglazed)</td>
<td>DIN 51130</td>
<td>R12 (high static friction &gt; 27° to 35°)</td>
<td>Factor</td>
</tr>
<tr>
<td>Displacement space V value (Unglazed)</td>
<td></td>
<td>V4 (4cm³/dm²) min</td>
<td></td>
</tr>
<tr>
<td>Slip resistance R value (Unglazed)</td>
<td>DIN 51130</td>
<td>R13 (very high static friction &gt; 35°)</td>
<td>Factor</td>
</tr>
<tr>
<td>Displacement space V value (Unglazed)</td>
<td></td>
<td>V10 (10cm³/dm²) min</td>
<td></td>
</tr>
</tbody>
</table>

19.9 CERAMIC TILES HIGH GRIP AREAS – DIMENSIONS

19.9.1 The typical floor tile dimensions shall be as indicated in the Drawings or Bills of Quantities and shall be agreed with the Project Manager.
19.10 CERAMIC TILES - WET BAREFOOT FLOOR AREAS
19.10.1 The limiting values shall be the same as for Ceramic tiles for General Areas except for the following values exclusively restricted to areas specifically indicated in the Drawings or Bills of Quantities as high wet barefoot grip floor areas:

Table 3 - Floor Tiles for Wet Barefoot Areas

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Standard</th>
<th>Limiting Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet barefoot Slip resistance value - High</td>
<td>DIN 51097</td>
<td>A + B + C (&gt; 24°)</td>
<td>Factor</td>
</tr>
</tbody>
</table>

19.11 CERAMIC TILES (WALL)
19.11.1 The typical ceramic wall tiles shall be dry pressed, single or double fired with a “bisque” of fine earthenware majolica.
19.11.2 Ceramic wall tiles shall be Glazed.

19.12 CERAMIC TILES (WALL) - SIZE AND THICKNESS
19.12.1 The typical wall tile dimensions shall be as indicated in the Drawings or Bills of Quantities and shall be agreed with the Project Manager.

19.13 CERAMIC TILES (WALL) - CHARACTERISTICS
19.13.1 Ceramic wall tiles have the following characteristics.

Table 4 - Wall Tiles

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Standard</th>
<th>Limiting Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>ISO 13006</td>
<td>BIII</td>
<td>NA</td>
</tr>
<tr>
<td>Length and Width</td>
<td>ISO 10545-2</td>
<td>+/- 0.5</td>
<td>%</td>
</tr>
<tr>
<td>Thickness</td>
<td>+/- 10</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Straightness of Edges</td>
<td>+/- 0.3</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Rectangularity</td>
<td>+/- 0.5</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Flatness</td>
<td>+/- 0.5</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Water Absorption</td>
<td>ISO 10545-3</td>
<td>≤ 18</td>
<td>%</td>
</tr>
<tr>
<td>Modulus of Rupture</td>
<td>ISO 10545-4</td>
<td>≥ 12</td>
<td>N/mm²</td>
</tr>
<tr>
<td>Characteristic</td>
<td>Standard</td>
<td>Limiting Value</td>
<td>Unit</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Modulus of Rupture &gt; 7.5mm thick</td>
<td>ISO 10545-4</td>
<td>≥ 15</td>
<td>N/mm²</td>
</tr>
<tr>
<td>Breaking Strength for tiles &lt; 7.5mm thick</td>
<td>ISO 10545-4</td>
<td>≥ 200</td>
<td>N</td>
</tr>
<tr>
<td>Breaking Strength for tiles &gt; 7.5mm thick</td>
<td>ISO 10545-4</td>
<td>≥ 600</td>
<td>N</td>
</tr>
<tr>
<td>Surface Abrasion (Glazed)</td>
<td>ISO 10545-7</td>
<td>II</td>
<td>PEI</td>
</tr>
<tr>
<td>Surface Hardness</td>
<td>EN 101</td>
<td>≥ 3</td>
<td>MOHS Scale</td>
</tr>
<tr>
<td>Thermal linear Expansion Coefficient</td>
<td>ISO 10545-8</td>
<td>≤ 9</td>
<td>MK⁻¹ (20°C to 100°C)</td>
</tr>
<tr>
<td>Thermal Shock Resistance</td>
<td>ISO 10545-9</td>
<td>No Alteration</td>
<td>10 cycles from 105°C to 15°C</td>
</tr>
<tr>
<td>Resistance to Chemical Attack</td>
<td>ISO 10545-13</td>
<td>GBmin</td>
<td>Class</td>
</tr>
<tr>
<td>Resistance to Staining (Glazed)</td>
<td>EN 122</td>
<td>≤ 3</td>
<td>Class</td>
</tr>
</tbody>
</table>

### 19.14 CERAMIC TILES (FLOOR AND WALL TILES FOR FOOD PREPARATION AREAS)

19.14.1 The limiting values shall be the same as for ceramic floor and wall tiles for general areas except for those specific provisions contained in EC Directive 93/43/EEC on the hygiene of foodstuffs and local food and hygiene regulations.

### 19.15 SUBMISSIONS

19.15.1 When so instructed, the Contractor shall submit a drawing (including one electronic copy) showing bedding, bonding, jointing and anchoring details, and the dimensions and identifying number of any unique elements.

19.15.2 The Contractor shall submit actual size samples of the elements to be supplied and demonstrate the fixing system proposed in sample areas when so instructed by the Project Manager. Such sample areas shall be formally presented for the approval of the Project Manager, and once approved, shall be
used as quality prototypes against which the quality of the work laid shall be checked.

19.16 PREPARATORY WORKS
19.16.1 The Contractor shall check that all preparatory work is sufficient, that the levels and tolerances required for his work have been achieved, and if not, shall carry out remedial work to correct such levels or tolerances. In particular, this remedial work may include concrete rendering to vertical wall surfaces to bring in line with vertical surfaces before starting tiling works.
19.16.2 All walls which are to receive ceramic tiling are to be properly hacked to achieve a good key.
19.16.3 All waterproofing works shall be completed before installation of tiling works. Nevertheless, the Contractor shall check such water-proofing layers where still exposed, and may be required by the Project Manager to carry out remedial work prior to installation of tiling. In particular, the Contractor shall check that all top edges of water-proofing membranes are sealed using proprietary tape, or equivalent, prior to covering with tiling.
19.16.4 All horizontal surfaces shall be laid to the falls indicated on the Drawings.

19.17 PLACING
19.17.1 Tile patterns shall be as indicated in the Drawings. The Contractor may be required to submit proposals to indicate tolerances, corner details, detailed methods of fixing, and patterns, to show how the design intent specified will be respected.
19.17.2 The laying of the tiling to floors and walls shall conform to Code of Practice BS 5385-1: 1995 (internal walls), BS 5385-3: 1989 (Floors), BS 5385-5:1994 (Design and Installation).
19.17.4 Where applying tiling to walls, soft joints shall be raked out to a depth of at least 13mm, in order to provide additional key. Where hacking of a surface is required for additional key, substrates shall be roughened thoroughly and evenly, removing a surface to a depth of circa 3mm. Substrates shall be wet before applying tiling.
19.17.5 Bedding for ceramic tiles shall consist of a cement-sand mix 1:3 by weight, mixed to a uniform stiff consistency, and laid with a finished bed thickness of between 15 to 25mm.
19.17.6 The tiles shall be laid with their edges forming a straight unbroken line in each direction and carefully tapped down to a uniform even surface without ridges or corrugation. Tiles are to be soaked for a period of 6 hours previous to laying and shall be stacked to drain. All joints shall be finally sealed by proprietary grouting.
19.17.7 The tiles are to be laid on a bedding of mortar 16-25mm thick consisting of one
part of cement to three/four parts of sand with sufficient water to make the mixture workable. Slurry of neat cement, mixed with enough water to make it flow shall be poured over the mortar immediately before laying the tiles.

19.17.8 After the tiles are firmly fixed, but before any dirt or contamination can enter the joints, all joints shall be grouted with proprietary grouting by sweeping and rubbing to match the tile colour.

19.18 **JOINTS**

19.18.1 Joints of tiling shall be true to line, continuous, and without steps.

19.18.2 Proprietary joint spacers shall be provided for floor tiles. The joint spacing shall be as indicated in the Drawings or as otherwise agreed with the Project Manager.

19.18.3 Joints on walls shall be aligned around corners, and to vertical and horizontal lines. Joints on floors shall be aligned to the main axis or to other features in the floors. Joints in floors and in skirting shall be aligned; similarly, as far as possible, joints in floors and walls shall be aligned. Setting out around openings, fittings, movement joints, drainage points, or other features instructed by the Project Manager, shall be submitted for the approval of the Project Manager before proceeding.

19.18.4 Tile movement control joints in floors shall be pre-bonded neoprene or nitriflex insert movement joints. They shall typically consist of aluminium side plates. The sections shall be suitable for fixing in sand/cement mortar bedding, and shall be fixed to the base by means of stainless steel screws, washers and plugs at about 300mm, or as instructed by the manufacturer. The joints shall include stainless steel tie bars, and flexible foam rubber "tails", as necessary, for fixing depths greater than 40mm. The joints shall be centred over the joint in the base, and shall be set to the exact finished level of the floor.

19.19 **SKIRTING**

19.19.1 Skirtings with the same properties of the ceramic floor tiles is generally of the sit-on type and beveled top, that is, skirtings shall be bedded to the walls after laying floor tiles. Cutting of ceramic tiles to obtain skirtings will not be allowed. Two coats of bitumen should be applied to soft stone surfaces below the damp proof course before fixing the skirting tile.

19.20 **DELIVERY TO THE SITE**

19.20.1 Elements delivered on site shall be checked to ensure that they are:

I. Undamaged, and their edges and corners not chipped;

II. Of the specified dimensions and geometry;

III. Worked so that the material bedding is normal to applied loading;

IV. Worked so that the joints are at right angles to the direction of the
pressure exerted on them in conditions of use in the final position.

19.20.2 Elements delivered on site shall be handled by hand or tackle, crane or other suitable mechanical aids, in such a way as not to cause any damage, and shall be stored in a manner that provides adequate protection from humidity, mechanical damage, distortion, contamination or deterioration. Whenever possible, materials should be handled on the suppliers’ pallets, cases or other packing. Lifting hooks, slings and forks shall be used only at the places, and in the manner intended by the manufacturer or supplier. Vulnerable edges shall be protected by spreaders placed under the load. Materials intended for use as whole units shall not be tipped or dumped upon delivery to site.

19.20.3 The Contractor shall set out the work and make good defects in the existing base deemed necessary for the proper execution of the works.

19.21 SETTING OUT

19.21.1 The Works shall be accurately set out in accordance with Section 6 of BS 5606: 1990, Guide for Accuracy in Buildings. Existing benchmarks shall be protected and all critical co-ordinate points shall be marked in such a manner that they cannot be removed. Diagonal measurements shall be used to check for squareness, normally after the first line of tiling, and approval sought from the Project Manager, prior to the continuation of the work.

19.21.2 The Contractor shall set out the Works:

i. To establish the correct floor datum level.

ii. To control the finished floor levels by a series of ‘spot levels’.

iii. To avoid or minimise unsightly cutting.

iv. To ensure cut units present a balanced appearance when laid and are kept as large as possible.

v. To ensure correct joint location and flooring patterns

vi. To establish the position of movement joints if any.

19.21.3 When setting out of tiling works particularly wall tiling works, the Contractor shall:

i) Establish a vertical centreline in each plain area,

ii) Obtain truly horizontal joint lines,

iii) Ensure that cut tiles are neatly cut, are kept as large as possible and are laid to present a balanced appearance.

19.22 GRANULAR FILL FOR BRINGING UP LEVELS

19.22.1 Granular fill material for bringing areas up to level shall be crusher processed franka material classified in Table 6/1 of the ADT specification in accordance...
with its stated typical utilisation.

19.22.2 Compaction shall be carried out at the material's Optimum Moisture Content in compacted layers not exceeding 200mm in depth.

19.22.3 The requirements for grading shall comply with Table 6/2 of the ADT Specification for Roadworks.

19.22.4 The Contractor shall adopt either the Method or End product procedure for compaction as indicated in the ADT Specification for Roadworks, clause 612.

19.23 **GRANULAR SUBBASE MATERIAL TYPES 1, 2 AND 4**

19.23.1 Granular Subbase material Type 1 shall comply with ADT (Malta) Specification for Roadworks, Volume 1, Series 800, clause 803.

19.23.2 Granular Subbase Type 2 material shall comply with ADT (Malta) Specification for Roadworks, Volume 1, Series 800, clause 804.

19.23.3 Granular Subbase Type 4 material shall comply with ADT (Malta) Specification for Roadworks, Volume 1, Series 800, clause 806.

19.23.4 The material shall be placed and compacted as indicated in ADT (Malta) Specification for Roadworks, Volume 1, Series 800, clause 801 with particular reference to Table 8/1.

19.23.5 Compaction shall be carried out at the optimum moisture content (+/- 2%). Segregation of material shall be avoided.

19.23.6 The finished surface levels of subbase material shall have a tolerance of +/− 20mm.

19.24 **AGGREGATES**

19.24.1 Aggregates for unbound and hydraulically bound layers shall comply with EU Directive 89/106/EEC. The technical characteristics shall comply with EN 13383-1.

19.25 **LEVEL SURVEYS**

19.25.1 A level survey is mandatory prior to and on completion of excavations and fill operations. This shall be intended to include any superimposed new layer. This survey shall be along an adequate grid to be jointly established with the Project Manager.

19.26 **SCREEDS**

19.26.1 Unless otherwise indicated, leveling screeds shall be unbonded, or floating cement-sand screeds, conforming to BS EN 13813. Installation shall be as per Code of Practice BS 8204-1:2002. Leveling screeds to treads, risers and landings, where required, shall be bonded screeds.

19.26.2 Laying course material shall consist of graded hardstone aggregate passing nom. size 10mm. This aggregate shall be free from soil, clay and organic substances. It shall be laid, spread, adequately wetted and compacted to the required formation thickness and also laid to falls when required.

19.26.3 Conduit sleeves for services shall be haunched up in a 1:4 cement-sand mix on
both sides of the conduit piping.

19.27 ADHESIVES AND GROUTS

19.27.1 Adhesives for tiles shall comply with EU Directive 89/106/EEC. The technical characteristics shall comply with EN 12004.

19.27.2 Grout for tiles shall comply with EU Directive 89/106/EEC. The technical characteristics shall comply with EN 13888.

19.27.3 Proprietary adhesives shall be used for all tiles. Cementitious adhesives shall be of Class C1; Polymer-modified adhesives shall be of Class C2 having a water absorption of ≤ 0.5%.

19.27.4 Deformable adhesives shall be Class S1 or S2 to EN 12002.

19.27.5 Proprietary grouts shall be used for all tiles. The colour of grouting shall be determined by the Project Manager on site. Cementitious grouts shall be of Class CG1 or CG2; Epoxy grouts shall be of Class RG.

19.27.6 The Contractor shall submit proprietary technical literature for the proposed grout. This literature should clearly indicate whether the grout conforms to the appropriate standards of hygiene requirements of specific areas to be tiled.

19.27.7 Grouting shall not commence before bedding mortar or adhesive has set sufficiently to prevent disturbance of tiles or paving. Joints shall be at least 6mm deep, and shall be free from dust and debris. Joints shall be filled completely, with the grout tooled to profile, and the surface cleaned off and left free from blemishes. Grouting shall be polished off with a hard clean cloth when hard.

19.27.8 The Contractor shall produce proprietary literature for the grout that shall be used in all remaining areas. This literature should indicate that the grout conforms to the requirements or the appropriate standards of hygiene that are determined by the use of the areas to be tiled.

19.27.9 Superfluous grout shall be washed clean off the finished surface after the grouting has nearly set and the tiling is to be left clean for inspection. All excess material is to be removed.

19.28 DETERGENTS

19.28.1 The Contractor shall supply to the Project Manager a list of approved detergents for common stains which are to be readily available from stock including any recommendations and instructions by the tile manufacturer.
PART THREE - TECHNICAL SPECIFICATIONS

PART 3, SECTION 1

LIST OF SAMPLES

3.1.2 List of samples

No samples are being requested by the Contracting Authority. However, the Foundation for Tomorrow’s Schools reserves the right to demand samples of materials corresponding to the literature submitted by the tenderer AFTER THE AWARD OF THE TENDER.
PART 3

TECHNICAL SPECIFICATIONS

SECTION 2

The Contractor’s Technical Offer
BILL OF QUANTITIES

I. Preamble

Tenderers must price each item in the bill of quantities separately and follow the instructions regarding the transfer of various totals in the summary.

The bill of quantities must be read with all the other contract documents and the Contractor shall be deemed to have thoroughly acquainted himself with the detailed descriptions of the works to be done and the way in which they are to be carried out. All the works must be executed to the satisfaction of the Engineer.

1.1. Quantity of items

The quantities set forth against the items in the bill of quantities are an estimate of the quantity of each kind of the work likely to be carried out under the contract and are given to provide a common basis for bids. There is no guarantee to the Contractor that he will be required to carry out the quantities of work indicated under any one particular item in the bill of quantities or that the quantities will not differ in magnitude from those stated.

When pricing items, reference should be made to the conditions of contract, the specifications and relevant drawings for directions and descriptions of work and materials involved.

The quantities given in the bill of quantities are provisional and reflect the estimates made at the time of approval to provide a basis for this document and tenders. Tenderers must consider every aspect of the tender document carefully.

Any comments concerning the quantities must be made in the form of an attachment, following the system of itemisation, quoting the codes and brief descriptions, as in the present documents, including the rates and prices.

Save where the technical specifications or the bill of quantities specifically and expressly state otherwise, only permanent works are to be measured. Works will be measured net to the dimensions shown on the drawings or ordered in writing by the Engineer, save where described or prescribed elsewhere in the contract.

In adjusting extras or variations on the contract, works will be measured on the same basis as that on which the quantities were prepared. All works not specifically mentioned in the bill of quantities will be taken as included in the prices of various items.

Where, in the opinion of the Engineer, extra works cannot be properly measured or valued, the Contractor may, if so directed by the Engineer, carry out the work at the day work rates shown in the schedule of day work. All completed day work sheets must be signed by the Engineer on or before the end of the week in which the works are executed.

No allowance will be made for loss of materials or volume thereof during transport or compaction.

1.2. Units of measurement

The units of measurement used in the annexed technical documentation are those of the International System of Units (SI). No other units may be used for measurements, pricing, detail drawings etc. (Any units not mentioned in the technical documentation must also be expressed in terms of the SI.)

Abbreviations used in the bill of quantities are to be interpreted as follows:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>millimetre</td>
</tr>
<tr>
<td>m</td>
<td>metre</td>
</tr>
<tr>
<td>mm²</td>
<td>square millimetre</td>
</tr>
</tbody>
</table>
TENDER FOR EXCAVATION, INSTALLATION OF A RAISED FLOORING SYSTEM, TILING AND SANITARY WARE USING ENVIRONMENTAL FRIENDLY PRODUCTS AT THE SIXTH FORM COLLEGE, VICTORIA GOZO

**II. Terms Relating To Payments**

The method for measuring completed works for payment must be in accordance with the Contract.

The provisional sums in the bill of quantities must be used in whole or in part at the discretion of the Engineer or as otherwise set out in the contract.

Each item in the bill of quantities for which payment is to be made in a lump sum, and for which no payment schedule is provided, must be paid after the work covered by the lump sum has been completed to the satisfaction of the Engineer.

**III. Pricing**

The prices and rates inserted in the bill of quantities are to be the full inclusive values of the works described under the items, including all costs and expenses which may be required in and for the construction of the works described together with any temporary works and installations which may be necessary and all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based. It will be assumed that establishment charges, profit and allowances for all obligations are spread evenly over all the unit rates.

The rates and prices tendered in the priced bill of quantities will be quoted at the rates current prior to the date of submission.

Rates and prices must be entered against each item in the bill of quantities. The rates will cover all tax, duty or other liabilities which are not stated separately in the bill of quantities and the tender.

**IV. Completing the bill of quantities**

In the bill of quantities, rates and prices will be entered in the appropriate columns in Euro.

Errors will be corrected as follows:

a) where there is a discrepancy between amounts in figures and in words, the amount in words will prevail; and

b) where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit price and the quantity, the unit rate as quoted will prevail.

**V. Description Of Unit Prices**

The tables that follow give the description of the rates (or unit prices) by using the relevant clauses of the Technical specifications.

N.B. - Three decimal points do not exist as currency; therefore such offers cannot be accepted. Offers are to be submitted up to two decimal points.

*The following are the detailed Bill of Quantities that are to be filled in by the Tenderer.*
# BILL A - FINISHING WORKS

**NOTES**

Quoted rates are to take into consideration all double handling of material as well as compliance with relevant standards, legal notices and health and safety procedures. Contractor is responsible for any damage caused to existing structures and has to make good at his own expense. Rates for excavated and demolished material are to include for dumping of resultant material to approved site.

<table>
<thead>
<tr>
<th>REF</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
<th>UNIT</th>
<th>UNIT RATE including Taxes, Other Duties &amp; Discounts but excluding VAT €</th>
<th>Total Amount including Taxes, Other Duties &amp; Discounts but excluding VAT €</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>REMOVAL OF EXISTING FITTINGS AND FIXTURES WITH CARE TO AVOID DAMAGE, SUCH FITTINGS ARE TO BE PLACED WHERE DIRECTED BY THE CONTRACTING AUTHORITY.</td>
<td>1.00</td>
<td>Lump Sum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>REMOVAL OF EXISTING TILES AND CARTING AWAY TO AN APPROVED DUMPING SITE.</td>
<td>600.00</td>
<td>SQM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>EXCAVATION OF EXISTING TORBA AND BACKFILL MATERIAL ON SITE AND CARTING AWAY OF MATERIAL TO AN APPROVED DUMPING SITE. EXCAVATION MAY ONLY BE CARRIED OUT USING HAND HELD EQUIPMENT.</td>
<td>500.00</td>
<td>CUM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>SUPPLY AND LAY RAISED FLOORING SYSTEM. HEIGHT CIRCA 600MM. RATE TO INCLUDE FOR LEVELLING OF SUCH ELEMENTS, BUT TO EXCLUDE FOR CONCRETE TOPPING.</td>
<td>500.00</td>
<td>SQM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>CAST IN SITU REINFORCED CONCRETE TOPPING TO RAISED FLOOR 100MM THICK. RATE TO INCLUDE FOR THE FILLING OF VOIDS BETWEEN INDIVIDUAL UNITS. CONCRETE GRADE C20. RATE TO INCLUDE FOR THE LAYING OF 1 IN NUMBER 498 MESH</td>
<td>500.00</td>
<td>SQM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>SUPPLY AND LAYING OF FLOOR TILES ON A CEMENT AND SAND MORTAR BED NOT LESS THAN 20MM THICK. HEAVY DUTY GRESS TILES DIMENSION 450 X 450MM OR AS DIRECTED, COLOUR TO BE APPROVED BY ARCHITECT IN CHARGE.</td>
<td>500.00</td>
<td>SQM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>FIXING OF WALL TILES IN WCS FROM FLOOR TO A HEIGHT OF 8CRS INCLUDING PVC CORNERS, TILES LAID IN SAND CEMENT 1:2 MORTAR PLUS GROUTING OF JOINTS. TILES DIMENSIONS AND COLOUR 200MM X 200MM OR AS DIRECTED. TILE COLOUR AND DIMENSION TO BE APPROVED BY ARCHITECT IN CHARGE.</td>
<td>150.00</td>
<td>SQM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>LAYING OF 100MM (LEVELS TO BE VERTIFIED ON SITE) SAND AGGREGATE UNDER TILES</td>
<td>50.00</td>
<td>CUM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL FOR BILL A Carried Forward to Summary of Bills**
<table>
<thead>
<tr>
<th>REF</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
<th>UNIT</th>
<th>UNIT RATE including Taxes, Other Duties &amp; Discounts but excluding VAT €</th>
<th>Total Amount including Taxes, Other Duties &amp; Discounts but excluding VAT €</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SUPPLY AND INSTALL WHITE COLOURED VITREOUS CHINA WASH HAND BASIN, WALL MOUNTED WITH TAP HOLES AND OVERFLOW, COMPLETE WITH WASTEPLUG, CHAIN, CROME FITTINGS, HOT AND COLD WATER MIXER AND STOP VALVE.</td>
<td>2.00</td>
<td>No.</td>
<td>2.00</td>
<td>2.00</td>
</tr>
<tr>
<td>2</td>
<td>SUPPLY AND INSTALL WHITE COLOURED VITREOUS CHINA WASH HAND BASIN, ACCESSIBLE TO ALL, WALL MOUNTED WITH TAP HOLES AND OVERFLOW, COMPLETE WITH WASTEPLUG, CHAIN, CROME FITTINGS, HOT AND COLD WATER MIXER AND STOP VALVE.</td>
<td>1.00</td>
<td>No.</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>3</td>
<td>TO SUPPLY AND INSTALL FLUSHING VALVE, INCLUDING ALL EXTERNAL AND INTERNAL FITTINGS.</td>
<td>4.00</td>
<td>No.</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>4</td>
<td>SUPPLY AND INSTALL WALL MOUNTED WHITE COLOURED VITREOUS CHINA WC, INCLUDING HEAVY DUTY SEAT COVER WITH STAINLESS STEEL HINGES AND CHROME ANGLE VALVES.</td>
<td>3.00</td>
<td>No.</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>5</td>
<td>SUPPLY AND INSTALL WALL MOUNTED WHITE COLOURED VITREOUS CHINA WC, ACCESSIBLE TO ALL, INCLUDING HEAVY DUTY SEAT COVER WITH STAINLESS STEEL HINGES AND CHROME ANGLE VALVES.</td>
<td>1.00</td>
<td>No.</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>6</td>
<td>TO SUPPLY AND INSTALL CLOTH HANGERS IN RESTROOMS INCLUDING ANY FIXTURES.</td>
<td>3.00</td>
<td>No.</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>7</td>
<td>TO SUPPLY AND INSTALL STAINLESS STEEL TOILET PAPER DISPENSERS INCLUDING ANY FIXTURES.</td>
<td>4.00</td>
<td>No.</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>8</td>
<td>TO SUPPLY AND INSTALL STAINLESS STEEL SOAP DISPENSERS INCLUDING ANY FIXTURES.</td>
<td>3.00</td>
<td>No.</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>9</td>
<td>TO SUPPLY AND INSTALL STAINLESS STEEL HAND TISSUE DISPENSERS INCLUDING ANY FIXTURES.</td>
<td>3.00</td>
<td>No.</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>10</td>
<td>GRABRAILS AND RAILING SYSTEM FOR WC ACCESSIBLE TO ALL</td>
<td>1.00</td>
<td>Lump Sum</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

TOTAL FOR BILL B Carried Forward to Summary of Bills
### Notes

**Quoted rates are to take into consideration all double handling of material as well as compliance with relevant standards, legal notices and health and safety procedures. Contractor is responsible for any damage caused to existing structures and has to make good at his own expense. Rates for excavated and demolished material are to include for dumping of resultant material to approved site.**

<table>
<thead>
<tr>
<th>REF</th>
<th>Description</th>
<th>QTY.</th>
<th>UNIT</th>
<th>Unit Rate including Taxes, Other Duties &amp; Discounts but excluding VAT</th>
<th>Total Amount including Taxes, Other Duties &amp; Discounts but excluding VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>To supply and lay to an approved gradient, 110mm in diameter soil water pipes to run from inspection chambers to existing sewage system. To include for any fittings as may be required</strong></td>
<td>20.00</td>
<td>m</td>
<td>€</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>To supply and lay to an approved gradient, 110mm in diameter heavy duty soil water pipes to run from inspection chambers to existing sewage system. To include for any fittings as may be required. Pipes to be able to be adequate for chemistry laboratory use</strong></td>
<td>20.00</td>
<td>m</td>
<td>€</td>
<td></td>
</tr>
</tbody>
</table>

**Total for Bill C Carried Forward to Summary of Bills**
# BILL D - DAYWORKS

## NOTES

Quoted rates are to take into consideration all double handling of material as well as compliance with relevant standards, legal notices and health and safety procedures. Contractor is responsible for any damage caused to existing structures and has to make good at his own expense. Rates for excavated and demolished material are to include for dumping of resultant material to approved site.

<table>
<thead>
<tr>
<th>REF</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
<th>UNIT</th>
<th>UNIT RATE including Taxes, Other Duties &amp; Discounts but excluding VAT €</th>
<th>Total Amount including Taxes, Other Duties &amp; Discounts but excluding VAT €</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td><strong>PERSONNEL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.10</td>
<td>Foreman</td>
<td>20</td>
<td>HR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.20</td>
<td>Skilled Labourer</td>
<td>100</td>
<td>HR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.30</td>
<td>Semi Skilled Labourer</td>
<td>100</td>
<td>HR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.40</td>
<td>Unskilled Labourer</td>
<td>100</td>
<td>HR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.00</td>
<td><strong>MATERIAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.10</td>
<td>PVC DUCTS - 50MM</td>
<td>50</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.20</td>
<td>PVC DUCTS - 25MM</td>
<td>100</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.30</td>
<td>PVC DUCTS - 115MM</td>
<td>30</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.40</td>
<td>PVC FITTINGS - 115MM</td>
<td>10</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All dayworks are provisional. Rates for dayworks are deemed to include for the use of any hand tools, including electrical equipment. Dayworks are subject to approval from contracting authority, and prior approval is necessary.

**TOTAL FOR BILL D** Carried Forward to Summary of Bills
### SUMMARY OF BILLS

<table>
<thead>
<tr>
<th>REF</th>
<th>ITEM</th>
<th>Total Amount including Taxes, Other Duties &amp; Discounts but excluding VAT €</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BILL A - Finishing Works</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BILL B - Sanitary Works</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BILL C - Drainage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BILL D - Dayworks</td>
<td></td>
</tr>
</tbody>
</table>

Grand Total including any discounts and taxes charges but excluding VAT (Delivered Duty Paid - DDP)

---

Company

Address

Telephone: Fax: Mobile Phone:

e-mail:

Trading Licence No. Valid up to

V.A.T Registration No.

Signature of Tenderer: I.D No.

Full Name (Block Letters) Date:
PART FIVE - Annexes

1 Statement on conditions of employment
2 Occupational Health And Safety Declaration Waiver And Indemnity
3 Key Experts
4 Works Programme
5 Bid-Bond – Not Applicable
6 Performance Bond
7 Procedure for the submission of appeals
8 Data on Joint Venture/Consortium (Where applicable)
9 Specimen Retention Guarantee
10 Key Expert Declaration Form
11 Sub-Contracting
Tenderers are to ensure that self-employed personnel are not engaged on this contract. Non-compliance will invalidate the contract.

It is hereby declared that all employees engaged on this contract shall enjoy working conditions such as wages, salaries, vacation and sick leave, maternity and parental leave as provided for in the relative Employment Legislation. Furthermore, we shall comply with Chapter 424 of the Laws of Malta (Occupational Health and Safety Authority Act) as well as any other national legislation, regulations, standards and/or codes of practice or any amendment thereto in effect during the execution of the contract.

In the event that it is proved otherwise during the execution of the contract it is hereby being consented that the contract is terminated with immediate effect and that no claim for damages or compensation be raised by us.

Signature: .................................................................

(\textit{the person or persons authorised to sign on behalf of the tenderer})

Date: .................................................................
ANNEX 2

OCCUPATIONAL HEALTH AND SAFETY DECLARATION WAIVER AND INDEMNITY

The undersigned is duly authorised to represent the bidder hereafter referred to as the Contractor.

The Contractor acknowledges that he is tendering to perform works / deliver items as detailed in the tender document as contractors for the Foundation for Tomorrow’s and that for all intents and purposes at law the Contractor shall / is responsible to ensure that health and safety obligations in respect of its employees and any third parties accessing the site described above shall be / are respected in full at all times including during the use of machinery and equipment.

The Contractor shall assume full responsibility and accountability regarding the health and safety of its employees and/or subcontractors including any third parties involved in the execution of his contract.

The Contractor shall be bound to conform and comply with Chapter 424 of The Laws of Malta (Occupational Health and Safety Authority Act) as well as any other national legislation, regulations, standards; and/or codes of practice or an amendment thereto in effect during the execution of the contract.

The Contractor hereby undertakes to indemnify the FTS against any and all liability including judicial and extra-judicial costs that may be incurred as a result of any failure on the part of the Contractor to ensure health and safety as above stated and undertakes to effect payment to FTS on simple demand in respect of any such liability.

Name of company or individual submitting the tender: ____________________________________________________________

Signature: .................................................................................................

(the person or persons authorised to sign on behalf of the tenderer)

Date: .................................................................................................
**ANNEX 3 - KEY EXPERTS**

**Tenderer’s Technical Capacity: List Of Staff To Be Employed On This Contract By The Tenderer**

Bidders are to note that the Evaluation Committee reserves the right to request the CVs of key staff CVs during the evaluation process, failing which the offer would be discarded.

The following list of Key Experts **must include at least:**

a) A warranted Architect  
b) A Site manager / Supervisor  
c) A Foreman  
d) A Health and Safety Officer

<table>
<thead>
<tr>
<th>Name and Surname of Key Expert</th>
<th>Proposed Position</th>
<th>Nationality</th>
<th>Age</th>
<th>Educational Background</th>
<th>Specialist Area of Knowledge</th>
<th>Years of Experience</th>
<th>Languages and Degree of Fluency (VG; G; W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architect in Charge (Warranted)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site Manager / Supervisor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health and Safety Officer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Key Personnel which tenderer deems necessary.</td>
<td></td>
<td></td>
<td></td>
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</table>

Signature: .............................................................  
Date: .............................................  

(The person or persons authorised to sign on behalf of the tenderer)
ANNEX 4 - WORKS PROGRAMME

<table>
<thead>
<tr>
<th>Calendar Weeks</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description of Works</strong></td>
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<tr>
<td>01. Removal of Fittings and Fixtures</td>
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<tr>
<td>02. Excavation Works</td>
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<tr>
<td>03. Levelling and Installation of Raised Flooring</td>
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<tr>
<td>04. Concrete Works</td>
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<tr>
<td>05. Tiling Works</td>
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<tr>
<td>06. Other Works</td>
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<tr>
<td>07. Handover</td>
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</tbody>
</table>

The above is a basis for the programme of works. The programme to be submitted is to be detailed to give confidence to FTS that the Contractor is capable of completing the works on time. The above schedule is only for guidance.

**Tenderers submitting a works programme which exceeds the period stated in the Conditions of Contract, Article 2.01 b (Completion of Works) will not be considered for the award of this tender.**

Signature: .................................................................

*(the person or persons authorised to sign on behalf of the tenderer)*

Date: .................................................................
ANNEX 5 - BID BOND

Not applicable for this tender.
Important Note to Contractors:

For the purpose of clarity the amount of the performance guarantee should reflect the contract value plus the amount of the Value Added Tax (VAT).

The Chairman
Foundation for Tomorrow’s Schools
Sir Adrian Dingli Street,
Pembroke PBK1940

In connection with the agreement entered into between yourself on behalf of the Malta Government and

________________________________________________________________________________________
(Name and address of contractor)

Referred to as “the Contractor” as per the latter’s tender dated___________and your Acceptance (Ref________________________) of the _______________

Whereby the contractor undertook to provide, supply, deliver to site/store, erect complete, hand over in working order and thereafter maintain * in accordance with the terms of clause ______________________ of the General conditions the works/services as mentioned, enumerated or referred to in the Specifications and/or Bills of Quantities forming part of the tender documents, we hereby guarantee to pay you on demand a maximum sum of (amount in words and figures) ________________________ (€____________) in case the obligations under the above-mentioned agreement are not duly performed by the contractor.

It is understood that this guarantee will become payable on your first demand and that it shall not be incumbent upon us to verify whether such demand is justified.

For avoidance of doubt it is hereby declared that although this instrument gives rise to legal relations between the guarantee and Government it is hereby specifically declared for all intents and purposes of law that this guarantee does not exempt the above-mentioned Contractor from any obligations, acts of performance or undertakings assumed under the tender documents as ratified in the Contract.

This guarantee expires on the _________________________ and unless it is extended by us or returned to us for cancellation before that date any demand made by you for payment must be received in writing not later than the aforementioned expiry date.

This document should be returned to us for cancellation on utilization on expiry or in the event of the guarantee being no longer required.

___________________________  __________________________
(Local Bank)                Accountant
Manager

I accept in the entirety conditions set out above

___________________________
Contractor
Rules Governing Public Contracts whose value does not exceed one hundred and twenty thousand euro (€120,000)

The procedure for the submission of appeals in the tender offer is stipulated in Part II of the Public Procurement Regulations (Legal Notice 296/2010), reproduced hereunder for ease of reference.

1) Where the estimated value of the public contract exceeds twelve thousand euro (€12,000) and is issued by an authority listed in Schedule 1, any tenderer or candidate concerned shall have a right to make a complaint to the Review Board in accordance with this regulation.

2) (a) The contracting authority shall be obliged to issue a notice and affix an advertisement, in a prominent place at its premises, indicating the awarded public contract, the financial aspect of the award and the name of the successful tenderer. The contracting authority shall, by electronic means or by fax, inform the tenderer or candidate concerned of the publication of the award. The contracting authority shall be precluded from concluding the contract during the period allowed for the submission of appeals.

(b) The award process shall be completely suspended if an appeal is eventually submitted.

3) Any tenderer or candidate concerned who is aggrieved by the award indicated by the contract authority may, within five working days from the publication of the notice, file a letter of objection, together with a deposit, with the contracting authority, clearly setting forth any reason for his complaint. The deposit to be paid in respect of tenders valued at less than forty-seven thousand euro (€47,000) shall be four hundred euro (€400), while those between forty-seven thousand euro (€47,000) and one hundred and twenty thousand euro (€120,000) shall be 0.5% of the estimated value of the tender, with a minimum deposit of four hundred euro (€400). The letter by the complaining tenderer shall be affixed on the notice board of the contracting authority and shall be brought to the attention of the recommended tenderer.

4) After the expiry of the period allowed for the submission of a complaint, the contracting authority shall deliver the letter of complaint, the deposit receipt and all documents relating to the public contract in question to the Review Board who shall examine the matter in a fair and equitable manner. In its deliberation the Review Board shall have the authority to obtain, in any manner it deems appropriate, any other information not already provided by the contracting authority. The Review Board shall determine the complaint by upholding or rejecting it. The written decision of the Review Board shall be affixed on the notice board of the contracting authority and shall be brought to the attention of the recommended tenderer.

5) (a) Any tenderer or candidate who feels aggrieved by a decision taken by the Review Board may appeal to the Court of Appeal (Superior Jurisdiction) as constituted in accordance with article 41(1) of the Code of Organization and Civil Procedure by means of an application filed in the registry of that court within twenty calendar days from the decision on which that decision has been made public.

(b) A copy of the appeal application shall be served on the Contracting Authority and on the recommended tenderer, if any, who may file a written reply within twenty days from the date of service.

(c) The Court of Appeal shall set down the cause for hearing at an early date, in no case later than two months from the date on which the appeal is brought before it and shall cause notice of such date to be given to the parties who, on their part, shall assume the responsibility to visit the court registry and be aware of the latest information regarding the appointment for the hearing of the case.

(d) After appointing the application for hearing, and after listening to the oral submissions made by all parties, the Court shall decide the application on its merits, within the shortest time possible but not any later than four months from the day when the appeal had been filed and the parties have been duly notified. Pending the decision of the Court, the process of the call for tenders shall be suspended.

6) Tender documents issued in terms of this Part shall include a clause informing tenderers that the award of the contract is subject to the right of recourse as provided for in this regulation, a copy of which should be reproduced in the documents.

7) The Minister shall have the authority by order to extend the provisions of this regulation in order that recourse as provided in this regulation be made available also by authorities listed in Schedule 3 and to prescribe the procedure by which such recourse is to be granted.
<table>
<thead>
<tr>
<th></th>
<th><strong>ANNEX 8 – Data on Joint Venture/Consortium (Where applicable)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Name</strong></td>
</tr>
<tr>
<td>2</td>
<td><strong>Managing Board’s Contact Details</strong></td>
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<tr>
<td>3</td>
<td><strong>Agency in the state of the Contracting Authority, if any (in the case of a Joint Venture/Consortium with a foreign lead partner)</strong></td>
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<td>4</td>
<td><strong>Names of Partners</strong></td>
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<td>(i) ................................................................</td>
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<td>(ii) ................................................................</td>
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<td>(iii) ................................................................</td>
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<td>(iv) ................................................................</td>
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<tr>
<td>5</td>
<td><strong>Name of Lead Partner</strong></td>
</tr>
<tr>
<td>6</td>
<td><strong>Agreement governing the formation of the Joint Venture/Consortium (Enclose Joint Venture/Consortium Agreement)</strong></td>
</tr>
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</tbody>
</table>
| 7 | **Proposed proportion of responsibilities between partners (in %) with indication of the type of the works to be performed by each**
   | * The company acting as the lead partner in a joint venture/consortium, they must have the ability to carry out at least 50% of the contract works by its own means. If a company is another partner in a joint venture/consortium (i.e. not the lead partner) it must have the ability to carry out at least 10% of the contract works by its own means |
|   | ........................................................................ - ....% |
|   | ........................................................................ - ....% |

Signature: ..........................................................

*(the person or persons authorised to sign on behalf of the tenderer)*

Date: ..........................................................
Chairman
Foundation for Tomorrow’s Schools
Sir Adrian Dingli Street,
Pembroke PBK 1940
Malta

[Date]

[Tender Reference]

Dear Sir,

We, the undersigned, [name, company name, address], hereby declare that we will guarantee, as principal debtor, to [Contracting Authority’s name and address] on behalf of [Contractor’s name and address], the payment of [indicate the amount], corresponding to the guarantee mentioned in Article 2.23 of the Conditions of Contract without dispute, on receipt of a first written request from the beneficiary.

We further agree that no change or addition to or other modification of the terms of the contract or of the works to be performed thereunder or of any of the contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee. We hereby waive notice of any such change, addition or modification.

The guarantee will enter into force and take effect from the [indicate the date of payment of the sums retained under the contract] and shall be valid until the date of issue of the certificate of final acceptance.

We note that you will release the guarantee and notify us of the fact at the latest within thirty days of the date of issue of this certificate.

Done at ……………………… on …/…/…..

Name and first name: .................................................. On behalf of: ..............................................

Signature: ...................................................

[stamp of the body providing the guarantee]
ANNEX 10

KEY EXPERT DECLARATION FORM

Note: Bidders are to declare “Not Applicable” if the Key Expert/s is/are not employed with the Public Administration.

To Be completed by each individual key expert/Personnel who is employed with the Public administration.

I, the undersigned, hereby declare that I do not have any Conflict of Interest as defined in the Public Administration Act, Chapter 497 of the Laws of Malta - First Schedule, Code of Ethics, Article 5.

I also declare that, I am not engaged in another project or in a position which may give rise to a possible private or personal interest sufficient to influence or appear to influence the objective exercise of my duties as public employee.

By making this declaration, I understand that as a public employee I shall avoid any financial or other interest or undertaking, which could directly or indirectly compromise the performance of my duties as public employee.

I am fully aware that the onus to disclose any possible conflict of interest lies solely on me and I shall be responsible to disclose any foreseen conflict of interest to my seniors/head of organization within one week from when the need arises as well as inform the Contractor accordingly.

Furthermore, I confirm that I shall also abide by the provisions laid down in Article 21 - Ethics Clauses of the General Rules Governing Tendering version 1.11.

Name of Key Expert: .................................................................

Signature of Key Expert: ...........................................................

Date: ..................................................................................

Signature of Tenderer: ............................................................

*(the person or persons authorised to sign on behalf of the tenderer)*

Date: ..................................................................................
ANNEX 11

Sub-Contracting

If the tenderer plans to sub-contract part of the works, he must provide the following details:

<table>
<thead>
<tr>
<th>Work intended to be sub-contracted</th>
<th>Name and details of sub-contractors</th>
<th>Value of sub-contracting as percentage of the total cost *</th>
<th>Experience in similar works (details to be specified)</th>
</tr>
</thead>
<tbody>
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* Note
- The maximum amount of sub-contracting must not exceed 49% of the total contract value.
- The main contractor must have the ability to carry out at least 51% of the contract works by his own means.

**Bidders must declare a "NIL" statement if no subcontractors are going to be engaged.**

Signature of Tenderer: .................................................................
*(the person or persons authorised to sign on behalf of the tenderer)*

Date: .................................................................
PART SIX

List of Drawings

“NOT APPLICABLE”