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**FRAMEWORK AGREEMENT FOR THE EXECUTION OF  
RESPONSIVE STRUCTURAL AND OTHER REPAIR WORKS IN  
GOVERNMENT TENEMENTS IN DIFFERENT LOCALITIES IN  
MALTA AND GOZO IN AN  
ENVIRONMENTAL FRIENDLY MANNER**

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Date Published: 06 JUN 2016

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Closing Date: 19 JUL 2016 at 10:00am CET

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This Tender is free of charge

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**IMPORTANT:**

A clarification meeting will be held by the Housing Authority on the 15 June 2016 at 3.00pm at BICC Research Centre, 36, Old Mint Street, Valletta.

Clarifications shall be uploaded and will be available to view/download from <http://contracts.gov.mt/en/Tenders/Pages/Tenders.aspx>

# WORKS TENDER

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# VOLUME 1 PRELIMINARY SECTION –INVITATION FOR PARTICIPATION

## INTRODUCTORY GUIDE NOTE

### Part 1: Scope of Invitation

#### 1.1.1 Objectives of this Invitation

- i) The Housing Authority intends to appoint several Contractors, under a **Framework Agreement to undertake works (Job Orders)**, related to the execution of repair works as and when required in Government tenements in different localities in Malta and Gozo.
- ii) Contractors shall, on being accepted within the Framework Agreement, become automatically contracted to undertake repair works (as described in Paras. 1.1.2 and 1.1.3) as directed by the Housing Authority.

#### 1.1.2 Tasks included the Implementation of Contract

The tasks which the Contractors will be required to carry out under the Contract shall include:

- i) Procurement of any statutory works permits/ licenses and other necessary authorizations to carry out the Work assigned;
- ii) Compliance with all current legislation in particular all Health and Safety Regulations and Environment Management Construction Site Regulations and to obtain any related permits where applicable;
- iii) Construction and finishing of the Works in accordance with approved plans, bills of quantities, works schedule, specifications, instructions, specified timeframes and contract commitments as applicable;
- iv) The guarantee of the Work carried out for a period of two (2) years from the date of full completion of same;
- v) Site upkeep during execution and cleanup following completion of works;
- vi) Any remedial measures to the completed work or part of to ensure its satisfactory performance after completion;
- vii) Co-ordination with the residents occupying premises before and during execution of Works.

#### 1.1.3 Works to be covered under this Framework Agreement

The Works to be carried out will generally consist of the provision of responsive repairs in Housing Authority and Government occupied premises which will include but is not limited to, any one or more of the following:

- General Construction and Finishing Work in occupied residential premises and common areas of apartment blocks;

- Repair and replacement work in: structural slabs and balconies, roof screeds, walls and balustrades, rain and foul water drainage systems, apertures, railings, tiling and marble works, plastering, pointing and decoration works;
- Ancillary work to the above.

Appointed contractors will be required to carry out all works in accordance with this document and instructions given by the Perit/Supervisor appointed by the Housing Authority.

In addition, due to the fact that works need to be carried out in developed residential areas and in occupied premises, the appointed Contractors shall be specially bound to pay attention to adhere to third party 'requirements'. In this connection they are bound to carry out operations in such a manner that pedestrian and vehicular traffic, other activities and interests by and of third parties are not disrupted in any way unless authorisation is obtained through statutory works permits / licenses applicable. Moreover works are to be carried out in full co-operation with the residents with the minimum possible inconvenience and with full regard to the Health and Safety measures applicable.

It shall be deemed that standard working time for execution of works shall be between 7:00am and 4:00pm between Monday and Saturday, both days included.

#### 1.1.4 Maximum Contract Rates

**The maximum rates applicable to works emanating from the Framework Agreement shall be those published at Volume 4 – Schedule of Fixed Rates of these documents.**

**For the avoidance of doubt it is declared that whilst the item descriptions in the said Schedule of Rates are generic, the respective associated contract rates will be deemed to be fully comprehensive and representative of the different elements and components of Work that would need to be carried out for each item listed in the schedule. No claims for extra or additional payments will be considered if these are based on arguments that accepted rates do not cover and include for all elements and components of the Work.**

#### 1.1.5 Participation in Framework Agreement

Participation in the Framework Agreement is to be open to all persons and organisations that satisfy the criteria for participation set out in Article 5 (Eligibility) of Volume 1 Section 1 (Instructions to Tenderers).

#### 1.1.6 Awarding of Framework Jobs

The Housing Authority shall appoint compliant contractors to perform works by job orders as determined by the Housing Authority on a rotation basis or as the Housing Authority deems fit. The Contractor shall confirm his acceptance of the Job Order within three (3) working days of the date of issue.

#### 1.1.7 Submission of Applications

Tenderers intending to submit their name for inclusion in the Framework Agreement are specially referred to Volume 1 – Section 1 Instructions to Tenderers – for full details of the manner in which all forms have to be filled out, for submission to the Central Government Authority.

### 1.1.8 Duration of Framework Agreement

The Framework Agreement shall run from the date of its signing by the Central Government Authority and the respective contractors up to two (2) years from this date. The Central Government Authority and Contracting Authority reserve the right to extend the Framework Agreement by a further period of one (1) year subject to agreement between the Central Government Authority and the contractor/s.

### 1.1.9 Use of Framework Agreement

The Framework Agreement sets out the terms and conditions but in itself places no obligations on the Housing Authority to procure anything. The Housing Authority will remain free to use the Framework Agreement when it so deems it appropriate, and can also procure Works elsewhere if required.

The Housing Authority thus reserves the right that, during the service life of the Framework Agreement, it may appoint other contractors from outside the Framework Agreement, and through other procedures, commission works that are similar or identical to those commissioned under the Framework Agreement and/ or to carry out such similar/ identical works by its own direct labour or other resources.

### 1.1.10 Completion Time Frames

Completion periods shall be defined by the Housing Authority at its absolute discretion for all 'Job Orders' assigned under this Framework Agreement.

### 1.1.11 Failure to carry out tasks assigned in Job Orders.

**By entering into the Framework Agreement, a Contractor undertakes to carry out all 'Job Orders' assigned as and when instructed to him by the Housing Authority.**

**Apart from becoming liable to any penalties as applicable under the Framework Agreement, the Contractor refusing to accept 'Job Orders' shall be deemed to be in breach of the Framework Agreement and shall be liable to termination of contract as per Article 61. Such defaulting Contractor shall not be eligible to other 'Job Orders' under the Framework agreement unless such position has been regularised through:**

- (a) The submission by the Contractor, within a timeframe set by the Housing Authority, of a report giving adequate justification and documented evidence of the reason for such non conformity and;**
- (b) The subsequent approval of such justification by the Housing Authority.**

### 1.1.12 Guarantee of Completed Works

The appointed contractor/s shall guarantee that works carried out and completed under this Contract shall not diverge from their specified performance for a period of two (2) years from the date of completion and certification for each Job Order by the Housing Authority.

### 1.1.13 Assessment of Performance by Contractors under the Framework Agreement

The Housing Authority shall establish and there after maintain a procedure for the continuous assessment of the performance of Contractors rendering services.

Such assessments of Contractors shall take account of, but will not be restricted to, such factors as operational capabilities, including attention and adherence to third party requirements as detailed in Clause 1.1.3, quality of materials, workmanship and of the completed work, site and personnel safety, general behaviour of personnel, traffic management, timely commencement and completion of works, the Contractor's general co-operation with the Housing Authority and other stakeholders in the execution of Contracts.

The Housing Authority shall apply a point system to define such performance by Contractors. If pre-defined benchmarks are not achieved, the Contractor will be notified and may, at the Authority's absolute discretion, be suspended from the assignment of other 'Job Orders' under this contract until same Contractor proves that he has taken the necessary measures to achieve such standards. In such case the Contractor is to provide the Housing Authority with a Corrective Action Report which must include the following:

- (a) Identification of the cause for not achieving benchmarks;
- (b) Proposed corrective measures;
- (c) Proof that corrective action is effective to eliminate the problem

The Housing Authority shall then verify and approve the Corrective action.



# VOLUME 1 SECTION 1 – INSTRUCTIONS TO TENDERERS

## A. GENERAL PART

### 1. General Instructions

- 1.1 Prospective bidders are to download and print the tender document from the Housing Authority's website, [www.contracts.gov.mt/tenders](http://www.contracts.gov.mt/tenders) under the heading "Tenders".

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 Housing 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 from the Departmental Contracts Committee, request rectifications in respect of incomplete/non-submitted information pertinent to the documentation as outlined in sub-Clause 16.1(a), 16.1(b), 16.1(c), 16.1(d) and 16.1(e) 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 sub-Clause 16.1(f) of these Instructions to Tenderers. Only clarifications on the submitted information in respect of the latter may be eventually requested.

- 1.2 This is a call for participation in a Framework Agreement for the execution of responsive structural and other repair works in Government Tenements in different localities in Malta and Gozo in an Environmental Friendly Manner:

The basic main trades covered by (but not limited to) this contract are:

- Demolition Works;
- Masonry Works;
- Concrete works;
- Roofing Works;
- Drainage and Rainwater System;
- Electrical Works;
- Plumbing Works;
- Joinery Works
- Aluminium Works
- Finishes to Walls and Ceilings;
- Floor Finishes;
- Metal Works;
- Concrete Repair and Restoration Work;
- Sanitary Ware

- 1.3 This is a Framework Agreement.

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

Housing Authority will in no case be responsible or liable for such costs, whatever the conduct or outcome of the procedure.

- 1.5 The Housing 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

|                                                                                                                                                                                                          | DATE                       | TIME*    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------|
| Clarification Meeting<br>(Refer to Clause 9.1)                                                                                                                                                           | 15 <sup>th</sup> June 2016 | 3.00PM   |
| Deadline for request for any additional information from the Central Government Authority<br><br>Clarifications to be sent Via email on <a href="mailto:info.contracts@gov.mt">info.contracts@gov.mt</a> | 4 <sup>th</sup> July 2016  | 23.45hrs |
| Last date on which additional information are issued by the Central Government Authority                                                                                                                 | 13 <sup>th</sup> July 2016 | 23.45hrs |
| Deadline for submission of tenders                                                                                                                                                                       | 19 <sup>th</sup> July 2016 | 10.00hrs |
| Deadline for submission of tenders / Tender Opening Session (unless otherwise modified in terms of Clause 11.3)                                                                                          | 19 <sup>th</sup> July 2016 | 10.00hrs |

\* All times Central European Time (CET)

## 3. Lots/Job Orders

- 3.1 This Tender is not divided into lots, and Tenders must be for all items in the Schedule of Rates as they shall apply to the repair / replacement / refurbishment works for which Tenderer is participating.
- 3.2 This tender shall be the basis of subsequent 'Job Orders' assigned to the Contractors under the Framework Agreement
- 3.3 The works indicated for different 'Job Orders' will be indivisible. The tenderer must accept the whole of the quality or quantities indicated in each 'Job Order'.

## 4. Financing

- 4.1 The project is financed from local budget funds.
- 4.2 The beneficiary of the financing is the Housing Authority.

## 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 Job Orders assigned.

- 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 Housing 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 forms in **Volume 1, Section 4** of the tender documents and include:

- a) Health and Safety Representative (Form 4). The Evaluation Committee reserves the right to request the tenderers to substantiate their claims in respect to the staff proposed by requesting CVs during the evaluation stage.
- b) A list of tenderer's personnel (Form 5) proposed and available for the execution of the Contract. The Evaluation Committee reserves the right to request the bidder to substantiate the list of personnel available.
- c) A list of plant and equipment (Form 6) for execution of the contract. Plant proposed and available should include a list of all equipment necessary to perform all trades listed in the Technical Specifications at Volume 3 of the document. The Evaluation Committee reserves the right to request the bidder to substantiate his claims in respect of his ability to complete the works with the plant and equipment being proposed.
- d) Data concerning sub-contractors and the percentage of works to be sub-contracted [as per

Volume 1, Section 2]: (Tender Form)

The maximum amount of sub-contracting must not exceed 80% of the total contract value.

The main contractor must have the ability to carry out at least 20% of the contract works by his own means.

## 7. Multiple Tenders

- 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 Housing Authority will neither be responsible for, nor cover, any expenses or losses incurred by the tenderer on any aspect of his tender.

## 9. Clarification Meeting/Site Visit

- 9.1 A clarification meeting will be held on the date and time indicated in Clause 2, at **BICC Research Centre, 36, Old Mint Street, Valletta** to answer any questions on the tender document which have been forwarded in writing, or are raised during the same meeting. Minutes will be taken during the meeting, and these (together with any clarifications in response to written requests which are not addressed during the meeting) shall be posted online as a clarification note as per Clause 11.2.

## 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:
- |          |                                                                                                                                                                                                                                         |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Volume 1 | Preliminary Section                                                                                                                                                                                                                     |
| Volume 1 | Section 1: Instructions to Tenderers                                                                                                                                                                                                    |
|          | Section 2: Tender Form                                                                                                                                                                                                                  |
|          | Section 3: Forms                                                                                                                                                                                                                        |
|          | Section 4: Glossary                                                                                                                                                                                                                     |
|          | Section 5: Extracts from PPR                                                                                                                                                                                                            |
| Volume 2 | <ul style="list-style-type: none"><li>• Draft Contract</li><li>• General Conditions (available online from <a href="http://www.contracts.gov.mt/conditions">www.contracts.gov.mt/conditions</a>)</li><li>• Special Conditions</li></ul> |

|          |                          |
|----------|--------------------------|
| Volume 3 | Technical Specifications |
| Volume 4 | Maximum Contract Rates   |

- 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 Central Government Authority through: Sending an email to: [info.contracts@gov.mt](mailto:info.contracts@gov.mt)
- up to the date and time indicated in the Timetable under Clause 2, Volume 1, Section 1 - Instructions to Tenderers. The Central Government Authority must reply to all tenderers' questions, and amend the tender documents by publishing clarification notes, up to the date and time indicated in the timetable under Clause 2, Volume 1, Section 1 - Instructions to Tenderers.
- 11.2 Questions and answers, and alterations to the tender document will be published as a clarification note on the website of the Department of Contracts ([www.contracts.gov.mt](http://www.contracts.gov.mt)) within the respective Tender's page, under subheading "Additional Docs (if any)" Clarification notes will constitute an integral part of the tender documentation, and it is the responsibility of tenderers to visit this website and be aware of the latest information published online prior to submitting their Tender.
- 11.3 The Central Government 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. In this connection tenderers must abide with declaration in Volume 1 Section 4 Form 2.

## 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. In this connection, tenderers must undertake to sign and abide with the statement of Conditions of Employment in Form 2 of Volume 1, Section 4 throughout the course of execution of this Framework Agreement.

## 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 Central Government 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) All tenders must be submitted in one original, clearly marked “ORIGINAL”, and one identical copy (including all documentation as in the original) signed in the same way as the original and clearly marked “COPY”.
  - (b) Both documents are to be separately sealed and placed in another sealed envelope/package so that the bid can be identified as one tender submission. Following the tender opening session, the copy shall be kept, unopened, at the Housing Authority, for verification purposes only should the need arise.
  - (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 Department of Contracts, Notre Dame Ravelin, Floriana, FRN 1600, Malta.
  - (d) The package, as per (b) above, must bear only:
    - (i) the above address;
    - (ii) the reference of the invitation to tender concerned;
    - (iii) the name of the tenderer.

## 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<sup>(Note 1)</sup> - Not applicable
  - (b) *General/Administrative Information*<sup>(Note 2)</sup>
    - (i) Statement on Conditions of Employment (Volume 1, Section 4, Form 1)
    - (ii) Power of Attorney (Form 2 of Volume 1 Section 4)
    - (iii) Data on Joint Venture/Consortium (Form 3 of Volume 1 Section 4)

*Selection Criteria*
  - (c) *Financial and Economic Standing*<sup>(Note 2)</sup> - Not applicable
  - (d) *Technical Capacity*<sup>(Note 2)</sup>
    - (i) Health & Safety Representative (Volume 1, Section 4, Form 4)
    - (ii) Overview of Tenderer's Personnel (Volume 1, Section 4, Form 5)
    - (iii) Plant & Equipment to be employed on contract (Volume 1, Section 4, Form 6)
  - (e) *Evaluation Criteria/Technical Specifications*<sup>(Note 2)</sup>
    - (i) Literature (Volume 1, Section 4, Form 7)
    - (ii) Green Public Procurement (Volume 1, Section 4, Form 8)
    - (iii) Membrane Guarantee (Volume 1, Section 4, Form 9)
    - (iv) Concrete Repair Guarantee (Volume 1, Section 4, Form 10)

- (f) *Tender Form and Financial Offer/Bill of Quantities*<sup>(Note 3)</sup>
- (i) The Tender Form in accordance with the form provided in Volume 1, Section 2.

**Notes to Clause 16.1:**

1. *Tenderers will be requested to clarify/rectify, within five (5) 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 (5) working days from notification.*
3. *No rectification shall be allowed. Only clarifications on the submitted information may be requested.*

Tenderers are NOT required NOR expected to submit, with their offer, any components of the tender document except those specifically mentioned in Clause 16.

## 17. Tender Prices

- 17.1 All prices are inclusive of taxes, customs and import duties, and any discounts but exclusive of VAT. Except as may otherwise be provided for in the Contract, no payment will be made for items which have not been costed, such items will be deemed to be covered by other items on the bill of quantities.

## 18. Currencies of Tender and Payments

- 18.1 The currency of the tender is the Euro (€).
- 18.2 Payments will be made upon certification of works by the Perit / Supervisor appointed by the Contracting Authority, based on measurements taken on site by the Perit / Supervisor and the contractor of works carried out and satisfactory completed, 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 Department Contracts Committee 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.
- 19.3 The successful tenderer must maintain his tender for a further 90 days from the date of notification of award.

## 20. Tender Guarantee (Bid Bond)

- 20.1 Not applicable.

## 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", and one identical copy (including all documentation as in the original) signed in the same way as the original and clearly marked "COPY". Tenders must comprise the documents specified in Clause 16 above.

It is the responsibility of the tenderers to ensure that both the original and the copy are an identical representation of one another.

- 22.2 The tenderer's submission must be typed in, or handwritten in indelible ink. Any pages on which entries or corrections to his submission have been made must be initialled 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 Housing Authority.
- 22.3 The tender must contain no changes or alterations, other than those made in accordance with instructions issued by the Housing Authority (issued as clarification notes) or necessitated by errors on the part of the tenderer. In the latter case, corrections must be initialled by the person signing the tender.
- 22.4 The tender will be rejected if it contains any alteration, tampering, addition or deletion to the tender documents not specified in a clarification note issued by the Housing Authority.

## D. SUBMISSION OF TENDERS

### 23. Sealing and Marking of Tenders

- 23.1 The Tenders must be submitted in English and received **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: EITHER by recorded delivery (official postal/courier service) or hand delivered to:

**Department of Contracts,  
Notre Dame Ravelin,  
Floriana, FRN 1600  
Malta**

Tenders submitted by any other means will not be considered.

- 23.2 Tenderers must seal the original and the copy of their tender as outlined in Clause 15.
- 23.3 If the outer envelope is not sealed and marked as required in Sub clause 15.1, the Central Government Authority will assume no responsibility for the misplacement or premature opening of the tender.

### 24. Extension of Deadline for Submission of Tenders



- 24.1 The Central Government 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 Central Government 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 Central Government Authority.
- 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".

## 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 Department of Contracts, Notre Dame Ravelin, Floriana FRN1600, by the General Contracts Committee. They will draw up a 'Summary of Tenders Received' which will be published on the notice board at the Department of Contracts and shall also be available to view on the Department's website, [www.contracts.gov.mt/tenders](http://www.contracts.gov.mt/tenders).
- 27.2 During the opening stage, the tenderer's names, written notifications of alterations and withdrawals and other information, the Central Government Authority may consider appropriate will be published.
- 27.3 Envelopes marked "withdrawal" will be read out first and returned to the tenderer.

### 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/ Central Government 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 General 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 General Contracts Committee, request rectifications in respect of incomplete non-submitted information pertinent to the documentation as outlined in Sub-Clause 16.1(a), 16.1(b), 16.1(c), 16.1(d), 16.1(e) 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 Euro fifty (€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 Sub-Clause 16.1(f) of these Instructions to Tenderers. Only clarifications on the submitted information in respect of the latter may be eventually requested.

### 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 (Volume 1, Section 2)

#### *(ii) Selection Criteria*

- Evidence of technical capacity (Sub-Clause 6.1.2)

### 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 (Volume 3, and the documentation requested by the Housing 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) may be requested to submit samples so that the Evaluation Committee will corroborate the technical compliance of the offers received.

## 31. Correction of Arithmetical Errors

Not applicable

## F. SELECTION OF CONTRACTORS

## 32. Criteria for Selection

- 32.1 The quality of each technical offer will be evaluated in accordance with this Tender document. No other award criteria will be used. Contract Allocations will be awarded to each contractor who satisfies the administrative and technical criteria.

## 33. Right Of The Central Government Authority to Accept or Reject Any Tender

- 33.1 The Central Government Authority reserves the right to accept or reject any Tender and/ or to cancel the whole Tender procedure and reject all Tenders. The Central Government 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 Housing 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) there have been irregularities in the procedure, in particular where these have prevented fair competition.

In no circumstances will the Central Government 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 Central Government Authority has been advised of the possibility of damages. The publication of a Contract notice does not commit the Central Government Authority to implement the programme or project announced.

## 34. Notification of Award of Participation in a Framework Agreement

- 34.1 Prior to the expiration of the period of validity of Tenders, the Central Government Authority will notify the successful Tenderers, in writing, that their Tender has been recommended for award of the Framework Agreement by the General Contracts Committee, pending any appeal being lodged in terms of Article 84 of the Public Contracts Regulations (being reproduced in Volume 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 name of the successful Tenderers;
  - (ii) The reasons why the Tenderer did not meet the selection/technical criteria;
  - (iii) The deadline for filing a notice of objection (appeal);
  - (iv) The deposit required if lodging an appeal.
- 34.3 The recommendations of the Evaluation Committee shall be published on the Notice Board of the Central Government Authority and published on the Department's website, [www.contracts.gov.mt/gcc](http://www.contracts.gov.mt/gcc).

## 35. Signing of the Framework Contract, Performance Guarantee and Insurance Policy

- 35.1 After the lapse of the appeals period, and pending that no objections have been received and/or upheld, the successful Tenderer may be invited to clarify certain Contractual questions raised therein. Such clarification will be confined to issues that had no direct bearing on the choice of the successful Tenders. The outcome of any such clarifications will be set out in a Memorandum of Understanding, to

be signed by both parties and incorporated into the Contract for “Participation in a Framework Agreement”.

- 35.2 Within fifteen (15) calendar days of receiving the Contract for “Participation in a Framework Agreement” from the Central Government Authority, the successful Tenderer will sign and date the Contract and return it to the Central Government Authority with the Performance Guarantee and a copy of the insurance policy as per Volume 2, Section 3, Article 14. On signing of the Contract by the Central Government Authority, the successful Tenderers will become the Contractor and the Contract within the Framework Agreement will enter into force.
- 35.3 Before the Central Government Authority signs the contract with the successful tenderer, the successful tenderer may be requested to provide the documentary proof or statements required to show that it does not fall into any of the exclusion situations listed in Clause 7 of the Tender Form (Volume 1, Section 2). The above mentioned documents must be submitted by every member of a Joint Venture/Consortium (if applicable).
- 35.4 If the selected Tenderer fails to sign and return the Contract for “Participation in a Framework Agreement”, other required documentation, and any guarantees required within the prescribed fifteen (15) calendar days, the Central Government Authority may consider the acceptance of the Tender to be cancelled without prejudice to the Central Government Authority's right to claim compensation or pursue any other remedy in respect of such failure, and the successful Tenderer will have no claim whatsoever on the Central Government Authority.
- 35.5 Only the signed Contract will constitute an official commitment on the part of the Central Government Authority, and activities may not begin until the Contract has been signed by the Central Government Authority and the successful Tenderer.
- 35.6 The Performance Guarantee referred to in the General Conditions is set at €1000 and must be presented in the form specified in Volume 2, Section 4, to the Tender document. The performance guarantee is to remain valid until two (2) years following the approval of the final certification of the last Job Order. Following the expiry of the two (2) year defects liability period, a final acceptance certificate shall be issued and the performance guarantee shall be released within thirty (30) days of the issuing of this final acceptance certificate.

## **36. Commencement of Works (Order To Start Works)**

- 36.1 Following the signing of the contract by both parties, the Supervisor will issue a written notice of commencement of the job orders in accordance with the General Conditions, as specified by the Special Conditions.
- 36.2 The contractor must inform the Contracting Authority's representative at 22, Pietro Floriani Street, Floriana by return that he has received the notice.

## **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 Central Government` 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 Central Government` 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 times 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 Housing Authority's prior approval. He may not commit the Central Government 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 for "Participation in a Framework Agreement 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 for "Participation in a Framework Agreement" 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 Central Government Authority may, regardless of injury, terminate his participation in the Framework Agreement without further notice and without the Contractor having any claim to compensation
- 37.10 The Tender(s) concerned will be rejected or Contract for "Participation in a Framework Agreement" terminated if it emerges that the award or execution of the 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 contract of the procurement procedure and/ or subsequently included in the Contract for "Participation in a Framework Agreement" 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 Central Government 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 for "Participation in a Framework Agreement" are without prejudice to the obligations of the Central Government Authority in terms of the Freedom of Information Act (Cap. 496 of the Laws of Malta). The Central Government Authority, prior to disclosure of any information to a third party in relations 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 Housing Authority in terms of the Act.

## **39. Gender Equality**

- 39.1 In carrying out his/her obligations in pursuance of this Contract for "Participation in a Framework Agreement", 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 manifested 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.

## VOLUME 1 SECTION 2 – TENDER FORM

(A separate, distinct Tender Form must be submitted for EACH OPTION - if applicable - submitted)

Publication Reference: **Advert No.**  
 Name of Tender: **TENDER FOR FRAMEWORK AGREEMENT FOR THE EXECUTION OF RESPONSIVE STRUCTURAL AND OTHER REPAIR WORKS IN GOVERNMENT TENEMENTS IN DIFFERENT LOCALITIES IN MALTA AND GOZO.**  
 File Reference No: **CT2136/2016 (TWO 9/2016)**

|                                                                                |                                                                   |                                                   |  |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------|--|
| <b>A. TENDER SUBMITTED BY:</b>                                                 | <i>(This will be included in the Summary of Tenders Received)</i> |                                                   |  |
| <b>In case of a Joint Venture/Consortium:<br/>Name(s) of Leader/Partner(s)</b> | <b>Nationality</b>                                                | <b>Proportion of Responsibilities<sup>2</sup></b> |  |
| Leader <sup>1</sup>                                                            |                                                                   |                                                   |  |
| Partner <sup>1</sup>                                                           |                                                                   |                                                   |  |
| Etc ...                                                                        |                                                                   |                                                   |  |

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).

|     | Work intended to be sub-contracted<br>Bidders are to include "NIL" if no subcontractors are going to be engaged on this project | Name and details of sub-contractors | Value of sub-contracting as percentage of the total cost <sup>3</sup> | Experience in similar works (details are to be specified) |
|-----|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------|
| 1   |                                                                                                                                 |                                     |                                                                       |                                                           |
| 2   |                                                                                                                                 |                                     |                                                                       |                                                           |
| (.) |                                                                                                                                 |                                     |                                                                       |                                                           |

3. The maximum amount of sub-contracting must not exceed 80% of the total contract value. The main contractor must have the ability to carry out at least 20% of the contract works by his own means.

### B CONTACT PERSON (for this tender)

|                  |              |                |              |
|------------------|--------------|----------------|--------------|
| <b>Name</b>      |              | <b>Surname</b> |              |
| <b>Telephone</b> | (____) _____ | <b>Fax</b>     | (____) _____ |

|                |                                        |
|----------------|----------------------------------------|
| <b>Address</b> | <p>.....</p> <p>.....</p> <p>.....</p> |
| <b>E-mail</b>  |                                        |

**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 Housing Authority) for invitation to tender No **CT2136/2016**. We hereby accept the contents thereto in their entirety, without reservation or restriction. We also understand that any disagreement, contradiction, alteration 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, without reserve or restriction, the following works:

**FRAMEWORK AGREEMENT FOR THE EXECUTION OF RESPONSIVE STRUCTURAL AND OTHER REPAIR WORKS IN GOVERNMENT TENEMENTS IN DIFFERENT LOCALITIES IN MALTA AND GOZO.**

3 The prices of our Tender will be as per established prices published in Volume 4 (inclusive of duties, all other charges /taxes and any discounts) but exclusive of VAT.

4 This tender is valid for a period of 150 days from the final date for submission of tenders.

5 If our tender is accepted, we undertake to provide a performance guarantee of €1,000 and an insurance policy as required by the General Conditions.

6 We are making this application in our own right and [as partner in the consortium led by < 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 Central Government 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** <sup>(Note 1)</sup>

- Bid Bond - Not Applicable

(b) **General Information** <sup>(Note 2)</sup>

- Statement on Conditions of Employment (Volume 1, Section 4, Form 1)
- Power of Attorney (Volume 1, Section 4, Form 2)
- Data on Joint Venture/Consortium (Volume 1, Section 4, Form 3)

**Selection Criteria** <sup>(Note 2)</sup>

(c) **Financial and Economic Standing** <sup>(Note 2)</sup>

Not applicable

(d) **Technical Capacity** <sup>(Note 2)</sup>

- Health & Safety Representative (Volume 1, Section 4, Form 4)
- Overview of Tenderer's Personnel (Volume 1, Section 4, Form 5)
- Plant and equipment to be employed on contract (Volume 1, Section 4, Form 6)

(e) **Evaluation Criteria/Technical Specifications** <sup>(Note 2)</sup>

- Literature (Volume 1, Section 4, Form 7)
- Green Public Procurement (Volume 1, Section 4, Form 8)
- Membrane Guarantee (Volume 1, Section 4, Form 9)
- Concrete Repair Guarantee (Volume 1, Section 4, Form 10)

(f) **Tender Form and Financial Offer/Bill of Quantities** <sup>(Note 3)</sup>

**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. This is indicated by the symbol ○*
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. This is indicated by the symbol ○*
3. *No rectification shall be allowed. Only clarifications on the submitted information may be requested. This is indicated by the symbol ●*

- 12 I acknowledge that the Central Government Authority and/or Contracting Authority shall request rectifications in respect of incomplete/non-submitted information pertinent to the documentation listed in Clause 11(a), 11(b), 11(c), 11(d) and 11(e) 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 Central Government 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: \_\_\_\_\_

## VOLUME 1 SECTION 3 – SPECIMEN PERFORMANCE GUARANTEE

### (LETTERHEAD OF THE REGISTERED FINANCIAL INSTITUTION PROVIDING THE GUARANTEE)

Housing Authority  
22 Pietro Floriani Street  
Floriana FRN1060  
Malta

**[Date]**

Dear Sir,

Our Guarantee Number..... for **€1,000**

Account: **[Account Holder's Name]**

In connection with the Contract entered into between yourself on behalf of the Housing Authority and **[Name and Address of Contractor]** hereinafter referred to as "the Contractor" as per the latter's Tender and your acceptance under **[CT File Reference]**, whereby the Contractor undertook the **Framework Agreement for the execution of Responsive Structural and other Repair Works in Government Tenements in different localities in Malta & Gozo** in accordance with Article 13 of the Special Conditions the [works/services/supplies] as mentioned, enumerated or referred to in the Specification and/ or Bills of Quantities forming part of the Contract documents, we hereby guarantee to pay you on demand a maximum sum of **€1,000 (one thousand Euro Only)** in case the obligations of the above-mentioned Contract are not duly performed by the Contractor.

This guarantee will become payable on your first demand and 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 guarantor and the beneficiary, 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 undertaking assumed under the Tender documents as ratified in the Contract.

Any payments due to the Contractor in respect of the obligations entered into under the Contract above referred to shall be made through this Bank.

This guarantee expires on the **[expiry date]** 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 on utilization or expiry or in the event of the guarantee being no longer required.

After the expiry date and in the absence of a written demand being received by us before such expiry date, this guarantee shall be null and void, whether returned to us or not, and our liability hereunder shall terminate.

This guarantee is personal to you, and is not transferable or assignable.

Yours Faithfully,

.....  
**[Signatory on behalf of Guarantor]**

## VOLUME 1 SECTION 4 - TENDERER'S STATEMENTS & QUESTIONNAIRE

### Forms to be completed and submitted by the Tenderer:

- Form 1 - Statement on Conditions of Employment
- Form 2 - Power of Attorney (where applicable)
- Form 3 - Data on Joint Venture/Consortium (Where applicable)
- Form 4 - Health & Safety Representative
- Form 5 - Overview of Tenderer's Personnel
- Form 6 - Plant and Equipment to be Employed on Contract
- Form 7 - Literature
- Form 8 - Green Public Procurement
- Form 9 - Membrane Guarantee
- Form 10 - Concrete Repair Guarantee

### Notes to Tenderers

1. All questions contained in the forms must be answered by the tenderer.
2. Additional sheets may be attached as necessary.
3. If a question does not apply to the tenderer, the box at the end of the page must be ticked appropriately.
4. Every single page of each form must be numbered consecutively in the bottom right-hand corner.
5. Attached documentation/certificates must always be accompanied by a relevant translation in the language of the procedure.
6. Each partner in a joint venture/consortium must fill in and submit every form.
7. The person signing this questionnaire guarantees the truthfulness and accuracy of all the statements made.
8. The accuracy of the answers to the questionnaire, their completeness and the attached documentation will be taken into account in the tender evaluation. Please refer to Clause 1.1 of the Instructions to Tenderers.

## Form 1 - Statement on Conditions of Employment

**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: .....

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

ID Card No: .....

Date: .....

## Form 2 - Power of Attorney (where applicable)

Please attach here the power of attorney empowering the signatory of the tender and all related documentation.

Signature: .....  
(*the person or persons authorised to sign on behalf of the tenderer*)

ID Card No: .....

Date: .....

### Form 3- Data on Joint Venture/Consortium (Where applicable)

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                        |  |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--|
| 1 | Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | .....                                                                  |  |
| 2 | Managing Board's Contact Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Address: .....<br>.....<br>Telephone: ..... Fax: .....<br>Email: ..... |  |
| 3 | Agency in the state of the Contracting Authority, if any<br><i>(in the case of a Joint Venture/Consortium with a foreign lead partner)</i>                                                                                                                                                                                                                                                                                                                                                                   | Address: .....<br>.....<br>Telephone: ..... Fax: .....<br>Email: ..... |  |
| 4 | Names of Partners                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | (i) .....<br>(ii) .....<br>(iii) .....<br>(iv) .....                   |  |
| 5 | Name of Lead Partner                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | .....                                                                  |  |
| 6 | Agreement governing the formation of the Joint Venture/Consortium<br><i>(Enclose Joint Venture/ Consortium Agreement)</i>                                                                                                                                                                                                                                                                                                                                                                                    |                                                                        |  |
|   | Place of Signature:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Date of Signature:                                                     |  |
|   | .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | .....                                                                  |  |
| 7 | Proposed proportion of responsibilities between partners (in %) with indication of the type of the works to be performed by each*<br><small>* 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</small> |                                                                        |  |
|   | ..... - .....%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ..... - .....%                                                         |  |
|   | ..... - .....%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ..... - .....%                                                         |  |

Signature: .....  
*(the person or persons authorised to sign on behalf of the tenderer)*

ID Card No: .....

Date: .....

### Form 4 – Health and Safety Representative

Evaluation Committee reserves the right to request CV during evaluation stage:

| Position                                | Name and Surname | Nationality | Age | Level of Education | Qualifications in Health and |
|-----------------------------------------|------------------|-------------|-----|--------------------|------------------------------|
| <i>Health and Safety Representative</i> |                  |             |     |                    |                              |

Signature: .....

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

ID Card No: .....

Date: .....



## Form 5 –Overview of Tenderer’s Personnel

The Tenderer is to confirm that the following personnel will be available on this contract as indicated in the table below. Personnel employed by subcontractors as allowed by Volume 1, Section1, Clause 6.1.2d are deemed as included. The Evaluation Committee reserves the right to request the bidder to substantiate the list of personnel available.

|          | Description                                                     | Number    |
|----------|-----------------------------------------------------------------|-----------|
| <b>A</b> | <b>Managerial</b>                                               |           |
|          | • Director/s and Management                                     | 1         |
| <b>B</b> | <b>Other Experts</b>                                            |           |
|          | • Foreman                                                       | 1         |
|          | • Licensed Mason (to possess a valid license)                   | 1         |
|          | • Plumber + Licensed Electrician (to possess a valid license A) | 1         |
|          | • Drain layer                                                   | 1         |
|          | • Plasterer / Decorator                                         | 1         |
|          | • Joiner                                                        | 1         |
|          | • Aluminium / Metal Works Manufacturer                          | 1         |
|          | • Tile and Marble Layer                                         | 1         |
|          | • Labourers and Unskilled Staff                                 | 2         |
|          |                                                                 |           |
|          | <b>TOTAL</b>                                                    | <b>11</b> |

Signature: .....  
 (the person or persons authorised to sign on behalf of the tenderer)

ID Card No: .....

Date: .....



## Form 7- Literature

**1. List of literature to be submitted with the tender:**

| Item | Description              | Reference in Technical Specifications |
|------|--------------------------|---------------------------------------|
| 1.1  | Liquid Membrane          | Section D Clause 4.4                  |
| 1.2  | Concrete Repair products | Section M Clause 2.0 - 2.3            |

| Item | Description                                        | Reference in section 1 - Instructions to tenderers - Article 16  |
|------|----------------------------------------------------|------------------------------------------------------------------|
| 1.3  | Green Public Procurement Declaration (Certificate) | Form 8 marked Green Public Procurement to be submitted. (Note 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.

**2. No samples are being requested by the Housing Authority. However, the Housing Authority reserves the right to demand samples of materials corresponding to the literature submitted by the tenderer at evaluation stage or after the award of tender.**

Signature: .....

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

ID Card No: .....

Date: .....

## Form 8 – Green Public Procurement Declaration

I declare that the products/substances mentioned in Volume 3, Technical Specifications:

Section H - JOINERY WORKS - Item 26

Section J - FINISHES TO WALLS AND CEILINGS - Item 15

Section L - METAL WORKS - Item 6

**will not be** used during the execution of works for this tender

I declare that the products/substances mentioned in Volume 3, Technical Specifications:

Section N - SANITARY WARE - Item 1

**will be** used during the execution of works for this tender

Signature: .....

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

ID Card No: .....

Date: .....

## Form 9 – Membrane Guarantee

I, the undersigned contractor guarantee that I will retain responsibility for any deficiencies developing in the membrane applied as per Framework Agreement Schedule of Fixed Prices Bill 7 Items 7.07a and 7.12 for a period of ten (10) years from the date of application of membrane.

This guarantee does not cover deficiencies which result from:

1. Damage to the liquid membrane product caused by any negligence, carelessness, vandalism or deliberate act by the residents of the building or other persons employed by the residents or the Housing Authority.
2. Damage to the liquid membrane product caused by installation of air conditioning equipment, radio, television antenna or other equipment, water tanks, solar water heaters, PV panels, framework for drying lines and / or other similar installations on the roof.

With this guarantee, I hereby accept liability to carry out all necessary repairs to the membrane and to make good any damage caused to underlying premises or fixtures as a result of deficiencies developing in the membrane.

Signature: .....  
*(the person or persons authorised to sign on behalf of the tenderer)*

ID Card No: .....

Date: .....

## Form 10 – Concrete Repair Guarantee

I, the undersigned contractor guarantee that I will retain responsibility for any deficiencies developing in concrete repair works carried out as per Framework Agreement Schedule of Fixed Prices Bill 4 Items 4.01 - 4.04 for a period of two (2) years from the date of application of repair product.

This guarantee is not valid in case of the following:

1. If damage to the concrete repair is caused by leakages from overlying third party bathrooms, balconies or roofs inadequately waterproofed and / or maintained by third parties.
2. If the damage is caused by any negligence, carelessness, vandalism or deliberate act by the residents of the building or other persons employed by the residents or the Housing Authority.

With this guarantee, I hereby accept liability to carry out all necessary repairs to the concrete as directed by the architect in charge and as per specifications.

Signature: .....  
*(the person or persons authorised to sign on behalf of the tenderer)*

ID Card No: .....

Date: .....

## VOLUME 1 SECTION 5 – GLOSSARY

### 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.

**Central Government Authority:** means the Department of Contracts

**Contracting Authority:** means the final beneficiary for whom works are carried out

**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 Housing Authority and 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 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. Also responsible for sub-contractors and self-employed engaged by contractor to carry out work activities.

**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 Housing 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.

**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.

**PSDS:** Project Supervisor for design stage appointed by Contracting Authority as per LN 281 of 2004.

**PSCS:** Project Supervisor for construction/execution stage appointed by Contracting Authority as per LN 281 of 2004.

**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.

**Special conditions:** The special conditions 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/Perit/Project Leader:** 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.



## VOLUME 1 SECTION 6 – EXTRACTS FROM THE PUBLIC PROCUREMENT REGULATIONS

### *Part XIII - Appeals*

The procedure for the submission of appeals is stipulated in Part XIII of the Public Procurement Regulations (Legal Notice 296/2010), reproduced hereunder for ease of reference.

1) Any tenderer or candidate concerned, or any person, having or having had an interest or who has been harmed or risks being harmed by an alleged infringement or by any decision taken including a proposed award in obtaining a contract or a cancellation of a call for tender, may file a notice of objection with the Review Board.

The notice shall be filed within ten calendar days following the date on which the contracting authority has by fax or other electronic means sent its proposed award decision.

The communication to each tenderer of the proposed award shall be accompanied by a summary of the relevant reasons relating to the rejection of the tender as set out in regulation 44(3), and by a precise statement of the exact standstill period.

The notice of objection shall only be valid if accompanied by a deposit equivalent to 0.75 per cent of the estimated value of the whole tender prior to publication or if the tender is divided into lots according to the estimated of the tender for each lot submitted by the tenderer, provided that in no case shall the deposit be less than one thousand and two hundred euro (€1,200) or more than fifty-eight thousand euro (€58,000). The Secretary of the Review Board shall immediately notify the Director that an objection had been filed with his authority thereby immediately suspending the award procedure. The Department of Contracts or the contracting authority involved, as the case may be, shall be precluded from concluding the contract during the period of ten calendar days allowed for the submission of appeals. The award process shall be completely suspended if an appeal is eventually submitted.

2) The procedure to be followed in submitting and determining complaints as well as the conditions under which such complaints may be filed shall be the following:

(a) any decision by the General Contracts Committee (or a Special Contracts Committee) and by a contracting authority, shall be made public at the Department of Contracts or at the office of the contracting authority prior to the award of the contract;

(b) the notice of objection duly filed in accordance with sub-regulation (1) shall be made public by the Review Board not later than the next working day following its filing;

(c) within three working days of the publication of the replies the Secretary of the Review Board shall prepare a report (the Analysis Report) analysing the letter of objection. This report shall be circulated to the persons who file an objection and interested parties. After the preparatory process is duly completed, the Head of the contracting authority shall forward to the Chairman of the Review Board all documentation pertaining to the call for tenders in question including files, tenders submitted, copies of deposit receipts, any motivated letter, who shall then proceed as stipulated in Part XIV;

(d) the Director or the Head of the contracting authority shall publish a copy of the decision of the Review Board at his department or at the premises of the relevant contracting authority, as the case may be.

Copies of the decision shall be forwarded by the Secretary of the Board to the complaining tenderer, any persons who had registered or had an implied interest, the Director of Contracts and to the contracting authority concerned.

## VOLUME 2 SECTION 1 - DRAFT CONTRACT FORM

Financed by: Housing Authority Funds  
Project: Tender for the Framework Agreement for the Execution of Responsive Structural and other Repair Works in Government Tenements in Different Localities in Malta and Gozo  
Contract Number: TWO 9/2016

This contract is concluded between:

Department of Contracts  
Notre Dome Ravelin,  
Floriana FRN 1060  
Malta

hereinafter called “The Central Government Authority” on the one part, and

[Name of Contractor]  
[Address]

(hereinafter called “The Contractor”) on the other part,

Whereas the Housing Authority is desirous that certain works should be executed by the Contractor, viz.:

### **TENDER FOR THE FRAMEWORK AGREEMENT FOR THE EXECUTION OF RESPONSIVE STRUCTURAL AND OTHER REPAIR WORKS IN GOVERNMENT TENEMENTS IN DIFFERENT LOCALITIES IN MALTA AND GOZO IN AN ENVIRONMENTALLY FRIENDLY MANNER**

and has accepted a tender by the Contractor for the execution and completion of such works and the remedying of any defects therein.

#### **It is hereby agreed as follows:**

1. In this contract words and expressions shall have the meanings assigned to them in the contractual conditions set out below.
2. The following documents shall be deemed to form and be read and construed as part of this contract, in the following order of precedence:
  - a) this Contract,
  - b) the Special Conditions,
  - c) the General Conditions,
  - d) the Contracting Authority's technical specifications and Schedule of Fixed Rates,
  - e) the Contractor's technical offer (including any clarifications made during adjudication),
  - f) the tender form,
  - g) any other documents forming part of the contract.

Addenda shall have the order of precedence of the document they are modifying.

3. In consideration of the payments to be made by the Housing Authority to the Contractor as hereinafter mentioned, the Contractor undertakes to execute and complete the works and remedy defects therein in full compliance with the provisions of the contract.

4. The Contracting Authority hereby agrees to pay the Contractor in consideration of the execution and completion of the works and remedying of defects therein in accordance with Article 18 of the Special Conditions. The maximum prices at which works shall be carried out shall not exceed those established under this Framework Agreement as are shown in the Schedule of Unit Rates
5. The Contractor hereby agrees to submit a Performance Guarantee as per Article 13: Performance Guarantee of Volume 2 Section 3 - Special Conditions together with the signed "Contract Allocation"
6. In witness whereof the parties hereto have signed the Contract. This contract shall take effect on the date on which it is signed by the last party.

Done in English in two originals: one for the Central Government Authority, one for the Contracting Authority and one for the Contractor.

**Central Government Authority:**

**Contractor:**

Signed by:

Signed by:

.....  
*Name & Surname*

.....  
*Name & Surname*

Signature:

Signature:

.....

.....

In the capacity of:

In the capacity of:

.....

.....

Being fully authorized by and acting on behalf of:

Being fully authorized by and acting on behalf of:

.....

.....

Date:

Date:

.....

.....

## VOLUME 2 SECTION 2 - GENERAL CONDITIONS

The full set of General Conditions for Works Contracts (Version 1.06 dated 04/01/2016) can be viewed/downloaded from:

[www.contracts.gov.mt/conditions](http://www.contracts.gov.mt/conditions)

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 of the contract that will be signed with the successful tenderer/s.

## VOLUME 2 SECTION 3 - SPECIAL CONDITIONS

These conditions amplify and supplement, if necessary, the General Conditions governing the contract. Unless the Special Conditions provide otherwise, those General Conditions remain fully applicable. The numbering of the Articles of the Special Conditions is not consecutive but follows the numbering of the Articles of the General Conditions. Other Special Conditions should be indicated afterwards.

### Article 2: Law and Language of the Contract

- 2.1 The Laws of Malta shall apply in all matters not covered by the provisions of the contract.
- 2.2 The language used shall be English.

### Article 3: Order of precedence of contract documents

- 3.1 The contract is made up of the following documents, in order of precedence:

The contract is made up of the following documents, in order of precedence:

- (a) the Contract,
- (b) the Special Conditions,
- (c) the General Conditions,
- (d) the Housing Authority's technical specifications, Schedule of Fixed Rates,
- (e) the Contractor's technical offer,
- (f) the tender form,
- (h) any other documents forming part of the contract.

Clarifications and Addenda shall have the order of precedence of the document according to the article they are modifying.

### Article 4: Communications

- 4.1 As in General Conditions, however, communications can also be sent by e-mail to the [procurement.ha@ha.gov.mt](mailto:procurement.ha@ha.gov.mt) and/or contact the Housing Authority on the phone number to be provided later when the tender is awarded to the successful bidder.

### Article 5: Supervisor and Supervisor's Representative

- 5.6 The Contractor shall place at the disposal of the Supervisor, temporarily and free of charge all information, literature, specifications and access to all places where work is being prepared or from where manufactured articles are being obtained, which are considered necessary for verifying and inspecting the works to be carried out and the items to be provided. The contractor is obliged to obtain any required permission in order to enable the Supervisor to inspect, examine and test as applicable, any items which are being manufactured in the premises.

### Article 8: Supply of Documents

- 8.1 The Supervisor shall provide the Contractor with a complete set of drawings together with the Specifications and Bill of Quantities free of charge.

**8.4** The Contractor shall provide everything necessary for the proper execution of the works according to the true intent and meaning of the drawings, specifications and Bills of Quantities supplied by the Supervisor. The contractor may wish to provide additional drawings and documents which may include any revisions or deviations from the contract drawings. In each case, the contractor is to submit a copy of these drawings to the Supervisor and await his approval in writing before proceeding with the work.

Any updated or additional drawings and documents shall be submitted to the Supervisor for approval seven (7) working days prior to the works being carried out. Supervisor will approve or request amendments in writing within three (3) working days from submission.

**Article 10: Assistance with Local Regulations**

**10.2** If necessary, the Contractor shall duly notify the Housing Authority of details of the works so that the Housing Authority can assist him in obtaining the requisite permits or import licences.

**Article 11: The Contractor's Obligations**

**11.5** The Contractor shall comply fully with any administrative orders given to him. Where the Contractor considers that the requirements of an administrative order exceed the authority of the Supervisor or the scope of the contract, he shall, on pain of being time-barred, notify the Supervisor of this fact within 10 days of receiving the administrative order and inform the Housing Authority. Execution of the administrative order shall be suspended during this period.

The Contractor shall draw up and submit for the Supervisor's approval a programme of performance of each Job Order assigned, in accordance with the detailed rules laid down in Articles 15 and 32 of the General and Special Conditions.

The Contractor may be required to draw up detailed drawings of specific works, in cases where revisions from contract drawings are required and details of works as built. Such works are to be submitted for the Supervisor's approval. The same shall apply to documents and items, which are to be submitted to the Supervisor for endorsement or acceptance. These detailed drawings, documents and items may not be reproduced or used for another purpose by the Housing Authority, nor communicated to third parties, except with the Contractor's agreement and on payment of fair compensation.

**11.11** Article 11.11 of the General Conditions is not applicable.

**Article 12: Superintendence of the Works**

**12.3** The Contractor's representative shall have full authority to make any decision necessary for the execution of the works, to receive and carry out administrative orders and to countersign the work register referred to in these Conditions or the Annexes. He shall assume responsibility for the proper execution of the works on behalf of the Contractor and is required to be constantly on the site of works and to devote his whole attention to the superintendence and co-ordination of same.

### **Article 13: Performance Guarantee**

- 13.1** The Contractor shall, within 15 days of receipt of the notification of the award of contract, furnish the Housing Authority with a guarantee for the full and proper performance of the contract. A copy shall also be delivered to the Housing Authority. The amount of the guarantee shall be €1000.
- 13.3** The performance guarantee shall be in the format given in Volume 1 - Section 3 of the tender dossier and may be provided in the form of a bank guarantee. It shall be issued by a bank in accordance with the eligibility criteria applicable for the award of the contract.
- 13.7** The performance guarantee is to remain valid until two (2) years following the approval of the final certification of the last Job Order. Following the expiry of the two (2) year defects liability period, a final acceptance certificate shall be issued and the performance guarantee shall be released within thirty (30) days of the issuing of this final acceptance certificate.

### **Article 14: Insurance**

- 14.1** The Contractor/s shall take out and keep, throughout the term of validity of this Framework agreement, an insurance cover against any loss or damage for which he is liable under the contract. Such insurance shall cover:
- a) the works, together with materials and plant for incorporation therein, to the full replacement cost against all loss or damage from whatever cause arising other than from force majeure or risks attributable under the contract to the Housing Authority;
  - b) an additional sum of 15% of such replacement cost, to cover all the additional direct or indirect costs of making good losses or damage, including professional fees and the cost of demolishing and removing any part of the works and of removing debris of whatever nature;
  - c) the Contractor's equipment and other things brought onto the site by the Contractor, for a sum sufficient to provide their replacement at the site.
  - d) liability for damages to third parties and third party property of not less than €100,000 in respect of each occurrence arising out of one event.
- 14.2** The Contractor may substitute the insurance provided for in Article 14.1 by a comprehensive insurance policy that covers, inter alia, the elements of Article 14.1(a), (b), (c) and (d).
- 14.3** The Contractor shall take out insurance against industrial accidents and civil liabilities arising from the execution of the works to any person employed by the Contractor on the works or to third parties on site. Such liability shall be unlimited in the case of personal injuries.
- 14.5** All the insurance referred to in this Article shall be taken out within 15 days from notification of award of the contract, and shall be subject to approval by the Housing Authority. Such insurance shall take effect as from the commencement of the works and remain in force until final acceptance of the works. The Contractor shall present the Housing Authority with a certified true copy of the insurance policy and proof that premiums have been duly paid. This clause shall not imply any responsibility on the Housing Authority should the contractor fail to provide such proof and shall remain solely responsible for the provision of such cover.

**14.6** Notwithstanding the Contractor's insurance obligations under Article 14, the Contractor shall bear sole liability for any claims by third parties for damage to property or personal injuries arising from the execution of the works by the Contractor, his subcontractors and employees.

**14.7** The Contractor shall be held fully responsible for any losses that may be incurred by the Housing Authority and the Supervisor in the event of failure to insure as required, failure to maintain continuity of coverage, failure to insure adequately and/or failure to comply with policy terms, conditions, warranties or other policy or legal requirements.

**Article 15: Performance Programme (Timetable)**

**15.4** The contractor is to abide with the completion periods specified by the Housing Authority for each Job Order and shall diligently follow the programme and sequence of works as instructed by the Supervisor. He shall maintain a steady rate of progress and complete the Job Order within the time stipulated. Failure to adhere to the specified completion period shall entail a penalty equivalent to the number of days in delay from the approved completion date and based on the daily rate stipulated in Article 34.1 of the Special Conditions.

**Article 17: Contractor's Drawings**

**17.1** The Contractor may be requested to submit to the Supervisor for approval as built drawings on which shall be noted neatly, accurately and promptly as work progresses all significant changes between the work shown on the contract drawings and that which is actually constructed.

**Article 18: Sufficiency of Tender Prices**

**18.4** The tendered rates shall be inclusive of all work as specified, as well as any other works that are of a contingent or indispensable nature for completing the work in its entirety and to the satisfaction of the Architect in charge. The rates shall be inclusive of architects' fees, measurement fees and all other charges applicable by law including but not limited to the following:

- a) Preparation of site to commence works including co-ordination with the occupants of the premises requiring repairs;
- b) Preparing material and tools for transport to and from the site;
- c) Taking the plant to and bringing it back from the site, including insurance and all costs, expenses and charges whatsoever in connection with or arising out of the transport;
- d) Hire of tools and equipment during preparation and during transport;
- e) Putting the plant into working order on arrival at the site and dismantling the same on completion of the works;
- f) Plant shall also include equipment and instruments for surveying and measurement, tools, scaffolding and other means of access;
- g) Costs and expenses in connection with recruiting and sending out site staff, their repatriation, outfit, inoculations and other medical expenses, passports, passages, salaries or wages, all costs in connection with travelling, pay whilst sick, insurance, living and all other costs, expenses and allowances whatsoever;



- h) All initial expenditure such as provision and transport of cars for the Contractor's staff, temporary buildings such as offices or stores or huts and all other costs;
- i) Installation of, maintenance of and, on completion of the Works removal of, all Contractors' temporary Works and storage areas;
- j) All costs in connection with the procurement, at the proper time, for the expeditious execution of the Works, of materials including but not limited to, importation, transport, insurance, taxes, duties and other financial impositions, storage and protection, distribution about the site, hoisting and/or lowering into position, losses, waste and any other expenses whatsoever in the procurement, protection, handling and use of materials;
- k) The provision of any samples of materials called for by the Supervisor.
- l) The costs of all samples, tests, shop drawings and the like except those items specially referred to as independent testing in the Conditions of Contract and Specifications;
- m) The additional cost of working, or loss of productivity in adverse weather conditions;
- n) Protection of the Works and Demobilisation;
- o) The use of covered chutes, skips and covered trucks for the removal and transport of materials and debris;
- p) Double and manual handling of materials due to site conditions;
- q) Use the methods of installation which create the least inconvenience from noise and dust to the adjacent buildings;
- r) Keep the site in an orderly manner, clean and in a safe condition at all times and immediately removing all waste and rubbish;
- s) The Rates and Prices shall cover all work as specified, as well as materials necessary, profits and payments of Customs Duty and Landing charges on all imported goods, taxes, eco-contribution (if any), dumping fees, all site costs, site supervision and overhead charges and all other costs, expenditure whatsoever together with any allowances for profit thereon; but exclusive of VAT.
- t) All expenditure in connection with the provision of all drawings required and for all instruction manuals unless quoted for in the bill of quantities.
- u) Any rates and prices inserted in the Bill of Quantities by the Contractor in respect of the works to be undertaken by his subcontractors shall be inclusive of all additions to cover the Contractor's profit, charges for attendance upon and services and facilities provided by him for use by his own Sub Contractors.

**18.5** Considering that the works need to be carried out in developed residential areas and in occupied premises, the contractor acknowledges the difficulties of access to the sites and their proximity to adjacent finished and occupied properties. He is obliged to assume responsibility of any liability towards adjacent neighbours resulting from execution of the works. The scope of works and trades are those listed in Clause 1.2 of the Instructions to Tenderers.

**18.6** No claims arising from lack of ascertaining the site conditions shall be entertained.

## **Article 20: Safety on site**

- 20.5** Without prejudice to the above, the Contractor shall be bound to conform and comply with Chapter 424 of The Laws of Malta (Occupational Health and Safety Authority Act 2000) and to all regulations/legal notices that form part of this Act, as well as any other 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. In particular, contractor shall also be responsible for the safe installation and operation of all lifting appliances and cranes used on site for the execution of works.
- 20.6** The contractor shall abide to the contents of the Occupational Health and Safety plan developed by the Housing Authority's Occupational Health and Safety Representative.
- 20.7** The Contractor will be responsible for the safety of the works (including the materials and plant) until they are taken possession of by the Final Beneficiary 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 causes at his own expense. The Contractor must cover up and protect from damage from any cause, all new work. He must supply protection from the whole of the works executed and any damage caused must be made good by the contractor at his own expense.
- 20.8** The Supervisor shall reserve the right to ask for the immediate suspension of work or part thereof and shall also ask for the removal of any person from the site should, in their opinion, such Health and Safety practices are not being adhered to. In such a case, the Contractor shall have no right to claim for any extension of time or any other form of compensation under this contract. The contractor shall also indemnify the Supervisor/Housing Authority against any claims made against them and/or on related responsibilities, by third parties, should the Contractor fail to follow such practices or regulations.

## **Article 21: Safeguarding adjacent properties**

- 21.3** The Contractor shall bear sole and complete responsibility for any loss or damage during the Contract to lands and other property lying outside the Site or to public utilities or facilities, including roads, sidewalks, driveways, curbs, landscaping, water, sewer, power and telecommunication lines and connections therefore, whether located within or without the Site, and shall be obliged to promptly repay to the Housing Authority or other Government Authorities all costs and expenses incurred by them for and in connection with the repair or replacement of any such lands, public utilities or facilities damaged by the Contractor. The Contractor shall abide by all directives issued by the Housing Authority or other Government Authorities for the purpose of protecting such lands, property, roads and other public utilities and facilities from damage.

## **Article 22: Interference with Traffic**

- 22.2** Any special measures which the Contractor considers necessary or which are required by the Housing Authority in order to protect or strengthen sections of roads, tracks or bridges shall be at the expense of the Contractor, whether or not they are carried out by the Contractor. The Contractor shall inform the Supervisor of any special measures he intends to take before carrying them out. The repair of any damage caused to roads, tracks or bridges by the transport of materials, plant or equipment shall be at the expense of the Contractor.

22.3 Contractor is to inform Transport Malta (TM) and / or the respective Local Council (LC) as applicable 3 days in advance when any work to be executed will entail the blockage of roads so that TM / LC can take necessary action to identify alternative routes.

22.4 The contractor shall comply with and fulfil all obligations imposed by Article 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 any lawful Authority.

#### **Article 28: Soil Studies**

28.2 Besides the provision of the General Conditions in respect of Article 28.2, the compensation given is subject to the required approvals, as per procedure, from the Housing Authority and the Central Government Authority.

#### **Article 30: Patents and Licences**

Article 30 of the General Conditions is not applicable.

#### **Article 31: Commencement Order**

31.1 The Housing Authority shall fix the date on which performance of each Job Order is to commence and advise the Contractor thereof by Order to start Works issued by the Supervisor or Procurement Officer. The Contractor shall confirm acceptance of the Job Order within three (3) working days from the receipt of the Order to start Works.

31.3 Contractor is also obliged to co-ordinate with the tenants as regards access to premises and working hours which will be of least inconvenience to tenants and third parties.

#### **Article 32: Period of Execution of Tasks**

32.1 All works shall be carried out within the maximum period of weeks stipulated in the job order / order to start works and from the date of order to commence works and progress shall be in accordance with the approved completion period of each job order. The contractor shall complete, commission and hand over the works by not later than the completion period stipulated for each job order.

32.3 The contracting authority will notify contractor via e-mail when a new task arises, specifying starting date and execution period.

32.4 The bidder's contact person is to be available during office hours to receive and process job orders without delay.

#### **Article 34: Delays in Execution**

34.1 If the Contractor fails to complete the works by the interim deadline(s) specified in the order to start works of each Job Order, the Housing Authority shall, without formal notice and without prejudice to any other remedies under the contract, be entitled to liquidate damages for every day or part thereof which elapses between the end of the period of performance or extended period of performance and the actual date of completion, at the rate of €50 per calendar day of delay, including Sundays and holidays. The amounts due as penalty shall be computed for each day between the target completion date and the actual date of completion, provided such penalty does not exceed 20% of the contract price. If the works have undergone

partial acceptance in accordance with Article 57, the liquidated damages specified may be reduced by the proportion of the value of the whole of the works represented by the accepted part.

#### **Article 35: Variations and Modifications**

- 35.1** Further to the General Conditions the maximum amount of variations shall be not more than 30% of the total contract value.
- 35.3** Save where Article 35.2 provides otherwise, prior to issuing an administrative order for a modification, the Supervisor shall notify the Contractor of the nature and form of that modification. As soon as possible, but not later than 2 weeks from the receipt of such notice, the Contractor shall submit to the Supervisor a proposal containing:
- a) a description of the tasks, if any, to be performed or the measures to be taken and a programme for execution; and
  - b) any necessary modifications to the programme of performance or to any of the Contractor's obligations under the contract; and
  - c) any adjustment to the contract price in accordance with the rules set out in Article 35.
- 35.6** On receipt of the administrative order requesting the modification, the Contractor shall proceed to carry out the modification as if it had been stated in the contract. The works shall not be delayed pending the granting of any extension of time for completion or adjustment to the contract price. The contractor is obliged to carry out the works and cannot hold up progress. Performance of the contract shall continue unless the Housing Authority specifically orders a suspension of works. Where the order for a modification precedes the adjustment to the contract price, the Contractor shall keep records of the costs of undertaking the modification and of the time expended thereon. Such records shall be open to inspection by the Supervisor at all reasonable times.
- 35.7** In the event of an increase or decrease in the total volume of work required by the Housing Authority or resulting from circumstances which are caused neither by the Contractor's negligence nor by any action on his part, the Contractor may not claim compensation unless that increase or decrease, calculated on the basis of the original prices and without varying the object of the contract, exceeds 15% of the original contract price or decreased by 10%. In these circumstances, on making a reasoned request submitted to the Housing Authority, the Contractor shall be entitled to have the contractual period of performance changed.
- 35.8** Where the increase or decrease, calculated in the manner described, exceeds the percentage indicated in Article 35.7, the Contractor may, when the general statement is drawn up, make a claim for compensation on the grounds of any damage he has suffered as a result of modifications to the original project. He shall also be entitled, on making a reasoned request submitted to the Housing Authority, to a modification in the contractual period of performance. Where the modification, calculated in the manner described, exceeds 33%, the Contractor is entitled to refuse to carry out any work beyond that value. In that case, he shall inform the Housing Authority of his decision by registered letter with acknowledgement of delivery within two months of the administrative order specifying that modification. The Supervisor shall, after consulting the Housing Authority and the Contractor, and after obtaining written approval from the Housing Authority, determine any addition/compensation and extension of period of performance.

### **Article 36: Suspension**

- 36.3** Besides the provision of the General Conditions in respect of Article 36.3, no claims for loss of profit due to temporary suspension of works by the Supervisor shall be considered.

### **Article 37: Work Register**

Article 37 of the General Conditions is not applicable.

### **Article 38: Origin**

Article 38 of the General Conditions is not applicable.

### **Article 39: Quality of Works and Materials**

- 39.2** Besides the provision of the General Conditions in respect of Article 39.2, the Contractor will be entirely responsible for the proper and efficient carrying out of the whole of the work that is to be done in the best and most workmanlike manner. He shall satisfy the Supervisor that the works, components and materials are such as specified or equivalent. Samples of works, components and materials to be used shall therefore be submitted to the Supervisor for preliminary technical acceptance before the relative orders for supply are placed.

### **Article 40: Inspection and Testing**

- 40.3** Further to the provisions of Article 40.3 of the General Conditions the contractor shall agree with the Supervisor the time and place for the testing of any part of the works. The Contractor shall give the Supervisor 48 hours notice when testing is to be carried out.

The Supervisor shall at all times have access to the Works, and to all places where work is being prepared or from where manufactured articles are being obtained for the Works.

No permanent works shall be covered up or put out of view without the approval of the Supervisor and the Contractor shall afford full opportunity for the Supervisor to examine any work which is about to be covered up or put out of view. The Contractor shall give due notice to the Architect whenever any such work is ready for examination.

If so instructed by the Supervisor, the Contractor shall expose any parts of the Works. The Contractor shall, at his own cost, reinstate and make good such parts to the Supervisor's satisfaction.

Should the concrete provided fail the test carried out by an approved laboratory, a penalty of €450 shall be deducted from payment for each failed test. The Contractor is to provide a certificate by an independent warranted Architect/Civil Engineer (Perit) stating that the concrete provided, although not in compliance with specifications, is sufficient to ensure the stability of the structure at the particular area where it has been cast. Unless such certificate is provided the payment for such concrete shall not be settled. It is to be noted that the €450 penalty will not be waived in subsequent installments in the final bill even after the private Architect/Civil Engineer (Perit)'s certificate is provided.

### **Article 42: Ownership of Plants and Materials**

- 42.1 Further to the provisions of Article 42.1 of the General Conditions, the Contractor shall be responsible for storage of his own tools / plant and equipment used for the works.

#### **Article 43: Payments: General Principles**

- 43.1 Payments will be made in Euro. Payments shall be authorised and paid by the Housing Authority. An interim certificate of payment may be issued at a period of not more than one (1) month following the satisfactorily completion of each Job Order.
- 43.2 Payments due by the Housing Authority shall be made by cheque issued upon presentation of a VAT fiscal receipt or made to the bank account mentioned on the financial identification form completed by the Contractor. In the case of acquisitions from suppliers who are not registered with the VAT Authority in Malta, VAT shall be accounted for and paid by the Contracting Authority directly to the tax Authorities in Malta.
- 43.4 The 30-day period may be suspended by notifying the Contractor that the payment request cannot be fulfilled because the sum is not due, because appropriate substantiating documents have not been provided or because there is evidence that the expenditure might not be eligible. In the latter case, an inspection may be carried out on the spot for the purpose of further checks. The Contractor shall provide clarifications, modifications or further information within 30 days of being asked to do so. The payment period shall continue to run from the date on which a properly drawn-up payment request is registered.
- 43.5 The Contractor undertakes to repay any amounts paid in excess of the final amount due to the Housing Authority within 45 days of receiving a request to do so. Should the Contractor fail to make repayment within the deadline set by the Housing Authority, the Housing Authority, with the prior written approval of the Central Government Authority, may (unless the Contractor is a government department or public body of a Member State of the Community) increase the amounts due by adding interest:
- at the rediscount rate applied by the central bank of the country of the Housing Authority if payments are in the currency of that country;
  - at the rate applied by the European Central Bank to its main refinancing transactions in euro where payments are in euro,

on the first day of the month in which the time-limit expired, plus three and a half percentage points. The default interest shall be incurred over the time which elapses between the date of the payment deadline set by the Housing Authority (exclusive), and the date on which payment is actually made (inclusive). Any partial payments shall first cover the interest thus established.

Amounts to be repaid to the Housing Authority may be offset against amounts of any kind due to the Contractor. This shall not affect the Parties' right to agree on payment in instalments. Bank charges incurred by the repayment of amounts due to the Housing Authority shall be borne entirely by the Contractor.

#### **Article 44: Prefinancing**

**No prefinancing is allowed.** Article 44 of the General Conditions is not applicable.

#### **Article 45: Retention Monies**

- 45.4 There shall be no retention of monies undertaken through this Framework Agreement.

#### **Article 46: Price Revision**

- 46.1 Contracts shall be at fixed prices which shall not be revised. No allowances will be made for fluctuations in rates and prices of for any increase or decrease in the costs of labour used/or materials which may occur until the end of the contact period.

#### **Article 47: Measurement**

- 47.2 The works shall be measured as detailed in the Bills of Quantities and as specified in the appropriate clauses in the attached specifications.

#### **Article 48: Interim Payments**

- 48.1 An interim certificate of payment may be issued at intervals as stipulated in article 43.1. No pre-financing is allowed. 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. The payment shall be made of the value of the works satisfactorily carried and duly measured less any penalties due as per Article 34.1 of these Special Conditions.

In case where there is a difference of opinion between the Supervisor, quantity surveyor and the contractor, as to the value of an item, the Supervisor's view will prevail. The Supervisor may make any corrections or modifications to any previous certificate issued by him and shall have power to modify the valuation in, or withhold the issue of any interim payment certificate if the works or any part thereof are not being carried out to his satisfaction.

#### **Article 50: Delayed Payments**

- 50.1 The Contracting Authority shall pay the contractor sums due within 60 days of the date on which an admissible payment is registered, in accordance with Article 43 of these Special Conditions. This period shall begin to run from the approval of these documents by the competent department referred to in Article 43 of these Special Conditions. These documents shall be approved either expressly or tacitly, in the absence of any written reaction in the 30 days following their receipt accompanied by the requisite documents.

- 50.2 Once the deadline laid down in Article 50.1 has expired, the Contractor may, within two months of late payment, claim late-payment interest (at the rediscount rate applied by the issuing institution of the country of the Contracting Authority) on the first day of the month in which deadline expired, plus two percentage point (2%). The late-payment interest shall apply to the time which elapses between the date of the payment deadline (exclusive) and the date on which the Contracting Authority's account is debited (inclusive).

By way of exception, when the interest calculated in accordance with this provision is lower than or equal to €200, it shall be paid to the Contractor only upon a demand submitted within two months of receiving late payment.

### Article 53: End Date

Article 53 of the General Conditions is not applicable.

### Article 57: Provisional Acceptance

57.1 The works shall be considered as complete by the Housing Authority when they have been deemed as satisfactorily completed following inspections and submissions of test results if applicable. Provisional acceptance will not be issued unless:

- i. all works have been completed and tests carried out
- ii. minor outstanding works, defects and snags have been completed in their entirety and in every respect to the satisfaction of the Supervisor
- iii. all documentation, test results, operating and maintenance instructions, 'as fitted' drawings and all other applicable information have been submitted and approved in accordance with the contract.

The contractor remains responsible for all works until such time that the provisional acceptance has been issued by the Supervisor.

57.5 Immediately after provisional acceptance, the Housing Authority may make use of all the works completed. The Contractor must allow for all costs in connection with commissioning the works including all power and consumables required for operating the works, i.e. electricity, water, gas for commissioning purposes. Commissioning shall include trial operation of all moving parts, easing fine adjustments, lubrication and the like by the contractor to ensure that the works are in proper working order.

### Article 58: Maintenance Obligations

58.7 The maintenance obligations shall cover all the works, equipment, plant, materials and systems constructed and installed as part of this contract and the duration shall be two (2) years. The maintenance period shall commence on the date of provisional acceptance and may recommence in accordance with Article 58.2 of the General Conditions.

In addition, the Contractor shall undertake to guarantee the waterproofing qualities of his materials and workmanship for a period of TEN years from the date of application. With this guarantee, the Contractor shall oblige himself to carry out any repairs necessary to the membrane and to make good any damage done to the building or fixtures, including third party property. In default, the Architect in Charge shall reserve the right to order any necessary repairs at any price and from any source and all expenses shall be deducted from the monies owed to the Contractor, without the necessity for any legal proceedings.

### Article 61: Termination by the Housing Authority

61.1 Besides the provision of the General Conditions in respect of Article 61.1, the Housing Authority also has a right to terminate in the following additional cases:

- a) Refusal to accept 'Job Orders' and defaulting for execution of works as and when instructed by the Housing Authority;



- b) the use of materials and/or workmanship which are, in the opinion of the Supervisor, not in accordance with specifications or instructions and repeated default on the part of the Contractor to replace/rectify said materials and workmanship within a reasonable time from the date of instruction to do so by the Supervisor;
- c) persistent failure to execute the contract in accordance with the contract documents and to ensure its completion within the time, or any approved extension thereof, specified in the contract;
- d) persistent endangerment by the Contractor or his Subcontractors and disregard of health and safety within and immediately surrounding the site;
- e) the Contractor uses materials, even if provided by third parties, which in the opinion of the Supervisor, are not up to the required standard or are otherwise defective in any way. In regard to the performance of this contract, the Contractor has infringed any obligations emanating from the law.

#### **Article 70: Safety Regulations**

**70.1** The contractor is bound to conform to LN 281 of 2004 (Occupational Health and Safety Authority Act). The Housing Authority has appointed a Project Supervisor who shall, during the execution of the work, ensure Health and Safety on site.

The Project Supervisor appointed by the Housing Authority, shall be responsible for the preparation of a Health and Safety plan for the project which shall be issued on behalf of the Housing Authority prior to the issue of the order to start works. Consequently, the Contractor must ensure that the provisions of this plan are followed at all times during the course of works. The Contractor must carry out a risk-assessment of the works involved prior to start of works, and ensure that this is followed throughout the works. The Contractor is deemed to be responsible for any resulting health and safety hazards on the construction site. The Contractor will also be responsible to keep, update and make available the health and safety file and to implement the provisions of the approved healthy and safety plan and risk assessment.

**70.2** The Supervisor shall reserve the right to ask for the immediate suspension of work or part thereof and shall also ask for the removal of any person from the site should, in their opinion, such Health and Safety practices are not being adhered to. In such a case, the Contractor shall have no right to claim for any extension of time or any other form of compensation under this contract. The contractor shall also indemnify the Supervisor/Housing Authority/Central Government Authority against any claims made against them and/or on related responsibilities, by third parties, should the Contractor fail to follow such practices or regulations.

In cases where the Supervisor asks for immediate suspension of works, the contractor must take immediate action to conform with Occupational Health And Safety Requirements, and cannot claim any type of compensation as a result of delays emanating from such incidents.

#### **Article 71: Environmental Controls**

**71.1** a) Dust Control:

The Contractor, for the duration of the Contract, shall maintain all excavations, embankments, haul roads, permanent access roads, plant sites, waste disposal areas and all other work resulting from such Works.

Dust shall be controlled by water sprinkling. No bituminous treatment shall be used

unless otherwise directed.

b) Dumping:

Excavated and rejected materials, but not trash, must be dumped at approved fill sites. Any vegetable soil should be stored or transported and dumped in accordance with regulations issued by the Department of Agriculture.

c) Pollution Control:

The Contractor shall exercise all due care to protect the Site from spillages of oil, gasoline, chemicals, sewage and wastewater. Any such spillages shall be cleaned and disposed of at approved waste disposal sites.

d) 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 at approved waste disposal sites at frequent and regular intervals during the progress of the Work.

During the progress of the Works the Contractor shall keep the Site free from all unnecessary obstruction 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.

In the event of the Contractor's forfeiture to conduct the above, the Supervisor/Project Manager shall have the right to engage third parties to clear the site of any debris and deduct the cost from any monies due to Contractor.

e) Clearance of Site on Completion:

Prior to the date of Substantial Completion, the Contractor shall clear away and remove from the 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 Supervisor/Project Manager.

In the event of the Contractor's forfeiture to conduct the above, the Supervisor shall have the right to engage third parties to clear the site of any debris and deduct the cost from any monies due to Contractor

f) Site Safety:

The Contractor will employ on site a responsible person (Project Supervisor for Health and Safety) whose duties are to supervise safety practices and safety measures to be taken by the Contractor and the Contractor's employees on Site to the satisfaction of the Housing Authority and to ensure compliance with Article 71.

g) 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 in any area other than the site, but shall be placed and stored solely on the site inside a closed, temporary building, or behind a visual barrier or fence of such design and construction as to screen such areas from the view of adjoining properties and public streets. No trash or rubbish shall be placed or disposed of in any unauthorized area.

h) Environmental Management Construction Site Regulations

The contractor shall comply with LN 295 of 2007 during the execution of the works. Any amendments to this Legal Notice or any other site regulations issued during the course of works are to be adhered to.

#### **Article 72: Facilities on Site**

**72.1** The Contractor shall be responsible for providing at his own cost all site services he requires to complete the works, unless stated otherwise.

**Water:** A water supply will be made available by the Contractor on Site.

**Electricity:** An electricity supply will be made available by the Contractor on Site:

**Security:** The Contractor shall at his own cost be solely responsible for the security of all works, installations, materials, plant, etc., at any time during the execution of works up to the date of the completions of each job.

**Storage:** The contractor shall allow in his tender for any costs for double handling and on and offsite storage facilities required.

The contractor is to make alternative arrangements at his own cost, for him to proceed with the works as per Programme should any of the above utilities be suspended.

#### **Article 73: Scaffolding and Plant**

**73.1** The Contractor shall provide the whole of the necessary plant, scaffolding, tackle, crange, labour and access necessary for the prompt and efficient execution of the work and remove them at their completion. He shall also provide his own watchmen and his own storage facilities within the site.

#### **Article 74: Disposal of Hazardous Waste**

**74.1** The disposal of hazardous waste such as asbestos shall be carried out in accordance with procedures approved by the Environment and Resources Authority, the Planning Authority and the Occupational Health and Safety Authority. Any hazardous waste shall be notified to the Malta Environment Authority and Occupational Health and Safety Authority and shall be transported in accordance with the relevant Maltese Legislation, particularly Subsidiary Legislation 424.23 - Legal Notice 323 of 2006 regarding the protection of workers from the risks related to exposure to asbestos at work regulations.

## VOLUME 3 - TECHNICAL SPECIFICATIONS

**Note:**

Where in this tender document a standard is quoted, it is to be understood that the Housing Authority will accept equivalent standards. 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 Housing Authority.

- SECTION A Demolition Works**
- SECTION B Masonry Works**
- SECTION C Concrete Works**
- SECTION D Roofing Works**
- SECTION E Drainage and Rainwater System**
- SECTION F Electrical Works**
- SECTION G Plumbing System**
- SECTION H Joinery Works**
- SECTION I Aluminium Works**
- SECTION J Finishes to Walls and Ceilings**
- SECTION K Floor Finishes**
- SECTION L Metal Works**
- SECTION M Concrete Repair and Restoration Work**
- SECTION N Sanitary Ware**

Note:

Maltese Standards, European Standards, British Standards and British Standard Codes of Practice incorporated in the contract by a reference which does not include a date shall be the respective editions current on the contract date, and incorporating all amendments current on that date.

Maltese Standards, European Standards, British Standards and British Standard Codes of Practice incorporated in the contract by a reference that includes a date shall be deemed to exclude amendments issued after that date except any such amendments shown in brackets immediately following the stated date.

In respect of all other references the date of the edition applicable to the contract shall be that stated in the Specifications or, where no date is stated, the date of the edition current on the contract date and incorporating all published amendments current on that date.

Where a Maltese Standard or a British Standard incorporated in the contract has been superseded by a Harmonised European Standard, or a European Standard, issued prior to the contract date then such Harmonised European Standard or European Standard shall be substituted for the Maltese Standard or British Standard and any amendments thereto contained in the Specification.

## **SECTION A – DEMOLITION WORKS**

### **1.0 Methods of Demolition**

The contractor is to employ methods of demolition that cause no shocks or vibration likely to damage surrounding property or equipment housed therein or buried services. The use of explosives is forbidden. The Housing Authority's architects and technical officers reserve the right to stop the contractor from continuing works when the methods of demolition are in their opinion likely to cause damage or in some way or other found to be unacceptable.

### **2.0 Condition Report**

Before starting demolition work the contractor is to survey the existing state of the structure and that of adjacent properties which could be affected by the works. Contractor is responsible to compile a condition report by a competent person of all affected third party property prior to commencement of works. This should include identification and location of services together with a photographic survey. A method statement outlining the sequence and method of demolition together with support systems to be provided to ensure integrity of the surrounding structure, if applicable, is to be included in the report.

### **3.0 Safety**

The contractor is to take all necessary precautions to ensure that there are no risks of uncontrolled collapse. He is to leave partly demolished structures secure with adequate temporary support at each stage. Contractor is to prevent overloading existing slabs, other parts of the structure and scaffolding platform by debris. Access of unauthorised persons to partly demolished structures is to be prevented and works are to be kept safe during and outside working hours.

### **4.0 Temporary Supports**

The contractor is to design and provide all necessary shores and temporary supports to protect the existing building and adjacent structure. Contractor is responsible for the adequacy and suitability of the support system used.

### **5.0 Health Hazards**

Adequate precautions are to be taken to protect site operatives, residents, third parties and the general public from health hazards associated with fumes, dust and noise arising during the course of works. The contractor is also to prevent all nuisance to third parties particularly with reference to dust, fumes and noise.

### **6.0 Adjacent Structures**

When demolishing structures against parts of the building to be retained and any other adjoining property, adequate temporary supports and protection are to be left at each stage. Structures are to be demolished causing the minimum of damage to those parts of the building to be retained and adjoining property, and no unnecessary or unstable projections are to be left. Cutting away and stripping are to be kept to the minimum necessary and are to be done with care to reduce the amount of making good to a minimum.

### **7.0 Making Good**

The contractor is to make good to the extent required to ensure safety of persons, weather protection, stability and security.

All slabs adjacent to third party properties are to be trimmed, made good and properly sealed (including forming of edges where necessary)

#### **8.0 Carting away of material**

Carting away of material is to be carried out with the least inconvenience to nearby residents. Any debris constituting a health or fire risk is to be removed immediately. The premises, adjacent roofs and yards, and surrounding streets are to be left clear at the termination of works.

All material is to be dumped in an approved dumping site.

#### **9.0 Disconnection of Services**

Any work carried out which affects new or existing services must be in accordance with the applicable bylaws or regulations. Before demolition works are started, arrangements are to be made with the appropriate authorities for the disconnection of services and removal of fittings and equipment.

## SECTION B - MASONRY WORKS

### 1.0 Scope of Works

The work to be carried out by the mason comprises the following:-

- 1.1 Excavation for foundations, levelling and rock trimming ready to receive foundations where required.
- 1.2 Laying foundation walls of the correct specified thickness where required.
- 1.3 Laying of horizontal and vertical damp proof course in accordance with the regulations laid down by the Sanitary Authorities.
- 1.4 Construction of single/double masonry walls on foundations
- 1.5 Construction of concrete block walls as specified.
- 1.6 Formation of sills, jambs, lintels, ventilators and all other items included in the bills of quantities or which normally form part of construction of buildings.
- 1.7 Replacement of individual stones, lintels, coping, corbels and sections of walls.

### 2.0 Materials

#### 2.1 Masonry Walls

- 2.01.1 Only best quality "franka" stone from a quarry and a bed approved by the Architect, free from all defects, shall be used. Any stone showing blue marks (swaba) and/or other defects on the exposed face, or whose edges or corners have been chipped, shall be rejected. Should any such stones be used, the Architect in charge shall have the power to remove and replace any such work at the Contractor's expense. The Contractor shall also be bound to replace any defective materials in all or parts of the existing works by proper materials and/or workmanship as directed by the Architect. Once the quarry and bed are selected, these shall not be changed without the approval of the Architect.
- 2.01.2 Mortar for laying masonry is to be composed of one part cement, three parts Upper Coralline sand and twelve parts Globigerina limestone dust, prepared in bulk with fresh water, well mixed and allowed to mature before use.

#### 2.2 Concrete Blockwork Walls

- 2.02.1 Load-bearing blockwork shall have a minimum crushing strength of 6.9 MN/m<sup>2</sup> calculated over the gross area of the block.
- 2.02.2 Any concrete blocks to be used in the Works shall be of the required specified thickness and shall be of approved manufacture.
- 2.02.3 Each concrete block shall be bedded in mortar composed of cement, lime and fine aggregate in the proportion of one part cement, one part lime and not more than 5 to 6 parts of fine aggregate. The mortar shall be evenly spread.

Hollow concrete blocks shall comply with EC Directive EC 97/740. The technical characteristics shall comply with BS EN 771-3, Group 1. The binder shall be Portland Cement Type CEM1, strength class 42.5N complying with BS EN 197-1. Aggregate for use in concrete shall comply with BS EN 12620: Aggregates for concrete when tested to BS 812.

**Dimensions - Hollow Concrete Blocks. Sizes shall be as follows:**



|           |                            |
|-----------|----------------------------|
| Length    | 460mm;                     |
| Height    | 260mm;                     |
| Thickness | 63mm, 115mm, 150mm, 230mm; |

### **Dimensional Tolerances - HCB**

The maximum dimensional deviation shall be as follows:

|           |                                                           |
|-----------|-----------------------------------------------------------|
| Length    | +3mm, -5mm;                                               |
| Height    | +3mm, -5mm;                                               |
| Thickness | +/-2mm with an average of +/-4mm at any individual point. |

The faces and ends of blocks shall be perpendicular and to the tolerances as stated above.

### **Compressive Strength - HCB**

Blocks having a thickness of 75mm and greater shall be tested for compressive strength as per BS EN 772-1.

The compressive strength for single density blocks shall be  $\geq 6\text{N/mm}^2$  and for double density blocks shall be  $\geq 7\text{N/mm}^2$ .

Blocks of thickness less than 75mm shall be tested for transverse strength as per BS EN 772-6. The average transverse strength of 5 blocks shall be  $\geq 0.65\text{N/mm}^2$ .

### **Curing - HCB**

Blocks supplied for the Works shall be allowed to cure for at least 30 days from the date of manufacture before being delivered on site.

## **3.0 Mortar - General**

- 3.1 Horizontal mortar beds shall be between 9mm to 13mm thick. Fresh mortar shall be distributed evenly over the whole bedding plane. Vertical joints shall be between 5mm to 8mm thick. Pointing of both the horizontal and vertical joints shall be flush.
- 3.2 Mortar shall normally comprise of OPC cement, sand and limestone dust (xahx) adequately mixed with clean water to achieve good workability. It shall normally correspond to strength class M4 mortar as denoted in BS EN 998-2.
- 3.3 The bedding plane shall be cleared of dust and the stone wetted before mortar is applied.

## **4.0 Walls**

- 4.1 All 'double' and 'single' walls required for the completion of this contract shall be built with new soft stone. They are to be truly perpendicular, laid in parallel courses, having vertical and horizontal joints not more than 6mm and 12mm respectively. Vertical joints are to be broken at not less than 150mm.
- 4.2 Except in the case of foundations, stonework is to rise 267mm each course allowing for a 12mm horizontal joint. Thus, for the purpose of this Contract, a "standard" stone block is being assumed to have a height of 254mm after being dressed.
- 4.3 The perpends on the external walls, are to line up vertically wherever possible.
- 4.4 Double walls are to be constructed with bond stones not less than 230mm (9") thick and in every course, a minimum of 2100mm (7'0") apart from centre to centre. During construction, the cavity shall be kept clear of all mortar droppings, rubble and rubbish.

- 4.5 Walls at right angles to one another are to be properly bonded by forming toothings in every alternate course.
- 4.6 Sills of openings in all walls are to be in stone, at no extra payment unless specifically directed by the Architect to be done in concrete.
- 4.7 The stone in walling, copings, etc., shall be placed with the grain or natural bed horizontal, and shall not be paid for extra unless otherwise specified.
- 4.8 The beds and faces of stone including back joints shall be worked square and true from end to end.
- 4.9 All stone and hollow concrete block walling shall be full bedded.
- 4.10 Sills shall be bedded hollow, and the bed joint filled and pointed on completion of the building.
- 4.11 All sills may be rebated to receive steel or aluminium window/door frames as directed by the Architect.
- 4.12 All lintels and jambs shall be throated and some may be rebated to take steel or aluminium sashes in the same way as the sills.
- 4.13 Drip channels shall be formed under all projecting mouldings.
- 4.14 Ventilators of uniform section with joints pointed and well flushed during laying are to be formed in every room and are to be vertically aligned. The Contractor is to make sure that all ventilators are clear of all obstructions on completion of the building.
- 4.15 All stone and/or concrete blocks are to be well wetted before laying.
- 4.16 Dressing of stone is to be truly square. Moulded or ornamental work is to be of the best workmanship and finish. If required all mould work is to be prepared by the Contractor and submitted for the approval of the Architect. Before approving such templates, the Architect may require the Contractor to prepare and place in situ samples of the moulded works. Such samples are to be provided and paid for by the Contractor.
- 4.17 All openings shall be of the specified size.
- 4.18 Jamb stones of all openings in double walls shall extend in every alternate course to the whole thickness of the wall. Any mouldings around windows shall be in strict accordance with the Drawings.
- 4.19 Quoins to openings shall be adequately protected during construction, any damage due to failure to observe this condition shall be made good by the Contractor to the entire satisfaction of the Architect. The Contractor is required to carry out any other protective measures that may be required. On completion, any masonry walls shall be cleaned down to remove any dust, dirt and other adhesions.
- 4.20 When inserting new lintels to support existing structure, the top joint is to be filled with semidry mortar, hard packed and well rammed to ensure full load transfer after removal of temporary supports.
- 5.0 Damp Proof Course**
- 5.1 Laying of vertical and horizontal damp proof course is to be in accordance with the regulations laid down by the Sanitary Authorities. The horizontal damp proof courses on walls are to consist of a mixture of pitch and sand applied hot.

5.2 The vertical damp proof membrane shall consist of 3mm thick water proofing membrane as specified under specifications for Roofing Works. The dpm shall be carried 150mm into the surrounding walls over the horizontal dpc (laps at joints shall not be measured extra).

**6.0 Cleaning**

6.1 Upon completion of all masonry works, all exposed surfaces shall be carefully rubbed down to a smooth finish and cleaned with a rough cloth or sacking to remove dust, dirt or other foreign adhesives.

## **SECTION C - CONCRETE WORKS**

### **1.0 The works to be carried out by the Contractor comprise the following:**

- 1.1 Preparation of the necessary shuttering and propping for all concrete works.
- 1.2 The construction of all necessary foundations.
- 1.3 The construction of floor slabs, cantilevered balconies and canopies, beams and lintels, columns, stairs and landings, including the supply, cutting, hoisting and tying in place of all the required reinforcement.
- 1.4 The construction of sub-floors including the provision and laying of all necessary reinforcement as directed. All concrete works shall be carried out in strict accordance with the drawings and/or as directed by the Perit in charge.
- 1.5 Ensuring stability of the structure itself and adjacent properties at all stages of construction.

### **2.0 Cement**

Portland cement conforming with EN 197-1:2000 shall be used. Stacked cement shall be stored in a dry, well-ventilated place with boarded floors. Cement shall moreover be of the brand approved by the Perit in charge. Tests of cement shall be made at the discretion of the Perit in charge and any cement below the standard required will have to be replaced by the contractor. Partially set or damaged cement shall not be used in concrete works.

### **3.0 Aggregates**

Coarse aggregates shall consist of first quality crushed hard stone passing a 19.05mm mesh sieve, graded according to EN 12620-2002. Sand or fine aggregates are to be clean, sharp and gritted and free from loamy matter and other deleterious substance. They shall pass a 9.5mm mesh sieve and be graded according to EN 12620-2002. The sand is to be washed and screened when so directed by the Perit in charge at the expense of the Contractor.

### **4.0 Water**

Clean, fresh water, entirely free from organic matter shall be used. The necessary quantities of water shall be provided by the Contractor at his own expense.

### **5.0 Reinforcement**

All steel reinforcement for reinforced concrete works shall be supplied and paid for by the Contractor and shall be cut, bent, tied, hoisted and placed in position and kept firmly in place where shown on drawings and/or as indicated by the Perit in charge. All B.R.C fabric reinforcement shall be in sheets. All steel reinforcement is to be free from scales and any appreciable rust, and steel is to conform in all respects to the requirements specified in EN ISO 15630-1:2002. Mesh reinforcement is to comply with EN ISO 15630-1:2002. The Perit shall have the authority to order tests on any steel prior to its being used on the works. Any steel not of the required standard shall be rejected and will have to be replaced by other of approved quality at the Contractor's expense.

### **6.0 Shuttering**

Shuttering or centering shall be true to line and sufficiently strong to carry the dead weight of wet concrete plus any incidental loading without noticeable deflection. It shall be sufficiently rigid to guard against movement or vibration whilst concrete is being placed

and tamped into position. Shuttering shall be close together to prevent leakage of slurry and shall be 'treated' with the minimum of mould oil to facilitate striking. Formwork for slabs shall be laid with an upward camber to ensure a level ceiling. All formwork must be carefully cleaned out before any concreting takes place. The Contractor must make sure that shuttering is such to give a reasonable smooth finished face to concrete placed against it but sufficiently textured to allow for subsequent rendering of the concrete surfaces. All formwork must be adequately braced and strutted during the maturing period of the concrete.

#### **7.0 Suspended Floor or Roof Slab**

All suspended floor or roof slabs shall be constructed as directed by the Perit in charge. The slabs will normally, but not essentially, be of a thickness of between 150mm and 200mm, depending on the span and reinforced with one or two layers of BRC fabric No C503/B503. Negative reinforcement or further reinforcement bars that may be required shall be placed according to the directions of the Perit in charge. Balcony slabs or other cantilevered slabs shall be reinforced by two layers of BRC Fabric No C503/B503 and at least 180mm thick, unless otherwise specified. Any other or alternative reinforcement deemed necessary by the Perit in charge is to be provided and laid by the contractor to the instruction of the Perit. Suspended floor or roof slabs are to be of Grade C25, or as otherwise specified.

#### **8.0 Beams, Columns and Lintels**

All beams, columns and lintels and any other structural elements shall be constructed and reinforced as detailed by the Perit in charge. Normally but not essentially, concrete used is to be at least Grade C25.

#### **9.0 Subfloor**

The concrete subfloor is to be a minimum of 100mm thick and reinforced with one layer of square mesh, A98 and to be of Grade C20 mix, or as otherwise specified.

#### **10.0 Position of Reinforcement**

All fabric reinforcement is to be in sheets and fixed in the required position by metal chairs or some suitable method approved by the Perit in charge. Adequate and effective precautions should be taken to leave all reinforcement undisturbed during concreting, planking elevated on low trestles for the passage of wheel-barrows being provided by the Contractor. Wheel-barrows shall under no circumstances be allowed to transit directly over the reinforcement. All the reinforcement shall be placed strictly as directed. Nothing shall be allowed to interfere with the required disposition of the reinforcement. The Contractor shall make a particular point to see that all parts of the reinforcement are placed correctly in every respect, and are temporarily fixed where necessary to prevent displacement before or during the process of tamping and ramming the concrete in place.

The reinforcement is to be free from oil, paint, mill scale, excessive rust or coating of any character which would tend to destroy its adhesive bond with the concrete. In addition, when the reinforcement is in a position ready for concreting, the contractor must notify the Perit who is to arrange for it to be checked before any of it is covered up with concrete. Such checking shall not relieve the contractor from any of his responsibilities under the contract.

Lapping in nominal bar reinforcement is to be not less than 40 times the diameter of the larger of the reinforcement being lapped. Dimensions are to be checked with the Architect. Fabric reinforcement is to be lapped not less than 300mm unless specified otherwise.

#### **11.0 Concreting**

The materials for the concrete are to be carefully measured in the proper proportions, measuring containers of suitable sizes being provided by the contractor and used for the

purpose. The contractor is to obey all directives by the Perit in charge concerning the mix. The mixing of concrete, unless otherwise authorized by the Perit in charge, shall be done by batch of approved type, which will ensure a uniform distribution of the materials throughout the mass so that the mixture is of uniform colour and homogenous. The entire contents of the drum shall be discharged before recharging. The mixture shall be cleaned at frequent intervals while in use. The volume of mixed materials shall not exceed the manufacturer's rated capacity of the mixer. The mixing of each batch shall not be less than 1 minute or exceed 10 minutes under normal conditions. Immediately after mixing, concrete shall be transported to the work and carefully placed around the reinforcement and carefully tamped so as to exclude any voids. A mechanical vibrator shall be used throughout all concrete works.

Not more than 30minutes shall elapse between mixing and final placing of concrete. The retamping of the concrete which has commenced to set and remixing with or without additional cement, aggregate or water shall not be permitted. Before placing any new concrete against an existing face, this face shall be roughened, cleaned and brushed over with a thick grout of cement. All concrete shall be well watered and protected from the sun for four days after placing. The quantity of water used shall be the minimum necessary to produce concrete of the workability required by the Perit. The consistency of the concrete when required by the Perit shall be measured by the slump test which in no case shall be more than 100mm.

**Concreting shall only be allowed on week days during normal working hours. Such works will not be allowed on Saturdays, Sundays and Public Holidays unless specifically authorized by the Perit in charge. Failure to abide by such instructions would entail non payment for concrete cast.**

## **12.00 Curing and Protection of Concrete**

- 12.1 Minimum periods shall be indicated in Eurocode 2 - EN 1992-1-1:2004.
- 12.2 Traffic or loading must not be allowed on the concrete before the elapse of 7 days and until the concrete is, in the opinion of the Perit, sufficiently matured, and in no case shall traffic or loading be of such magnitude as to cause deflection or other movement in the formwork or damage to the concrete element.
- 12.3 Concrete must be protected during hardening from the harmful effects of the weather or running water. The protection shall be applied immediately after completion of placing by one or more of the following methods:
  - a) By covering with a layer of sand, sacking, canvas, hessian, straw mats or similar absorbent materials and keeping constantly wet for 72 hours.
  - b) By thoroughly wetting and then covering with a layer of approved waterproof paper or plastic sheet or insulated mats kept close to the concrete for 72 hours.
- 12.4 The design imposed load for the ground slab shall be indicated by the Perit in charge. Any damage caused to the slab and/ or granular filling during construction by the contractor exceeding this loading shall be the contractor's sole responsibility.

## **13.00 Removal of Shuttering**

- 13.1 Forms or struts for concrete shall not be removed before 15 days or any such period as specified by the Perit in charge until the concrete is sufficiently strong to safe carry the loads, dead or temporary. The responsibility for the safety of the concrete will rest entirely on the contractor and he will be held liable for any damage. He will, moreover, be bound to make good same at his own expense. Immediately after striking sheeting, all airholes and other irregularities in the exposed surfaces are to be stopped or otherwise made good with cement and sand mortar mixed in the proportions of 1:3 respectively. The whole finished surface shall be of a reasonably smooth appearance free from voids, holes and bulges.

## 14.00 Testing/Certification

- 14.1 Sampling and testing of hardened concrete shall comply with BS EN 206 and shall be carried out by an independent laboratory engaged by the Housing Authority. **The contractor entrusted with the works shall give at least a two-day notice of concreting to the Authority.**
- 14.2 Complete correlated records shall be maintained by the nominated laboratory for each mix including:
- Information in accordance with BS EN 206/ BS 8500
  - All sampling, site tests and identification numbers of all specimens tested in the laboratory.
  - The location of the part(s) of the structure represented by each sample.
  - The location in the structure of the batch from which each sample is taken.
- 14.3 Concrete test-cubes shall be made, cured and tested, in accordance with BS EN 206. At least four samples from each truckload shall be made, two tested at 7 days and two at 28 days; otherwise, the sampling rates indicated in BS EN 206/BS8500. Each sample shall be marked on its surface, without etching any of the surfaces, with a distinguishing number and the date, and a record shall be kept of the following data:

Delivery note number  
Date  
Cube number  
Work location within Site  
Design mix  
Name of sampler  
Crushing test results  
Date  
Strength  
Density

All samples shall be stored in their moulds for at least 24 hours, in a place free from vibration, under damp matting and completely covered with polythene. When the concrete has matured sufficiently the samples shall be de-moulded and immediately submerged until they are taken for testing. No sample shall be dispatched for testing before it is three days old.

- 14.4 All specified testing shall be carried out by the independent laboratory and copies of test reports shall be dispatched to the Architect/Project Manager within one day of the completion of each test. The laboratory shall keep separately the pieces of each cube that fails to meet the compliance requirements for individual results.
- 14.5 A regime of accelerated or normal curing and early testing which is capable of predicting the 28 day strength of concrete mixes may be used for determining compliance, subject to prior approval. If such a regime is adopted, two additional samples must be made from each sample and cured normally so that, in the event of non-compliance, they can be tested at 28 days to provide information that will help in deciding the action to be taken.
- 14.6 If a concrete sample fails to achieve specified criteria or to pass specified tests, the Architect/Project Manager shall be informed without delay and the Contractor shall submit to the Architect/Project Manager:
- Proposals for rectification and certification by a warranted Architect stating that the concrete provided, although not in compliance with the specifications, is sufficient to ensure the stability of the structure at the particular area where it has been cast. **It is at the discretion of the Architect/Project Manager in charge to decide whether the measures proposed by the contractor are acceptable or not and his decision is final**

as to whether remedial works or outright replacement of that part of the structure not found to be compliant are to be carried out.

- The Architect/Project Manager may issue instructions for the work to be stopped or delayed until reasons for the failure have been established, possible consequences assessed and appropriate preventative and remedial measures taken.

14.7 Wherever the specified sampling, testing and compliance procedures show that a concrete mix is not in accordance with the specification (even if the work is eventually accepted), and measures are taken to help in establishing whether or not the work is acceptable, such measures

- will be at the expense of the Contractor,
- will not be considered as grounds for extension of time, and
- will be liable to a penalty of € 450.00 for each failed test.

#### 15.0 Chase, Holes and Conduits

The Contractor shall be responsible for the coordination of the whole works including mechanical, electrical and other works. He is to take the necessary measures to incorporate electrical conduit, pipes, ducts, fixing blocks, chases, holes etc., in the concrete and to ensure that these are accurately set out when cast in concrete.

**No extra payment for coring/trenching in concrete/masonry walls to incorporate services will be approved.**

#### 16.0 Prestressed Precast Inverted T-Beams and Roofing brick slabs and Prestressed Precast Concrete Slabs (If applicable)

This section deals with requirements for the precast concrete elements included in the bills of quantities i.e. inverted T-Beams and hollow roofing blocks and prestressed precast roofing slabs.

16.1 The quoted price is to be inclusive of the:

- a) supply of slabs, beams and blocks as per specification,
- b) laying in place of slabs, beams and blocks
- c) grouting of joints between slabs with Grade 30 concrete.
- d) Structural concrete topping

16.2 Precast concrete elements as mentioned above shall be obtained from an approved supplier. The architect shall be allowed free access to the plant where precasting works are being carried out.

Details of the structural slab system to be used should be submitted to the Architect in charge prior to the placing of the slab. **A certificate by a qualified Civil Engineer assuming responsibility of the design, system, as well as its workmanship ex-factory is to be enclosed.**

16.3 Installation tolerance shall be as follows:

- a) Variation from plumb - 5mm in 3.0m
- b) Variation from level or elevation - 5mm in 3.0m
- c) Joint tolerance between adjacent members - 0+5mm

16.4 Any splintered, defective or cracked slabs, beams and/or blocks are to be rejected.

16.5 The quantities shown in the Bill of Quantities are only indicative and may vary according to site measurements. Housing Authority will not be bound to order the whole quantity indicated.



- 16.6 Precast Concrete Slabs, beams and blocks are to be delivered to the work site in such quantities and at such times as will assure the continuity of the installation.
- 16.7 Precast T-beams are to have a minimum strength at 28 days of  $f_{\text{cub}} = 40\text{N/mm}^2$  whilst prestressing wire is to be compliant with EN 10138 -1/ BS 5896. Concrete topping is to have a minimum strength  $f_{\text{cube}} = 25\text{N/mm}^2$ . Concrete void formers (blocks) are to have a minimum compressive strength of  $3\text{N/mm}^2$ . The system is to have a fire resistance of 60 mins.

**In cases where this type of roofing system is to be constructed, then the contractor must provide the Architect/Project Leader in charge, a certificate signed by a Qualified Civil Engineer confirming that the slab system supplied conforms with the above specifications and loading capacity for the defined span.**

## SECTION D – ROOFING WORKS

### 1.0 Scope of Works

- 1.1 Roofing works shall consist of the following:
- Forming cement/sand fillets,
  - Applying hot pitch on a sealer base,
  - Laying of stone dust (xahx),
  - Laying a concrete screed, laid to falls and cross falls, complete with all jointing works,
  - Expanded polystyrene insulation layer on flat roofs,
  - Supply and fixing of rainwater drainage works.
  - Application of waterproofing systems

### 2.0 Preparation

- 2.1 Any services, joints, cracks, etc., in the roof slab are to be sealed with cement and sand mortar and thoroughly swept and washed clean.

### 3.0 Triangular Fillets

- 3.1 Cement and sand triangular fillets are to be laid at all angles between horizontal and vertical surfaces. The minimum size shall be 40mm x 40mm. Shoddy and/or unacceptable works shall be redone at the contractor's expense.

### 4.0 Waterproofing

- 4.1 Waterproofing of new roofs shall be done by applying one coat of hot pitch on a priming coat of tar on the roof slab, as approved by the Architect in charge. The waterproofing is to be carried up all upstands to a minimum of 150mm (6") height, up to the required level of the roof screed ("kontrabejt").
- 4.2 Systems employing the addition of water to the waterproofing material will be discarded.

#### Waterproofing Membrane

- 4.3 Waterproofing membrane shall be heat-applied and shall consist of 4mm thick polyester reinforced flexible membrane. The waterproofing system shall be of an approved type and manufacture. It shall be laid in strict accordance with the manufacturer's recommendations, a copy of which shall be supplied by the Contractor for approval and retention by the Perit/ Project Leader. The country of origin and the name of the manufacturing company of the material are also to be stated.

The price of the waterproofing membrane shall be inclusive of all materials, labour etc., required to complete the works, including all necessary strips, flashings etc. Only net areas of finished work shall be measured with no consideration for additional strips, overlaps, reinforcing angles, corners etc. Membrane should be lapped 100mm at the sides and 200mm end to end and fully bonded.

Waterproofing membrane shall comply with the following characteristics:

| Membrane Test                               | Unit of Measure | Standard     | Tested Quantity          |
|---------------------------------------------|-----------------|--------------|--------------------------|
| Reinforcement                               | -               | -            | Needle punched polyester |
| Water Impermeability                        | -               | UNI 8202/21A | Absolute                 |
| Cold flexibility                            | C               | UNI 8202/15  | -8                       |
| Tensile Strength at break<br>(Longitudinal) | N/4cm           | UNI 8208/8   | 880                      |
| Tensile Strength at break<br>(Transverse)   | N/5cm           | UNI 8208/8   | 450                      |

|                                        |   |            |     |
|----------------------------------------|---|------------|-----|
| Elongation at break<br>(Longitudinal)  | % | UNI 8208/8 | 30  |
| Elongation at break<br>(Transverse)    | % | UNI 8208/8 | 45  |
| Dynamic Perforation<br>'Persoz' method | N | -          | 630 |

#### 4.4 Liquid Waterproof Membrane

Roofs are to be lined with a waterproof liquid membrane as directed by the Perit/Project Leader. Membrane systems shall consist of UV stable polyurethane resins that when applied forms a seamless membrane. Resistant to UV-rays and to high and low temperatures and with excellent adhesion to concrete surfaces.

Material requirements:

- Non-yellowing and non-chalking
- Resistant to stagnant water
- Easy to clean
- Provides crack-bridging
- Maintains its mechanical properties, over a temperature span of -30°C to 90°C
- Provides water vapour permeability
- Provides full surface adhesion
- Resistant to detergents, oils and common chemicals
- Easy local repair, if the membrane is mechanically damaged
- Application shall comply strictly with manufacturer's instructions
- Liquid Membrane colour is to be confirmed by Perit/Project leader: concrete grey or transparent.

Liquid membrane is to be reinforced with fibreglass fabric or polyester fibermesh (density 120g/sm)

Contractor is to submit all relevant documentation and specifications of the liquid membrane with tender documentation. This shall include:

- All specifications including water absorption of the material and the longitudinal and transverse elongation,
- Method of application including fixing and finishing details and
- All descriptive literature and supplier's specifications of materials being used.

#### 4.5 Workmanship in general

All cracks, expansion and construction joints shall be raked out, thoroughly swept, washed, cleaned and made good with an approved bitumastic sealer before the application of the waterproofing treatment by the Contractor. All the joint lines between any precast elements, even if sealed with cement filling, must be isolated from the waterproof membrane by laying across a 20cm wide strip of foil or sheet totally independent from the membrane itself. The strips should be sealed to the surface on one side and left free on the other side. Surfaces to be covered are to be clean, dry, smooth and free from voids and sharp protrusions.

Primers as recommended by the manufacturer are to be applied to the surface in order to

ensure bonding of the waterproofing treatment. Primers are to be applied by mopping, brushing or spraying to achieve an even and full cover of the surface.

Where pipes, ducts, cables etc pass through the waterproofing layer, junctions are to be made completely watertight using pre-formed collars fully bonded/sealed to both pipes and membrane.

Materials are to be applied carefully to provide a completely impervious, continuous membrane.

The Perit/project leader is to be informed prior to the covering of any dampproofing with overlying construction so as to allow inspection.

- 4.6 The Contractor shall undertake to **guarantee** the waterproofing qualities of his materials and workmanship for a period of **TEN years from the date of application**. With this guarantee, the Contractor shall oblige himself to carry out any repairs necessary to the membrane and to make good any damage done to the building or fixtures, including third party property. In default, the Architect in Charge shall reserve the right to order any necessary repairs at any price and from any source and all expenses shall be deducted from the monies owed to the Contractor, without the necessity for any legal proceedings.

## 5.0 Torba

- 5.1 Contractor is to provide a bed of torba, including the hoisting and spreading to the required falls on roof, as directed by the Architect in charge.

- 5.2 The bedding material shall consist of franka stone chippings (xahx) of best local quality free of any soil, clay, stones or organic substances, spread, laid to levels, falls or currents, wetted, tamped and adequately consolidated to the thicknesses described and detailed to provide a suitable surface to receive concrete screed over.

- 5.3 Before consolidation of the bedding layer the Contractor is to liaise with the M&E Contractors to ensure that all services (if any) that are required to pass through the xahx bed have been laid, treated and tested, and that no other work on them is required prior to casting of concrete screeds.

- 5.4 The minimum consolidated thicknesses of xahx beds at outlet points (into rain water pipes) are to be 75 mm and a minimum slope of 1:120 is to be provided for in the xahx thickness. Loose fill 'torba' is to be wetted prior to receiving concrete screed.

## 6.0 Screed

- 6.1 Non structural concrete screeds shall consist of grade C20 concrete with maximum aggregate size of 10mm. Screeds shall be laid to levels, falls or currents, and to the thicknesses detailed, in alternate square bays not larger than 14 sq meters each bay. The surface finish shall be floated or trowelled to a surface suitable to receive the subsequent finishes, or to be itself the finished surface, as required.

## 7.0 Expansion Joints

- 7.1 Contractor is to provide expansion joints in the roof screed, consisting of bays not exceeding 3 metres by 3 metres and the material is to be applied to such joints at least 28 days after the concrete finish of the kontrabejt has been cast. The material is to be a polyurethane filling expanding compound.

The system to be used involves first making a chase in the concrete finish in two steps, the first using one disc up to approximately 75mm and the second using three discs up to approximately 25mm. The resultant channel is to be cleaned thoroughly and after masking both sides of the channel, a round ethaform strip is to be applied in the chased channel. A primer is to be applied to both sides of the channel and after this dries out, the approved filling is to be applied and levelled off by means of a palette knife. After this dries out, two

coats of rubber paint or similar should be applied to protect against the ultraviolet rays of the sun.

## 8.0 **Insulation**

8.1 Insulation over exposed roofs should be such that the maximum U-value of roof composition is that of  $0.59\text{W/m}^2\text{K}$  as per Doc F - Technical Document (Minimum Energy Performance Requirements for buildings in Malta). Insulation shall consist of extruded polystyrene sheets with thermal resistance of not less than  $2.0\text{m}^2\text{K/W}$

8.2 Extruded polystyrene sheets must be placed directly on the structural slab as close to each other as possible to avoid heat leakages. The built-up roofing is then laid in the usual way. The panels may be glued to the structural slab with approved adhesives to prevent them from being blown away by the wind prior to laying of the roof screed.

## SECTION E - DRAINAGE AND RAINWATER SYSTEM

### 1.0 Outline of Works

The Contractor's work shall consist of the following:

- a) The supply and installation of the internal and external soil and waste and rain water piping systems including the excavations of trenches to the required invert levels, together with all pipe concrete beds and coverings. The concrete mix shall be of 1:3:6.
- b) The supply and installation of all soil and waste and rain water accessories including gully traps, inspection chambers, manholes and manhole covers.
- c) The removal of existing soil and rain water systems in order to replace with new systems.
- d) The testing of the entire systems.

### 2.0 List of Materials and Samples

The contractor shall supply technical literature of all the materials he intends to use together with the name and address of the manufacturers, as required by the Perit/Project Leader.

The contractor shall also supply samples of all pieces of equipment or installation material for approval of the Perit/Project Leader prior to commencing work.

### 3.0 Soil and Waste

#### 3.1 Drainage System

This system shall consist of a soil and waste system through a common and vertical stack. The soil system shall be water sealed from the waste system by suitable gullies. Stacks shall be installed in vertical shafts or yards as applicable.

No direct connection of a waste pipe to the stack or building drain shall be allowed but the waste shall flow to a water-sealed gully connected to the stack. Suitable venting shall be provided to all stacks terminating at least 1 metre above the highest point of the shaft. The soil and waste system shall be inclusive of all the necessary rodding eyes, inspection chambers and all other accessories to make a complete installation. The system must comply with Sanitary Law and Building Regulations.

#### 3.2 Rainwater System

The rain water system shall consist of a number of vertical down pipes connected to suitable roof drain as indicated on the drawings. The rainwater down pipes shall be connected to an underground rain water main so as to keep surface discharge to a minimum. The rainwater shall finally be discharged to the underground reservoir. Under no circumstances shall the rain water system be connected to either the soil and/or the waste system.

### 4.0 Materials

In general materials shall be of best quality consistent with the nature of works and the service that are employed. Materials are to be specified in the following order or priority:

- a) Complying with current British Standards.
- b) Complying in general with British Standards and Code of Practice.
- c) Complying with all local statutory regulations and by-laws.

The contractor shall allow for making any necessary applications and obtain approvals from the applicable public authorities as appropriate.

Other standards may be accepted, subject to approval of the Perit/Project Leader.

#### 4.1 Pipework and Fittings

All pipe work shall conform to the following requirements for the respective services, as applicable:

- |                                     |                   |
|-------------------------------------|-------------------|
| a) Soil service:                    | P.V.C Heavy gauge |
| b) Rain water service above ground: | P.V.C Heavy gauge |
| c) Rain water service below ground: | P.V.C Heavy gauge |

#### 4.2 Brackets

Adequate brackets shall be used to support pipework. Provisions shall be made for pipe movement due to expansion of loops, or changes of direction of pipe work as appropriate. All brackets and support shall be rust free and are to be protected with adequate coatings against rust, to the satisfaction of the engineer.

#### 5.0 **Excavation and Laying of Drains**

All excavations for drain trenches shall be in straight lines and to the correct depth and gradient required for the pipes to be laid. The drains are to be laid to suit the general progress of the building work and at such times and in such manner as to be adequately protected against damage. The whole of the work is to be maintained and handed over in a sound and clean condition on completion of the works.

#### 6.0 **Joints**

Pipes to be solvent welded, shall be cut square and all burrs removed. The ends shall be treated with an approved cleaning fluid. The contacting surfaces of the pipes to be jointed shall be thoroughly coated with solvent, weld cement using a lean brush. The joint should be assembled immediately and any excess cement removed.

#### 7.0 **Vertical stacks**

Pipes fixed to walls shall be fixed truly perpendicular with socket upwards. They shall be fixed to the walls by standard metal hooks.

#### 8.0 **Gully Traps**

Gully traps shall be of rigid PVC and of the same material as the soil pipe with 100mm internal diameter outlet. Those gullies set in floor shall be bedded in 1:2:4 concrete round inlets. Moreover a suitable gully strainer shall be provided made from rigid PVC.

Those gullies that are fixed to walls shall rest on short lengths of galvanized water pipes.

#### 9.0 **Changes in Direction**

Any changes in the direction of runs shall take place in manholes or inspection chambers.

#### 10.0 **Examination and Testing of Pipes and Pipe runs**

Each pipe shall be carefully examined on arrival; any defective pipes shall not be used. All foul and surface water drains will be tested to 1.5 metre head of water. No drains are to be covered on or further proceeded with until such test is made. The contractor will be held responsible for all damage that may result and all expenses incurred to non-compliance with the above test.

### **11.0 Concrete surrounds to Drain**

All concrete beds to drains shall be laid to the correct falls. The concrete beds shall be of concrete Grade C15. After laying and joining of drains, concrete of the same mix as above, shall be added to form a complete surround which is to be haunched. The concrete shall be carried up for the full width of the bed to the level of the horizontal diameter of the pipe and shall be splayed from this level and carried upwards to meet the pipe barrel tangentially. Where the pipes are specified to be surrounded, the concrete shall be carried up from the bed in a square section with a minimum of 100mm in thickness over the barrel of the pipe.

### **12.0 Inspection Chambers**

Inspection chambers shall have a C20 concrete base 100mm thick and sides built up to 230mm concrete blocks laid in a 1:3 cement/sand mortar. Half round channels of the required diameter, in curved and straight length shall be laid at the bottom of all chambers, haunched to a height of approximately 200mm with C20 fine concrete, and trowelled smooth.

The sides of the inspection chambers shall be rendered in 1:3 cement/sand and trowelled smooth. A rebate of approximately 50 x 75mm shall be formed round the top. The cover is to be heavy duty PVC in areas where no vehicular traffic is expected. Precast concrete covers will be required to be reinforced.

### **13.0 Chambers for Intercepting Traps**

Chambers for intercepting traps are to be constructed as in 12.0 above but are to be provided with an intercepting trap of the required diameter in lieu of the half channels specified.



## **SECTION F - ELECTRICAL WORKS For Common Parts**

### **1.0 Preamble**

#### **General**

- 1.1 The specifications shall be read in conjunction with the contract conditions, the drawings and the bill of quantities, which together form the tender document.
- 1.2 All equipment quoted for in this tender shall be new and shall conform to the relevant MSA EN or BS, EN or IEC standards. Equipment to other standards may be considered subject to these being of equivalent or superior standard to the ones mentioned. The Tenderer must provide documentation to back such a claim to the satisfaction of the Perit/Project Leader. Where reference to British Standards is made in these technical specifications, the equivalent standard applicable in the EU shall be acceptable.
- 1.3 All components, equipment and material falling under legal notices issued relative to the Quality Control Act (Cap.225) must be CE marked.

### **2.0 Workmanship**

- 2.1 Except where otherwise stated, workmanship is to the relevant MSA EN or BS, EN or IEC standards. Workmanship shall be of a high standard throughout. The contractor shall ensure that the standard of finish demanded by this contract is achieved. Branded materials shall be assembled, constructed and joined in accordance with the manufacturer's instructions and recommendations

### **3.0 Fixing to the Building Structure**

- 3.1 Light fixings to brick, concrete or other masonry materials shall be by means of correctly sized screws fitted into plastic or metal expanding plugs located in correctly sized holes drilled in the structure. Light fittings to cavity constructions shall be by gravity or spring toggles, or expanding rubber sleeve fitted onto screws.
- 3.2 Slow speed rotary drills as recommended by the manufacturer of fixing device shall be used to carefully drill all holes. The Contractor shall not use percussion type boring devices and shot fired fixings without approval in writing.
- 3.3 In all cases the particular type and size of fixing device used shall be in accordance with the manufacturer's recommendations having regard to the application and the load to be carried by the fixing device.

### **4.0 Testing and Commissioning**

- 4.1 All the works provided as part of the contract shall be inspected and commissioned in accordance with the relevant MSA EN or BS, EN or IEC standards to the satisfaction of the Perit/Project Leader. All installations shall be inspected and tested in sections as the work proceeds and on completion as complete systems and it shall be noted that the Perit/Project Leader may require inspecting or testing any equipment during erection.
- 4.2 All tests shall be arranged in co-operation with the Perit t/Project Leader and he shall be given prior notice of the time, location and nature of the test. No test shall be considered valid unless the Perit/Project Leaderr is present. All necessary skilled and unskilled labour shall be provided for attendance duties before, during and after the test.
- 4.3 Defects occurring at any time during the test shall be made good and a complete re-test shall be carried out, all at the expense of the Contractor. Where failure during a test,

inspection or commissioning process results in damage to the building fabric and/or services not provided as part of this contract, or requires subsequent builders' work then these items shall be made good at no extra cost.

- 4.4 No section of the works shall be in any way concealed prior to testing and inspection and subsequent concealment where applicable shall only take place following written authority from the Perit/Project Leader.
- 4.5 All necessary facilities, measuring and recording instruments for inspection/testing and commissioning are to be calibrated as necessary before use. The Perit/Project Leader reserves the right to call for a demonstration of the accuracy of any instrument used.
- 4.6 All systems shall be commissioned only after inspection and testing procedures have demonstrated the integrity of the system.

#### **5.0 Instructions on Operation and Maintenance**

- 5.1 The Housing Authority staff will be instructed in the operation and maintenance of the installations by qualified personnel, who shall be fully conversant with the operations and maintenance procedures required for all systems, and where necessary specialist sub-contractor staff shall be made available to enable complete instructions to be given.
- 5.2 All installations shall be demonstrated in full working order together with the procedures to be adopted in the event of system malfunction and the manner in which plant outputs or control settings can be adjusted.

#### **6.0 Maintenance and Record Drawings**

- 6.1 The contractor shall provide a thorough and easily understandable operation and maintenance manual which should enable non-technical staff to operate the system on a day to day basis and the management staff to plan for and execute routine maintenance.
- 6.2 The contractor shall provide drawings to the scales not less than those used for tendering purposes. These drawings shall show plans and schematics as the engineer may consider necessary to show all required information clearly.
- 6.3 The contractor shall prepare and submit As Fitted Drawings consisting of three sets of prints and one copy on CD ROM.

#### **Technical Specifications for Electrical LV Installation**

##### **7.0 Scope of Works**

- 7.2 The installation shall supply power and lighting to all common areas. The installation where applicable shall include all necessary switchgear, enclosures, wiring, cable management systems, luminaires, accessories and all necessary equipment and labour to make a complete and functional system.
- 7.3 The works shall comprise the installation of ELV systems, namely, a hall porter system to all apartments and preparation for television and telephone services to the apartment.

##### **8.0 Regulations and Standards**

- 8.1 The installation shall conform to the following regulations and standards:

Electricity Supply Regulations issued by Enemalta Corporation including amendments.

IEE Wiring Regulations "Requirements for Electrical Installations" - 16th Edition.  
Including amendments.

BSI Standards as specified or their equivalent

## 9.0 Electrical Supply

9.1 The electrical supply shall be 400/230V (+6% / -10%), 50 Hz, three phase, four wire earthed neutral (TT) system.

## 10.0 Wiring System

10.1 Mains wiring from the consumer unit to the distribution boards within the apartments shall be carried out either

in single core, PVC insulated cables drawn into PVC conduit in chase or in SLPE/SWA/PVC cables in chase.

10.2 Supply tails from the consumer unit on ground floor or basement level to Enemalta's metering cubicle shall be carried out either

in single core, PVC insulated cables drawn into flexible PVC conduit, or 2/4 core PVC insulated, PVC sheathed cable.

10.3 Wiring in common parts shall be carried out  
in single core, PVC insulated cables drawn into PVC conduit in chase.

10.3 Cable sizing shall be as indicated in distribution board and consumer unit schedules.

10.4 Cables with single strand conductors or with an overall conductor c.s.a. of less than 1.5sqmm shall NOT be used.

10.5 Loop connections shall only be made in accessible boxes or accessories.

10.6 Continuous cable runs only shall be used. Jointing of cables is not allowed.

10.7 Rates quoted shall include terminations, glands and bushes etc. as required.

10.8 Wiring insulation shall have the following colour coding:

Single phase circuits:

|                       |                  |
|-----------------------|------------------|
| Phase:                | brown            |
| Neutral:              | blue             |
| Protective conductor: | green and yellow |

Three phase circuits:

|                        |                  |
|------------------------|------------------|
| L1:                    | brown            |
| L2:                    | black            |
| L3:                    | grey             |
| Neutral :              | blue             |
| Protective Conductor : | green and yellow |

## 11.0 Cables

### 11.1 Single Core Cables

Single core cables shall conform to BS 6004 and shall have plain annealed and stranded copper conductor and PVC insulation, 300/500V grade.

### 11.2 Armoured Cable

Armoured cable shall comply with the provisions of BS6346 and BS5467 and shall be 600/1000V grade.

Armoured cable shall have the following construction for sizes up to and including 10sqmm: stranded copper conductors, PVC insulated, PVC bedding, SWA, PVC sheathed.

For sizes above 10sqmm, armoured cable shall have the following construction: stranded copper conductors, XLPE insulated, PVC bedding, SWA, PVC sheathed.

Termination of cables shall be by appropriate manufacturer's recommended glands with brass earth tags. Compression type terminals are to be used for termination of the conductors.

Installation of armoured cables shall include the supply and installation of glands, terminals, cleats and cable ties as required including earth connections. No joints shall be allowed in the cable.

### 11.3 Multicore, PVC Insulated, PVC sheather cable

Multicore PVC sheathed, PVC insulated cable shall comply with BS6346. Appropriate adaptors shall be used wherever the cable enters or exits a metal or plastic enclosure.

## 12.0 **Cable Management**

### 12.1 General

For conduit installations, adequate draw in boxes shall be installed to ensure that cables can be replaced with ease. The price of such boxes shall be deemed to have been included in the price of the relevant power or lighting points.

Any off-sets, bends, routing around beams, etc of the cable management systems shall be deemed to have been included in the tendered rate and no claims for extra cost to this effect will be accepted.

Special attention shall be given by the Contractor to the number of cables installed in conduit or trunking in order ensure that conduit and trunking space factors shall not be exceeded. In any case conduit with a diameter less than 20mm shall NOT be used.

Cables for LV and ELV installations shall be kept separate and under no circumstances shall they be drawn through the same conduit.

Conduit from the consumer unit on the ground floor or basement to the consumer unit in the apartment shall have a diameter of 25mm. Any draw in boxes installed along this conduit, shall only be utilized for one apartment only. Draw in boxes serving more than one apartment are not allowed.

During the course of the works, the Contractor shall blank off all the installed recessed boxes and conduit ends in order to minimize the ingress of debris and dirt.

### 12.2 Builders' Work

The Tenderer is to include in his rates for chasing, holes in reinforced concrete or structural members etc. required for the proper execution of the works. Holes in reinforced concrete or structural members shall only be made after approval by the Perit/Project Leader or Architect in charge.

All holes shall be made good with appropriate material in order to ensure that the integrity of the fire barrier is maintained. Such making good shall be deemed to have been included in the tendered rates

### 12.3 PVC Conduit and Fittings

PVC conduit and fittings shall comply with the provisions of BS 4607 Part 1 and shall be of medium gauge. Conduit shall be jointed and terminated utilizing the appropriate components as supplied by the conduit manufacturer. No contractor manufactured fittings or joints shall be utilized.

Chases for conduits are to be neatly cut and holes neatly drilled by mechanical means. Chases are to be made in horizontal or vertical runs only. Horizontal chases are to be kept to a minimum.

Vertical chases of conduit adjacent to doors or other openings shall not be nearer than 200mm from these openings.

### 12.4 Galvanised Steel Conduit and Fittings

Not applicable.

## 13.0 **Consumer units and switchgear**

### 13.1 Consumer units

The consumer's switchgear shall consist of:

an incoming main MCB and RCD located at ground level near the metering cubicle and housed in a robust moulded plastic enclosure with hinged door, DIN mounting rail and an earth terminal block. The main incoming MCB shall conform to BS3871 and shall be rated at 6kA minimum. RCD's shall conform to BS4293.

A flush mounted distribution board unit of robust, moulded plastic construction complete with hinged door shall be installed in each apartment as shown on drawings. The distribution board shall house an incoming MCB, a second RCD as well as MCB's for final sub-circuits as shown on schedule. MCB's shall conform to BS3871 and shall be rated at 3kA minimum. RCD's shall conform to BS4293. The distribution board shall include shrouded earth and neutral busbars of sufficient capacity to accommodate each individual circuit separately. MCB's shall be fed via an insulated 10sqmm comb type busbar. Care should be taken to avoid warping of the enclosure during installation. Unused ways shall be blanked off and conduit entry shall be made using appropriate adaptors.

### 13.2 Distribution boards for common parts

The distribution boards supplying electrical services within the basement (if any) and common parts shall be TPN, surface mounting and of plastic moulded PVC construction complete with a hinged door which can be padlocked. Earth and neutral busbars of sufficient capacity to accommodate each individual circuit separately shall be included.

Distribution boards shall have a minimum protection rating of IP41.

RCD's where installed, shall conform to BS 4293.

Miniature circuit breakers are to comply with BS 3871 and are to provide short circuit and over current protection.

Short circuit rating for incoming MCB's shall be 10kA minimum.

Short circuit rating for outgoing MCB's shall be 6kA minimum.

MCB's for lighting and small power shall have a type C tripping characteristic.

MCB's for lift motor circuits shall have a tripping characteristic suitable for high starting motor currents.

Unused ways shall be blanked off.

### 13.3 Earthing and Bonding

The main earthing terminal shall consist of a copper bar mounted horizontally along the length of the metering cubicle. Minimum c.s.a shall be 120sqmm. The earth bar shall be supported with appropriate brackets fixed to the wall. Ground earthing shall be by means of earth electrodes located in the meter rooms and connected by 25sqmm copper conductors and appropriate clamps to the main earth bar.

Electrodes shall be made of solid copper, at least 2.4m long and with a minimum diameter of 16mm. The head of the electrode shall be housed in a precast or moulded inspection box with adequate cover installed flush at finished floor level. Earth electrodes shall be installed at a minimum distance of 2.4m from each other.

The main earthing conductor between the main earth bar and the consumer's switchgear shall have a c.s.a. of 10sqmm for single phase circuits and 16sqmm for three-phase circuits.

Earthing conductors at the main earth bar shall be terminated using appropriate lugs and bolted to the earth bar.

### 14.0 **Moulded Accessories**

#### 14.1 General

Moulded accessories shall be uniform throughout the installation, suitable for surface mounting over recessed boxes, and ivory white in colour.

Boxes shall be installed in recess with the front edge of the box at approximately 2mm behind the finished wall surface. Boxes used for wiring terminations and to hold moulded accessories shall be secured with a minimum of one roundhead screw.

Boxes shall be fitted with manufacturer supplied adaptors to connect to PVC conduit.  
**Direct conduit entry into box knockouts shall not be accepted.**

The mounting height of accessories (measured from centre) above finished floor level shall be as follows:

Lighting plate switch - 120cm

#### 14.2 Lighting Switches

Single pole plate switches shall conform to BS3676 and are to be rated at 16A. For one way lighting circuits, switches shall be wired such that the rocker is facing down when the switch is ON.

#### 14.3 Ceiling Rose

Ceiling roses shall have terminals for live, neutral and earth 1.5mm cables. Ceiling roses shall be suitable for mounting over standard recessed mounted, plastic, round boxes. They are to comply with the provisions of BS 67.

#### 14.4 Fused Spur Outlets

Fused Spur Outlets 13A are to comply with BS 5733 and are to be double pole switched with pilot lamp and cartridge fuse in removable fuse holder.

#### 14.5 Cord Outlets

Cord outlets are to be unfused when fed from a fused spur outlet and shall include a terminal block for proper termination of cables and a cord grip for the outgoing cable. Cord outlets shall be used to supply accessories such as water heaters, strip heaters etc.

#### 15.0 **Other Accessories**

##### 15.1 Time Delay Switch

Time delay switches shall be used to control the lighting in staircases and landings. The unit shall consist of a number of moulded plate switches with a spring return rocker action (Normally Open) all connected in parallel and an electronic timer module that shall keep the lighting circuit on that switch ON for an adjustable time interval of up to five minutes after the switch is pressed and shall turn the circuit OFF once this time interval has elapsed.

##### 15.2 Switch Disconnectors

Switch disconnectors for indoor use shall be of robust sheet steel, epoxy finish construction rated to at least IP41. For outdoor use, switch disconnectors shall be of thermoplastic construction and rated to at least IP65. Both types shall comply with BS EN 60947-3 and shall be capable of disconnecting on load. Two pole devices shall be utilized for single phase circuits, four pole for three phase circuits. Disconnection shall be simultaneous on all poles. All switch disconnectors shall have the facility to be padlocked in the ON or OFF position.

##### 15.3 Passive Infra-Red (PIR) Detector

Not applicable.

##### 15.4 Time Delay Relay

The time delay relay shall switch ON the respective lighting circuit (via a contactor) on receiving a signal from the corresponding PIR detector/s. The time delay during which the circuit is ON shall be adjustable from 1 - 15 minutes at intervals of 1 minute

#### 16.0 **Luminaires and Lamps**

##### 16.1 General

For outdoor installations, luminaires shall be fixed with stainless steel screws and shall be of durable material as specified below.

Uniformity of luminaire colour and design is essential and samples of different makes and colours shall be submitted to the Architect or Engineer for approval.

Installation is to include connection cables to light points if required.

In general, unless otherwise specified, ceiling light points shall include a pendant set consisting of:

Ceiling rose  
PVC insulated and sheathed cable  
Heat resistant lamp holder with a 28W GLS lamp.

The cost of the pendant set shall be deemed to have been included in the price of the light point.

Wall mounted luminaires, unless otherwise specified, shall include a heat resistant batten holder (to fit directly over a recessed round box) complete with 60W GLS lamp.

The cost of the batten holder and lamp shall be deemed to have been included in the price of the light point.

#### **17.0 Labelling**

The Contractor shall provide a printed chart giving details of each circuit, in all distribution boards and consumer units. The chart shall be enclosed in a transparent plastic envelope attached to the inside of the door of the consumer unit or distribution board.

Consumer units and distribution boards are to be marked with appropriate labels made of white plastic, with clear engraved letters and figures coloured black. Labels are to be fixed by means of screws. Incoming consumer units on ground floor shall have the apartment number engraved on their label whereas distribution boards are to have the DB number indicated on their label.

A plastic label with clear engraved letters and coloured red shall also be installed at each main earth terminal and shall read:

“SAFETY ELECTRICAL CONNECTION - DO NOT REMOVE”

#### **18.0 Inspection and Testing**

The Contractor shall be responsible for the testing of the electrical installation as recommended in the IEE Wiring Regulations "Requirements for Electrical Installations" - 16th Edition including amendments. In this regard, the Contractor shall furnish test certificates to the Engineer, on request.

The Contractor shall also be responsible for submitting the application to Enemalta for the provision of the electricity service to each apartment and common parts. The Contractor shall include for the provision of drawings and schematics as well as the inspection and test Certificates for each individual service as required by Enemalta. The Contractor shall also include the Enemalta application fee in the tendered rates.

#### **19.0 Commissioning Manuals and Records**

On completion of the works, the Contractor shall carry out full scale testing and commissioning of all installations to demonstrate their performance to the satisfaction of the Perit/Project Leader.

The Contractor shall submit commissioning records, test results, and test certificates to the Perit/Project Leader.

### **Technical Specifications for Electrical ELV Installation**

#### **20.0 Hall Porter System**

The system shall consist of a call station and power supply in the main entrance of apartment block and a corresponding answering station in each apartment.

The call station shall consist of a 3key anodised aluminium push button panel with speaker and backlit nameplate (with transparent plastic cover) for each key. The call station shall be suitable for external installation.

The answering station shall consist of an electronic, wall mounting house phone with handset, door release key and a call buzzer.



Wiring shall be by means of multicore, screened and PVC sheathed cable from the call station to different apartment blocks. Wiring shall be such that the call station shall have a separate buzzer/speech wire to each apartment. Ground, power supply, door release and other wires shall be common to the apartments. Cable joints, if required, shall be carried out only in appropriate joint boxes located in common parts only. All joints shall be soldered and finished with a heat shrink sleeve. The cable screen shall be adequately earthed.

The entire hall porter wiring system shall be installed in conduit dedicated to the system. Under no circumstances shall the hall porter ELV wiring be drawn through the same conduit as the electrical LV installation.

The Contractor shall test and commission the system

## **SECTION F - ELECTRICAL WORKS For Apartments**

### **Preamble**

#### Standards

Unless otherwise specifically stated in the following specifications, all equipment and materials offered have to be to their respective National MSA EN standards as approved, endorsed and listed on the Government Gazette dated 4th October 2000 and subsequent additions. Items, which do not fall within this list, shall be to their respective BS or EN or IEC standards.

Equivalent standards from non-EU countries can be considered subject that it is proven to the Engineer's satisfaction that such standards are equivalent, or superior, to the BS or EN or IEC counterpart.

Furthermore, all equipment and materials, which fall under legal notices, issued pursuant to the Quality Control Act. (Cap. 225) must bear the CE mark.

#### Openings

The contractor shall be responsible to carry out all chases in all walls / floors. Horizontal chases in wall will not be permitted unless specific approval from the Architects/Civil Engineers is obtained. He shall also be responsible to provide any holes or aperture up to a size equal or equivalent to 270mm x 200mm. The contractor shall be responsible to make good all holes or apertures of any size which were provided by himself. All exposed hollows from bricks resulting from chasing, and other builders work carried out by the M&E contractor, are to be filled using C15 concrete as part of this contract.

The Client shall provide apertures in excess of 270mm x 200mm following details given by the Contractor. On his part, the Contractor shall be responsible to provide sleeves to be inserted in all such apertures prior to their opening by the Client. Making good between the sleeve and the aperture shall be the responsibility of the client. Sealing or chalking with approved materials between sleeves and services passing through it shall be the responsibility of the Contractor.

#### Fire Stopping

Wherever services pass from one fire compartment to another, approved fire stopping material is to be applied by the Contractor to all service penetrations including cable trunking, cable trays, etc., and between sleeves and the service passing through them.

#### Damp Proof Membrane

Unless specifically authorised by the Architect, the contractor shall not be allowed to puncture the damp proof membrane.

#### Commissioning

The contractor has to balance, test and commission all the engineering systems in such a manner so as to demonstrate their proper operation and performance of all systems and equipment, as intended and at the specified conditions, unless otherwise stated. All commissioning shall be to C.I.B.S.E. guidelines or approved equivalent.

#### Certification

All systems or equipment, which need to be certified by Law or by any Legal Notice, are to be so certified by a person/body as contemplated by the same law/legal notice. Such certification is to be forwarded to the Engineer with all the other contract drawings and information.

#### Police Commercial Operating License

Should the Commissioner of Police request the client to provide a report on the whole of the electrical installation and plant, for the purpose of granting a Commercial Operating Licence, the Contractor is to prepare this report in the appropriate format. This report is to be signed by a competent warranted Engineer and handed over to the Client within three days of it being requested.

## **1.0 Electrical Installation**

The complete electrical installation system and all equipment shall be manufactured, installed and tested in accordance with the latest editions of the following standards or as listed equivalent to:

- a) The current edition of the Electricity Supply Regulations, as issued by the Malta Resources Authority.
- b) The current edition of the I.E.E. Wiring regulations, as issued by the Institution of Electrical Engineers.
- c) British Standard Specifications.

## **2.0 Electricity Supply**

The incoming electricity supply shall be single phase, 230 Volts, 50Hz, neutral and earth system. All items making up the electrical installation, such as all equipment, motors, light fittings, control gear, accessories, switchgear, etc. shall be rated to operate at these voltages accordingly.

## **3.0 Fixings**

Screw fixings in brickwork, concrete or similar structural substances, on external face or in damp situations and which necessitate plugging, are to be made with plastic plugs or other approved materials.

Screws used in exposed conditions or in damp situations shall be of brass or other approved non-rusting materials. The Engineer must approve alternative fixing methods.

Heavy apparatus shall be secured by rawl bolts securely grouted in or by an equal and approved method.

Equipment fixed to parts of the structure shall be fixed in accordance with the instructions of the Architect, so that the load bearing of the structure members or the efficiency of waterproofing will not be affected.

## **4.0 Protection of Floor Conduits and Water Pipes**

All conduits, laid on the ground, are to be suitably protected against damage or breakage by a cover of cement and sand mortar.

All water pipes, laid on the ground, are to be installed within appropriately sized PVC sleeves, which are also to be covered of cement and sand mortar.

All works are to be executed as part of this contract and their cost is to be incorporated in the respective installation rates.

## **4.6 Services and Water Culverts**

If any privately or Government owned water culverts, services for water, electricity, gas, drainage, etc. passing through the site will be effected by the works, the contractor shall

provide a satisfactory alternative service, in full working order to the satisfaction of the owner of the service and of the Engineer. The alternative service shall be installed before cutting the existing service. Care shall be taken not to damage existing culverts and watercourses and any other existing underground services. If any of these are damaged, these are to be made good at the contractor's expense, to the satisfaction of the authority concerned. The contractor should give notice to the Authority if excavation is to be carried out near any existing services and obtain their respective consent before any work is started. The contractor is to give notice to the Commissioner of Police and Director of Public Works and all other interested authorities before the excavation of pits is commenced. Such notice should conform to current regulations in force.

## **6.0 Brackets and Fixtures**

The brackets shall all either be the equipment manufacturer's standard brackets, or else proprietary brackets, made by specialised bracketing manufacturers. Only where these are deemed inadequate to meet special local situations will locally fabricated brackets be accepted, and this strictly with prior permission from the Engineer.

All brackets, fixtures, supports, etc., are to be hot-dipped galvanised after manufacturing.

## **7.0 Consumption Sub-Meters**

All the consumption meters, as may be installed within all the electrical and mechanical system, have to be individually calibrated and certified by the meters' manufacturer prior to installation.

Original certificate of such calibration tests is to be handed over to the client and/or Consultant Engineer, as part of the commissioning documents for the project.

## **8.0 Cable Trunking, Trays and Basket**

The Contractor shall supply and install cable trunking/tray/basket in all positions indicated on the Drawings, as detailed in the Specifications or as approved by the Engineer.

### **8.1 General**

- a) Earth bonding is required between all lengths metallic trunking/tray/wire basket and boxes, etc. Bonding shall be by copper strips of 12 x 2mm minimum sectional dimensions, fixed by M4 brass screws.
- b) Where special fittings or sections of metallic trunking/tray/wire baskets are fabricated on site, they shall be prepared and finished to the same standard manufacturers' standard items.
- c) Fixing of metallic trunking/tray/wire basket shall be made at regular intervals not exceeding 1m and at 200mm from bends and intersections.

### **8.2 Galvanised Trunking**

- a) The trunking shall be manufactured from 1mm galvanised steel sheets. The lid shall be secured with self-tapping screws and on no account is the length of the lid to exceed 1.8m in any one whole section.
- b) Boxes, tee boxes, etc. shall be complete with fly over separation units in accordance with I.E.E. Regulations.
- c) Holes in trunking shall be arranged to avoid undue setting of entering conduits. Joints in trunking shall be made in such a way as to ensure electrical continuity between the various lengths of trunking.

- d) Where trunking passes through holes in the building structure, a cover plate shall be fixed to the trunking before installation and shall be arranged to project at least 50mm beyond the finished surface of the wall.
- e) Where trunking is employed and sizes are not detailed on the Drawings, or in the Specification, such trunking shall be capable of containing 50% additional cables of the average size of the conductors to be installed in the trunking without exceeding the space factors laid down in the I.E.E. Regulations.
- f) Trunking over the false ceiling shall be supported as necessary.

### 8.3 PVC Trunking

- a) The PVC trunking and accessories shall be of the self-extinguishing type.
- b) The trunking shall not be used where the ambient temperature would be higher than 60 °C.
- c) The trunking shall be supplied complete with lid, cable separators for the whole length (when cables for more than one service are installed), back-boxes for the wiring accessories and proprietary mounting accessories, such as flat angles, tees, inner and outer corner assemblies and corner covers, end caps, joint covers etc.

### 8.4 Galvanised Tray

- a) Cable trays shall comprise elongated perforated sheet steel trays turned up at the edges and be hot-dipped galvanised after manufacturing. The widths of tray shall be as stated in the drawings or Bills of Quantities.
- b) For trays up to 225mm wide, 1mm sheet shall be used. For widths above 225mm, 1.5mm sheet shall be used. Flange height of cable tray shall be not less than 25mm or as stated in the drawings or Bills of Quantities.
- c) Mushroom-head steel roofing bolts and nuts shall be used to fix together adjacent sections of cable tray and/or accessories.
- d) Holes cut in cable tray for the passage of cable shall be bushed.

### 8.5 Wire Basket

- a) The wire basket shall be manufactured from Yellow Zinc Dichromate plated steel wire.
- b) For up to 200mm wide, the wire baskets shall be constructed from 3.5mm diameter steel wire and from 5mm diameter steel wire for the larger sections.
- c) The tray width and depth shall be as stated in drawings or Bill of Quantities.
- d) The wire basket shall be supplied with all appropriate accessories such as clip on couplers or bolt-on splice plates, fixing bolts, etc.
- e) The lengths of the wire basket can be cut, bent, formed and jointed to accommodate straight runs, changes of direction and changes in levels.

### 9.0 **Conduit Replacement by Trunking**

Should the electrical contractor opt to modify the proposed electrical installation design, so as to facilitate installation work, the contractor may replace a number of conduit runs by a suitably sized trunking run. This will only be accepted if this replacement does not have any financial implications to the client.

### 10.0 **Provision of Light Fitting Samples**

The client reserves the right to ask for the provision of samples of all the light fitting types at the tender evaluation stage.

It is mandatory that, prior to the ordering of the light fittings, the appointed contractor is to submit technical literature and a sample of each of the light fitting types, complete with lamps.

Associated costs, if any, for the provision of these samples is to be factored within the cost of the light fittings at the tender computation stage.

## 11.0 Label and Circuit Lists

- a) All switchgear, distribution boards, consumer unit and isolators shall be fitted externally with black engraved Trifoliate labels, with 6mm high lettering, showing the individual code name or number, adequately defining the function of the switchgear concerned, phase identification, where applicable and the equipment or area being served by the switchgear.
- b) Each distribution board shall be fitted internally with a circuit connection schedule, or a circuit list, inside a transparent type envelope, which will be permanently fixed inside the door of the board.

The list shall indicate the location of the lighting points, socket outlets, or equipment being supplied off the individual circuits in the board, each outgoing circuit's cable size and rating of the miniature circuit breaker, as appropriate.

Circuit lists shall be typed and all precautions are to be taken to ensure non-fading of the typed lettering.

- c) Labels shall be attached to the barriers of each distribution board, indicating the reference number of each individual circuit shown on the circuit connection schedule. These reference numbers or letters are also to be reproduced on the circuit connection schedule, for easier cross-reference.
- d) All labels shall be approved by the Engineer before installation.

## 12.0 Testing of the Installation

- a) During the progress of the work and upon completion, the Contractor shall carry out such tests and provide such apparatus, instruments and materials as the Engineer/Employer may consider necessary, or may be reasonably demanded to prove compliance with the Contract.
- b) In his Tender offer, the Contractor is to allow for making all the necessary tests, in the presence of the Engineer of the Employer.
- c) Upon completion of the works and again at the end of the Defect's Liability Period the whole of the electrical installation shall be tested in accordance with the requirements enumerated in the I.E.E. Regulations (latest edition). Full tests are to be made on:
  - (i) Continuity of protective and final circuit conductors;
  - (ii) Verification of polarity;
  - (iii) Continuity of main and supplementary earth bonding;
  - (iv) Insulation resistance, between phase and neutral conductors and between

each of these and earth;

- (v) Earth continuity;
- (vi) (Balancing of electrical load on the three voltage phases;
- (vii) Earth electrode resistance;
- (viii) Operation of Residual Current Devices (RCDs).

Any irregularities or faults, which result from, the tests have to be rectified immediately and the necessary tests conducted again.

- d) At the completion of the works, the Contractor shall provide the Engineer with a detailed record of all tests carried out, accompanied by a Certificate of the Final Test for the whole electrical installation of the project. The test certificate shall be in similar format to that required by the Regulations of Enemalta Corporation (Electricity), for new or upgraded power supplies and must be submitted before the installation can be passed as correct and safe for its use.

### **13.0 Steel Conduits Installations**

Conduits and conduit fittings shall be installed in accordance with the relevant technical regulations. All external installations shall be in galvanised conduits and made effectively watertight throughout.

Conduit connections to all internal and external equipment shall be carried out in flexible conduit and terminated by means of heavy brass split adapters with a separate earth connection. In external or potentially wet or damp situations, flexible conduit shall be of the watertight type.

### **14.0 PVC Conduit Installation, Conduit Fittings and Fixing**

- a) PVC conduit shall be installed in accordance to the latest I.E.E. Regulations and the Enemalta Corporation's Regulations are to be followed regarding any special requirements for the installation of non-metallic conduit in a system.
- b) All conduits, conduit fittings and conduit boxes shall be of the self-extinguishing material type.
- c) Conduit and conduit fittings shall not be used where the ambient temperature would be higher than 60 deg C or lower than 5 deg C.
- d) Conduit shall be seamless, polyvinyl tubing of the heaviest standard gauge, manufactured expressly for electrical use. Flexible water tubing shall not be used.
- e) Couplings and conduit entering conduit fittings shall all be sealed with PVC solvent to ensure water-tightness and strength of joints.
- f) Expansion couplers shall be used on surface installations of straight runs of conduit in excess of six (6) metres. An expansion coupler shall also be fitted whenever a conduit crosses an expansion joint in the structure.
- g) Conduits concealed in wall chases shall only be installed in the vertical planes.
- h) Horizontal chases will only be allowed up to a length of 500mm. Longer chases will only be permitted if approved by the Architects.

- i) Conduits installed surface over a false ceiling shall be supported by suitable hangers or saddles without interfering with the soffit structure.
- j) All bends on the conduits shall be made with a reasonable angle tolerance. Distortion or damage on the bends due to bending shall be rejected.
- k) All conduit fittings used shall be of same type and standards as that of the PVC conduit used throughout the installation.
- l) PVC boxes shall not be used for the suspension of lighting fixtures. Special care shall be taken whenever a lighting fixture is to be installed directly on the PVC box, especially when the fitting temperature exceeds 60 deg C.

## 15.0 Wiring System

- a) The wiring system shall consist of PVC or XLPE insulated copper cables drawn into conduit, unless otherwise indicated elsewhere in the Technical Specifications or Drawings. Wiring shall be carried out in single-core conductors, self-extinguishing type.
- b) A loop-in wiring system is to be adopted to avoid jointing of the conductors in the conduit fittings. Whenever joints in the conductors are to be made, the specific prior approval of the Engineer is required. When permission is granted, insulated terminal blocks are to be used for jointing in the conductors. The terminal blocks shall be contained in an appropriate enclosure.
- c) It is to be noted that no cables shall be passed through the back boxes of any electrical accessory, unless the cables form part of the electrical circuit of that accessory.
- d) When drawing cables into conduits, care shall be taken to ensure that the insulation is not damaged.
- e) The maximum cable carrying capacities of conduit as indicated in the I.E.E. Regulations shall not be exceeded.

## 16.0 Cables

- a) Single core cable in conduit or trunking shall have stranded plain copper conductors, PVC or XLPE insulation voltage grade 450/750V, self-extinguishing material type. Flexible fine stranded wiring cables shall be suitably terminated with lugs or soldered.
- b) Armoured cables shall be the XLPE extruded bedding type, having galvanised steel wire armour and PVC sheathed overall, to a 600/1000V voltage grade.
- c) Each cable is to be manufactured in one complete length and no through joints will be allowed without authorisation from the Engineer. The Contractor shall be responsible for cable conductor phasing from the main switchboard. Feeder terminals shall be correspondingly marked at each end.
- d) Armour clamps shall be provided for the cable entries into all metal clad gear. The glands shall be screwed with conduit thread and secured to the cases with two locknuts. The glands should be complete with all accessories such as. locknuts, earth tugs and shrouds. Appropriate glands for different environments should be used.
- e) Each multi-core cable must be supported to the cable tray by appropriate cable ties at every 2.5 metres or less. Furthermore, each cable has to have a proprietary cable identification tag at every 10 metres of its length and within 1 metre of its termination at both ends at the switchgear. The tag is to identify both the Main Switchgear Panel at the source and the switchgear at its termination.



- f) Cables for protected circuits, that is, those supplying equipment, which need to continue to function even during a fire outbreak, need to be the fire resistant type, to CWZ classification in accordance with BS 6387, having an out fire barrier in mineral ceramic (mica/glass) material. All cables to be terminated with fireproof glands at both ends. Such cables include those supplying the smoke extraction fans at Basement Levels, the Fireman's lifts and as specified.

#### **17.0 Cable Trenches for Underground Cables**

The cable trenches are to be approximately 750mm deep. Before the cables are laid, the bottom of the trench shall be lined with sifted sand to a thickness of 50mm to form a bed. The cables are to be covered with tape marked 'Danger Electrical Cable'. After the cables are laid, the first 75mm depth of cover backfill is to consist of sifted sand over which reinforced concrete covers or stone slabs are to be laid to cover the entire cable lengths. Following the trench back-fill, the contractor is to see that the road surface is reinstated to the original condition.

#### **18.0 Switch and Fuse Gear**

- a) All switch/fuse gear, distribution boards and consumer units, unless otherwise specified shall be of the totally enclosed type, 500 volts rating, metal clad and arranged for conduit entry. Switch and fuse gear shall be of the types and ratings indicated in the Technical Specification and on the Schematic Diagram.
- b) Switch/fuse gear shall be arranged generally to conform to the layout indicated on the Schematic Drawing. This Drawing is diagrammatic only. The Contractor shall obtain the Engineer's approval of his proposed switchgear layout, prior to ordering and installing.
- c) In a single-phase circuit, all the isolators and switch fuses are to be double pole switching type, having the 'live' pole connected to the left-hand terminal of the gear.
- d) In a three-phase circuit, the switch/fuse gear can either be the triple pole switched type, with an unswitched neutral link (TP&N), or else the four-pole switched type (TPN), according to the Technical Specifications or Bill of Quantities for particular project.
- e) The type of enclosures as indicated or as directed by the Engineer, shall be dust protecting for all apparatus therein enclosed.
- f) Metal clad weatherproof type enclosures shall be provided with a hot-dip galvanised coating.
- g) All fuse switches, switch fuses and isolators shall be of the front switch-handle type and shall be constructed from heavy gauge zinc coated steel, damp and dust-proof protected. Insulated barrier plates shall be fitted inside to prevent accidental access to the live busbars.
- h) The weatherproof isolators up to 63 amperes can be rotary-control switches, industrial plastic type to IP 65, all others to be metal clad isolators to IP54 protection.
- i) Isolators, switch fuses and fuse switches are to be rated for AC23 category of duty.

#### **19.0 High Rupturing Capacity Cartridge Fuse Units**

All fuse switch units, switch fuse units shall be complete with H.R.C. cartridge fuse links as required.

Each fuse shall be correctly rated to suit the circuit and load it is controlling and they shall be certified for category of duty 400 volts AC, having a fusing factor less than 1.5.

## **20.0 Distribution Boards and Consumer Units**

Unless otherwise specified, all TP & N distribution boards, shall be metal clad enclosure surface type and are to be supplied with an integral three-phase pan assembly busbar system. These shall be provided with miniature circuit breakers (MCBs) and complete with an integral isolator, rated as specified. A split integral busbar system is to be supplied where specified.

Similarly, unless otherwise specified, all SP & N consumer units shall be metal clad enclosure, surface type and are to be supplied with a proprietary prong-type supply busbar. Each busbar is to include a supply cable entry terminal at one end and an outgoing terminal point for each neutral connected to it.

The main incoming isolator and the main residual current device in each enclosure must be two separate units. Combined MCB/RCD units, as a main switch will not be accepted.

Outgoing circuits designated as 'spare' on the drawings shall be provided with the rated miniature circuit breakers. All spaces within the distribution boards or consumer units, designated as 'Blank', shall include the proprietary plastic covers.

## **21.0 Miniature Circuit Breaker / Moulded Case Circuit Breaker**

The miniature circuit breakers (MCB) shall be of high impedance quality, complete with thermal magnetic overload unit inside the breaker and shall operate on both overload and short circuit condition. Category of duty; C Curve, breaking capacity 6kA for general circuits and category of duty; D curve breaking capacity 10kA for inductive circuits supplying motor loads.

A safety 'off' lock mechanism must be a feature of the miniature circuit breakers.

The miniature circuit breakers shall be rated as specified and their construction shall allow for normal current operations at a temperature, which is not lower than 35 C. All miniature circuit breakers shall be supplied from the same manufacturer.

Moulded case circuit breakers (MCCB) shall be rated as specified in the drawing, having a rated ultimate short circuit breaking capacity (Icu) of not less than 36 kA or 50kA for 1 second at 400 volts, as will be specified for each particular project.

## **22.0 Residual Current Breakers with Overload (RCBO)**

The RCBOs, rated as per distribution board schedules, occupying a single way within the existing distribution board, shall be rated for a 30mA earth leakage tripping current. The RCBOs are to be installed as a direct replacement of the MCBs. It may also be considered to have MCBs in their position within the distribution board and a separate metal enclosure, to house double pole RCDs to the above current ratings, installed on a DIN-rail. The cost of the metalclad enclosure and the additional cabling between the MCBs and the RCDs is to be included in the costs.

Any four pole RCDs are to be installed in this metal enclosure. Category of duty for the RCBOs is to be C Curve, breaking capacity 6kA for all RCBOs and RCDs.

## **23.0 General Earthing**

All metalwork of electrical equipment (other than current carrying parts), all metal conduits, cable trunking, metal armouring and sheathing of cables and earthing pin of sockets shall be properly and adequately earthed, so as to secure full compliance with the I.E.E. Regulations and the requirements of the Enemalta Corporation.

#### **24.0 Bonding of Metallic Structures**

All metallic structures that may inadvertently come in contact with the electrical supply are to be properly bonded to Earth, as stipulated by the I.E.E. Regulations. These metallic units may include, but are not limited to, building structures, stairs, metallic or aluminium partitioning, sinks, fixed workshop benches etc.

Any metallic structure or equipment, which may be exposed to a lightning strike, is to be suitably bonded to the lightning protection system, where applicable.

#### **25.0 Re-tightening of Electrical Equipment Terminations**

One month before the expiry of the Defects Liability Period the contractor shall inspect and tighten all terminal bolts in all electrical switchgear and equipment.

The contractor shall forward to the Engineer a certificate issued by a Warranted Electrical Engineer, certifying that listed electrical switchgear and equipment was inspected and that all terminal bolts are tight.

Notwithstanding the successful completion of the Defect's Liability Period, the retention will not be realised by the Engineer unless such certification is presented.

#### **26.0 Installation of Lighting Fixtures**

The cost of the installation of lighting fixtures is to include all 3 core PVC double sheathed cable, where applicable, fixture mounting accessories such as screws, washers, rawl bolts, distance spacers, etc. and lengths of steel wire or chain for the supporting of the fixture, should it be required.

Gaskets on the cable boxes may also be required to render the installation waterproof, where applicable.

### **ELECTRICAL SYSTEM - PARTICULAR TECHNICAL SPECIFICATIONS**

#### **27.0 General**

This Specification details the intrinsic properties (including materials and workmanship) required of an electrical installation carried out for or on behalf of the Housing Authority.

The electrical installation shall comply in every respect with this Specification unless otherwise specified in the Particular Specifications, the Drawings, and/or the Standard/Guidance Drawings relating to a particular job or modified by written instruction.

Unless otherwise specified, all apparatus, equipment, materials, and wiring shall be suitable for use with a 1-phase and neutral, 230V +6%, 50 Hz  $\pm 2\%$  source neutral earthed system with provision of bonding to the electrical earth electrode terminal.

#### **28.0 Obligations and Regulations**

The electrical installation shall comply with the latest edition of the following statutory obligations and regulations together with any amendments made thereto:

- a) Code of Practice for the Electricity (Wiring) Regulations issued by Enemalta
- b) IEC 60364 "Electrical Installations of Building."
- c) c) BS7671 17<sup>th</sup> Edition.
- d) IEC, ISO, EN, BS EN and BS.

## **29.0 Material, Equipment & Workmanship**

Material and equipment shall be of high quality, and shall comply with, where applicable, the appropriate International Standard Specifications prepared by IEC or ISO Technical Committees together with any amendments made thereto.

All electrical work shall be carried out by or under the direct supervision of the “registered electrical workers” of the appropriate grade in accordance with the Electricity Ordinance.

All tradesmen shall be experienced in the trade and the work carried out shall be consistent with good practice and satisfactory.

Proper tools shall be used for carrying out the electrical installations. Adequate and accurate testing/measuring instruments shall be used to demonstrate compliance of the electrical installations with the relevant specifications and regulations.

## **30.0 Consumer Units**

All SP & N consumer units, shall be provided with miniature circuit breakers (MCBs) and complete with an integral isolator, rated as specified.

**Note:** The Distribution boards are ready supplied and installed with a 40 DP MCB

Each neutral Busbar shall have an outgoing terminal point for each neutral connected to it.

All distribution boards and consumer units shall be complete with glazed circuit charts indicating, the ways, number, equipment, rating of MCB, size of cable used and phase to which equipment is connected.

Distribution Boards, Consumer Units and switchgear shall be labelled with white-black Traffolyte in 3mm high lettering.

Miniature circuit breakers shall have a category of duty of M6, Type C or Type 3, for a tripping range of between 7 to 10 times their rated current, unless otherwise shown on the Drawings or unless otherwise approved by the Engineer.

The miniature circuit breakers shall be of high impedance quality, complete with thermal magnetic overload unit inside the breaker and shall operate on both overload and short circuit condition.

A safety 'off' lock mechanism must be a feature of the miniature circuit breakers.

The miniature circuit breakers shall be rated as specified and their construction shall allow for normal current operations at a temperature, which is not lower than 35 C. All miniature circuit breakers shall be supplied from the same manufacturer.

The main incoming isolator and the main residual current device in each enclosure must be two separate units. Combined isolator / RCD as a main switch will not be accepted.

Outgoing circuits designated as 'spare' on the drawings shall be provided with the rated miniature circuit breakers.

Moulded case circuit breakers shall have a short circuit breaking capacity of not less than 40kA for 1 second at 400 volts.

## **31.00 Lighting Points**

The cost of lighting points shall include the self-extinguishing rigid PVC conduit under floor tiling, in wall chase or partitioning or surface above soffit, the required electrical

accessories, lighting switches, and the cables specified.

All switches are to be flush-mounted type, ivory white moulded plastic, 10AX inductive load rated moulded plastic faceplate type. All switches are to have an identical aesthetical appearance.

In all exterior or damp atmospheric areas, weatherproof switches to IP56 degree of ingress protection are to be utilised.

All lighting points where the light fittings will not be supplied by the Client, a pendant holder or a button holder complete with a bulb is to be included.

All metalclad switches and relative containment are to be earthed.

### **32.0 Socket Outlet Points**

The cost of socket outlet points shall include the self-extinguishing rigid PVC conduit under floor tiling, in wall chase or partitioning or surface above soffit, the 3 x 4mm<sup>2</sup> PVC cables for radial circuits, or 6 x 2.5mm<sup>2</sup> PVC insulated cables for ring circuit, and the 13 ampere, ivory white colour, shuttered, flush type, double pole switched, British Standard, moulded plastic faceplate double or single socket outlets, as indicated on drawings.

### **33.0 Water Heater (13A DP)**

The cost of the fused connection unit point shall include the self-extinguishing rigid PVC conduit under floor tiles, in wall chase or surface above soffit, 3 x 4 mm<sup>2</sup> PVC cables for radial circuits or 6 x 2.5 mm<sup>2</sup> PVC cables for ring circuits, the 13 ampere switched fused connection unit, ivory white in colour, fuse, complete with neon indicator lamp, flexible cable outlet knock-out and a switch.

Cost is to include a provision for a cable termination outlet box and relative wiring, 5 metres away from the fused connection unit using 3 x 2.5 mm<sup>2</sup> cables between the fused connection unit point and the flexible cable outlet.

### **34.0 Cooker Control Unit Point**

The cost of the cooker control unit point shall include the self-extinguishing rigid PVC conduit under floor tiles or in wall chase, 3 x 4.0mm<sup>2</sup> PVC insulated cables for a radial circuit, the cooker control unit rated at 32A DP, in ivory white moulded plastic, flush type and complete with indicator lamps. Cost is to include a provision for a cable termination outlet box for the cooker.

## **EXTRA LOW VOLTAGE SYSTEMS - PARTICULAR TECHNICAL SPECIFICATIONS**

### **35.0 Television**

All conduits for the television system shall be 25mm PVC. Conduit shall be installed in a star fashion: from the termination box (TB) in shaft, directly to each outlet terminal. No elbows are to be used and only long radius bends will be allowed.

Low-loss RG-6 coaxial cables shall be used from the ELV enclosure to the socket outlets and shall have the following characteristics:

- Nominal impedance 75 ± 3 ohms
- Triple or quad shielding
- Sweep tested to 3.0Ghz with:
- Maximum Attenuation of 28.5 dB/100m at 2GHz
- Minimum Structural return loss 1 - 2.2GHz 15dB

- Minimum shielding 95%
- Non-Plenum
- Gas-injected (foamed) polyethylene dielectric

The contractor is required to supply the cable documentation and a short sample of the cable for approval prior to installation.

Screened TV, single female non-isolated sockets shall be used for television outlets.

### **36.00 Telephone**

Cable joining the socket outlet to the termination box (TB) shall be 4 pair UTP to CAT 5e standard. All links are to be terminated in an RJ45 CAT 5e socket outlet on a standard 3" x 3" faceplate.

All conduits for the system shall be 20mm PVC. Conduit shall be installed in a radial pattern: from the service closet directly to each outlet terminal. No elbows are to be used and only long radius bends will be allowed.

All links shall be tested and certified individually. Links that do not pass the test shall be made good at no extra cost.

Modular RJ 45 PVC shuttered data socket outlets to Cat 5e shall be installed. Each outlet shall be appropriately labelled in accordance to the labelling in the service box.

### **37.0 Cable Installation**

Individual cable runs must be continuous, with no connectors or splices and must not exceed 90 metres in length from the patch panel to the socket.

All cables installed shall be identified at both ends using a permanent, proprietary cable marking system. Marking on tape shall not be acceptable.

Note: Cables shall be considered as installed only when permanent marking has been applied.

Termination of the cable to the RJ45 sockets and the patch panels requires special skills in order to maintain Cat 5e specifications. A qualified technician specialises in this field shall be employed for this part of the work. (Re- subject cable testing below)

Particular attention must be given to the cable manufacturer installation instructions. In particular, care must be taken:

- To avoid a pulling tension in excess of 110 N ( 25lbf - 37 Kg m )
- To avoid bend radii smaller than 4 times the cable diameter
- To avoid twisting during pulling or installation
- To avoid tightly clinched cable ties which deform the cables
- To allow the greatest possible bending radius: at least 8 times the external diameter of the cable.

Note: Disregarding these basic precautions will almost certainly result the cables to fail the Cat 5e test. Failed cables then have to be replaced and re- terminated at no extra cost.

### **38.0 Cable Testing**

CAT5e Installation: Field Test requirements upon completion of the installation:  
Every cabling link in the installation shall be tested in accordance with the Telecommunications Industry Association (TIA) standard ANSI/TIA/EIA 568-B.2-1 "Performance Specifications for 4-pair 100 Ohm Category 5e Cabling".

The contractor shall supply a valid calibration certificate for the equipment to be used for testing the data cables.

The installed twisted pair horizontal links shall be tested from the mated connection at the termination box end of the link to the telecommunications wall outlet in the apartment against the "Permanent Link" performance limits specifications as defined in the standards above.

100% of the installed cabling must be tested and must pass the requirements of the standards mentioned above. Any failing link must be diagnosed and corrected. The corrective action shall be followed with a new test to prove that the corrected link meets the performance requirements. The final and passing result of the tests for all links shall be provided in the tests results documentation in accordance with the paragraph below.

The tests to be performed will be Length, Wire Map, Return Loss, DC Loop Resistance, Attenuation, Next, PS NEXT, ACR, Propagation delay and Delay Skew and Impedance.

Trained technicians who have successfully attended an appropriate training program and have obtained a certificate, as proof thereof shall execute the tests. The CV of the person executing the tests shall be handed over upon confirmation of the related works.

### 38.1 Test Result Documentation

The standard tests records information complete with graphical formats for each link for the completed installation network shall be stored and delivered on a CD- ROM including the software tools required to view, inspect and print any selection of tests reports. The CD-ROM containing all the required information shall be handed over to the client upon completion of all tests.

### 38.1 Cable Measurement

Please note that cable shall not be measured. For payment purposes, the lengths indicated by the test instrument shall prevail. Allowance for end cuts and wastage must be included in the rate quoted.

### 39.0 **Labelling**

The contractor is required to use the following labelling for the ELV horizontal installation in the apartment.

The following convention is to be used for all labels:

|   |   |   |   |   |  |
|---|---|---|---|---|--|
| X | X | . | X | X |  |
|---|---|---|---|---|--|

■ The First digit identifies it as H = HORIZONTAL

■ The Second digit identifies it as D for Data/Telephone or T for Television

■ The Third and Forth digit shall be dedicated to number or the consequent points. The numbers 00 shall not be used. The first point shall have the number 01.

Example

**HD.07** - identifies a data/Telephone cable named '07' located inside the apartment

Labels are to be applied to the following locations:

400mm from end of cable termination at the RDB unit.

400mm from end of cable termination at the socket outlet. On socket outlet faceplate.

■ All labels shall have white background and black printed text in Arial font.

Labels for Data/Telephone, Coaxial cables and micro ducts shall have the following dimensions as follows:

UTP cables: 38mm high by 25.4 mm width label Coaxial Cables: 57mm high by 25.4 mm width label Micro duct: 57mm high by 25.4 mm width label

Please refer to the following website for an indication of the label type:

<http://www.sharpmark.co.uk/product/?cat=cable>



## SECTION G – COLD WATER SUPPLY

### 1.0 Submittals

Prior to acceptance of the proposed system and equipment, the Contractor shall submit together with his quotation a description of the equipment and its components as offered together with all relevant manufacturer's catalogues, illustrations and diagrams. All relevant technical and descriptive literature shall be in English.

### 2.0 Scope of Work

The works envisaged in this specification refer to the supply and installation of a plumbing system consisting of:

- Provision of a supply of mains water to water storage tanks at roof level
- Replacement of part of the plumbing system to permit shifting of water tanks or other builder's work.
- Testing and commissioning of the complete system to the satisfaction of the Perit/Project Leader.

### 3.0 Materials

#### 3.1 Water storage Tanks

Water tanks shall be used for storage of first class water. The location of these tanks shall be as shown on drawings. They shall be manufactured in ultra violet stabilised fibreglass reinforced plastic or any other approved material. Tanks shall be suitable for potable water and the lining shall not include any substance which may dissolve. The interior shall be treated against algae growth.

Each tank shall have a minimum storage capacity of 500 litres shall be adequately braced and stiffened to prevent any distortion when in operation or when tested. All connections shall be full bore as the connected pipe. Tanks shall be provided with a suitable cover or lid, which shall have means for closing such as clips. A screwed lid shall be preferred.

The tank shall be finished with two coats of stone coloured paint after having been coated with a suitable primer.

#### 3.2 Pipe Work

All water service pipes shall be run in compressed jointed polybutylene (PB) rated at a working pressure of 6 Bar. All pipes shall have an identifying mark when delivered and shall be supplied in the manufacturers' standard lengths. The ends of all pipes shall be protected against the ingress of foreign objects and against mechanical damage during transit. Where the pipes shall be installed in locations likely to be permanently exposed to direct sunlight shall be protected against UV rays by the application of gloss or emulsion paint, as recommended by the manufacturer.

The pipe system used shall be a safe system so that all materials should be non-toxic, do not support microbiological growth and should not be affected by rust or pitting. Pipe materials shall be suitable for potable water. The system shall be compatible with other materials and fittings shall be available so that the system may be jointed to copper, galvanised steel or other plastic pipe systems.

Pipe work within the service shafts shall be clipped direct,. Pipework shall be installed in a neat manner in absolutely straight lines. Clipping intervals shall not exceed 0.6m

Horizontal pipe runs in the corridors shall be under floor tiles through PE pipe sleeves.

### 3.5 Isolating Valves

Isolating valves shall be manufactured to high quality standards conforming to BS 5750 Part 1. They should be depended upon to close efficiently even after long periods of fully open service. Each valve must permit straight through flow with minimum disturbance to the fluid.

Isolating valves shall have a polished ball and smooth seats to give 100% bubble-tight sealing. The valve body shall be made of bronze to BS 1400 LGZ. The ball shall be made of dezincification resistant brass to BS 2872 CZ 132.

The ball seat shall be made of P.T.F.E. The valve stem shall be made of dezincification resistant brass to BS 2874 CZ 132. The valve lever shall be made of zinc plated mild steel covered in PVC.

Isolating valves in shaft shall be installed in a way to be easily accessible from the nearest window.

## SECTION H - JOINERY WORKS

### 1.0 Scope of Works

The work shall consist of the manufacture, delivery to the site and fixing in the building of all the joinery described in these specifications and in the bills of quantities as well as the related works and as directed by Perit/Project Leader.

The works shall include:

- a) the supply and fixing of all ironmongery and all door/window furniture as specified.
- b) the application of a priming coat of preservative and paint treatment as specified.
- c) Glazing of viewing panels and door panels.

### 2.0 Timber

Timber used is to be sound, dry, well seasoned, square edged, free from large, loose and dead knots and other defects that will render the wood unsuitable for its purpose. Regard is to be paid to the moisture content of the timber, which shall not exceed 20% for external work and 12% for internal work. External doors are to be in red deal of the best available quality. Softwoods shall be white deal of the best available quality. Other materials as block board, veneers, melamine and all fixing materials shall be of the best quality available.

### 3.0 Hard Woods

Hardwood generally shall comply with BS 1186 Part 1 and shall be selected with due regard for the particular purpose for which it is to be used.

Hardwood shall be Red Deal, or as otherwise specified, all of the best available quality timber and the finished joinery shall be free from woolly texture, soft hear sap wood, splits, shakes, dote and all evidence of insect attack and all faults caused by compression failures. There shall be no woolly edges. It shall be free from unsound knots and there shall be no knots of any description on exposed faces. Plugging or piecing in will not be permitted.

Colour of hard wood throughout shall be consistent and to the approval of the Architect in Charge.

### 4.0 Other Materials

Blackboard and laminated board shall conform to BS 3444 and to the thickness specified.

Laminated decorative plastic veneer shall conform to BS 3794 Class 1/Class 1A and shall be fixed with an approved adhesive.

Plywood shall conform to BS 1455. Face veneer shall be Grade 1/2/3. Bonding shall be WBP/BR/MR.

All materials including melamine and all fixing materials shall be of the best available quality.

### 5.0 Glue

Glue for plywood and joinery is to be synthetic resin glue of an approved type.

Adhesives for external joinery shall conform to BS 1203/1204-WBP for internal joinery and shall conform to BS 103/1204-MR.

## **6.0 Screws and nails**

The Contractor is to provide all the necessary screws, nails and other fixings required for the proper execution of the work.

Nails shall conform to BS 1202.

Screws shall conform to BS 1210.

Bolts shall conform to BS 916.

Connectors for timber shall conform to BS 1579 and shall be galvanised / sheradised.

## **7.0 Measurements**

The Contractor is to take all necessary measurements on site. The measurements shown in the Bill of Quantities are only indicative.

## **8.0 Framing**

Joinery work is to be framed and put together as soon as possible after the contract has been signed and is to be kept in a dry place. It must not be wedged up until required for fixing. All doors and frames shall be properly framed together with adequate joints including all necessary mortising, grooving, tenoning, housing, rebating and all other works necessary in accordance with the best practice. None of the joinery is to be delivered on site until it is required for fixing in the building.

## **9.0 Glass**

9.1 Glass is to be free from defects. Any glass not approved by the Architect in charge is to be replaced by the Contractor at no extra cost to the Housing Authority.

9.2 The clear and hammered glass is to be 3mm or 4mm thick depending on the size of the aperture.

9.3 The glass is to be cut to sizes with a small clearance and sprigged. In internal joinery, sprigging is to be hidden by the use of the appropriate detail.

9.4 Glass for external entrance door viewing panels shall be double glazing 6mm laminated glass or as otherwise approved by the Architect-in-charge.

## **10.0 Putty**

The putty of glazing to timber frames is to conform to BS 544.

## **11.0 Preparation of Surfaces**

All surfaces to be painted shall be properly prepared according to approved practice. All woodwork (already primed) shall be cleaned from dirt, grease, etc, and sandpapered lightly before each coat. All cracks, nail holes, open joints and other imperfections shall be made good with a suitable filler.

## **12.0 Painting**

12.1 Unless otherwise indicated alkyd based paints are to be used.

12.2 All paints are to be thoroughly mixed and stirred before use.

12.3 Each coat of paint shall be allowed to dry out before the next is applied.

- 12.4 Thinning of the paint will not be allowed without the permission of the Architect in charge. If found necessary, this shall be carried out with the type of thinner and proportions recommended by the manufacturer of the paint.
- 12.5 Where more than one coat is specified, each coat shall be in a different shade. Colours are to be as directed by the Architect in charge.
- 12.6 No painting on exterior work is to be done under adverse weather conditions or upon surfaces that are not thoroughly dry.
- 12.7 Internal joinery work is to be painted in one coat of primer.

### **13.0 Natural Finish**

- 13.1 When natural finish or finish for staining, clear polishing or varnishing is specified, the timber in adjacent pieces shall be matched or uniform or symmetrical in colour and grain. Surface finish to be as specified i.e.

For doors with a veneered finish, clear varnish to both door and hardwood frames

For doors with a melamine facing, spray-painted parana frames

### **14.0 External Doors**

External doors shall be of external quality solid Red Deal timber doors of solid construction and incorporating hinges, frame and frame bolts and all other necessary accessories and are to have a natural veneer finish with an appropriate proprietary finish.

### **15.0 Tolerance**

Reasonable tolerance shall be provided at all connections between joinery works and the building carcass or partition framing, so that any irregularities, settlements or other movements shall be adequately compensated.

### **16.0 Defective Works**

Should any shrinking or warping occur or any other defects appear in the joiner's work, such defective work is to be taken down and renewed to the Architect's satisfaction and any work disturbed in consequence must be made good at the Contractor's expense.

### **17.0 Butt Hinges**

All doors shall be hung with three pairs of 75mm stainless steel butt hinges. Butt hinges shall be of the best quality available.

### **18.0 Protection of Ironmongery**

All ironmongery shall be wrapped and protected until completion of works and any which may be defaced or damaged shall be replaced.

### **19.0 Fixing Ironmongery**

All ironmongery, butt hinges, locks, etc shall be fixed with corrosion resistant screws. All screws damaged during driving shall be replaced.

## **20.0 Gap between architrave and wall**

Any resulting gaps between the timber architrave and wall must be filled with white mastic sealant, or any other method to be approved by the Architect in charge.

## **21.0 Locks and Keys**

All locks and other fittings shall be oiled and adjusted and left in perfect working order at completion. All keys shall be correctly labelled and handed to the Architect. All locks shall be provided with three keys, which shall be kept in a suitable cabinet.

## **22.0 Kicker Plates**

Kicker plates shall be stainless steel, brushed, 70mm high to match surrounding floor skirting.

## **23.0 Floor Door Stoppers**

Floor door stoppers as from ASSA 954506 or similar, subject to architect's approval.

## **24.0 Workmanship**

The whole of the joinery shall be cut and framed together as soon after the commencement of the work as possible and the workmanship shall conform to BS 1186 Part 2.

Frames, casings and other joinery and fittings shall be secured to hardwood or proprietary type plugs embedded into the walls, jambs, etc.

Joinery to be painted shall be primed at works with approved wood priming after inspection and approval of the joinery. The priming shall be applied by brush in an adequate and uniform coat to all surfaces including those to be bedded in.

The joiner shall perform all necessary morticing, grooving, tenoning, matching, housing, rebating and all other works necessary for correct joining. He shall also provide all metal plates, screws, nail and other fixings that may be necessary for the proper execution of the works. The joiner shall also carry out all works necessary for the proper construction of all framing, linings etc. and for their support in the building.

All joinery is to be carried out to fit masonry or blockwork openings.

Reasonable tolerance shall be provided at all connection between joinery works and the building carcass of partition framing, so that any irregularities, settlements or other movements shall be adequately compensated.

The joiner shall construct such grounds as are required to provide a suitable base and fixing for the joinery works.

The joiner shall be responsible for protecting his own work against danger or damage by other trades.

Architraves shall not be installed until after wall coverings (ceramic tiles, etc) have been constructed unless otherwise directed. Gaps behind architraves are to be sealed.

Facilities are to be given for the Architect in charge to inspect all works in progress in shops and on site.

## **25.0 Restoration of Timber and Apertures**

The contractor shall restore the existing apertures to good functioning order.

The restoration of the timber apertures shall be carried out in workshop conditions and according to the best workmanship practices and in accordance with the latest local and EU-approved codes of practice.

Glass panes and other elements shall be carefully removed, suitably cleaned and stored for re use or replaced as necessary. The glass panes shall be fixed to the apertures after the primer and undercoat layers of paint have been applied. All ironmongery, necessitating extensive restoration, will be removed and reinstated.

The restoration of the timber will commence from the careful removal of the accumulated layers of paint. An approved paint remover solution may be employed strictly adhering to the manufacturer's specification.

Care shall be taken to protect personnel, during the cleaning operation, from lead or any harmful elements contained with the "old" paintwork.

Heavily infected timber or damaged timber, considered to be beyond repair shall be removed and replaced with similar material as technically possible. The new timber will match the original timber in species and quality. Where the original wood will be partly replaced, the new wood shall be carefully inset into the old where the unsound wood would have been neatly chiseled away and undercut. Synthetic resin adhesives shall be used to secure the new pieces in place.

One coat linseed oil and 50% primer shall be applied to the timber by brush. The "old" and the "new" timber shall be carefully made good and all cracks, nail holes, open joints and any other defects shall be filled with a suitable filler. Such repairs shall be sand papered lightly by hand to obtain a neat homogenous finish.

One coat of approved undercoat paint, finished with two coats of egg shell finish paint, shall be applied to the external and internal faces, door jambs etc. The paint shall be oil based and the colour to be determined by architect in charge. The surrounding areas shall be adequately masked whilst painting to prevent soiling/damaging the other sections of the apertures.

The repaired apertures are to be repositioned in their original location. The original method of fixing will be adopted, however, where these are found to contribute to the deterioration of the masonry jambs etc. stainless steel screws will be used to fix the apertures in place. Care would be taken to ensure that no damage will be procured to both the timber apertures and stone surround during fixing. Any damages to the paint varnish finishing caused during the fixing operation will be retouched following completion of works.

All aperture frames fixed to masonry fabric will be sealed using mastic silicone-based sealers having a stone-colour or as directed by architect in charge.

During the inspection procedure, the contractor shall examine the opening and ensure that the detailing of the masonry is such as to allow proper water runoff and no water is allowed to accumulate in contact with the apertures.

The contractor is bound to ensure that the restored apertures would remain serviceable and in good condition.

## **26.0 Exclusion of certain materials**

Bidders must declare that the following materials/substances will not be used in the building:

- Products which contain sulphur hexafluoride (SF<sub>6</sub>).
- Indoor paints and varnishes, with a content of solvents (volatile organic compounds (VOCs) with a boiling point of 250°C maximum) higher than:
  - For wall paints (according to EN 13300): 30 g/l (minus water).

- For other paints with a spreading rate of at least 15 m<sup>2</sup>/l at a hiding power of 98% opacity: 250 g/l (minus water).
- for all other products (including paints that are not wall paints and that have a spreading rate of less than 15m<sup>2</sup>/l, varnishes, wood stains, floor coatings and floor. paints, and related products): 180g/l (minus water).

**Verification:** Bidders must declare that these products/substances will not be used in the building



## **SECTION I - ALUMINIUM WORKS**

### **1.0 Material**

All aluminium is to comply with the relevant British Standard and is to have a minimum average anodic coating thickened of 20microns and a minimum local anodic thickness of 16 microns. All aluminium members to be used shall be to match the existing and/or as indicated by the Perit/Project Leader.

Before any material is used, sample sections for analysis and mechanical tests shall, if required, be provided by the Contractor. Should the material tested fail to conform to the requirements of this specification, the cost of the test will be paid by the Contractor. Spot tests on site may also be conducted to ensure that the items supplied conform with the quality of the sample provided.

### **2.0 Profiles**

The minimum thickness is to be 1.2mm and the average thickness not less than 1.5mm.

### **3.0 Measurements**

The Contractor is to take all necessary measurements on site. The measurements shown in the Bill of Quantities are only indicative.

### **4.0 Joints**

Joints shall be carried out by mechanical means and are to be properly riveted, halved and sealed and are to show no distortion and be waterproof.

### **5.0 Fixing**

Frames shall be drilled, countersunk and fitted with galvanized mild steel lugs and/or drilled and countersunk for screwing to lead plugs/approved plugging compound in stonework, or timber frames. Sides of frame shall be prepared for fixing with both lugs and screws to plugs in the same frame where the jambs vary in construction at the point of fixing.

Outside aluminium frames are to be embedded with a mastic compound so as to make it impervious. Frames are to be provided with adequate water drainage holes.

Where aluminium comes into contact with masonry or plaster, it should be coated with an insulating lacquer, paint or tape to ensure that electro-chemical corrosion is avoided.

No fixing of aluminium shall be allowed unless the relevant wall has been pointed, rendered or painted (wherever applicable). In exceptional cases, if the aluminium is stained, such stains shall be removed immediately using an appropriate cleaning material.

### **6.0 Weather Stripping**

All window profiles are to have a neoprene or equivalent weather gaskets.

Weather stripping shall be made from materials which do not wear in contact with aluminium, nor shall weather stripping have any adverse effect on aluminium. The weather stripping shall not shrink, expand, warp up, or lose adherence to the aluminium frames with which it is attached and shall not impair the performance of the aperture.

The weather stripping shall be capable of being renewed without disturbing the glazing system and without removal of outer frame from the structure.

## 7.0 Hardware

Hardware shall be in the same colour and treatment as the apertures.

The opening gear shall be designed to provide the degree of opening required and shall close the opening tightly.

All screws, bolts, nuts, washers, rivets and other fastenings shall be of stainless steel or aluminium.

All doors are to be provided with a lock and key.

## 8.0 Protection of Aluminium Frames and Fittings

All aluminium frames are to be suitably protected whilst other works are still in progress. The protective paper, tapes or strippable coatings must then be removed and the aluminium cleaned so as to leave an unblemished surface throughout.

Fittings shall be applied after all plastering is completed and shall be wrapped and protected from damage until after all rough trades have been completed.

## 9.0 Glass Specifications

### General

9.1 Section includes

9.01.1 Flat glass materials,

9.01.2 Insulating glass units.

9.2 References

9.02.1 Determined in accordance with BS EN 410 and BS EN 673.

9.3 Definitions

9.03.1 Sealed insulating glass unit surfaces:

1. Side 1 - Exterior surface of outer pane.

2. Side 2 - Interior surface of outer pane.

3. Side 3 - Interior surface of inner pane.

4. Side 4 - Exterior surface of inner pane.

9.4 Warranty

9.04.1 Provide a ten year warranty to include replacement of sealed glass units exhibiting seal failure, interpane dusting or misting.

### Products

9.5 Materials

9.05.1 Single Glass Performance Data

9.05.1.1 Clear Uncoated Float Glass

Description: Annealed clear float glass. Minimum glass thickness: 4mm.

Performance Characteristics:

a. Visible Light Transmittance: 88 percent.

b. Total Solar Energy Transmittance: 77 percent.

c. U-Value: 5.7 W/m<sup>2</sup>K.

d. Shading Coefficient: 0.94.

9.05.1.2 Reflective Coated Float Glass

Description: Annealed clear/tinted coated float glass with pyrolytic coating.

Nominal glass thickness: 6mm.

Performance Characteristics:

- a. Coating: Surface 2.
- b. Visible Light Transmittance: 48 per cent.
- c. Total Solar Energy Transmittance: 23 per cent.
- d. U-Value: 3.8 W/m<sup>2</sup>K.
- e. Shading Coefficient: 0.43.

9.05.1.3 Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness; length 100mm, width of glazing rabbet space less 1.5mm, height required for glazing method, pane weight and pane area.

9.05.1.4 Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; length 75mm one half height of glazing stop, thickness required for application, one face self-adhesive.

9.05.1.5 Glazing Tape: Butyl compound tape with integral resilient tube spacer, 10 to 15 Shore A durometer hardness, black colour, coiled on release paper; widths required for specified installation.

9.05.1.6 Glazing Splines: Resilient polyvinyl chloride, extruded shape to fit glazing channel retaining slot; black colour.

9.05.1.7 Glazing Caskets: Resilient polyvinyl chloride, extruded shape to fit glazing channel retaining slot; black colour.

9.6 Fabrication

9.06.1 Sealed Insulating Glass Units

9.06.1.1 Fabricate Insulated Glass Units in accordance with components and performance characteristics specified below.

9.06.1.2 Insulating glass components:

- a. Outer Pane:
  1. Glass Type: Reflective Coated Float Glass
  2. Glass Colour: Subject to approval
  3. Glass Thickness: 4mm
  4. Coating: Surface 2
- b. Air Space: 10mm wide, hermetically sealed, dehydrated air space
- c. Inner Pane:
  1. Glass Type: Clear Uncoated Float Glass
  2. Glass Thickness: 4mm
- d. Performance Characteristics:
  1. Visible Light Transmittance: 49 per cent
  2. Total Solar Energy Transmittance: 35 per cent
  3. UV Transmittance: 7 per cent
  4. U-Value: 2.2W/m<sup>2</sup>K
  5. Shading Coefficient: 0.33

9.06.1.3 Provide unit edge seals with aluminium spacers having mitred and corners, and silicone sealant for glass-to-spacers seals.

9.7 Execution

9.07.1 Examination

9.07.1.1 Verify that openings for glazing are correct size and within tolerance.

9.07.1.2 Verify that glazing channels and recesses are clean and free of obstructions, that weeps are clear, and that channels and recesses are ready for glazing.

9.07.2.1 Preparation

9.07.2.1 Clean contact surfaces to receive sealant with solvent: wipe-dry.

9.07.2.2 Seal porous glazing channels and recesses with primer or sealer compatible with substrate.

9.07.2.3 Prime surfaces to receive sealant in accordance with sealant manufacturer's instructions.

9.07.3 Installation

9.07.3.1 Install in accordance with manufacturer's instructions.

9.07.3.2 Install coated monolithic glass with coated surface to interior (Surface 2).

9.07.3.3 Install sealants in accordance with sealant manufacturers' instructions.

9.07.4 Cleaning

9.07.4.1 Remove glazing materials from finish surfaces.

9.07.4.2 Remove labels after glass installation is complete.

9.07.4.3 Clean glass surfaces and adjacent surfaces.

9.07.5 Protection

9.07.5.1 Protect installed products until completion of project.

9.07.5.2 Repair or replace damaged products before Substantial Completion.

**10.0 Defective Works**

Should any defects appear in the works this is to be taken down and renewed to the Architect's satisfaction and any works disturbed in consequence must be made good at the Contractor's expense.

## **SECTION J - FINISHES TO WALLS AND CEILINGS**

### **1.0 Portland Cement**

Portland cement shall be ordinary Portland cement of approved brand, complying with BS 12:1978.

### **2.0 Lime**

Lime for undercoats and finishing coats is to be of an approved quality complying with BS 890. Quicklime shall be slaked in a manner appropriate to their type.

### **3.0 Sand**

Sand for plastering shall be either naturally occurring or shall consist of crushed hard rock. It shall be hard, clean and free from adherent coatings and shall not contain any appreciable amount of clay balls or pellets. It shall be free from deleterious matter likely to affect adversely the hardening, strength, durability or appearance of the plaster or applied decoration or cause corrosion.

### **4.0 Water**

Water should be clean, free from harmful matter and shall be fit for drinking. All expenses to bring such water on site are to be borne by the Contractor.

### **5.0 Branded Materials**

All branded materials shall be delivered to the site in their original packages, bearing the trade names of the material concerned. Cement and hydrated lime shall be stored off the ground, under cover and away from all possible sources of damp.

Quicklime shall be run to putty as soon as possible after delivery. Sand should be stored under clean conditions to prevent its contamination with soil or other deleterious substances.

Material for filling of joints in ashlar work ("fuqil-fil") shall be in pre-mix stucco supplied in pre-packed bags.

### **6.0 Other Materials**

All other materials are to be approved by the Architect or his representative.

### **7.0 Proportions**

The materials used for plastering shall be proportioned by volume by means of appropriate containers. Alternatively it may be required to proportion the materials by weight. Plastering mixes are to be compliant with BS 55492.

### **8.0 Working Time**

Plastering mixes containing self-setting materials shall be used up within two hours of the first contact of the cement with water. All material remaining after this period shall be discarded.

### **9.0 Rendering**

Surfaces to be rendered are to be cleaned of loose mortar, fins, latencies, efflorescence, grease and dust. Joints in blockwork must be raked using manual means to a depth of 7-10mm, avoiding damage to walls.

The rendering of external exposed faces of balconies, canopies, lintels and hollow concrete block walls shall consist of an undercoat and a finishing coat. The undercoat shall be made up of cement and sand in the proportion of 1:3 by volume. This coat is to be allowed to dry thoroughly before the finishing coat is applied. The finishing coat is to be made up of cement, lime and sand in the proportion of 1:1:6 by volume. The thickness of these two coats together is to be in the region of 8mm (5mm undercoat and 3mm finishing coat).

The rendering of internal exposed faces of concrete such as soffits and hollow concrete block walls shall consist of one coat made up of cement, lime and sand in the proportions of 1:1:6 by volume. Thickness of this coat is to be in the region of 6mm.

The whole of the plasterer's work is to be finished with true and even surfaces, angles and arises. Surfaces which are uneven shall be dubbed out with mortar before being rendered. Staining to adjacent surfaces will not be acceptable.

#### **10.0 Pointing**

All vertical and horizontal joints in wall surfaces shall be raked to a depth of 12mm, cleaned, wetted and properly pointed in lime mortar. Masonry walls are to be scraped where considered necessary prior to pointing. External walls are to be properly raked to 20mm depth and pointed with a 1:1.5:4 cement/sand/sand mix and horizontal joints raked to a slope to ensure rain water run off. Stone surfaces are to be scraped down and cleaned and left with a natural self-finish.

#### **11.0 Making Good**

The Contractor is to include for all necessary rules, running arises, splays etc. He is to make good and point all chasing carried out for other trades, e.g. electricity and plumbing, point round all timber frames and shutters. He shall also fill in and point all holes, cracks, etc, resulting from works on other trades. The joint between tiles and walls is also to be pointed ("tberfil") in white cement.

#### **12.0 Decoration Works**

All internal walls, slabs, beams and columns shall be finished with one coat masonry primer and two coats plastic Emulsion paint as per Bills of Quantities and as directed by the Perit/project Leader.

External rendered or unrendered concrete slabs, walls, planters etc shall, except where otherwise directed, be finished with one coat primer paint and two coats of weather resistant sand paint.

#### **13.0 Workmanship**

Before applying the paint, surfaces shall be allowed to dry completely. Any efflorescence shall be removed by wiping first with a dry, coarse cloth and then with a damp cloth. The sample shall then be left for 48 hours to establish whether further efflorescence has passed. Surfaces shall be cleaned to remove dust, dirt, plaster splashes, cracks and other imperfections shall be cut out and made good with a suitable plaster of a sand-cement mix, and making good shall be allowed to dry out thoroughly.

All paints shall be thoroughly mixed or stirred before use. They shall be stored to minimize exposure.

Thinning of materials, where necessary, shall be carried out with the type of thinner and in the proportions recommended by the manufacturer of the paint.

All primer shall be applied by brush unless otherwise stated.

Each coat of paint shall be applied by brush unless otherwise stated. No exterior or exposed painting shall be carried out under adverse weather conditions.

All paints shall be applied strictly in accordance with the suppliers' instructions.

#### 14.0 Protection

The Contractor is to allow for providing all dust sheets and coverings to protect all floors and fittings etc., from paint splashes and must allow for any damaged paint and making good any defects that appear, including all re-painting and re-decorating etc., necessitated by reason of defective work on the part of other trades or specialists.

All surface fixed ironmongery, fittings etc., except hinges, shall be removed before painting and refixed on completion.

#### 15.0 Exclusion of certain materials

Bidders must declare that the following materials/substances will not be used in the building:

- Products which contain sulphur hexafluoride (SF<sub>6</sub>).
- Indoor paints and varnishes, with a content of solvents (volatile organic compounds (VOCs) with a boiling point of 250° C maximum) higher than:
  - For wall paints (according to EN 13300): 30 g/l (minus water).
  - For other paints with a spreading rate of at least 15 m<sup>2</sup>/l at a hiding power of 98% opacity: 250 g/l (minus water).
  - for all other products (including paints that are not wall paints and that have a spreading rate of less than 15m<sup>2</sup>/l, varnishes, wood stains, floor coatings and floor. paints, and related products): 180g/l (minus water).

Verification: **Bidders must declare that these products/substances will not be used in the building**

## SECTION K - FLOOR FINISHES

### 1.0 Ceramic Tiles

- 1.1 Ceramic tiles are to be evenly laid in a pattern as directed by the Architect in Charge.
- 1.2 Colour surface texture pattern and sizes of tiles are to be decided by the Architect in Charge. Samples are to be submitted for approval prior to laying.
- 1.3 Best quality tiles are to be provided since certain areas are subject to a high degree of traffic and/or relatively heavy furniture and equipment. The ceramic floor tiles shall be true to shape and free from all blemishes, hairline cracks and other defects. The ceramic floor tiles shall be of a constant colour throughout, selected from the same batch number and should be hard wearing. They shall conform to acceptable tolerances with respect to deviation from facial size and deviations of thickness, trueness to shape, squareness, warpage and curvature and have a water absorption of not more than 3%.
- 1.4 Ceramic floor tiles and their performance shall comply with BS 5385, BS 1286 and BS 6431.
- 1.5 The resistance to abrasion shall conform to Grade 3 of the EUF/CEN/BS standards. Non-slip ceramic floor tiles should be provided for external areas should these be required.
- 1.6 All tiles shall be properly laid and must be fully bedded without voids. They are to be adequately grouted using an appropriate grout as indicated.
- 1.7 All areas to be filled in ceramic tiles will have a minimum 50mm thick concrete screed formed, or where a concrete subfloor is specified, the subfloor is to be finished to a smooth and level surface ready to receive the ceramic tiles.
- 1.8 The laying operations to be observed as follows:
  - 1.08.1 Place the bedding material to the required thickness and stabilize. Allow to cure and harden.
  - 1.08.2 Clean surfaces on which mortar is to be laid from all loose dust, pieces of mortar, scraps, however small.
  - 1.08.3 Uniformly wet the laying surface.
  - 1.08.4 Spread the mortar to the required thickness. The mix should be only just wet and water should not rise to the surface after the mortar has been put in place.
  - 1.08.5 Level the mortar surface with an appropriate straight edge.
  - 1.08.6 Spread thin layer of dry cement on the surface ("dusting").
  - 1.08.7 First wet the tiles, then lay the tile on the bed of mortar. Push the tiles into the mortar taking care that the underlying mortar does not penetrate between the joints far enough to reach the external surface.
  - 1.08.8 Wet the floor, in sufficient amounts to permit entrance in the spaces between the tiles and allowing the mortar bed and cement dust to integrate with the water thus allowing sheeting action to occur.
  - 1.08.9 Tap pavement energetically and uniformly. Set joint width at 3mm.
  - 1.08.10 Seal joints between each tile with grouting material. Use of colouring may be requested in specific areas. Allow mortar bed to become partially hardened before grouting and not less than 24hours. Use plastic or rubber spatula to apply grouting.
  - 1.08.11 Clean floor of all residues of grout and while it is still fresh.
  - 1.08.12 Keep floor slightly wet.
  - 1.08.13 Do not walk on floor for at least 3/4 days. Works phases have to be planned around this requirement so as not to hinder work by other trades.
- 1.9 The ceramic floor tiles shall have the following characteristics:
  - 1.09.1 Water absorption less than or equal to 3%
  - 1.09.2 Surface hardness min. 5 Mhos scale
  - 1.09.3 Modulus of Rupture (Bending Resistance) min. 20N/mm<sup>2</sup>
  - 1.09.4 UNIEN 102 Abrasion Test max. 250
  - 1.09.5 Staining:
    - Class 1 - Stain removed by water
    - Class 2 - Stain removed by cleaning agent
    - Class 3 - Stain not removed

|                        |                       |
|------------------------|-----------------------|
| Methylene Blue         | not exceeding Class 2 |
| Potassium Permanganate | not exceeding Class 2 |
| Hydrogen Peroxide      | not exceeding Class 2 |



- |             |                                                                                                                                                                                                                                                                                                                                               |                              |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| 1.09.6      | Resistance to Acids / Alkalis                                                                                                                                                                                                                                                                                                                 |                              |
|             | Citric Acid (100g/l)                                                                                                                                                                                                                                                                                                                          | no stain / damage            |
|             | Potassium Hydroxide (30g/l)                                                                                                                                                                                                                                                                                                                   | no stain / damage            |
| 1.09.7      | Surface finish                                                                                                                                                                                                                                                                                                                                | As selected by the Architect |
| 1.09.8      | Colour                                                                                                                                                                                                                                                                                                                                        | As selected by the Architect |
| 1.09.9      | Physical Properties                                                                                                                                                                                                                                                                                                                           |                              |
|             | Straightness of edge                                                                                                                                                                                                                                                                                                                          | true                         |
|             | Squareness                                                                                                                                                                                                                                                                                                                                    | true                         |
|             | Surface flatness (warpage)                                                                                                                                                                                                                                                                                                                    | truly flat                   |
|             | Uniformity of size                                                                                                                                                                                                                                                                                                                            | equal throughout             |
| 1.09.10     | Size                                                                                                                                                                                                                                                                                                                                          | 400mm x 400mm x 9mm thick    |
| 1.10        | Movement joints shall be provided at the intervals specified on the site of works. The width of the expansion joints shall not exceed 6mm. Joints shall be sealed with an approved polysulphide or silicone rubberized compound and is deemed to be included in the rates tendered.                                                           |                              |
| 1.11        | The contractor is to include in his price for all wastage, breakages, cut tiles etc. All finished work shall be measured net.                                                                                                                                                                                                                 |                              |
| 1.12        | All setting out work shall be the sole responsibility of the contractor.                                                                                                                                                                                                                                                                      |                              |
| 1.13        | Any ceramic tile works which are declared by the Architect in charge to be defective or of an inferior quality, both in material and/or in workmanship, shall be replaced immediately by the contractor who remains bound, even after completion, to replace any tiled areas which the Architect considers to be below the standard required. |                              |
| <b>2.00</b> | <b>Marble</b>                                                                                                                                                                                                                                                                                                                                 |                              |
| 2.01        | The marble to be used shall be "Carrara White" and is to be 20mm thick.                                                                                                                                                                                                                                                                       |                              |
| 2.02        | All marble is to be approved by the Architect in charge before placing. Any slabs which in the opinion of the Architect in charge are defective, or not of the quality required, shall be replaced by the Contractor with others of approved quality.                                                                                         |                              |
| 2.03        | All marble slabs shall be properly worked, edges to be true throughout the whole thickness and are to be laid in lime or cement mortar as directed by the Architect in charge.                                                                                                                                                                |                              |
| 2.04        | Slabs lining threads are to be in one piece. Landings are to be lined as directed by the Architect in charge.                                                                                                                                                                                                                                 |                              |
| 2.5         | Marble door number and block number plaques (if applicable) are to be inscribed as directed by the Architect in Charge and fixed where and as indicated.                                                                                                                                                                                      |                              |

## **SECTION L - METAL WORKS**

### **1.0 Material**

1.1 The metal to be used shall be grade 43 steel.

### **2.0 Balustrades**

2.1 Unless otherwise specified, balustrades shall be 16mm x 16mm solid vertical bars at not more than 100mm spacing, with bottom rail 8mm x 30mm and top rail 10mm x 30mm. Top rail is to be bevelled up with half rounded edge on each side.

2.2 Railings are to be machined smooth. Vertical bars are to be straight and plumb. Metal bars and rails are to be carefully sanded down prior to welding.

### **3.0 Steel Doors**

3.1 All metal work shall be straight, true dimensions and free from distortion. All wells to be ground, filled and depressed to a smooth finish.

3.2 All welding, cutting, drilling etc. shall be completed before galvanizing (hot or cold galvanizing as the case may be).

3.3 Screws and bolts shall be countersunk flush with surface of the steel frame to be fixed to the structural opening.

3.4 Steel sheet is to be electro galvanized on the purchase. The steel frame may be cold galvanized as required by the Perit/Project Leader.

3.5 Sheet steel shall be min. thickness of 16 gauge.

3.6 All necessary ironmongery to include hinges, bolts, locks, handles, etc. are to be included with the works and approval by the Perit/Project Leader

3.7 All doors shall be fitted with a good quality mortise lock and all doors are to open away from the garage end of any passage, as directed by the Perit/Project Leader.

3.8 Door frames shall be fixed vertical without any twist. All frames shall caulked to the building fabric with mastic which will not stain the door surrounds and will receive paint without 'bleeding'

3.9 The contractor is to ensure that measurement of actual openings is to be made on site prior to manufacture.

3.10 Any angle iron or other steel sections, used in the door leaf and frame shall be adequate of size and thickness as approved by the Perit/Project Leader.

### **4.0 Painting**

4.1 Painting on cold galvanized work shall consist of one coat etch primer, one undercoat and one finishing coat as approved by the Perit/Project Leader. On hot dip galvanized steel and galvanized metal sheets, epoxy (or oil paint), a T-wash may be required, the cost of which shall be included in the rates quoted.

4.2 Each coat must be inspected by the Perit/Project Leader in charge or his representative before the completion of each successive coat. Failure to abide by this condition will lead to non-payment of this item.

4.3 Internal metal works shall be primed with cold galvanizing paint.

## 5.0 Fittings

- 5.1 All metal balustrades are to be fixed securely as directed by the Perit/Project Leader to ensure the utmost safety. All necessary stays to ensure rigidity of fixing shall be provided by the Contractor and their cost shall be included in the rates quoted.

## 6.0 Exclusion of certain materials

Bidders must declare that the following materials/substances will not be used in the building:

- Products which contain sulphur hexafluoride (SF6).
- Indoor paints and varnishes, with a content of solvents (volatile organic compounds (VOCs) with a boiling point of 250°C maximum) higher than:
  - For wall paints (according to EN 13300): 30 g/l (minus water).
  - For other paints with a spreading rate of at least 15 m<sup>2</sup>/l at a hiding power of 98% opacity: 250 g/l (minus water).
  - for all other products (including paints that are not wall paints and that have a spreading rate of less than 15m<sup>2</sup>/l, varnishes, wood stains, floor coatings and floor. paints, and related products): 180g/l (minus water).

**Verification:** Bidders must declare that these products/substances will not be used in the building

## 7.0 Restoration of Metal Work

- 7.1 The restoration of ironwork shall be carried in workshop conditions. Those elements that are oxidizing and causing damage to the structure will be removed immediately and disposed of.
- 7.2 The general outline methodology is as follows:
1. Ironwork shall be cleaned from any oils, loose or damaged paint finish, dust etc. Thick rust scales will be removed with the application of oxyacetylene or oxypropane flame. Thinner layers of rust, paint and the like will be removed by chipping, scraping, and brushing using hand held implements and care should be taken not to remove any of the surface details of the ironwork. Furthermore, where any rusting shall appear on cleaned ironwork, these sections shall be treated with an approved rust inhibiting system.
  2. Elements that have been reduced considerably from their original cross section will be replaced. The latter will be worked to the original profile of the section.
  3. If the whole element is beyond repair then the latter will be replaced by new elements produced to designs identical to the original. In this case new fixings will be identical in size, profile, configuration, material, finishing, etc to the original.
  4. Once the elements have been restored / repaired then the finishing paint is applied. This will consist of one coat of suitable oil based primer, sand papered lightly, followed by one coat of approved quality oil based undercoat paint and finished off with one coat of suitable eggshell finish paint. Colours of paint shall be directed by architect in charge.
  5. Wrought iron fixings not to be painted will be treated with a heavy coat of linseed oil, suitably heated and wiped over with an emery cloth. The fixing will be finished with a combination of beeswax and linseed oil suitably rubbed into the surface.

## **SECTION M – CONCRETE REPAIR AND RESTORATION WORK**

### **1.1 Cutting and Removal of Defective Concrete slabs.**

- 1.1 Cutting of concrete shall be performed only by skilled any experienced labour employing appropriate equipment, wearing the necessary protective gear and clothing under a strict regime of precaution and safety. Cutting of concrete will only be allowed on properly secured and propped temporary scaffolding and shuttering placed below the slab to be demolished. Concrete slabs are to released from the adjoining walls by rotary cutters prior to breaking-up. All adjoining/supporting walls are to be adequately propped and strutted during the whole process and the operation is to be carried out in such a manner so as to limit damage to adjoining masonry and concrete to an absolute minimum.
- 1.2 The Contractor shall be responsible for the safety and integrity of the structure throughout. Damage to the existing building and/or third party property will be made good by the Contractor at his sole expense.
- 1.3 Every effort is to be made to minimise disturbance to existing reinforcement and concrete that needs to be maintained as indicated in the drawings and directed by the Perit/Project Leader.
- 1.4 Contractor is to allow in his rates for all temporary shutter, scaffolding and propping, double handling of the resulting debris, lowering and carting away to an approved dump site. Allowance is also to be made in the rates for cleaning and reinstating of any adjoining masonry damaged during the works.

### **2.0 Repair of Defective Structural Concrete**

Repair of concrete is to be performed only by experienced labour, wearing the necessary protective gear and clothing and with adequate provision of good ventilation. The scope of the work is the repair of existing structural concrete which shows defects to various degrees and includes hacking and cutting away of patches of low-grade concrete cover, exposing of steel reinforcement, application of protective and binding agents to the steel and the rebuilding of the concrete cover, this to fully reinstate the concrete slabs. In some areas, slabs only require the application of two or three coats of impregnation coating to enhance the protection to the reinforcing mesh and bars within.

- 2.1 Specialised materials to be employed in these remedial works are to be purposely manufactured products from a recognised and approved manufacturer with long-standing experience in the field. The materials are to be selected from a range as produced by one manufacturer and to the approval of the Perit/Project Leader. The Contractor is to ensure strict adherence to the manufacturer's recommendations for handling, mixing, application and storage of these materials and also that adequate supplies are maintained during the works.
- 2.2 The Contract is to submit all relevant technical data on the on the proposed repair materials required for concrete repair works with tender documentation. The quoted price is to be inclusive of the supply, delivery and storage of the materials together with the proper mixing and application of the treatment as specified and as directed by the Supervisor.
- 2.3 The selected manufacture/supplier is to have available a comprehensive range of products specifically manufactured for the repair and reinstating of structural reinforced concrete and which include the following:

- a. **Impregnation Coating** is to be a water-based organic non-flammable compound purposely designed which when sprayed, roller or brush applied on the hardened concrete surface will migrate through the pore structure of the concrete and upon contact with the reinforcing steel forms a monomolecular protection layer. The coating is to be clear and leaving no staining on the concrete surface and with pH value of 9.0 to 9.7. The coating is not to form a vapour barrier and is to allow the treated concrete to breath and allow any entrapped vapour to diffuse.

The treatment is to consist of 2 to 3 separate applications as directed by the Perit/Project Leader and following strictly the manufacturer's recommendations.

- b. **Anti-corrosion Coating for Rebar** is to be a one-part, ready-to-use cementitious compound based on a synthetic resin dispersion purposely designed for the protection against corrosion of reinforcement in concrete. It is to be applied by brush to the exposed reinforcement that has been cleaned free of any rust scale or excessive dust. It is to have an inherent high adhesion to both steel and concrete.
- c. **Exposy-resin Bonding agent for Concrete** is to be a solvent-free epoxy resin paste, ready for brush application on to the steel and set concrete surfaces to achieve a monolithic casting with the fresh concrete.
- d. **Epoxy Mortar for Structural Concrete Reconstruction** is to a solvent-free three-part (resin, hardener and selected aggregate) thixotropic adhesive mortar for low to medium-build trowel-applied layers varying from 8mm to an overall 30mm. The cured mortar is to exhibit good physical and mechanical properties typically exceeding those of the concrete it will be replacing.
- e. **Thixotropic Mortar for Superficial Repair to Concrete** is to be a one-part ready-to-mix mortar based on cement binding agent, selected aggregate, synthetic microfibres and additives suitable for concrete repair in high-build trowel-applied layers of up to 20mm.
- f. **Cementitious Shrinkage-Compensating Grout** is to be a ready-mixed expanding self-levelling grout based on quality Portland cement, selected aggregates and admixtures suitable for pouring into forms and developing strength in a short period. The mix is to allow for the addition of aggregate to achieve a stronger grout for increased thickness.

### 3.0 Procedure to be used for Repair of Spalled Concrete is as follows:

All loose and friable concrete in the vicinity of rusted reinforcement bars should be removed to expose only sound concrete. All rusted reinforcement bars should be exposed on all sides along their length until at least 2cm of sound, rust free metal is showing on either end of the rusted section. All scale and rust is then removed manually and the metal thoroughly cleaned by wire brush. Once the reinforcement is derusted, an appropriate coating is then applied to the exposed metal to give immediate protection against renewed corrosion.

The concrete surfaces should be thoroughly wetted and a bonding coat is applied. The bonding coat should be worked well into the substrate with a stiff brush. Then an appropriate freshly mixed repair mortar is then applied over the wet bonding, compacting firmly into the damaged area, and trowelled smooth. After the repair mortar is set, two unthinned coats of appropriate protective finishing are applied, leaving minimum of 6 hours between application of each coat.

#### 4.0 Plastic Repair of Masonry

Plastic repair shall be used in areas indicated by the Perit/Project Leader. Any deteriorated, flaking, powdering, etc of masonry shall be carefully removed to expose a sound background. In the process care shall be taken not to weaken the structure or damage the adjacent masonry. Suitable non-ferrous reinforcement approved by the Perit/Project Leader shall be used for all plastic repair interventions which have a projection of more than 40mm from the stone surface or an area which exceeds 50mm by 50mm.

Pre-fabricated glass reinforced polyester, or epoxy rods having a diameter of not less than 6mm shall be used. Holes shall be drilled in the background to form a grid of dowels fixed not more than 40mm apart. Dowels shall have a minimum anchorage in stone of 60mm, and the Architect in charge may request that the bedding depth be increased. All dowels shall be adequately bonded to the masonry fabric with an epoxy resin.

Adequately gauged stainless steel wire shall be used to form a mesh between the dowels. This mesh shall be secured to the resin dowels by an approved epoxy resin. When preparing the reinforcement, allowances shall be made to ensure a minimum cover of 20mm.

The Contractor shall undertake to **guarantee** the concrete repair qualities of his materials and workmanship for a period of **TWO years from the date of application.** With this guarantee, the Contractor shall oblige himself to carry out any repairs necessary and to make good any damage done to the building or fixtures. In default, the Perit/Project Leader shall reserve the right to order any necessary repairs at any price and from any source and all expenses shall be deducted from the monies owed to the Contractor, without the necessity for any legal proceedings.

## SECTION N – SANITARY WARE

### 1.0 Scope of Works

The tender includes the installation of a new shower and bathrooms in occupied government tenements including all fittings and water heater.

The specification covers the furnishing and installation of all plumbing fixtures and accessories including all carriers, supports and fixing materials.

Wash-hand basin, water closet and all other accessories are to be white in colour and are to match.

The floor of the shower / bathroom is to be slip resistant and as level as possible, subject to the minimum fall for draining water to a floor drain.

#### Water Saving Installations

- a. Showers are to be thermostatically controlled low flow showers, with pressure pump next to storage tanks on roof.
- b. Toilets are to have a dual flush mechanism with a maximum of 6 litres for full flush and 3 litres for urine flush.
- c. Water taps should have tap inserts which save at least 50% of water compared to normal tap use.

**VERIFICATION:**Bidders must provide technical data-sheets for the products installed that verify compliance with the specifications.

### 2.0 Contract Drawings

- 2.1 The Contractor shall be bound to execute the work as indicated in the approved drawings.

### 3.0 Technical Literature

- 3.1 Technical literature confirming water saving measures being included as listed in Section 1.00 (Water Saving Installations) is to be provided as requested by the Perit/Project Leader.
- 3.2 Each supplier is to produce manufacturer's evidence that the products being offered meet the criteria stipulated above.

### 4.0 Wash Hand Basin

- 4.1 The wash hand basins shall be vitreous china **wall-hung** (NO PEDESTAL) with overall dimensions approximately 450mm x 300mm and in accordance with BS 3402, including all support brackets and other accessories required for the proper installation and functioning of the wash hand basin.
- 4.2 Wash hand basin is to be shallow and should not project into the circulation space.
- 4.3 It shall allow adequate knee-room beneath in order to enable a wheelchair user to reach the taps.
- 4.4 Hot water and other pipes should be lagged or boxed beneath the basin.
- 4.5 The top of the wash hand basin should be 750mm from the finished floor level.
- 4.6 It shall have one standard tap hole (28 - 35mm) and integral overflow.
- 4.7 It shall be supplied with:
  - High temperature PVC bottle trap with extension tube and any related accessories.

- Cast brass chrome plated pop-up waste operated by a rod at either the back or the front of the basin mono depending on the design, and the rod lifts the plug in and out of position.
  - Thermostatic mono basin mixer tap, with single easy use lever, which fits into standard tap hole indicated above.
- 4.8 Two 1/2 “ stop and regulating chrome plated angle valves with adjustable chrome plated escutcheon and two stainless steel braided flexible tube risers.
- 4.9 Wash hand basin mixer with lever operated tap including tap inserts which save 50% of water compared to normal tap use and pop-up waste mechanism operated from the mixer tap.
- 5.0 Dual Flush Water Closet (WC)**
- 5.1 WC shall be a floor mounted wash down closet bowl in accordance with BS 5503, in white vitreous china.
- 5.2 The WC is to be installed as follows: the front to be 750mm from the wall behind it, the top of the WC 480mm from the finished floor level and the centre line to be no closer to the side wall than 500mm.
- 5.3 The trap outlet will be a horizontal ‘P’ type trap outlet, with outlet inclined downwards at 104° from the vertical for connection to a soil stack. Nominal diameter 200mm, complete with white polypropylene soil pipe connector with flexible rubber seal for push fit connection and matching escutcheon.
- 5.4 WC is to be operated by a low-level push button with dual flush system, whereby the cistern is designed to discharge a smaller volume of water for liquid waste than for solid waste. The lesser flush shall be no greater than two thirds of the full flush.
- 5.5 WC suites shall flush with no more than six (6) litres of water for full flush and then 3 litres for urine flush.
- 5.6 These WC suites should have an outlet valve mechanism which satisfies the Water Supply (Water fittings) Regulations 1999 of the U.K.. This requires endurance testing of 200,000 flushes. The outlet valve endurance test shall be based on the ratio full flush: reduced flush as 1:3.
- 5.7 Evidence of compliance with the above specifications for full flush and reduced flush volumes must be supplied with the offer. Suppliers must show laboratory accreditation to ISO 9001 or ISO/IEC 17025 for the product being offered.
- 5.8 The dual flush WCs shall also come complete with a “delayed action inlet valve”. This item shall address the problem of WCs using more water than the capacity of their cistern due to the fact that, as the toilet flushes, it immediately starts to refill. The water cistern inlet valve has a small delayed evacuating bowl beneath the float that operates the valve. When the WC flushes the water level in the cistern drops but the valve is held shut by the water remaining in the bowl. As the water drains slowly, the valve can open and the cistern can refill.
- 5.9 WC shall have a matching heavy duty plastic toilet seat and cover. Both seat and cover shall be provided with rubber inserts to absorb shock.
- 5.10 One 1/2 “ stop and regulating chrome plated angle valve with adjustable chrome plated escutcheon and one stainless steel braided flexible tube riser.
- 6.0 Walk-in Shower**



The shower shall be supplied with a thermostatic controlled shower set consisting of a shower head, rail or holder, a flexible hose or fixed riser pipe and a shut off thermostatic mixing valve that enable the control of water flow and temperature, in white/chrome finish. The thermostatic mixers shall be lever operated and have a calibrated dial, allowing the temperature to be set from experience. The flow shall be capable of being adjusted with a separate control so that reducing or interrupting the flow is a simple matter. In addition, the overall assemblage has to limit the water flow rate to a maximum of 9 litres/min when operated at 3 bar pressure.

Anti-vandal shower head with directional control.

Rub clean anti limescale single function friction hand set, with rubber finger grips, for easy up and down movement on rail.

Lever control diverter for easy operation, to divert between the overhead shower head, the handheld head and body jets or rain bars, if any.

Easy glide slide mechanism.

The markings on the shower control should be clear to visually impaired persons.

Shrouded supply pipe, 2m long, to prevent contact with hot surface.

White grab rails shall be provided where extra support may be required, as specified in 8.05. Grab rails shall be formed from tough ABS plastic and feature a ribbed hand grip for extra safety in wet conditions. Rails shall be in different sizes, as specified, and shall include 300mm, 400mm, 600mm and 914mm length.

Shower floor shall have a rectangular shower channel with side outlet, size 300 x 100 x 95mm. The drain is to be in stainless steel with a 20-40 litres per minute capacity. Easy to clean and supplied with pipe adapters, as necessary.

The floor tiles of the whole room are to be slip resistant and level as possible and are to be laid to the minimum fall for draining water to the floor drain.

A waterproofing membrane layer is to be applied under the bathroom floor tiles, as specified in 10.00 below.

## **7.0 Shower Rail**

10.9 Shower curtain rail shall be an extruded anodized aluminium rod. It shall be straight, "L" or "U" shaped, as necessary. To include wall mount sockets and swivel hooks.

7.2 If necessary, a ceiling support dropper shall be installed.

7.3 Shower chair/seat and shower curtain are not included in this tender.

## **8.0 Grab Rails**

8.1 White grab rails shall be provided where extra support may be required.

8.2 Grab rails shall be formed from tough ABS plastic and feature a ribbed hand grip for extra safety in wet conditions.

8.3 Rails shall be in different sizes, as specified, and shall include 300mm, 400mm, 600mm and 914mm length.

8.4 Grab rails shall be 25 to 32mm in diameter, fixed with a clearance between the rail and the wall of 50mm to 60mm.

8.5 The shower cubicle is to be provided with grab rails as follows:

- Horizontal grab rail, 300mm in length, 700mm from the floor at the side of the location of a future shower seat (shower chair/seat is not included in this tender).
- Vertical grab rail, 914mm in length, from 900mm to 1400mm from the floor.

**9.1 Accessories**

- 9.1 Toilet Roll Holder: Shall be in matching vitreous china wall mounted toilet roll holder. It shall be mounted by fixing screws in the appropriate finish and at a height of 900mm from finished floor level. Overall dimensions shall be approximately 90mm x 90mm.
- 9.2 Soap Holder: Shall be in matching vitreous china with overall dimensions approximately 150mm x 90mm x 50mm. Soap holder shall be installed at a height of 900mm from finished floor level.
- 9.3 Towel Rail: Shall be in matching vitreous china with clear rail and overall approximate length of 600mm. Toilet rail shall be installed at a height of 900mm from finished floor level.
- 9.4 Toothbrush Holder: Shall be in matching vitreous china with overall dimensions approximately 100mm x 90mm x 50mm. Holder shall be installed at a height of 900mm from finished floor level.
- 9.5 Mirror: Shall be a plate glass mirror, overall dimensions approximately 500mm x 700mm, complete with light fitting. It shall be fixed to the wall by means of screws at the four corners of the mirror, or as indicated on the manufacturer’s installation manual. Chrome plated screw head covers shall be included.

**10.00 Waterproofing Works in Walk-in Showers**

- 10.1 A waterproofing membrane shall be installed underneath the floor tiles of the walk-in shower room.
- 10.2 Waterproofing membrane shall be heat-applied and shall consist of 4mm thick polyester reinforced flexible membrane.
- 10.3 Waterproofing system shall be of an approved type and manufacture. It shall be laid in strict accordance with the manufacturer’s recommendations, a copy of which shall be supplied by the Contractor for approval and retention by the Architect/ Officer In Charge. The country of origin and the name of the manufacturing company of the material are also to be stated.
- 10.4 Systems employing the addition of water to the waterproofing material will be discarded.
- 10.5 The price of the waterproofing membrane shall be inclusive of all materials, labour etc., required to complete the works, including all necessary strips, flashings etc. Only net areas of finished work shall be measured with no consideration for additional strips, overlaps, reinforcing angles, corners etc.
- 10.6 The material shall comply with the following characteristics:

| Membrane Test                            | Unit of Measure | Standard     | Tested Quantity          |
|------------------------------------------|-----------------|--------------|--------------------------|
| Reinforcement                            | -               | -            | Needle punched polyester |
| Water Impermeability                     | -               | UNI 8202/21A | Absolute                 |
| Cold flexibility                         | C               | UNI 8202/15  | -8                       |
| Tensile Strength at break (Longitudinal) | N/4cm           | UNI 8208/8   | 880                      |
| Tensile Strength at break                | N/5cm           | UNI 8208/8   | 450                      |

|                                        |   |            |     |
|----------------------------------------|---|------------|-----|
| (Transverse)                           |   |            |     |
| Elongation at break<br>(Longitudinal)  | % | UNI 8208/8 | 30  |
| Elongation at break<br>(Transverse)    | % | UNI 8208/8 | 45  |
| Dynamic Perforation<br>'Persoz' method | N | -          | 630 |

- 10.7 All cracks, expansion and construction joints shall be raked out, thoroughly swept, washed, cleaned and made good with an approved bitumastic sealer before the application of the waterproofing treatment by the Contractor. All the joint lines between any precast elements, even if sealed with cement filling, must be isolated from the waterproof membrane by laying across a 20cm wide strip of foil or sheet totally independent from the membrane itself. The strips should be sealed to the surface on one side and left free on the other side.
- 10.8 Tenderers must check site conditions and inspect surface to be treated and are to provide technical expert assistance.
- 10.9 The following are to be submitted as requested by the Perit/Project Leader prior to commencement of works:
- All specifications including water absorption of the material and the longitudinal and transverse elongation,
  - Method of application including fixing and finishing details,
  - All descriptive literature and supplier's specifications of materials being used,
  - A detailed design showing the application of materials,
  - Details of where such materials have been previously used, and;
  - Confirmation in writing by the materials suppliers that the waterproofing system being proposed is appropriate for the job.
- 10.10 The Contractor shall undertake to **guarantee** the waterproofing qualities of his materials and workmanship for a period of **TEN years from the date of application**. With this guarantee, the Contractor shall oblige himself to carry out any repairs necessary to the membrane and to make good any damage done to the building or fixtures, including third party property. In default, the Perit/Project Leader shall reserve the right to order any necessary repairs at any price and from any source and all expenses shall be deducted from the monies owed to the Contractor, without the necessity for any legal proceedings.

# VOLUME 4 - SCHEDULE OF FIXED RATES

## Fixed-Price Contract

### *BILL OF QUANTITIES*

#### Preamble

Rates for works undertaken shall be those established in this Document - Schedule of Fixed Rates

For the avoidance of doubt it is declared that whilst the item descriptions in the said Schedule of Rates are generic, the respective associated contract rates will be deemed to be fully comprehensive and representative of the different elements and components of Work that would need to be carried out for each item listed in the schedule. No claims for extra or additional payments will be considered if these are based on arguments that accepted rates do not cover and include for all elements and components of the Work.

All the works must be executed to the satisfaction of the Perit/Project Leader.

#### 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:

|                 |       |                   |
|-----------------|-------|-------------------|
| mm              | means | millimetre        |
| m               | means | metre             |
| mm <sup>2</sup> | means | square millimetre |
| m <sup>2</sup>  | means | square metre      |
| m <sup>3</sup>  | means | cubic metre       |
| kg              | means | kilogram          |
| to              | means | tonne (1000 kg)   |
| pcs             | means | pieces            |
| h               | means | hour              |
| L.s.            | means | Lump sum          |
| km              | means | kilometre         |
| l               | means | litre             |
| %               | means | per cent          |
| N.d             | means | nominal diameter  |
| m/m             | means | man-month         |
| m/d             | means | man-day           |

#### Prices and Rates

The prices and rates included in the Schedule of Fixed Rates and in the subsequent bills of quantities issued in Job Orders are deemed to be full inclusive values of the works described under the items. This includes 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.

## VOLUME 4 - SCHEDULE OF FIXED RATES

|    |                                                                                                                                                                                                                                                                          |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <p><b>Preambles</b><br/><b>Applicable for all trades</b></p>                                                                                                                                                                                                             |
| 1  | The rates are applicable for any locality and site in Malta and Gozo.                                                                                                                                                                                                    |
| 2  | The contractor is required to comply with all current legislation, in particular with Health and Safety Regulations and Environment Management Construction Site Regulations and to obtain any permits licenses and certifications as required by law, where applicable. |
| 3  | The removal and carting away of the existing material including any charges for the removal of material from site, transportation to an approved dumping site and payment of dumping fees is included in the rates. The site of works is to be kept clean at all times.  |
| 4  | The contractor is required to keep the premises and/or block common parts as applicable clean and free from building debris and waste at all times. This is particularly important in staircases, landings and block entrances.                                          |
| 5  | The unit rates used are deemed to include all and any incidental, supplementary and complementary items and work required to complete the project to the required standard and specifications.                                                                           |
| 6  | The rates allow for the making good after completion so that the works carried out match and integrate seamlessly with the existing.                                                                                                                                     |
| 7  | The rates allow for the disconnection of parts / the entire electrical system, careful removal of any electricity fittings/luminaries and reinstatement of same after completion of works.                                                                               |
| 8  | Requests for additional payment for double handling to reach the required areas will not be considered unless there are exceptional circumstances in very restricted sites.                                                                                              |
| 9  | All other requirements not specifically mentioned in this bill of quantities but referred to in any of the contract documents are deemed to be included in the contractor's rates herein.                                                                                |
| 10 | Rates for all internal works are deemed to be inclusive of all necessary safety measures, temporary props, erection and dismantling of scaffolding and access platforms to adhere with current health and safety regulations, unless otherwise specified.                |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11 | The contractor may be required to provide and install project signboard for the duration of works in progress and its removal following completion of works.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 12 | It is the contractor's responsibility to apply for and have any services on site, such as poles and electricity/water/telecommunications cables removed from site by the entities concerned. The contractor will also be responsible and ensure that the services which have been shifted are reinstated in place by the entities concerned.                                                                                                                                                                                                                                                                                      |
| 13 | The Contractor is to provide for all on and off site administration costs. He is to safeguard the works, materials and plant against damage or theft including all necessary watching and lighting, barriers and any other measures as may be necessary for the security of the Works and the protection of the Public. He is to provide safe, secure storage for tools and materials. Any cost incurred due to damage, theft or similar matters shall be borne by the Contractor.                                                                                                                                                |
| 14 | Contractor is to provide clean fresh water for use on the Works, pay all related costs and provide all temporary storage, plumbing services, connections etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 15 | Contractor is to provide all artificial lighting and power for use on the Works, pay all related costs and provide for all temporary connections switchgear, distribution boards, leads, fittings, etc., including the provision of all necessary low voltage equipment, transformers, rectifiers, etc., for the use of hand tools.                                                                                                                                                                                                                                                                                               |
| 16 | Contractor is to provide, alter, shift and adapt from time to time as necessary all temporary fencing, hoardings, screens, planked footways, guardrails, gantries, gates and similar items required for the proper execution of the Works, for the protection of the public and authorised site visitors.                                                                                                                                                                                                                                                                                                                         |
| 17 | Contractor is to provide warning signs placed at ground level to warn the general public and other contractors on-site that works are being undertaken in the vicinity.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 18 | The contractor is required to phase his work so as to allow the occupiers to shift personal belongings and similar items during the execution of works within the premises.                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 19 | Where works adjoin third party property which may be affected by the Works and before commencement of any works done on site, contractor is obliged to inspect and compile a condition report with photographs of the adjoining third party property. The cost of these reports is considered to be included in the rates and no claims for additional payment shall be accepted. The contractor shall repair and/or replace as necessary at his own expense any damages caused within site including furniture and personal belongings and to adjoining third party properties as a direct result of the execution of the works. |

|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p> <p>26</p> | <p>The contractor shall ensure that site works are properly conducted so as to create the least possible obstructions to third parties and their activities. Care is to be taken during works to minimise the disturbance to the neighbouring buildings and to protect, where necessary, existing services and finishes. Care shall also be taken to minimise disturbance to third party property.</p> <p>Contractors may be required to work beyond normal working hours and take all necessary measures if circumstances necessitate such in order to ensure safety and least possible risk of damage to the occupiers of premises and those of adjacent premises.</p> <p>Items of excavation will be measured net before excavation and the contractor is to make what allowance he may consider necessary for increase in bulk when pricing items which include removal etc. of excavated material.</p> <p>Rates for excavation are to include for temporary retaining boards, strutting etc, grubbing up roots and for additional excavation required for planking and strutting. Extra care is required to ensure the stability of third party property, if applicable.</p> <p>In the case of trenches to receive foundations over 1 metre deep, the minimum width measured shall be 0.75m for the full depth.</p> <p>The rates for excavation works are to include the removal of excavated material from site, transporting to an approved dumping site and payment of related dumping charges.</p> <p>The cited quantities are to be considered as provisional and may be changed according to site requirements. All works carried out shall be measured in accordance with accepted measurement practice and standards.</p> |
|                                                                       | <p><b>Masonry Works</b></p> <p>27 Stone walls shall be measured in square metres. Half or part courses (tal-paricc) whether in stone or concrete shall be measured as full stone courses.</p> <p>28 Openings up to 2m wide will not be deducted and walling measured as closed up.</p> <p>29 Forming outlet and inlet ventilators with their corresponding flue such like minor items are to be included in the rates and will not be measured separately.</p> <p>30 All mouldings, projection in walls and special stone work shall be measured as extra over plain stone work.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>31</p> <p>32</p> <p>33</p> <p>34</p> <p>35</p> <p>36</p> | <p>Flat or curved arches will, in all cases, be measured separately as extra over the walls in which they occur stating the number of voussoirs.</p> <p>Soft stone walls above D.P.C. are to be machine finished ("mghoddi bil-magna").</p> <p>Rates for masonry works are to include for the formation of stonework at squint angles (skwerra falza) and no extra will be considered.</p> <p>One course height is to be taken as 273mm</p> <p>All soft stone is to be of first quality franka stone and is to be bedded and jointed in gauged mortar.</p> <p>In all items of work involving widening of existing, or creation of new apertures, quoted prices are to include cost of reformation of neat jambs and, where applicable, removal of masonry to 50 mm below proposed finished floor level.</p>                                                                                                                                                                                                                                                                                                                       |
|                                                             | <p><b>Concrete Works</b></p> <p>37 All reinforcement should be inspected by officer in charge prior to casting of concrete.</p> <p>38 Steel mesh fabric reinforcement is to be used only in sheets and is to have a minimum of 150mm side laps and 300mm end laps.</p> <p>39 Formwork is to be left in position for a minimum of 15 days for suspended slabs and 21 days for beams.</p> <p>40 All concrete shall be measured net.<br/>Rates for concrete are to include for:<br/>a) all necessary sawn formwork, shoring, bracing etc.<br/>b) cutting of chases for bearings, drip channels, chamfers etc.<br/>c) forming of holes for electrical conduit and other services.<br/>d) provision and placement of appropriate spacers where necessary.</p> <p>41 All concrete is to be mechanically vibrated (applicable also for roofing works).</p> <p>42 Wooden formwork in a reasonably good condition shall be used and shall be included in the rate of the respective concrete element.</p> <p>43 All steel bar and fabric reinforcement shall be measured and paid for separately unless otherwise specifically stated.</p> |



|    |                                                                                                                                                                                                       |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <p><b>Electrical Works</b></p>                                                                                                                                                                        |
| 44 | Rates for repair / replacement of the existing allow for any necessary fault finding and testing.                                                                                                     |
|    | <p><b>Decoration Works</b></p>                                                                                                                                                                        |
| 45 | Colour is to match the existing unless otherwise directed by the officer in charge.                                                                                                                   |
| 46 | The contractor shall immediately remove and /or clean all resultant surplus material from the site of works.                                                                                          |
| 47 | Openings larger than 1.5m in width will be deducted by half. Rates are to include for all waste.                                                                                                      |
|    | <p><b>Metal Works</b></p>                                                                                                                                                                             |
| 48 | All apertures and railings are to match the existing in colour, style and design unless otherwise directed by the officer in charge.                                                                  |
| 49 | The rates are inclusive of all necessary glazing, ironmongery, fittings and sealing with mastic internally and externally.                                                                            |
| 50 | The rates allow for the doors to be provided with lock and keys / bolts and windows with a locking mechanism.                                                                                         |
| 51 | Rates for steel works shall include for all sections, brackets and other fixtures and ironmongery necessary such as to ensure the robustness and stability of the unit in typical working conditions. |
| 52 | The contractor shall be responsible for taking detailed measurements on site for each individual aperture.                                                                                            |
| 53 | The rates for installation of new apertures are deemed to be inclusive of all necessary making good and reinstatement of finishes around apertures as applicable.                                     |
|    | <p><b>Joinery Works</b></p>                                                                                                                                                                           |
| 54 | All timber apertures are to match the existing in colour, style and design unless otherwise directed by the officer in charge.                                                                        |

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>55</p> <p>56</p> <p>57</p> <p>58</p> | <p>The rates are inclusive of all necessary glazing, ironmongery, fittings and sealing with mastic internally and externally.</p> <p>The rates allow for the doors to be provided with lock and keys / bolts and windows with a locking mechanism.</p> <p>The contractor shall be responsible for taking detailed measurements on site for each individual aperture.</p> <p>The rates for installation of new apertures are deemed to be inclusive of all necessary making good and reinstatement of finishes around apertures as applicable.</p>                                                                                                                                                                                                               |
|                                         | <p><b>Aluminium Works</b></p> <p>59 The colour of the aluminium sections is to be chosen by the officer in charge. Colour will usually be chosen to match with existing apertures within same façade.</p> <p>60 The rates are inclusive of all necessary glazing, ironmongery, fittings and sealing with mastic internally and externally.</p> <p>61 The rates allow for the doors to be provided with lock and keys and windows with a locking mechanism.</p> <p>62 The contractor shall be responsible for taking detailed measurements on site for each individual aperture.</p> <p>63 The rates for installation of new apertures are deemed to be inclusive of all necessary making good and reinstatement of finishes around apertures as applicable.</p> |
|                                         | <p><b>Drainage Works</b></p> <p>64 In the case of vertical pipe work, an additional amount to allow for any necessary access equipment to reach all areas will be catered for in Bill no 14. Requests for additional payment to reach/carry materials to/from the required areas will not be considered.</p> <p>65 The rates allow for the disconnection and reinstatement of part / the entire system and the provision of a temporary alternative system during the course of works. Contractor shall notify the affected tenants beforehand when it is necessary to refrain from using the common drainage system.</p>                                                                                                                                       |

|                                       |                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 66                                    | Laying and jointing of PVC pipes should be carried out appropriately using adequate bonding material to ensure that no leakages occur.                                                                                                                                                                                                                  |
| 67                                    | Pipes shall be measured in metres over all fittings and branches.                                                                                                                                                                                                                                                                                       |
| 68                                    | Fittings shall be enumerated and given as extra over the pipe in which they occur. Joints in the running length shall be deemed to be included.                                                                                                                                                                                                         |
| 69                                    | In the case of excavation works for the laying of pipe work in trenches and construction of inspection chambers, the rates are to include for reinstatement work to make good over trenches and around chambers.                                                                                                                                        |
| <b>Tiling and Marble Works</b>        |                                                                                                                                                                                                                                                                                                                                                         |
| 70                                    | All work shall be measured net as laid. Rates allow for all waste and straight or raked cutting.                                                                                                                                                                                                                                                        |
| <b>Day Works and Access Equipment</b> |                                                                                                                                                                                                                                                                                                                                                         |
| 71                                    | Labour rates are applicable for works which are not included in the trades bills only. Rates are deemed to include for supervision and provision of necessary tools.                                                                                                                                                                                    |
| 72                                    | Time engaged in the actual works only will be allowed. The time engaged in the use of mechanical equipment will be as approved and at the discretion of the officer in charge.                                                                                                                                                                          |
| 73                                    | The rates for mechanical equipment allow for any expense related to the use of equipment such as drivers, attendants, operators, fuel and for all fees for necessary safety certification of equipment.                                                                                                                                                 |
| 74                                    | The fees for the provision of <b>warden services and local council street permit rates</b> will be reimbursed by the Housing Authority against the presentation of receipts by the contractor (receipts will be subject to checking and confirmation by the officer in charge).                                                                         |
| 75                                    | In the case of works requiring an Enemalta application fee exceeding €45 inclusive of VAT as per item 1.19 of the boq, the additional fees over and above this sum will be reimbursed by the Housing Authority against the presentation of receipts by the contractor (receipts will be subject to checking and confirmation by the officer in charge). |
| -                                     |                                                                                                                                                                                                                                                                                                                                                         |

| Item | Description                                                                                                                                                                                                                                                                                                                                                   | Unit                   | Rate (€) excl. V.A.T |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------|
|      | <b><u>BILL 1 - PREPARATION WORKS</u></b>                                                                                                                                                                                                                                                                                                                      |                        |                      |
|      | <b>Emergency support works</b>                                                                                                                                                                                                                                                                                                                                |                        |                      |
|      | <b>Items 1.02 and 1.03 to be paid extra only in case of emergency and until the order to start work is issued. These items are intended for carrying out emergency support works to remove danger in occupied premises until repair works can be executed. Immediate response by contractors to instructions by architect in charge is strictly required.</b> |                        |                      |
| -    |                                                                                                                                                                                                                                                                                                                                                               | -                      |                      |
| 1.01 | a) Mobilization fee to cover the contractor's forces and equipment necessary for performing the work required under the contract including all necessary safety measures for the safeguard and protection of the general public including compliance with Housing Authority health and safety officer recommendations.                                        | case                   | <b>84.75</b>         |
|      | b) Extra over for performing works in Valletta including access tariffs.                                                                                                                                                                                                                                                                                      | case                   | <b>27.63</b>         |
| 1.02 | Installation and dismantling of temporary equipment to support existing dangerous structures including all necessary safety measures.                                                                                                                                                                                                                         |                        |                      |
| a.   | props / jacks                                                                                                                                                                                                                                                                                                                                                 | no.                    | <b>8.83</b>          |
| b.   | extendable iron support                                                                                                                                                                                                                                                                                                                                       | no.                    | <b>8.83</b>          |
| c.   | wooden shuttering                                                                                                                                                                                                                                                                                                                                             | m <sup>2</sup>         | <b>6.18</b>          |
| 1.03 | Rates for all the necessary support equipment left on site PER MONTH, until order to dismantle is issued by officer in charge. Contractor is responsible to check regularly that support equipment is still safely installed.                                                                                                                                 |                        |                      |
| a.   | Props/jacks or similar supports.<br>(example - 3months x 25 props = 75props/month)                                                                                                                                                                                                                                                                            | prop / month           | <b>1.77</b>          |
| b.   | Extendable iron support (travetti).<br>(example - 3months x 25 travetti= 75 travetti/month)                                                                                                                                                                                                                                                                   | travett / month        | <b>2.65</b>          |
| c.   | Wooden shuttering laid over extendable iron support (travetti). Wooden shuttering is to be in a reasonably good condition.<br>(example - 3months x 25m <sup>2</sup> = 75m <sup>2</sup> shuttering/month)                                                                                                                                                      | m <sup>2</sup> / month | <b>2.21</b>          |
| -    |                                                                                                                                                                                                                                                                                                                                                               |                        |                      |
| 1.04 | <b>Removal and carting away of items.</b><br>Remove unused TV aerials / metal poles including brackets, bolts, wires etc from stairwell / parapet walls at roof level and make good by pointing where bolts are removed. Rate to include carting away of removed items to an approved site. NB - aerials to be removed only with the residents' consent.      | no.                    | <b>22.09</b>         |
| -    |                                                                                                                                                                                                                                                                                                                                                               |                        |                      |
| 1.05 | <b>Excavation Works</b><br>Excavate trench / pit in top soil and rubble or demolition material (whichever is applicable), compacted or otherwise, until all rock is exposed, load and transport to an authorised dumping site.                                                                                                                                |                        |                      |
|      | a) for a depth of trench up to 1 meter.                                                                                                                                                                                                                                                                                                                       | m <sup>3</sup>         | <b>22.09</b>         |
|      | b) for depth of trench exceeding 1 meter                                                                                                                                                                                                                                                                                                                      | m <sup>3</sup>         | <b>26.50</b>         |

|      |                                                                                                                                                                                                                                                                                                                                                     |                |               |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 1.06 | Excavate trench / pit in rock of any hardness and depth. Over cutting shall not be paid for and backfilling shall be done with masonry blocks/C15 concrete at contractor's expense. Trimming of the rock is also included in the same rate. Rate also includes the loading, carting away and dumping of the material in an authorised dumping site. |                |               |
|      | a) for a depth of up to 1 meter.                                                                                                                                                                                                                                                                                                                    | m <sup>3</sup> | <b>30.92</b>  |
|      | b) for depth exceeding 1 meter                                                                                                                                                                                                                                                                                                                      | m <sup>3</sup> | <b>35.34</b>  |
| 1.07 | Remove vegetation and cart away to an approved dumping site.                                                                                                                                                                                                                                                                                        | m <sup>2</sup> | <b>2.65</b>   |
| 1.08 | Remove temporary structures of any material (area of walls and roof) and cart away to an approved dumping site.                                                                                                                                                                                                                                     | m <sup>2</sup> | <b>17.67</b>  |
| 1.09 | Remove rubbish of any type and material from any area and cart away to an approved dumping site.                                                                                                                                                                                                                                                    | m <sup>3</sup> | <b>44.17</b>  |
| 1.10 | Removal, transport and deposit of items containing asbestos material in an approved facility (to be carried out as per HA authorisation letter and to be paid against receipt by delivery at indicated facility).                                                                                                                                   |                |               |
|      | a) rainwater and drain pipes                                                                                                                                                                                                                                                                                                                        | l.m.           | <b>8.00</b>   |
|      | b) water tanks                                                                                                                                                                                                                                                                                                                                      | no.            | <b>42.00</b>  |
|      | c) corrugated roof                                                                                                                                                                                                                                                                                                                                  | m <sup>2</sup> | <b>15.00</b>  |
|      | <b>Removal and reinstatement of items.</b>                                                                                                                                                                                                                                                                                                          |                |               |
| 1.11 | Carefully disconnect and remove parts of the plumbing system, make the necessary alterations to provide a temporary system. Reinstall the system after completion of works using new fittings and ironmongery.                                                                                                                                      | system         | <b>53.01</b>  |
| 1.12 | Carefully remove air-condition unit at roof level and store away safely within premises. Reinstall following completion of work with good quality stainless steel fittings. Rate to allow for all necessary extensions of refrigerant pipes etc.. including re-filling of air-condition unit with appropriate gas.                                  | no.            | <b>136.17</b> |
| 1.13 | Carefully remove television aerial / satellite dish and store away safely within premises. Reinstall following completion of work with stainless steel fittings and make good where necessary.                                                                                                                                                      | no.            | <b>35.34</b>  |
| 1.14 | Carefully remove drying lines including metal poles and store away safely within premises. Reinstall following completion of work with new fittings and make good where necessary.                                                                                                                                                                  | no.            | <b>17.67</b>  |

|      |                                                                                                                                                                                                                        |                |               |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 1.15 | Carefully remove windows of any type and store away safely within premises. Provide temporary weather protection as necessary. Reinstall following completion of work with new fittings and make good where necessary. | no.            | <b>27.00</b>  |
| 1.16 | Carefully remove doors of any type and store away safely within premises. Provide temporary weather protection as necessary. Reinstall following completion of work with new fittings and make good where necessary.   | no.            | <b>40.12</b>  |
| 1.17 | Carefully remove suspended false ceilings, store away safely in the premises and reinstate after completion of works. Reinstall following completion of work with new fittings and make good where necessary.          | m <sup>2</sup> | <b>18.34</b>  |
| 1.18 | Carefully shift furniture and store away safely in other rooms within same premises. Relocate following completion of works in original rooms.                                                                         |                |               |
| a.   | 1 room                                                                                                                                                                                                                 | L.Sum          | <b>35.34</b>  |
| b.   | 2 - 4 rooms                                                                                                                                                                                                            | L.Sum          | <b>88.35</b>  |
| c.   | 5 - 10 rooms                                                                                                                                                                                                           | L.Sum          | <b>132.52</b> |
| 1.19 | Prepare and submit Enemalta application to install gaiters and liaise with same entity to carry out necessary works. All application fees are deemed to be included in rate. <b>(See preamble no. 75)</b>              | L.Sum          | <b>41.66</b>  |

| <b>BILL 2 - MASONRY WORKS</b> |                                                                                                                                                                                                                                                                                                                     |                |                             |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|
| <b>Item</b>                   | <b>Description</b>                                                                                                                                                                                                                                                                                                  | <b>Unit</b>    | <b>Rate (€) excl. V.A.T</b> |
| 2.01                          | <b>Removal of existing masonry</b><br>Take up existing <b>stone ceiling slabs ("xorok") and underlying beams</b> and cart away broken or deteriorated stone ceiling slabs to an approved dumping site. Rate to include placing existing slabs in a safe storage. (slabs to be re-laid once new beams are installed) | m <sup>2</sup> | <b>30.92</b>                |
| 2.02                          | Remove existing <b>franka stone walls</b> including any coping, pilasters and balustrades taking all the necessary safety measures and cart away resultant debris to an approved site.                                                                                                                              | m <sup>2</sup> | <b>14.42</b>                |
| 2.03                          | Remove existing corbels " <b>saljaturi</b> " <b>projecting up to 0.8m</b> . Rate to allow for all the necessary safety measures, carting away the resultant material, propping up the overlying structure and making good.                                                                                          | no.            | <b>88.35</b>                |
| 2.04                          | Remove and cart away masonry <b>lintels</b> of any length. Rate is to allow for any necessary works to prop up the structure including any necessary wedges and make good .                                                                                                                                         | no.            | <b>75.10</b>                |
| 2.05                          | <b>Remove, store safely and relay old franka stone following completion of work.</b> Rate to include double handling, making good and all necessary safety measures.                                                                                                                                                |                |                             |
|                               | a) coping                                                                                                                                                                                                                                                                                                           | l.m.           | <b>13.25</b>                |
|                               | b) cornice                                                                                                                                                                                                                                                                                                          | l.m.           | <b>26.50</b>                |
| 2.06                          | <b>Remove existing franka stone</b> , cart away to an approved site. Rate to include double handling, making good and all necessary safety measures.                                                                                                                                                                |                |                             |
|                               | a) coping                                                                                                                                                                                                                                                                                                           | l.m.           | <b>8.90</b>                 |
|                               | b) cornice                                                                                                                                                                                                                                                                                                          | l.m.           | <b>15.00</b>                |
| 2.07                          | <b>Replacement of existing masonry</b><br>a) Replace deteriorated / broken stonework of any size. Rate to allow for all the necessary safety measures, carting away of the resultant material and making good.                                                                                                      | no.            | <b>18.34</b>                |
|                               | b) Ditto but for stonework larger than 275mm in height and 228mm in thickness. ("vaza")                                                                                                                                                                                                                             | no.            | <b>57.86</b>                |
|                               | c) Ditto but for moulded cornices projecting more than 150mm from external wall ("vaza").                                                                                                                                                                                                                           | no.            | <b>107.70</b>               |

|      |                                                                                                                                                                                                                                                                                         |                |              |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------|
| 2.08 | a) Replace as existing deteriorated / broken stonework in façade by inserting new stone block up to 100mm thickness and using heavy duty stainless steal bolts. Rate to include all necessary bonding agent, stainless steal bolts, carting away of resultant material and making good. | no.            | <b>23.11</b> |
|      | b) Ditto but for stonework larger than 275mm in height and 228mm in thickness. ("vaza")                                                                                                                                                                                                 | no.            | <b>57.86</b> |
| 2.09 | Replace / install new internal and external plastic ventilators. Rate to allow for all the necessary safety measures, carting away of the resultant material and making good.                                                                                                           | no.            | <b>8.97</b>  |
| 2.10 | Carefully replace individual broken stone slabs (xorok). Rate to include for the making good of 'xahx & screed' above replaced 'xorok', pointing, making good cart away all resultant building debris and dumping in approved site.                                                     | no.            | <b>45.84</b> |
|      | <b>Construction</b>                                                                                                                                                                                                                                                                     |                |              |
| 2.11 | <b>Supply and lay 150 / 180mm thick soft stone walls</b> , fair faced both sides, above D.P.C. bedded and jointed in 1:2:6 cement sand mortar. Rate is to allow for the necessary tooting (mursalli) and bonding.                                                                       | m <sup>2</sup> | <b>18.03</b> |
| 2.12 | a) <b>Supply and lay 230mm thick soft stone walls</b> , fair faced both sides, above D.P.C. at roof level bedded and jointed in 1:2:6 cement sand mortar. Rate is to allow for the necessary tooting (mursalli) and bonding.                                                            | m <sup>2</sup> | <b>20.73</b> |
|      | b) Extra over for "fuq il-fil". (all horizontal and vertical edges to be machine cut with joints of uniform width).                                                                                                                                                                     | m <sup>2</sup> | <b>8.83</b>  |
|      | c) Extra over for the formation of projections in walls (" <b>faxex</b> ") <b>not exceeding 25mm.</b>                                                                                                                                                                                   | l.m.           | <b>7.07</b>  |
|      | d) Extra over for the formation of projections in walls (" <b>faxex</b> ") <b>exceeding 25mm.</b>                                                                                                                                                                                       | l.m.           | <b>14.14</b> |
|      | e) Extra over for " <b>imbroll</b> ".                                                                                                                                                                                                                                                   | l.m.           | <b>6.18</b>  |
|      | f) Extra over for moulding " <b>lavur</b> "                                                                                                                                                                                                                                             | l.m.           | <b>14.14</b> |
|      | g) Extra over for rusticated stonework " <b>gidra</b> "                                                                                                                                                                                                                                 | m <sup>2</sup> | <b>10.50</b> |
| 2.13 | Rebated joint ("tlibbisa"). Rate to allow for dressing of stone including stainless steel bolts.                                                                                                                                                                                        | l.m.           | <b>17.67</b> |
| 2.14 | Voussoirs ("samrotti")                                                                                                                                                                                                                                                                  | no.            | <b>9.05</b>  |
| 2.15 | Voussoirs larger than normal size ("vaza")                                                                                                                                                                                                                                              | no.            | <b>71.03</b> |
| 2.16 | Corbels projecting up to 0.8m. ("saljaturi")                                                                                                                                                                                                                                            | no.            | <b>61.84</b> |
| 2.17 | Construct butterfly joints ' <b>friefet</b> ' on top course of new parapet wall. Rate to include 1:3 cement sand mortar and placing 7cm long high yield steel.                                                                                                                          | no.            | <b>2.03</b>  |
| 2.18 | <b>Form ventilators in masonry.</b> Rate to include the supply and fixing of approved plastic internal and external ventilators.                                                                                                                                                        | no.            | <b>17.67</b> |



|      |                                                                                                                                                                                                                                                                       |                                  |                                             |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------|
| 2.19 | <b>Construct masonry ventilators</b> at roof level. Rate to allow for the removal and carting away of the existing masonry ventilators (where necessary) and making good.                                                                                             | no.                              | <b>44.17</b>                                |
| 2.20 | Supply and lay masonry balustrades, coping 'sopra bank' and 'sotto bank' and pilasters set at intervals to replicate exactly the existing layout. Rate to allow for any necessary pointing and making good.                                                           | l.m.                             | <b>89.75</b>                                |
| 2.21 | Replace existing deteriorated franka stone <b>balustrades</b> with new ones to replicate existing. Rate to include dismantling, removal, carting away and dispose of existing deteriorated balustrades in an approved site.<br>a) 150mm diameter<br>b) 220mm diameter | no.<br>no.                       | <b>14.18</b><br><b>18.95</b>                |
| 2.22 | Insert diamond shaped wedges ' <b>kunjarda</b> ' composed of red deal wood and make good around wedge.                                                                                                                                                                | no.                              | <b>7.07</b>                                 |
| 2.23 | Insert <b>masonry lintels</b> up to 1.2m in length. Rate to allow for insertion of diamond shaped wedge 'kunjarda' composed of red deal wood; all necessary safety measures; carting away all resultant debris to an approved site and making good.                   | no.                              | <b>35.34</b>                                |
| 2.24 | a) Supply and lay new <b>franka stone coping</b> with a width not exceeding <b>275mm</b> , to match existing and making good.<br>b) Ditto but exceeding <b>275mm</b> , to match existing and making good.<br>c) Extra over for chamfer.                               | l.m.<br>l.m.<br>l.m.             | <b>17.67</b><br><b>30.92</b><br><b>7.95</b> |
| 2.25 | Supply and lay 150 / 180 mm thick <b>hollow concrete block walls</b> bedded and jointed in gauged mortar. Rate is to allow for the necessary tooting ' <b>mursalli</b> ' and bonding.                                                                                 | m <sup>2</sup>                   | <b>17.67</b>                                |
| 2.26 | Supply and lay 230 mm thick <b>hollow concrete block</b> walls bedded and jointed in gauged mortar. Rate is to allow for the necessary tooting ' <b>mursalli</b> ' and bonding.<br>a) Single type<br>b) Double type                                                   | m <sup>2</sup><br>m <sup>2</sup> | <b>18.55</b><br><b>19.44</b>                |
| 2.27 | Supply and lay 230mm thick <b>hollow concrete block</b> wall, single type bedded and jointed in gauged mortar and <b>filled with concrete grade C20</b> .                                                                                                             | m <sup>2</sup>                   | <b>25.38</b>                                |
| 2.28 | Supply and lay <b>soft-stone slabs (xorok)</b> . Rate to include taking all the necessary safety measures and making good.                                                                                                                                            | m <sup>2</sup>                   | <b>28.08</b>                                |
|      | <b>Damp proofing</b>                                                                                                                                                                                                                                                  |                                  |                                             |
| 2.29 | Supply and lay pitch polymer high performance DPC horizontally over foundation walls. Allowance is to be made by contractor for all overlaps which must be at least as wide as the strip itself.<br>a) 180mm walls.<br>b) 230mm walls.                                | l.m.<br>l.m.                     | <b>7.07</b><br><b>9.72</b>                  |

|      |                                                                                                                                                                                                                 |                |             |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------|
| 2.30 | Supply and install 4mm thick sheet <b>polyester reinforced membrane</b> welded to wall including bonding agent. Rate is to allow for bitumen directly applied to the wall prior to the application of membrane. | m <sup>2</sup> | <b>8.05</b> |
| 2.31 | Supply and lay <b>polythene sheeting</b> (gauge 1000) in vertical / horizontal damp proofing.                                                                                                                   | m <sup>2</sup> | <b>1.77</b> |

| <b>BILL 3 - CONCRETE WORKS</b> |                                                                                                                                                                                                                                                                                                                    |                |                             |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|
| <b>Item</b>                    | <b>Description</b>                                                                                                                                                                                                                                                                                                 | <b>Unit</b>    | <b>Rate (€) excl. V.A.T</b> |
| 3.01                           | a) Remove existing roofing structure / balcony structure / stairs of any construction type including concrete / precast slabs / beam and slab type roofing system. Rate to include carting away resulting debris to an approved site, taking all the necessary safety measures and making good.                    | m <sup>2</sup> | <b>23.50</b>                |
|                                | b) Extra over for the removal of existing roof screed / roofing tiles / diffone finish (approx. 100mm thickness). Load and cart away to an approved dumping site.                                                                                                                                                  | m <sup>2</sup> | <b>14.36</b>                |
|                                | c) Extra over for the removal of existing torba, cart away and dispose of resultant material in an approved dumping site.                                                                                                                                                                                          | m <sup>2</sup> | <b>3.74</b>                 |
|                                | d) Extra over for chasing of projecting reinforced concrete slab.                                                                                                                                                                                                                                                  | l.m.           | <b>3.84</b>                 |
| 3.02                           | Break up, remove and cart away concrete lintels / beams / columns. Rate is to allow for insertion of diamond shaped wedges 'kunjardi' composed of red deal wood to support overlying structure; all necessary safety measures and formwork; carting away all resultant debris to an approved site and making good. | m <sup>3</sup> | <b>971.82</b>               |
| 3.03                           | Break up, remove and cart away reinforced concrete coping over roof / balcony parapet walls (maximum 200mm height) rate to allow for making good as necessary.                                                                                                                                                     | l.m.           | <b>15.90</b>                |
| 3.04                           | a) Precast or cast in situ Grade C25 reinforced concrete lintels / beams (reinforcement measured separately).                                                                                                                                                                                                      | m <sup>3</sup> | <b>618.43</b>               |
|                                | b) Ditto but Grade C30 reinforced concrete.                                                                                                                                                                                                                                                                        | m <sup>3</sup> | <b>636.10</b>               |
|                                | c) Extra over for precast or cast in situ reinforced concrete corbels to support balconies (rate to include formation of openings in wall to insert corbels).                                                                                                                                                      | per corbel     | <b>97.18</b>                |
| 3.05                           | Supply and lay hollow core roof consisting of pre stressed "T" Beams and unreinforced hollow concrete roofing filler blocks. Rate is to include for all necessary chasing (ingall), supply, delivery, hoisting & placing in position and 75mm thick structural concrete topping (Grade C25) :                      |                |                             |
|                                | a) using single T beams                                                                                                                                                                                                                                                                                            | m <sup>2</sup> | <b>35.34</b>                |
|                                | b) using double T beams                                                                                                                                                                                                                                                                                            | m <sup>2</sup> | <b>42.41</b>                |
| -                              | -                                                                                                                                                                                                                                                                                                                  | -              |                             |
| 3.06                           | Supply and lay in situ concrete grade C25 forming 150mm thick suspended / projected slab including one layer of steel mesh fabric reinforcement type C503. Rate to include all necessary formwork.                                                                                                                 | m <sup>2</sup> | <b>26.50</b>                |
| 3.07                           | Extra over for every additional 25mm thickness of concrete grade C25 in slab.                                                                                                                                                                                                                                      | m <sup>2</sup> | <b>3.09</b>                 |

|      |                                                                                                                                                                                                                                                                                                                                                |                |              |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------|
| 3.08 | Supply and lay in situ concrete grade C25 in forming suspended stairs with 150mm thick waist and one layer of steel fabric reinforcement C503. Rate to include all necessary formwork. (approx width of stairs 0.9m)                                                                                                                           | l.m.           | <b>26.73</b> |
| 3.09 | Supply, lay and level concrete sub floor 100mm thick (Grade C20) including A252 mesh reinforcement. Rate is to allow for the addition of polypropylene fibre to concrete to prevent shrinkage cracks.                                                                                                                                          | m <sup>2</sup> | <b>20.33</b> |
| 3.10 | <b>Supply and fix in position high tensile reinforcing bars and mesh, straight or bent as directed.</b>                                                                                                                                                                                                                                        |                |              |
|      | a) C503 mesh measured net without any allowance for laps.                                                                                                                                                                                                                                                                                      | m <sup>2</sup> | <b>4.42</b>  |
|      | b) B503 mesh measured net without any allowance for laps.                                                                                                                                                                                                                                                                                      | m <sup>2</sup> | <b>6.18</b>  |
|      | c) A252 mesh measured net without any allowance for laps.                                                                                                                                                                                                                                                                                      | m <sup>2</sup> | <b>3.98</b>  |
|      | d) T25                                                                                                                                                                                                                                                                                                                                         | kg             | <b>1.07</b>  |
|      | e) T20                                                                                                                                                                                                                                                                                                                                         | kg             | <b>1.07</b>  |
|      | f) T16                                                                                                                                                                                                                                                                                                                                         | kg             | <b>1.07</b>  |
|      | g) T12                                                                                                                                                                                                                                                                                                                                         | kg             | <b>1.07</b>  |
|      | h) T10                                                                                                                                                                                                                                                                                                                                         | kg             | <b>1.07</b>  |
|      | <b>Pavement Works</b>                                                                                                                                                                                                                                                                                                                          |                |              |
| 3.11 | Supply and lay 100mm thick, in-situ, C20 concrete mix in footways. Rate is to include for the formation of expansion joints at 5m centres, brush finish, & the necessary supply and compaction of infill material.                                                                                                                             | m <sup>2</sup> | <b>8.41</b>  |
| 3.12 | Supply, lay, bed, back and point 255mm high, precast concrete kerbs, 1000mm long, laid straight or curved exceeding 12m radius. Bedding and backing to be in situ unreinforced concrete grade C15.                                                                                                                                             | l.m.           | <b>9.72</b>  |
| 3.13 | Cast in-situ C20 concrete gutter 200mm wide x 150mm deep. Rate is to include for all necessary formwork.                                                                                                                                                                                                                                       | l.m.           | <b>3.53</b>  |
| 3.14 | Supply, Transport & Lay 300x300mm PVC junction boxes in footpaths, including C15 concrete Surround                                                                                                                                                                                                                                             | no.            | <b>18.55</b> |
| 3.15 | Carefully remove existing pavement flagstones/ slabs / blocks / tiles, stacking of same for later re-use and relaying same to proper alignment and levels. Rate inclusive of bedding, preparation and grouting. No extra payment shall be made for the supply of any damaged slabs or blocks or tiles to reinstate pavement to match existing. | m <sup>2</sup> | <b>10.29</b> |
| 3.16 | Supply and lay pavement to match existing and to proper alignment and levels. Rate inclusive of bedding, preparation and grouting:                                                                                                                                                                                                             |                |              |
|      | a. concrete tiles (grey type)                                                                                                                                                                                                                                                                                                                  | m <sup>2</sup> | <b>14.41</b> |
|      | b. concrete tiles (colour type)                                                                                                                                                                                                                                                                                                                | m <sup>2</sup> | <b>15.43</b> |
|      | c. concrete blocks (grey type)                                                                                                                                                                                                                                                                                                                 | m <sup>2</sup> | <b>19.55</b> |
|      | d. concrete blocks (colour type)                                                                                                                                                                                                                                                                                                               | m <sup>2</sup> | <b>21.61</b> |
|      | e. soft stone franka slab                                                                                                                                                                                                                                                                                                                      | m <sup>2</sup> | <b>18.52</b> |

| <b>BILL 4 - CONCRETE REPAIR WORKS</b> |                                                                                                                                                                                                                                                                                                                 |                |                             |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|
| <b>Item</b>                           | <b>Description</b>                                                                                                                                                                                                                                                                                              | <b>Unit</b>    | <b>Rate (€) excl. V.A.T</b> |
|                                       | <b>Concrete repair works are deemed to be covered by a 2 year guarantee from date of application as per specification and signed declaration. (applicable for items 4.01 - 4.04)</b>                                                                                                                            |                |                             |
| 4.01                                  | a) Hacking and cutting away of low grade concrete cover to slabs to a sound and roughened surface using hand or light mechanical tools to a depth of 25mm to 30mm taking care not to damage reinforcing mesh and including carting away of resulting debris. Surfaces to be cleaned ready to receive treatment. | m <sup>2</sup> | <b>9.72</b>                 |
|                                       | b) Ditto for additional 25mm as specifically directed by the architect including cleaning around reinforcement bars where necessary.                                                                                                                                                                            | m <sup>2</sup> | <b>9.72</b>                 |
| 4.02                                  | Supply and apply anti corrosion coating to reinforcing bars which have been cleaned for paint by brushing and prior to re-instating concrete cover.                                                                                                                                                             | m <sup>2</sup> | <b>8.83</b>                 |
| 4.03                                  | Supply and apply epoxy-resin bonding agent to prepared existing concrete and reinforcing mesh prior to re-instating build-up of concrete cover.                                                                                                                                                                 | m <sup>2</sup> | <b>7.07</b>                 |
| 4.04                                  | a) Supply and trowel application of epoxy-resin mortar for structural concrete repair in layers of 10mm nominal thickness to rebuild a concrete cover of 25mm around existing reinforcing mesh or bars in slabs. Sufficient time must be allowed between applications.                                          | m <sup>2</sup> | <b>17.67</b>                |
|                                       | b) Ditto for additional 25mm                                                                                                                                                                                                                                                                                    | m <sup>2</sup> | <b>17.67</b>                |
| 4.05                                  | - Supply and erect all necessary formwork to cast concrete balcony edges. (approx. 30cm in breadth)                                                                                                                                                                                                             | l.m.           | <b>8.83</b>                 |

| <b><u>BILL 5 - ELECTRICAL WORKS</u></b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |                             |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------|
| <b>Item</b>                             | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Unit</b> | <b>Rate (€) excl. V.A.T</b> |
| 5.01                                    | <p><b>Removal Works</b><br/>Remove existing lighting / power points and conduits. Rate is to allow for any necessary safety measures, any necessary works to render the rest of the electricity system functional and making good.</p> <p><b>Add new / replace points</b><br/>Supply, deliver to site, install, connect, test and commission the following as specified including chasing in walls, pvc conduit, wiring, moulded plastic accessories etc, connect to make complete functional circuits and making good.</p> | point       | <b>17.67</b>                |
| 5.02                                    | Ceiling/wall lighting point controlled by 1/2 gang - 1 way switch.                                                                                                                                                                                                                                                                                                                                                                                                                                                          | no.         | <b>30.92</b>                |
| 5.03                                    | Ceiling/wall lighting point controlled by 1/2 gang - 2 way switch.                                                                                                                                                                                                                                                                                                                                                                                                                                                          | no.         | <b>35.34</b>                |
| 5.04                                    | Internal 13 Amps double switched socket outlets.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | no.         | <b>30.92</b>                |
| 5.05                                    | Double pole-switches complete with fuse and pilot lamp for water heater/washing machine.                                                                                                                                                                                                                                                                                                                                                                                                                                    | no.         | <b>37.11</b>                |
|                                         | <p><b>Luminaries</b><br/>Supply, deliver to site, install, connect, test and commission the following luminaries and accessories. Rate to include for any necessary supports, ironmongery, connecting cables, the removal and carting away of the existing fittings (if necessary).</p>                                                                                                                                                                                                                                     |             |                             |
| 5.06                                    | Internal Type Luminaries - Wall/Ceiling mounting luminaries complete with compact fluorescent lamps.                                                                                                                                                                                                                                                                                                                                                                                                                        | no.         | <b>46.82</b>                |
| 5.07                                    | External Type Luminaries - IP 65 decorative wall mounting bulkheads complete with compact fluorescent lamp.                                                                                                                                                                                                                                                                                                                                                                                                                 | no.         | <b>46.82</b>                |
|                                         | <p><b>Fittings</b><br/>Supply, deliver to site, install, connect, test and commission the following and connect to make complete functional circuits.</p>                                                                                                                                                                                                                                                                                                                                                                   |             |                             |
| 5.08                                    | Replace socket / switch.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | no.         | <b>8.97</b>                 |
| 5.09                                    | Replace bell push-switches.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | no.         | <b>6.18</b>                 |
| 5.10                                    | Replace pneumatic time delay switches with a fixed time delay suitable for the control of staircase light fittings by means of a number of landing switches connected in parallel.                                                                                                                                                                                                                                                                                                                                          | no.         | <b>26.54</b>                |
| 5.11                                    | New sensor systems to existing lighting points.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | no.         | <b>35.34</b>                |

| <b>HALL PORTER SYSTEM (INTERCOM) &amp; BELLS</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |               |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------|
|                                                  | <b>Supply, deliver to site and install the following including PVC conduit, wiring, etc, as specified to make a complete and functional system and test and commission.</b>                                                                                                                                                                                                                                                                                               |       |               |
| 5.12                                             | 13A one gang DP switched fused spur outlet including chord outlet for hall porter power supply.                                                                                                                                                                                                                                                                                                                                                                           | no.   | <b>39.76</b>  |
| -                                                | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -     |               |
| 5.13                                             | Power supply unit compatible with electric lock.                                                                                                                                                                                                                                                                                                                                                                                                                          | no.   | <b>24.74</b>  |
| 5.14                                             | Answering station point including handset. Rate to include all necessary wiring.                                                                                                                                                                                                                                                                                                                                                                                          | no.   | <b>97.57</b>  |
| 5.15                                             | Hall porter external call station only.                                                                                                                                                                                                                                                                                                                                                                                                                                   | no.   | <b>89.75</b>  |
| 5.16                                             | Remove the existing door lock. Supply and install new, electrical door lock. Rate to include all necessary copies of main door keys (1 copy to each apartment).                                                                                                                                                                                                                                                                                                           | no.   | <b>97.57</b>  |
| 5.17                                             | Supply and install bell system complete with switch transformer push installed near outside door (per apartment).                                                                                                                                                                                                                                                                                                                                                         | no.   | <b>44.49</b>  |
|                                                  | <b>Consumer units, testing, certification, etc...</b>                                                                                                                                                                                                                                                                                                                                                                                                                     |       |               |
| 5.18                                             | Supply, install and connect single phase, metal clad, distribution boards with lockable door, 32 Amps rated bus bars, single phase ways, neutral bar, earth bar and the following devices:<br>Incomer - 2 pole, 16 Amp mcb type C, 10 kA, as a main switch.<br>Outgoer - 10 Amp rcbo 30mA trip for the lighting circuit of the common area (entrance and staircase)<br>Outgoer - 6 Amp rcbo 30mA trip for the power circuit of the intercom.                              | no.   | <b>229.70</b> |
| 5.19                                             | Supply, install and connect in order to replace the following devices:                                                                                                                                                                                                                                                                                                                                                                                                    |       |               |
|                                                  | a) Incomer - 2 pole, 16 Amp mcb type C, 10 kA, as a main switch.                                                                                                                                                                                                                                                                                                                                                                                                          | no.   | <b>29.66</b>  |
|                                                  | b) Outgoer - 10 Amp rcbo 30mA trip for the lighting circuit of the common area (entrance and staircase)                                                                                                                                                                                                                                                                                                                                                                   | no.   | <b>63.56</b>  |
| 5.20                                             | Supply, install and connect in the distribution board of the common areas din-rail mounting electronic 24hr timer, 16 Amp contacts for the control of the staircase lighting.                                                                                                                                                                                                                                                                                             | no.   | <b>79.62</b>  |
| 5.21                                             | Supply, install test and connect earth electrodes consisting of one 2.4m long, 16mm diameter, solid copper earth rod installed in the ground including civil works, earth rod hole backfilling agent, earth inspection pit with marked cover and testing facilities and the 10 sq mm PVC insulated earth conductor from the earth rods to the main earth terminal of the electrical installation. A test certificate signed by a certified electrician is to be provided. | no.   | <b>66.26</b>  |
| 5.22                                             | Supply and install 6 sq mm PVC insulated and sheathed cable from the electricity meter to the common area distribution board plus earth connection as required.                                                                                                                                                                                                                                                                                                           | floor | <b>26.69</b>  |

|      |                                                                                                                                                                                                                                                                                                                                                              |     |              |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------|
| 5.23 | Test and certify only earth electrodes. A test certificate signed by a certified electrician is to be provided.                                                                                                                                                                                                                                              | no. | <b>44.88</b> |
| 5.24 | Inspect, test and certify electrical installations in accordance with the latest edition of the IEE Wiring Regulations. Certificate from licensed electrician is to be submitted.                                                                                                                                                                            | no. | <b>70.68</b> |
| 5.25 | Fill up the Inspection and Test Certificate section and supply the electrical layout for the Enemalta application form "A" for the electricity service of the common area and co-ordinate with Enemalta Corporation for the provision of the electricity service. Provide two sets of as Fitted Drawings. Enemalta fees to be paid by the Housing Authority. | no. | <b>44.88</b> |



| <b>BILL 6 - DECORATION WORKS</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                             |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------|
| <b>Item</b>                      | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Unit</b>            | <b>Rate (€) excl. V.A.T</b> |
| 6.01                             | <b>Preparatory Works</b><br>Removal of items such as nails, hooks, brackets, clips etc. to affected areas as applicable.                                                                                                                                                                                                                                                                                                                                                             | m <sup>2</sup>         | <b>3.53</b>                 |
| 6.02                             | Carefully disconnect reinstate, organise and re-connect existing cables and wires. Reinstall using new fittings and ironmongery. Unused cables and wires to be carted away. Contractor to contact local telephone/cable/tv operators for disconnection and connection of cables.                                                                                                                                                                                                     | l.m.                   | <b>7.00</b>                 |
| 6.03                             | Sanding down with mechanical means (unvjar) façade and apply two coats of appropriate exterior waterproofer.                                                                                                                                                                                                                                                                                                                                                                         | m <sup>2</sup>         | <b>5.08</b>                 |
| 6.04                             | <b>Sealing</b><br>Seal, point and make good around apertures internally and externally.                                                                                                                                                                                                                                                                                                                                                                                              | no.                    | <b>17.67</b>                |
| 6.05                             | <b>Pointing</b><br>Rake out joints of walls, scrape off loose material from surfaces and flush point (neat joints) in white cement and lime mortar in stucco finish (" <b>fuq il-fil</b> ") including sanding down.                                                                                                                                                                                                                                                                  | m <sup>2</sup>         | <b>8.94</b>                 |
| 6.06                             | Rake out all loose mortar from joints, neatly point all open joints, holes and cracks with an appropriate material. (" <b>tberfil</b> ").                                                                                                                                                                                                                                                                                                                                            | m <sup>2</sup>         | <b>3.55</b>                 |
| -                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                             |
| 6.07                             | <b>Painting external</b><br>Clean down, scrape where required, rake out open joints and point with lime mortar on all external surfaces. Apply one coat of primer paint and two coats of weather resistant sand paint. Colour to be approved by officer in charge.                                                                                                                                                                                                                   | m <sup>2</sup>         | <b>5.41</b>                 |
| -                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                             |
| 6.08                             | <b>Painting internal</b><br>a) Sand down and point where applicable <b>internal walls / ceilings</b> . Apply one coat of primer paint and two coats of plastic emulsion (water paint) including rubbing down between coats. Colour to be approved by officer in charge.<br>b) Extra over for the application of oil paint as 'zoklatura' where required.                                                                                                                             | m <sup>2</sup><br>l.m. | <b>4.12</b><br><b>1.33</b>  |
| 6.09                             | Strip paint from stone slabs 'xorok' and point with lime mortar.                                                                                                                                                                                                                                                                                                                                                                                                                     | m <sup>2</sup>         | <b>9.28</b>                 |
| 6.10                             | <b>Internal plastering/painting</b><br>a) Render surface of <b>internal walls / ceilings / beams</b> etc., with two coats of <b>gypsum plaster</b> and leave ready to receive paint. Rate to include base coat application, use of galvanised steel beads in all necessary corners, sills, joints etc. Apply one coat of primer paint and two coats of plastic emulsion ( <b>water paint</b> ) including rubbing down between coats. Colour to be approved by the officer in charge. | m <sup>2</sup>         | <b>9.77</b>                 |

|      |                                                                                                                                                                                                                                                                            |                |              |
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|      | b) Extra over for the use of hydraulic lime and breathable water paint. (to be applied on humid walls).                                                                                                                                                                    | m <sup>2</sup> | <b>1.83</b>  |
|      | c) Extra over for scraping off all paintwork/lime wash/ plaster and hacking of walls for the preparation to receive plaster.                                                                                                                                               | m <sup>2</sup> | <b>1.83</b>  |
| -    | -                                                                                                                                                                                                                                                                          | -              |              |
| 6.11 | <b>External plastering/painting</b>                                                                                                                                                                                                                                        |                |              |
|      | a) Render surfaces of external walls / slabs / ceilings in two coats 6-9mm thick of appropriate material and leave ready to receive paint. Apply one coat of primer paint and two coats of weather resistant sand paint. (colour to be approved by the officer in charge). | m <sup>2</sup> | <b>10.02</b> |
|      | b) Extra over for the use of hydraulic lime and breathable water paint. (to be applied on humid walls).                                                                                                                                                                    | m <sup>2</sup> | <b>1.83</b>  |
|      | c) Extra over for scraping off all paintwork/lime wash/ plaster and hacking of walls for the preparation to receive plaster.                                                                                                                                               | m <sup>2</sup> | <b>1.83</b>  |

| <b>BILL 7 - ROOFING WORKS</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                |                             |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|
| <b>Item</b>                   | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Unit</b>    | <b>Rate (€) excl. V.A.T</b> |
|                               | <b>New roof / roof screed</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                |                             |
| 7.01                          | Thoroughly clean surface of concrete and apply one coat primer and one full coat approved hot laid tar or equivalent as waterproofing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | m <sup>2</sup> | <b>6.63</b>                 |
| 7.02                          | Supply and lay 150mm average bed of loose fill ("torba") laid to required falls on roof.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | m <sup>2</sup> | <b>5.30</b>                 |
| 7.03                          | a) Supply and spread cast-in-situ Grade C20 unreinforced concrete screed, 75mm thick (minimum), laid to a minimum gradient of 1:100 and towelled smooth.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | m <sup>2</sup> | <b>11.72</b>                |
|                               | b) Extra over for power-float finish.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | m <sup>2</sup> | <b>4.42</b>                 |
| 7.04                          | Expansion joints filled with backer rod and high density polyurethane sealant applied in stages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | lm             | <b>6.18</b>                 |
| 7.05                          | Lay triangular fillets of cement and sand mortar (mix 1:3), 75mm x 75mm between walls and concrete slabs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | l.m.           | <b>2.65</b>                 |
| 7.06                          | Thorough cleaning by mechanical means of existing roof surface to remove dense areas of moss and similar growths (rate is to include for the use of anti mould stabilizer to ensure thorough removal).                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | m <sup>2</sup> | <b>3.50</b>                 |
|                               | <b>Waterproofing works</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                |                             |
| 7.07                          | a) Scrape, clean & level where required the existing surface. Supply and apply a minimum of 1 primer coat and 2 separate layers of liquid membrane. Rate to include proper sealing of membrane along full length of parapet wall. Each coat is to be applied in opposite directions. Fibreglass fabric or mesh is to be inserted between coats for greater strength and durability. Liquid membrane is to produce a highly water resistant, flexible system and a tough water resistant polymeric film. <b>Membrane works are deemed to be covered by a 10 year guarantee from date of application as per specification and signed declaration. (applicable only for item 7.07a)</b> | m <sup>2</sup> | <b>15.10</b>                |
|                               | b) ditto over triangular fillet only (0.5m wide).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | l.m.           | <b>7.43</b>                 |
|                               | c) ditto over cracks only (0.25m wide)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | l.m.           | <b>3.72</b>                 |
|                               | d) ditto around gullies, drainage/rain water pipes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | no.            | <b>9.21</b>                 |
| 7.08                          | a) Scrape, clean & level where required the existing surface. Supply and apply two thick coats of roof compound.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | m <sup>2</sup> | <b>5.35</b>                 |
|                               | b) ditto over triangular fillet only (0.5m wide)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | l.m.           | <b>2.65</b>                 |
|                               | c) ditto over cracks only (0.25m wide)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | l.m.           | <b>1.33</b>                 |
| 7.09                          | Supply and apply roof grout with sealer and cement. Rate to allow for the necessary cleaning of roof prior to application.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | m <sup>2</sup> | <b>1.83</b>                 |
| 7.10                          | Supply and apply two coats of silverine coating.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | m <sup>2</sup> | <b>4.88</b>                 |

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |               |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 7.11 | Remove existing membrane, cart away and dump in an approved dumping site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | m <sup>2</sup> | <b>1.83</b>   |
| 7.12 | Scrape, clean & level where required the existing surface. Supply and lay flexible reinforced polyester torch welded waterproofing membrane on roof surface up to groove chased first course in parapet wall. Membrane shall be brought down and overlaid adequately when changes in levels occur. Rate to include where applicable chasing and sealing of groove along parapet wall for insertion of membrane. <b>Membrane works are deemed to be covered by a 10 year guarantee from date of application as per specification and signed declaration.</b> | m <sup>2</sup> | <b>7.95</b>   |
| 7.13 | Re-welding of open joints in existing rolled membrane at roof level and re-patching with new membrane where required. Rate is to include making good where necessary.                                                                                                                                                                                                                                                                                                                                                                                       | m <sup>2</sup> | <b>5.30</b>   |
| 7.14 | Re-fix properly, seal and make good connection between rain water pipe and roof screed / parapet wall.                                                                                                                                                                                                                                                                                                                                                                                                                                                      | no.            | <b>7.07</b>   |
| -    | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | -              | -             |
|      | <b>Water tanks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |               |
| 7.15 | a) Remove water tanks and cart them away to an approved dumping site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | no.            | <b>18.72</b>  |
|      | b) Extra over for removing of metal channels under water tank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | no.            | <b>8.83</b>   |
| 7.16 | a) Carefully shift water tanks to a temporary position (if necessary) and refit as directed by the officer in charge. Rate to allow for any making good and for alterations / extensions to the plumbing system.                                                                                                                                                                                                                                                                                                                                            | no.            | <b>39.75</b>  |
|      | b) extra over for the supply and lay of marine plywood sheet painted with two coats of wood preserver. Rate to include cart away existing timber under water tank.                                                                                                                                                                                                                                                                                                                                                                                          | no.            | <b>35.34</b>  |
|      | c) extra over for the supply and fix new galvanized metal channels under water tanks. Galvanized metal channels to be elevated at least 200mm from roof level. Rate to include cart away channels under water tank.                                                                                                                                                                                                                                                                                                                                         | no.            | <b>61.84</b>  |
|      | d) extra over for the supply and installation of a fibre glass water tank - capacity 500 litres. Water tank including ball valve, stopcock, overflow pipe, securable lid and water inlet and outlet connection parts. <b>(To be specifically instructed by architect in charge).</b>                                                                                                                                                                                                                                                                        | no.            | <b>114.85</b> |
| 7.17 | Supply and lay extruded polystyrene sheets in approximate 75mm thickness laid directly on concrete slab beneath "torba" and concrete screed, with thermal resistance of not less than 2.0 m <sup>2</sup> K/W.                                                                                                                                                                                                                                                                                                                                               | m <sup>2</sup> | <b>10.60</b>  |

| <b>BILL 8 - METAL WORKS</b> |                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                             |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------|
| <b>Item</b>                 | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Unit</b> | <b>Rate (€) excl. V.A.T</b> |
| 8.01                        | <b>Steel beams</b><br>Remove and cart away to an approved site, steel I beams.                                                                                                                                                                                                                                                                                                                                     |             |                             |
|                             | a) Ditto for beam depth 100mm - 180mm                                                                                                                                                                                                                                                                                                                                                                              | l.m.        | <b>26.50</b>                |
|                             | b) Ditto for beam depth 200mm - 300mm                                                                                                                                                                                                                                                                                                                                                                              | l.m.        | <b>44.17</b>                |
|                             | c) Extra over for each beam to prop up the structure taking all the necessary safety measures.                                                                                                                                                                                                                                                                                                                     | beam        | <b>88.35</b>                |
| 8.02                        | Scrape down rust from steel I beams. Treat with two coats red oxide anti-rusting primer to provide an adequate base coat, one undercoat and two coats enamel paint. Colour to be determined by officer in charge. Rate to include making good around beam ends.                                                                                                                                                    |             |                             |
| -                           | a) Ditto for beam depth 100mm - 180mm                                                                                                                                                                                                                                                                                                                                                                              | l.m.        | <b>12.37</b>                |
| -                           | b) Ditto for beam depth 200mm - 300mm                                                                                                                                                                                                                                                                                                                                                                              | l.m.        | <b>20.76</b>                |
| 8.03                        | Supply and place steel I-beams, include scraping of surface by means of wire brush, application of two coats red oxide anti-rusting primer to provide an adequate base coat, one undercoat and two coats enamel paint. Colour to be determined by the officer in charge. Rate is also to include where applicable making good around beam ends and the application of non-shrink grout all along top side of beam. | -           |                             |
|                             | 1.1) Ditto for IPE 100 (100mm x 55mm x 8.10 kgs / m)                                                                                                                                                                                                                                                                                                                                                               | l.m.        | <b>33.57</b>                |
| -                           | 1.2) Extra over for each IPE 100 beam                                                                                                                                                                                                                                                                                                                                                                              | beam        | <b>53.01</b>                |
| -                           | -                                                                                                                                                                                                                                                                                                                                                                                                                  | -           |                             |
| -                           | 2.1) Ditto for IPE 120 (120mm x 58mm x 10.40 kgs / m)                                                                                                                                                                                                                                                                                                                                                              | l.m.        | <b>39.76</b>                |
| -                           | 2.2) Extra over for each IPE 120 beam                                                                                                                                                                                                                                                                                                                                                                              | beam        | <b>57.43</b>                |
| -                           | -                                                                                                                                                                                                                                                                                                                                                                                                                  | -           |                             |
| -                           | 3.1) Ditto for IPE 140 (140mm x 66mm x 12.90 kgs / m)                                                                                                                                                                                                                                                                                                                                                              | l.m.        | <b>45.94</b>                |
| -                           | 3.2) Extra over for each IPE 140 beam                                                                                                                                                                                                                                                                                                                                                                              | beam        | <b>66.26</b>                |
| -                           | -                                                                                                                                                                                                                                                                                                                                                                                                                  | -           |                             |
| -                           | 4.1) Ditto for IPN 160 (160mm x 74mm x 17.9 kgs / m)                                                                                                                                                                                                                                                                                                                                                               | l.m.        | <b>53.01</b>                |
| -                           | 4.2) Extra over for each IPN 160 beam                                                                                                                                                                                                                                                                                                                                                                              | beam        | <b>70.68</b>                |
|                             | 5.1) Ditto for IPN 180 (180mm x 82mm x 21.9 kgs / m)                                                                                                                                                                                                                                                                                                                                                               | l.m.        | <b>60.08</b>                |
|                             | 5.2) Extra over for each IPN 180 beam                                                                                                                                                                                                                                                                                                                                                                              | beam        | <b>88.35</b>                |
|                             | 6.1) Ditto for IPN 200 (200mm x 90mm x 26.2 kgs / m)                                                                                                                                                                                                                                                                                                                                                               | l.m.        | <b>68.03</b>                |
|                             | 6.2) Extra over for each IPN 200 beam                                                                                                                                                                                                                                                                                                                                                                              | beam        | <b>106.02</b>               |
|                             | 7.1) Ditto for IPN220 (220mm x 98mm x 31.1 kgs / m)                                                                                                                                                                                                                                                                                                                                                                | l.m.        | <b>77.75</b>                |
|                             | 7.2) Extra over for each IPN 220 beam                                                                                                                                                                                                                                                                                                                                                                              | beam        | <b>123.69</b>               |
|                             | 8.1) Ditto for IPN240 (240mm x 106mm x 36.2 kgs / m)                                                                                                                                                                                                                                                                                                                                                               | l.m.        | <b>87.46</b>                |
|                             | 8.2) Extra over for each IPN 240 beam                                                                                                                                                                                                                                                                                                                                                                              | beam        | <b>141.36</b>               |
|                             | 9.1) Ditto for IPN260 (260mm x 113mm x 41.9 kgs / m)                                                                                                                                                                                                                                                                                                                                                               | l.m.        | <b>98.07</b>                |
|                             | 9.2) Extra over for each IPN 260 beam                                                                                                                                                                                                                                                                                                                                                                              | beam        | <b>159.03</b>               |

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|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
|      | 10.1) Ditto for IPN300 (300mm x 125mm x 54.0 kgs / m)                                                                                                                                                                                                                                      | I.m.           | <b>116.62</b> |
|      | 10.2) Extra over for each IPN 300 beam                                                                                                                                                                                                                                                     | beam           | <b>212.03</b> |
| 8.04 | Insert galvanized steel flat bars under broken stone slabs / lintels. Rate to allow for access to any height internally and making good.                                                                                                                                                   | no.            | <b>26.50</b>  |
|      | <b>Wrought iron railings</b>                                                                                                                                                                                                                                                               |                |               |
| 8.05 | a) Remove and cart away to an approved site existing wrought-iron railings. Rate to include fixing of temporary fencing to provide fall protection.                                                                                                                                        | I.m.           | <b>22.09</b>  |
|      | b) Ditto but remove and re-install. (rate to include necessary ironmongery).                                                                                                                                                                                                               | I.m.           | <b>22.48</b>  |
| 8.06 | a) Supply and fix new wrought iron metal railings, (up to 1m height), apply two coats red oxide coating, one undercoat and two coats enamel paint. Colour and style to match existing.                                                                                                     | I.m.           | <b>76.27</b>  |
|      | b) Extra over for additional non intricate ornamental features in wrought iron.                                                                                                                                                                                                            | I.m.           | <b>29.66</b>  |
|      | c) Extra over for intricate features in wrought iron.                                                                                                                                                                                                                                      | I.m.           | <b>59.32</b>  |
| 8.07 | Supply and installation of simple hand steel railing. Rate to include all necessary brackets, corners, ends and fixtures.                                                                                                                                                                  | I.m.           | <b>35.00</b>  |
| 8.08 | a) Carefully restore existing iron railings, remove rust using hand tools, apply two coats red oxide coating, one undercoat and two coats enamel paint. Colour to match existing. Rate to include all necessary welding and stiffening of railing to the existing stair/balcony structure. | I.m.           | <b>18.72</b>  |
|      | b) Extra over for ornamental features in wrought iron.                                                                                                                                                                                                                                     | I.m.           | <b>13.25</b>  |
| 8.09 | Sand down and apply one coat primer and one coat oil paint on existing internal steel railing. Colour to be approved by officer in charge.                                                                                                                                                 | I.m.           | <b>6.00</b>   |
| 8.10 | Removal of cement / floor tiles around wrought iron support inserted in balcony floor, carefully restore and make good with cement and adequate sealer around existing support.                                                                                                            | no.            | <b>25.00</b>  |
|      | <b>Apertures</b>                                                                                                                                                                                                                                                                           |                |               |
| 8.11 | Remove and cart away metal apertures and make good. Rate to allow for any necessary safety features and temporary weather protection as necessary.                                                                                                                                         | no.            | <b>35.34</b>  |
| 8.12 | a) Supply and fit hot dipped galvanized steel aperture, side hung, 1 flap, including frame and all necessary fittings. Rate is to include sealing internally and externally around new aperture.                                                                                           | m <sup>2</sup> | <b>109.00</b> |
|      | b) Extra over for each door. Rate is to allow for the installation of a steel handle lockable and barrel bolt.                                                                                                                                                                             | door           | <b>70.68</b>  |
|      | c) Extra over for each window. Rate is to allow for the installation of a handle and locking mechanism.                                                                                                                                                                                    | window         | <b>53.01</b>  |

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                |              |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------|
| 8.13 | <p>a) Carefully remove, restore and reinstall iron apertures / security bars / gratings, remove rust using hand / power tools, application of two coats red oxide anti-rusting primer to provide an adequate base coat, one undercoat and two coats enamel paint. Rate to include replacement of broken glass panes and making good. Colour to match existing.</p> <p>b) Extra over for ornamental features in wrought iron.</p> <p>c) Extra over for adjustment of door to ensure proper closure.</p> | m <sup>2</sup> | <b>28.12</b> |
|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | m <sup>2</sup> | <b>13.25</b> |
|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | L.Sum          | <b>26.50</b> |

| <b>BILL 9 - JOINERY WORKS</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                             |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|
| <b>Item</b>                   | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Unit</b>    | <b>Rate (€) excl. V.A.T</b> |
| 9.01                          | <b>Repair / Restore apertures</b><br>a) Repair / restore timber apertures / meter cupboards and replace broken glazing and ironmongery. Scrape away any thick paint or flaking paint, sand down, fill holes and gaps with approved filler and apply one coat primer, one coat undercoat and two finish coats. Colour to be determined by officer in charge. Rate to include for any necessary fixings and thoroughly seal around apertures both internal and external.      | m <sup>2</sup> | <b>56.09</b>                |
|                               | b) Ditto for louvered apertures.                                                                                                                                                                                                                                                                                                                                                                                                                                            | m <sup>2</sup> | <b>93.99</b>                |
|                               | c) Extra over for timber aperture with internal shutters.                                                                                                                                                                                                                                                                                                                                                                                                                   | m <sup>2</sup> | <b>22.73</b>                |
|                               | d) Extra over for main door.                                                                                                                                                                                                                                                                                                                                                                                                                                                | L.Sum          | <b>45.45</b>                |
|                               | e) Extra over for adjustment to aperture to ensure proper closure.                                                                                                                                                                                                                                                                                                                                                                                                          | L.Sum          | <b>22.73</b>                |
| 9.02                          | Repair / restore timber balcony including replacement of rotten wooden parts, broken glazing and ironmongery with similar material. Scrape away any thick paint or flaking paint, sand down, fill holes and gaps with approved filler and apply one coat primer, one coat undercoat and two finish coats. Colour to be determined by officer in charge. Rate to include for any necessary fixings and thoroughly seal around balcony both internally and externally.        | panel          | <b>204.55</b>               |
| 9.03                          | Remove existing timber balcony ceiling and cart away to an approved site. Supply and lay new timber balcony ceiling (marine plywood), paint with one coat wood preserver and cover with adequate water proofing. Rate to include any required chasing and fixing in wall, all necessary sealing, plastering and making good.                                                                                                                                                | m <sup>2</sup> | <b>46.99</b>                |
| 9.04                          | Seal timber apertures where required and replace all broken glazing.                                                                                                                                                                                                                                                                                                                                                                                                        | no.            | <b>36.36</b>                |
| 9.05                          | Replace <b>cylinder</b> lock of main door. Rate to include all necessary copies of main door keys (1 copy to each apartment).                                                                                                                                                                                                                                                                                                                                               | no.            | <b>31.82</b>                |
| 9.06                          | <b>New apertures</b><br>Remove and cart away timber apertures and make good. Rate to allow for any necessary safety features and temporary weather protection as necessary.                                                                                                                                                                                                                                                                                                 | no.            | <b>27.27</b>                |
| 9.07                          | a) Supply and fit new solid timber aperture and frame as existing, to be manufactured in red deal from 50mm thick dried planks, manufactured using traditional method of construction with raised and fielded panels where applicable. Rate to include apply one coat primer, one coat undercoat and two finish coats. Weather bars, glass, ironmongery and complete with good quality barrel bolts both at top and bottom. Colour to be determined by architect in charge. | m <sup>2</sup> | <b>115.56</b>               |
|                               | b) Ditto but for main door                                                                                                                                                                                                                                                                                                                                                                                                                                                  | m <sup>2</sup> | <b>269.80</b>               |
|                               | c) Ditto but for louvered apertures/panelled shutters.                                                                                                                                                                                                                                                                                                                                                                                                                      | m <sup>2</sup> | <b>187.98</b>               |
|                               | d) Extra over for each door.                                                                                                                                                                                                                                                                                                                                                                                                                                                | door           | <b>90.91</b>                |
|                               | e) Extra over for each window                                                                                                                                                                                                                                                                                                                                                                                                                                               | window         | <b>54.55</b>                |



|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |               |
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|      | f) Extra over for arched / rectangular fanlight. (Area of fanlight only)                                                                                                                                                                                                                                                                                                                                                                                          | m <sup>2</sup> | <b>145.45</b> |
|      | g) Extra over for door handle of main door.                                                                                                                                                                                                                                                                                                                                                                                                                       | no.            | <b>27.27</b>  |
|      | h) Extra over for installation of heavy duty hydraulic door closure in main door.                                                                                                                                                                                                                                                                                                                                                                                 | no.            | <b>81.82</b>  |
|      | i) Extra over for door lock of main entrance. Rate to include all necessary copies of main door keys (1 copy to each apartment).                                                                                                                                                                                                                                                                                                                                  | no.            | <b>59.09</b>  |
| 9.08 | Remove existing timber balcony and cart away to an approved site. Manufacture in the traditional way to replicate existing, supply and fix timber balcony in red deal wood complete with all ironmongery. Apply one coat primer, one undercoat and two coats finish. Design and colour to match faithfully existing balcony. Rate to include waterproofing of balcony roof, glazing, sealing both internally and externally and all necessary scaffolding/cranes. | panel          | <b>409.09</b> |
|      | <b>Timber beams</b>                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |               |
| 9.09 | Remove and cart away timber beam. Rate to include all necessary safety measures including scaffolding to reach all the required areas, all necessary works to prop up the existing structure, carefully dismantling of stone blocks and making good after beam is replaced. <b>Only used when instructed by Architect in charge.</b>                                                                                                                              | l.m.           | <b>36.52</b>  |
| 9.10 | Test timber beams by drilling 3 holes on each side (6 holes per beam). Rate is to allow for the use of hand tools, equipment, all necessary safety measures including scaffolding to reach all the required areas. <b>A certificate is to be provided by an architect engaged by the contractor which clearly indicates whether the beam is sound and listing any necessary repair works.</b>                                                                     | beam           | <b>44.68</b>  |
| -    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |               |
| 9.11 | Restore timber beams, scrape away any thick paint or flaking paint, sand down, fill holes and gaps with approved filler and apply one coat primer, one coat undercoat and two finish coats. Remove loose plastering around beam ends and making good. Colour to be determined by officer in charge. Rate to include all necessary safety measures including scaffolding to reach all the required areas.                                                          | l.m.           | <b>35.75</b>  |
| 9.12 | Supplying, transporting and laying new timber beams, fill holes and gaps with approved filler apply two coats wood preserver and leave in a natural state. Rate to include application of an appropriate bitumen material to both ends including top face and making good.                                                                                                                                                                                        | l.m.           | <b>63.71</b>  |

| <b>BILL 10 - ALUMINIUM WORKS</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                          |                                                                                   |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <b>Item</b>                      | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Unit</b>                                                              | <b>Rate (€) excl. V.A.T</b>                                                       |
| 10.01                            | <b>Repair Works</b><br>a) Repair existing aperture to close properly.<br>b) Remove, supply and fix new aluminium main door handle.<br>c) Supply and install heavy duty hydraulic door closure in main door.<br>d) Remove existing door lock. Supply and install new lock for main entrance door. Rate to include all necessary copies of main door keys ( <b>1 copy to each apartment</b> ).<br>e) Replace cylinder lock of main door. Rate to include all necessary copies of main door keys (1 copy to each apartment). | no.<br>no.<br>no.<br>no.<br>no.                                          | <b>22.15</b><br><b>27.35</b><br><b>82.05</b><br><b>58.36</b><br><b>31.01</b>      |
| 10.02                            | Seal aluminium apertures where required and replace all broken glazing.                                                                                                                                                                                                                                                                                                                                                                                                                                                   | no.                                                                      | <b>35.44</b>                                                                      |
| 10.03                            | Seal skylight where required and replace broken / defective glazing with laminated glass.                                                                                                                                                                                                                                                                                                                                                                                                                                 | no.                                                                      | <b>76.27</b>                                                                      |
| 10.04                            | <b>New Installations</b><br>Remove and cart away aluminium apertures and make good. Rate to allow for any necessary safety features and temporary weather protection as necessary.                                                                                                                                                                                                                                                                                                                                        | no.                                                                      | <b>26.58</b>                                                                      |
| 10.05                            | a) Supply and fix aluminium apertures with frame, handle, lock mechanism and glass panes. Type of apertures (side hung, sliding, etc) to be decided by the officer in charge. Rate to allow for any necessary fixtures, locks, supply keys for all apartments and making good to walls.<br>b) Extra over the installation of double-glazed glass panes.<br>c) Extra over the installation of laminated glass panes.<br>d) Extra over for each door.<br>e) Extra over for each window.                                     | m <sup>2</sup><br><br>m <sup>2</sup><br>m <sup>2</sup><br>L.Sum<br>L.Sum | <b>108.67</b><br><br><b>18.88</b><br><b>23.31</b><br><b>53.16</b><br><b>35.44</b> |
| 10.06                            | Supply and fix new aluminium meter cupboards, sliding, 2 flaps, laminated plywood in both panes and with a depth of approx 300mm. Rate to include handles, lock mechanism and where necessary a timber partition between electrical and water meters must be fixed. Rate to allow for any necessary fixtures and making good to walls.                                                                                                                                                                                    | m <sup>2</sup>                                                           | <b>144.84</b>                                                                     |
| 10.07                            | a) Supply, & install prefabricated sky light including aluminium frame and pmma material single glazed or equivalent, sealed thoroughly all around its perimeter so as not to allow any water seeping through stairwell. Rate to include the removal of existing skylight, cart away to an a proved site including all the necessary safety measures to access skylight.<br>b) Extra over for each skylight.                                                                                                              | m <sup>2</sup><br>L.Sum                                                  | <b>183.36</b><br><b>212.63</b>                                                    |

|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |              |
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| 10.08 | Supply and install new balcony aluminium railing fixed in position with vertical components spaced not more than 100mm apart, complete with all necessary brackets, corners and ends. The top of the railing must be at least 1 metre (1000mm) from the ground and without any horizontal or near horizontal elements between 150mm and 760mm above the floor.                                                                                         | l.m. | <b>55.08</b> |
| 10.09 | Supply and install new stairs aluminium railings fixed in position at 100mm centres to top surface of stair threads including all necessary brackets, corners and ends. For internal railings that are inside a building the height required is 0.9m from any step finished level to the top of the handrail.                                                                                                                                          | l.m. | <b>84.94</b> |
| 10.10 | Supply and install new aluminium handrail. Rate to include all necessary brackets, corners, ends and fixtures.                                                                                                                                                                                                                                                                                                                                         | l.m. | <b>25.00</b> |
| 10.11 | Removal of existing letter box in common parts and cart away to an approved site. Supply and install new lockable, weather resistant letter box complete with top shutter all as approved by Architect in charge. Rate to include numbering & labelling of letterboxes and any fittings required for installation. All letterboxes shall comply with Maltapost minimum size standards. (W - 270mm x H - 370mm x D - 110mm) Approx size - 240mm x 30mm. | no.  | <b>32.16</b> |

| <b>BILL 11 - DRAINAGE WORKS &amp; RAIN WATER SYSTEM</b> |                                                                                                                                                                                                                                                                  |             |                             |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------|
| <b>Item</b>                                             | <b>Description</b>                                                                                                                                                                                                                                               | <b>Unit</b> | <b>Rate (€) excl. V.A.T</b> |
| 11.01                                                   | Carry out investigation to establish the cause of the blockage.                                                                                                                                                                                                  | no.         | <b>26.50</b>                |
| 11.02                                                   | Clear blockage by means of rodding or other manual method. Rate is to include for all double handling of loose materials and also clean up of site, cart away and dump in approved site.                                                                         | no.         | <b>26.50</b>                |
| 11.03                                                   | Clear blockage by means of jetty service. Rate is to include for cleaning up of site, cart away and dump in approved site.                                                                                                                                       | no.         | <b>88.35</b>                |
| 11.04                                                   | Test old drainage system to identify the fault in a drainage system. Test should be carried out with water as directed together with an additional florescent colour. The colour should be provided by the contractor.                                           | no.         | <b>26.50</b>                |
| 11.05                                                   | Minor repairs in existing drainage and rainwater in order to render perfect working order. Rate is to include also testing of the system to confirm satisfactory repair.                                                                                         |             |                             |
|                                                         | a) sealing of joint                                                                                                                                                                                                                                              | no.         | <b>8.83</b>                 |
|                                                         | b) replacement of defective joints / short pipe lengths                                                                                                                                                                                                          | no.         | <b>30.92</b>                |
|                                                         | c) fixing / replacement of bracket                                                                                                                                                                                                                               | no.         | <b>8.83</b>                 |
| 11.06                                                   | Supply, deliver to site, install and connect heavy duty PVC pipes, normally used for drainage service system. Rate should include the handling and fixing of same pipes in both vertical and horizontal run and also all fittings, hooks, saddles, brackets etc. |             |                             |
|                                                         | a) diameter 50 mm                                                                                                                                                                                                                                                | l.m.        | <b>3.53</b>                 |
|                                                         | b) diameter 110 mm                                                                                                                                                                                                                                               | l.m.        | <b>15.90</b>                |
|                                                         | c) diameter 150 mm                                                                                                                                                                                                                                               | l.m.        | <b>26.50</b>                |
| 11.07                                                   | Replace existing soil/rain water pipes with heavy duty PVC pipes. Rate is to include removal of existing pipe work, carting away and dumping of all material removed.                                                                                            |             |                             |
|                                                         | a) diameter 50 mm                                                                                                                                                                                                                                                | l.m.        | <b>4.42</b>                 |
|                                                         | b) diameter 110 mm                                                                                                                                                                                                                                               | l.m.        | <b>17.67</b>                |
|                                                         | c) diameter 125 mm                                                                                                                                                                                                                                               | l.m.        | <b>25.62</b>                |
|                                                         | d) diameter 150 mm                                                                                                                                                                                                                                               | l.m.        | <b>33.57</b>                |
|                                                         | <b>Extra over installations of new pipe work for :</b>                                                                                                                                                                                                           |             |                             |
| 11.08                                                   | PVC bends:                                                                                                                                                                                                                                                       |             |                             |
|                                                         | a) diameter 50 mm                                                                                                                                                                                                                                                | no.         | <b>0.88</b>                 |
|                                                         | b) diameter 110 mm                                                                                                                                                                                                                                               | no.         | <b>2.21</b>                 |
|                                                         | c) diameter 150 mm                                                                                                                                                                                                                                               | no.         | <b>4.42</b>                 |
| 11.09                                                   | PVC gulleys 110mm diameter.                                                                                                                                                                                                                                      | no.         | <b>7.07</b>                 |
| 11.10                                                   | PVC hoppers over gulleys.                                                                                                                                                                                                                                        | no.         | <b>1.77</b>                 |

|       |                                                                                                                                                                                                                                                                       |                                          |                                                              |
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| 11.11 | PVC single junctions. (T's, Y's etc)<br>a) diameter 50 mm<br>b) diameter 110 mm<br>c) diameter 150 mm                                                                                                                                                                 | no.<br>no.<br>no.                        | <b>0.88</b><br><b>3.53</b><br><b>6.18</b>                    |
| 11.12 | PVC screw cap ends:<br>a) diameter 50 mm<br>b) diameter 110 mm<br>c) diameter 150 mm                                                                                                                                                                                  | no.<br>no.<br>no.                        | <b>0.88</b><br><b>1.77</b><br><b>4.42</b>                    |
| 11.13 | PVC reducers from 110mm to 150mm or vice versa.                                                                                                                                                                                                                       | no.                                      | <b>22.09</b>                                                 |
| 11.14 | Supply and fix socket to connect pvc pipes to asbestos pipes 110mm diameter.                                                                                                                                                                                          | no.                                      | <b>10.60</b>                                                 |
| 11.15 | Supply and fix siphon in intercepting chamber of the drainage system. Rate is to include for removal of existing siphon, carting away, and dumping of the resulting surplus material.                                                                                 | no.                                      | <b>79.51</b>                                                 |
| 11.16 | Extra Over for the drilling of holes in masonry or brick walls in order to fit pipes of 110mm diameter.                                                                                                                                                               | no.                                      | <b>7.07</b>                                                  |
| 11.17 | Excavate trench, as directed, in made up ground for the laying of PVC pipe work. Rate is to include for removal, carting away of dumping of resulting surplus material :<br>a) for a depth of trench up to 1 meter.<br>b) for depth of trench exceeding 1 meter       | m <sup>3</sup><br>m <sup>3</sup>         | <b>22.09</b><br><b>26.50</b>                                 |
| 11.18 | Excavate trench, as indicated in rock of any hardness for the laying of PVC pipe work. Rate is to include for removal:<br>a) for a depth of trench up to 1 meter.<br>b) for depth of trench exceeding 1 meter                                                         | m <sup>3</sup><br>m <sup>3</sup>         | <b>30.92</b><br><b>35.34</b>                                 |
| 11.19 | Excavate for and construct inspection chamber, including heavy duty PVC / concrete slabs cover, benching, internal rendering and building of pipes, not exceeding 600mm deep. Rate is to include for removal, carting away and dumping of resulting surplus material. | no.                                      | <b>132.52</b>                                                |
| 11.20 | Excavate for and construct inspection chamber, including heavy duty PVC / concrete slabs cover, benching, internal rendering and building of pipes, over 600mm deep. Rate is to include for removal, carting away and dumping of resulting surplus material.          | no.                                      | <b>176.69</b>                                                |
| 11.21 | Supply grade 15 concrete in bed and square surround in trench around pipes with a minimum thickness of 100 mm.                                                                                                                                                        | m <sup>3</sup>                           | <b>79.51</b>                                                 |
| 11.22 | Repair of existing inspection chamber.<br>a) replacement of concrete cover / PVC slabs<br>b) rendering of existing open joints<br>c) replacement of deteriorated stonework<br>d) cast concrete floor and half round between stonework                                 | chamber<br>chamber<br>chamber<br>chamber | <b>44.17</b><br><b>35.34</b><br><b>13.25</b><br><b>26.50</b> |

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| 11.23 | Supply and install heavy duty PVC inspection box surrounded by concrete. Rate is to include for PVC cover measuring:<br>a) 200mm by 200mm<br>b) 300mm by 300mm<br>c) 400mm by 400mm<br>d) 550mm by 550mm<br><br><b>House Connections</b>                                                                                                                                                                                                                                              | no.<br>no.<br>no.<br>no. | <b>13.25</b><br><b>22.09</b><br><b>35.34</b><br><b>70.68</b> |
| 11.24 | Connection to existing main sewer including rendering/sealing of connection.                                                                                                                                                                                                                                                                                                                                                                                                          | no.                      | <b>121.42</b>                                                |
| 11.25 | Cut bituminous road surface to its full depth with straight edges parallel to line of trench. Rates to include for edge sealants.                                                                                                                                                                                                                                                                                                                                                     | l.m.                     | <b>5.25</b>                                                  |
| 11.26 | Supply and lay 120mm hot dense bituminous paving mixture in accordance to ASTM D3515 and approved mix designs in two layers (i) 0/25 mm for Base Course 80mm thick and (ii) 0/12.5 mm for Wearing Course 40mm thick up to a width of 1499mm. Rate to include for the required mix bitumen and for the painting of the vertical edges of any joints with hot bitumen. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the required level and 4m straight edge. | m <sup>2</sup>           | <b>31.04</b>                                                 |
| 11.27 | Test and commission house connection, to ensure that the system is in perfect working order. Test to be carried out in the presence of the officer in charge.                                                                                                                                                                                                                                                                                                                         | no.                      | <b>25.00</b>                                                 |

| <b>BILL 12 - TILING AND MARBLE WORKS</b> |                                                                                                                                                                                                                                                                                                                      |                |                             |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|
| <b>Item</b>                              | <b>Description</b>                                                                                                                                                                                                                                                                                                   | <b>Unit</b>    | <b>Rate (€) excl. V.A.T</b> |
| 12.01                                    | Lightly grind, grout and polish to existing floor tiles.                                                                                                                                                                                                                                                             | m <sup>2</sup> | <b>7.07</b>                 |
| 12.02                                    | Remove existing floor/wall tiles, cart away and dispose of resultant material in an approved dumping site.                                                                                                                                                                                                           | m <sup>2</sup> | <b>4.49</b>                 |
| 12.03                                    | Remove existing wall tiles in bathroom, remove plaster, hack walls, re-plaster to achieve uniform surface onto which to lay tiles in bathroom. Rate to include cart away and dispose of resultant material in an approved site.                                                                                      | m <sup>2</sup> | <b>7.95</b>                 |
| 12.04                                    | Remove existing torba underneath floor tiles, cart away and dispose of resultant material in an approved dumping site.                                                                                                                                                                                               | m <sup>2</sup> | <b>3.65</b>                 |
| 12.05                                    | Supply, spread and level a layer of mixed sand and 10mm diameter chippings in approximately 100mm thickness to receive floor tiles. In areas requiring extra thickness, these will be measured on a pro-rata basis.                                                                                                  | m <sup>2</sup> | <b>3.69</b>                 |
| 12.06                                    | Supply and lay ceramic floor/wall tiles. Rate is to include laying with 6mm spacers in joints, grouting with flexible grout compound and all necessary adhesive material. Colour and/or pattern, if any, to be decided by the Architect in charge.                                                                   | m <sup>2</sup> | <b>22.68</b>                |
| 12.07                                    | a) Supply and lay polished terrazzo tiles with minimum dimensions 300mm x 300mm x 40mm thick. Rate to include laying and grouting. Pattern and colours to be approved by the officer in charge.                                                                                                                      | m <sup>2</sup> | <b>31.30</b>                |
|                                          | b) Ditto but for areas less than 4m <sup>2</sup> .                                                                                                                                                                                                                                                                   | m <sup>2</sup> | <b>36.21</b>                |
| 12.08                                    | a) Supply and lay best quality non-slip gres floor tiles externally with minimum dimensions 300mm x 300mm x 9mm thick. Rate is to include laying with 6mm spacers in joints, grouting with flexible grout compound and all necessary adhesive material. Pattern and colours to be approved by the officer in charge. | m <sup>2</sup> | <b>25.90</b>                |
|                                          | b) Ditto but for areas less than 4m <sup>2</sup> .                                                                                                                                                                                                                                                                   | m <sup>2</sup> | <b>30.64</b>                |
| 12.09                                    | a) Supply and lay best quality gres floor tiles internally with minimum dimensions 300mm x 300mm x 9mm thick. Rate is to include laying with 6mm spacers in joints, grouting with flexible grout compound and all necessary adhesive material. Pattern and colours to be approved by the officer in charge.          | m <sup>2</sup> | <b>25.58</b>                |
|                                          | b) Ditto but for areas less than 4m <sup>2</sup> .                                                                                                                                                                                                                                                                   | m <sup>2</sup> | <b>30.26</b>                |
| 12.10                                    | <b>Marble</b><br>Remove existing marble and cart away to an approved dumping site.                                                                                                                                                                                                                                   | m <sup>2</sup> | <b>6.18</b>                 |

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| 12.11 | <p>Supply and lay new white carrara marble, 20mm thick, including laying, grouting, polishing and levelling. Marble threads, risers and sills are to be in one piece. Rate to include appropriate bonding filling material on eroded masonry steps to receive marble.</p> <p>a) Risers to steps.<br/> b) Threads to steps.<br/> c) Landings and quarter landings in steps.<br/> d) Door sills.<br/> e) Window sills.</p> | <p>m<sup>2</sup><br/> m<sup>2</sup><br/> m<sup>2</sup><br/> m<sup>2</sup><br/> m<sup>2</sup></p> | <p><b>123.69</b><br/> <b>123.69</b><br/> <b>123.69</b><br/> <b>123.69</b><br/> <b>123.69</b></p> |
| 12.12 | <p>Remove, carefully existing marble slab in stair thread, risers, door and window sills and underlying grout material and re lay properly. (size approx 0.5m<sup>2</sup>).</p>                                                                                                                                                                                                                                          | <p>no.</p>                                                                                       | <p><b>17.95</b></p>                                                                              |



| <b><u>BILL 13 - BATHROOM WORKS</u></b>                                       |                                                                                                                                                                                                                                                                                 |                |                             |
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| <b>Item</b>                                                                  | <b>Description</b>                                                                                                                                                                                                                                                              | <b>Unit</b>    | <b>Rate (€) excl. V.A.T</b> |
| 13.01                                                                        | Demolish, load and cart away existing bathroom including floor and wall tiles, sanitary ware, accessories and fixtures and dispose of all resultant material in an authorised dumping site.                                                                                     | L.Sum          | <b>136.56</b>               |
| 13.02                                                                        | Supply and fix new hot and cold water system in bathroom including all fittings, valves, fixing materials and waste pipes to sanitary fittings / washing machine where necessary. Rate to include testing and commission of the completed plumbing system in bathroom.          | per / bathroom | <b>309.22</b>               |
| <b>Supply and fix the following sanitary ware, accessories and fittings:</b> |                                                                                                                                                                                                                                                                                 |                |                             |
| 13.03                                                                        | Electric Hot Water Heater, complete as specified including connections to plumbing service, brackets and fixing materials, and dual electrical point. Specs: 50 litres capacity 3KW. <b>A minimum of 2 year guarantee is to be submitted on connecting of hot water heater.</b> | no.            | <b>141.36</b>               |
| 13.04                                                                        | Wash hand basin complete as specified including mixer, connections to plumbing service, waste water pipes, brackets and necessary fixing materials.                                                                                                                             | no.            | <b>115.52</b>               |
| 13.05                                                                        | Ceramic soap holder complete as specified including all fixing materials.                                                                                                                                                                                                       | no.            | <b>20.32</b>                |
| 13.06                                                                        | Ceramic towel rail complete as specified including all fixing materials.                                                                                                                                                                                                        | no.            | <b>22.97</b>                |
| 13.07                                                                        | Shower tray including mixer, hand spray, hose and wall rest, floor drain and connection to plumbing service and waste. (Dim 900mm x 900mm)                                                                                                                                      | no.            | <b>187.33</b>               |
| 13.08                                                                        | Bath tub including mixer, hand spray, hose and wall rest and connection to plumbing service and waste.                                                                                                                                                                          | no.            | <b>238.54</b>               |
| 13.09                                                                        | Ceramic water closet and flushing, including dual flush system complete as specified including connections to drain and plumbing service, brackets and necessary fixing materials.                                                                                              | no.            | <b>141.36</b>               |
| 13.10                                                                        | Ceramic toilet rail holder complete as specified including all fixing materials.                                                                                                                                                                                                | no.            | <b>20.32</b>                |
| 13.11                                                                        | Shower mixer, hand spray, hose and wall rest and connection to plumbing service, floor drain and connection to waste.                                                                                                                                                           | no.            | <b>44.88</b>                |
| <b>Supply and fix the following items to cater for special needs:</b>        |                                                                                                                                                                                                                                                                                 |                |                             |
| 13.12                                                                        | Shower mixer, hand spray, hose and wall rest and connection to plumbing service and waste. Shower control range 750mm above floor tiles and detachable shower is 1200mm above floor tiles.                                                                                      | no.            | <b>44.88</b>                |

|       |                                                                                                                                                                                                                       |     |               |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|
| 13.13 | Shower chair with back and arm supports, height adjustable not less than 300mm variation in horizontal adjustment, soft slip resistant polyurethane material a maximum seat load of not less than 140kgs or 22 stone. | no. | <b>176.69</b> |
| 13.14 | Single basin mixer with aerator M 24 x 1 complete with clinical lever as specified including, connections to plumbing service and waste water pipes, brackets and necessary fixing materials.                         | no. | <b>123.69</b> |
| 13.15 | Drop down rails next to shower and W.C.                                                                                                                                                                               | no. | <b>94.43</b>  |
| 13.16 | Support horizontal / vertical grab rail handle.                                                                                                                                                                       | no. | <b>61.84</b>  |

| <b>BILL 14 - DAY WORKS and ACCESS EQUIPMENT</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                              |                                                 |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------------|
| <b>Item</b>                                     | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Unit</b>                                  | <b>Rate<br/>(€)<br/>excl.<br/>V.A.T</b>         |
| 14.01                                           | Labourer/Mate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | hour                                         | <b>10.60</b>                                    |
| 14.02                                           | Skilled Tradesman                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | hour                                         | <b>12.37</b>                                    |
| 14.03                                           | Payment for the use of crane including operators and cage where necessary. The warden services and local council street permit rates are to be paid separately.<br>a) Ditto for the use of crane <b>(half day)</b><br>b) Ditto for the use of crane for <b>1 and 3 days</b><br>c) Ditto for the use of crane for <b>over 3 days</b>                                                                                                                                                                                                                                                                                                                           | L.Sum<br>day<br>day                          | <b>132.52</b><br><b>242.96</b><br><b>220.87</b> |
| 14.04                                           | Payment for the use of concrete pump as directed by the officer in charge (receipt affecting the use of concrete pump on site are to be submitted). The warden services and local council street permit rates are to be paid separately.<br>a) Ditto for the use of concrete pump <b>(half day)</b><br>b) extra over for every <b>additional hour</b> . (over and above the first four hours)                                                                                                                                                                                                                                                                 | L.Sum<br>hour                                | <b>250.00</b><br><b>55.00</b>                   |
| 14.05                                           | a) Payment for the use of cherry picker or other similar mechanical equipment including operators and cage where necessary. The warden services and local council street permit rates are to be paid separately.<br><br>a) Ditto for the use of cherry picker <b>(half day)</b><br>b) Ditto for the use of cherry picker for <b>1 and 3 days</b><br>c) Ditto for the use of cherry picker for <b>over 3 days</b>                                                                                                                                                                                                                                              | L.Sum<br>day<br>day                          | <b>44.17</b><br><b>88.35</b><br><b>70.68</b>    |
| 14.06                                           | a) Supply, mount and use heavy duty threaded scaffolding to reach all required areas internally and externally. Rate is to include all necessary fees for safety certification of scaffolding, leaving scaffolding on site for a maximum period of one month, making good for any damage caused by erection of scaffolding or during course of work and dismantling of scaffolding once works are completed. Use of scaffolding should be approved beforehand for payment.<br><br>b) Rate for hire only of scaffolding left on site <b>for a period exceeding the one month (included in item 14.06 this item should be approved beforehand for payment).</b> | m <sup>2</sup><br><br>m <sup>2</sup> / month | <b>8.90</b><br><br><b>3.53</b>                  |
| 14.07                                           | Assembly and dismantling after completion <b>suspended platforms (bil-pont)</b> . Rate is to include making good for any damage caused by erection or during course of work. Use of platform should be approved beforehand for payment.<br><br>a) Ditto for the use of suspended platform <b>(1m - 10m)</b><br>b) extra over for every <b>additional meter</b> (over and above the first 10m)                                                                                                                                                                                                                                                                 | L.Sum<br>l.m.                                | <b>150.00</b><br><b>15.00</b>                   |

|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                    |                                                              |
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| 14.08 | <p>Assembly and dismantling after completion of <b>access shutter</b> to allow pointing / painting / plastering / on upper floors within internal shafts / yards / stairwell. Use of access shutter should be approved beforehand for payment.</p> <p>a) Ditto for access platform areas less than <b>4m<sup>2</sup></b><br/> b) Ditto for access platform areas from <b>4m<sup>2</sup> - 8m<sup>2</sup></b><br/> c) Ditto for access platform areas more than <b>8m<sup>2</sup></b></p> | <p>floor no.</p> <p>floor no.</p> <p>floor no.</p> | <p><b>44.17</b></p> <p><b>88.35</b></p> <p><b>132.52</b></p> |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------|