



Secretariat for
Catholic Education

REFERENCE NUMBER: 03 SfCE Balzan

TENDER FOR THE FINISHING WORKS TO BE CARRIED OUT AT THE GOOD SHEPERD CONVENT, TRIQ IDMEJDA, BALZAN

Date Published: 29/03/2023

Deadline for Submission: 05/05/2023 at 09:00am CEST

Tender Opening: 05/05/2023 At 09:30am CET

Bid Bond requirements for this tender: Not Applicable

Secretariat for Catholic Education

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Table of Contents

SECTION 1 - INSTRUCTIONS TO TENDERERS	7
SECTION 2 - EXTRACTS FROM THE PUBLIC PROCUREMENT REGULATIONS.....	12
SECTION 3 - SPECIAL CONDITIONS.....	14
Article 2: Law and language of the Contract	14
Article 3: Order of Precedence of Contract Documents	14
Article 4: Communications	14
Article 5: Supervisor and Supervisor's Representative	15
Article 6: Assignment	15
Article 8: Supply of Documents	15
Article 9: Access to Site	15
Article 10: Assistance with Local Regulations.....	15
Article 11: The Contractor's Obligations	15
Article 13: Performance Guarantee.....	16
Article 14: Insurance	17
Article 15: Performance Programme (Timetable).....	17
Article 17: Contractor's Drawings/Diagrams.....	17
Article 18: Tender Prices	17
Article 19: Exceptional Risks.....	18
Article 20: Safety on Site.....	18
Article 21: Safeguarding Adjacent Properties.....	18
Article 22: Interference with Traffic.....	18
Article 23: Cables and Conduits	18
Article 25: Demolished Materials	18
Article 26: Discoveries.....	18
Article 28: Soil Studies	19
Article 30: Patents and Licences	19
Article 31: Commencement Date	19
Article 32: Period of Execution of Tasks.....	19
Article 33 Extension of the Period of Execution of Tasks	19
Article 34: Delays in Execution.....	19
Article 35: Modification to the Contract.....	20
Article 37: Work Register.....	20
Article 38: Origin.....	20
Article 39: Quality of Works and Materials.....	21
Article 40: Inspection and Testing	21
Article 42: Ownership of Plants and Materials.....	21
Article 43: Payments: General Principles	21
Article 44: Pre-financing.....	21
Article 45: Retention Monies.....	21
Article 46: Price Revision.....	22
Article 47: Measurement.....	22
Article 48: Interim Payments	22
Article 50: Delayed Payments.....	22
Article 56: Partial Acceptance.....	22
Article 57: Provisional Acceptance	23
Article 58: Maintenance Obligations.....	23
Article 66: Dispute Settlement by Litigation	23
Article 70: Further Additional Clauses	23
SECTION 4 -SPECIFICATIONS/TERMS OF REFERENCE (Note 3)	25

4.1	EXTERNAL AND INTERNAL RENDERING.....	25
4.1.1	GENERAL.....	25
4.1.2	SUBSTRATES.....	25
4.1.3	PRESCRIBED CEMENT-BASED MORTAR	26
4.1.4	PRE-MIXED (FACTORY-MADE) CEMENT-BASED RENDERING MORTAR - GENERAL	26
4.1.5	INTERNAL PRE-MIXED (FACTORY-MADE) CEMENT - BASED RENDERING MORTAR	27
4.1.6	EXTERNAL PRE-MIXED (FACTORY-MADE) CEMENT - BASED RENDERING MORTAR	27
4.1.6	BEADS AND STOPS.....	28
4.1.7	PRE-MIXED INTERNAL PLASTERING	28
4.1.8	PRE-MIXED INTERNAL PLASTERING - PREPARATIONAND APPLICATION	28
4.1.9	APPLICATION OF LAYERS	30
4.1.10	PROPRIETARY RENDERING FOR EXTERNAL USE - SILICATE OR ACRYLIC- SILICONE 30	30
4.1.11	POINTING OF CONCRETE BLOCKWORK.....	31
4.1.12	APPLICATION OF OTHER ELEMENTS	32
4.1.13	COLOUR	34
4.1.14	SAMPLES.....	34
4.2	INTERNAL AND EXTERNAL PAINTING	35
4.2.1	GENERAL.....	35
4.2.1	INTERNAL AND EXTERNAL PAINTWORK	35
4.2.2	PAINT - INTERNAL WALLS, FLOORS AND CEILINGS	35
4.2.3	PAINT - EXTERNAL BLOCKWORK AND CONCRETE	35
4.2.4	PAINTING - TESTING	35
4.2.5	GLOSS LEVELS.....	36
4.2.6	SAFETY DATA SHEETS.....	37
4.2.7	SAMPLES.....	37
4.3	EXTERNAL CERAMIC TILING	38
4.3.1	SCOPE OF WORKS.....	38
4.3.2	TECHNICAL SPECIFICATION	38
4.3.3	INSTALLATION PROCESS.....	39
4.3.4	HANDOVER	42
4.4	INTERNAL CERAMIC TILING	43
4.4.1	SCOPE OF WORKS.....	43
4.4.2	TYPES OF TILING	43
4.4.3	GENERAL.....	46
4.4.4	PREPARATION	47
4.4.5	FIXING	48
4.4.6	MOVEMENT JOINTS/GROUTING/COMPLETION	50
4.5	EXPOSED AGGREGATE CONCRETE PAVING	52
4.5.1	SCOPE OF WORKS.....	52
4.5.2	SPECIFICATIONS.....	52
4.5.3	SAMPLES.....	52
4.5.4	INTEGRALLY COLOURED CONCRETE	55
4.6	MARBLE WORKS	56
4.6.1	SCOPE OF WORKS.....	56
4.6.2	GENERAL - SAMPLE SIZE AND FREQUENCY OF SAMPLING.....	56
4.6.3	SUBMISSIONS	56
4.6.4	PATTERNS.....	56

4.6.5	MARBLE	56
4.6.6	LIME AND FINE AGGREGATE FOR MORTAR	57
4.6.7	DELIVERED ELEMENTS	57
4.6.8	APPLICATION AND LAYING	58
4.6.9	SETTING OUT	59
4.6.10	GRANULAR FILL FOR BRINGING UP LEVELS	59
4.6.11	LEVEL SURVEYS	59
4.6.12	COMPLIANCE - TESTING AND CERTIFICATION	60
4.7	UNPLASTICIZED POLYVINYL CHLORIDE (PVC-U/uPVC) APERTURES	61
4.7.1	SCOPE OF WORKS	61
4.7.2	WORKING AT HEIGHTS (WHERE REQUIRED)	61
4.7.3	SIZE (DIMENSIONS)	61
4.7.4	TYPE AND OPENING ARRANGEMENT	62
4.7.5	ACCESS FOR ALL REQUIREMENTS (CRPD)	62
4.7.6	COMPLIANCE STANDARDS, PERFORMANCE CHARACTERISTICS AND FUNCTIONAL REQUIREMENTS	62
4.7.7	REINFORCEMENT	63
4.7.8	LOAD BEARING APERTURES	64
4.7.9	WINDOW MANUFACTURE	64
4.7.10	POSITION OF WINDOW FURNITURE	65
4.7.11	GLASS AND GLAZING	65
4.7.12	WINDOW TYPES	65
4.7.13	FASTENING AND FIXINGS	66
4.7.14	MASTIC SEALANTS	66
4.7.15	DOORS	66
4.7.16	ARCHITECTURAL MUNTINS (WHERE REQUIRED)	66
4.7.17	GUARANTEE	67
4.7.18	MAINTENANCE MANUALS	67
4.8	INTERNAL TIMBER DOORS	68
4.8.1	SCOPE OF WORKS	68
4.8.2	PRODUCT DESCRIPTION	68
4.8.3	EXECUTION	69
4.8.4	DELIVERY / STORAGE / HANDLING	69
4.8.5	INSTALLATION	70
4.8.6	GENERAL PERFORMANCE	71
4.9	FALSE CEILINGS	72
4.9.1	GENERAL	72
4.9.2	DESCRIPTION OF WORK	72
4.9.3	SUBMITTALS	72
4.9.4	GYPSUM FALSE CEILINGS	73
4.9.5	GYPSUM BULKHEAD	74
4.9.6	MINERAL FIBRE SUSPENDED CEILING	74
4.9.7	DELIVERY, STORAGE AND HANDLING	77
4.9.8	SAMPLES	78
4.10	SOUND INSULATION	78
4.10.1	GENERAL	78
4.10.2	ROCKWOOL	78
4.10.3	DELIVERY, STORAGE AND HANDLING	78
4.10.4	GUARANTEE	79
4.11	ALUMINIUM AND GLAZING PARTITION UNITS	80
4.11.1	COMPLIANCE - TESTING AND CERTIFICATION (WHERE APPLICABLE)	80

4.11.2	ALUMINIUM PROFILE - TYPE	80
4.11.3	CONSTRUCTION/MANUFACTURING DRAWINGS	80
4.11.4	PRODUCTION.....	80
4.11.5	ALLOY TYPE	80
4.11.6	CHEMICAL COMPOSITION	80
4.11.7	DIMENSIONAL TOLERANCES	81
4.11.8	ANODISING - GENERAL	81
4.11.9	ANODISING - THICKNESS	81
4.11.10	SURFACE COATINGS - GENERAL.....	81
4.11.11	SURFACE COATINGS - THICKNESS.....	81
4.11.12	WORKMANSHIP.....	82
4.11.13	HARDWARE AND IRONMONGERY - CORROSION PROTECTION	82
4.11.14	HARDWARE AND IRONMONGERY - GENERAL.....	82
4.11.15	HARDWARE AND IRONMONGERY - CORNER JOINTS	82
4.11.16	HARDWARE AND IRONMONGERY - HINGES (IF APPLICABLE)	83
4.11.17	HARDWARE AND IRONMONGERY - HANDLES (IF APPLICABLE)	83
4.11.18	HARDWARE AND IRONMONGERY - SECURITY	83
4.11.19	HARDWARE AND IRONMONGERY - STAY FRICTION HINGES (IF APPLICABLE).....	83
4.11.20	HARDWARE AND IRONMONGERY - SLIDING MECHANISM (IF APPLICABLE) ..	83
4.11.21	HARDWARE AND IRONMONGERY - OPENING/CLOSING MECHANISM (IF APPLICABLE)	84
4.11.22	HARDWARE AND IRONMONGERY - CLOSING DEVICES (IF APPLICABLE)	84
4.11.23	HARDWARE - PANIC AND EMERGENCY EXIT DEVICES (IF APPLICABLE).....	84
4.11.24	HARDWARE AND IRONMONGERY - LEVER HANDLES (IF APPLICABLE)	85
4.11.25	HARDWARE AND IRONMONGERY - MECHANICALLY OPERATED LOCKS (IF APPLICABLE)	85
4.11.26	HARDWARE AND IRONMONGERY - BOLTS (IF APPLICABLE)	85
4.11.27	HARDWARE AND IRONMONGERY - CYLINDER LOCKS (IF APPLICABLE).....	85
4.11.28	DOORS - STRENGTH REQUIREMENTS.....	86
4.11.29	WINDOWS AND DOORS - OPERATING FORCES	86
4.11.30	WINDOWS - MECHANICAL PROPERTIES (IF APPLICABLE)	86
4.11.31	EXTERNAL DOORS AND WINDOWS - WEATHER PERFORMANCE (IF APPLICABLE)	86
4.11.32	EXTERNAL DOORS AND WINDOWS WITH THERMIC BREAK TYPE - THERMAL PERFORMANCE (IF APPLICABLE).....	86
4.11.33	EXTERNAL DOORS AND WINDOWS - ACOUSTIC PERFORMANCE (IF APPLICABLE)	87
4.11.34	EXTERNAL DOORS AND WINDOWS - SECURITY (IF APPLICABLE).....	87
4.11.35	ALUMINIUM UNITS FOR USE BY PERSONS WITH DISABILITY	87
4.11.36	GLAZING - GENERAL	87
4.11.37	GLAZING - TINT (IF APPLICABLE)	87
4.11.38	GLAZING - TEMPERED (IF APPLICABLE)	88
4.11.39	GLAZING - LAMINATED SAFETY GLASS.....	88
4.11.40	GLAZING GASKETS (IF APPLICABLE).....	88
4.11.41	DOUBLE- GLAZING (IF APPLICABLE).....	88
4.11.42	GLAZING - FIRE RESISTANCE (IF APPLICABLE).....	88
4.11.43	SEALANTS	89
4.11.44	DOOR MASTER KEY SYSTEM (IF APPLICABLE)	89
4.11.45	CLEANING	89
SECTION 5 - SUPPLEMENTARY DOCUMENTATION		90
5.1 - Draft Contract Form		90

5.2 - Glossary.....	90
5.3 - Specimen Performance Guarantee	90
5.6 - Specimen Retention Guarantee	90
5.7 - General Conditions of Contract	90

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## SECTION 1 - INSTRUCTIONS TO TENDERERS

### 1. General Instructions

- 1.1 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 Non-Governmental Organisation (NGO), whatever the economic operator's own corresponding conditions may be, which through the submission of the tender is waived. Tenderers are expected to examine carefully and comply with all instructions, forms, contract provisions and specifications contained in this tender document. These Instructions to Tenderers complement the General Rules Governing Tenders for NGOs Version 1.0.

**No account can be taken of any reservation in the tender in respect of the procurement documents; any disagreement, contradiction, alteration or deviation shall lead to the tender offer not being considered any further.**

**Prospective tenderers must submit their offer by depositing it in the tender box, located at Secretariat for Catholic Education, 16, The Mall, Floriana, FRN 1472. Any references in the tender document or tender forms to uploading of tender documentation and forms is to be ignored. Tenderers must submit one original tender offer as well as a soft copy on a USB (soft copies of the tender offers submitted on CD are strictly not acceptable). Furthermore in the soft copy of the tender offer, Tenderers must submit the Bill of Quantities duly filled in, in excel format apart from a scanned copy of the filled in Bill of Quantities. It is important that the full tender bid package is provided in soft copy given that due to Covid 19 pandemic, utilisation of the soft copy will be highly required throughout the evaluation process. Tender reference number and tender title must be clearly indicated on the sealed bid. Prospective tenderers take full responsible to submit their offer by the set tender submission deadline.**

**Note:**

**Where in this tender document a standard is quoted, it is to be understood that the Contracting 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 Contracting Authority.**

- 1.2 The subject of this tender is the external and internal finishing works of the new premises for the Secretariat of Catholic Education located in Triq Idmejda, Balzan. This includes additions and alterations to the existing property.
- 1.3 The place of acceptance of the works shall be the Secretariat for Catholic Education, 16, The Mall, Floriana, the time-limits for the execution of the entire contract shall be 33 weeks from the Order to Start Works, and the INCOTERM<sup>2010</sup> applicable shall be **Delivery Duty Paid (DDP)**.
- 1.4 The Estimated Procurement Value for this Call for Tenders has been based on comprehensive research including appropriate financial analysis. In the context of this procurement, the Estimated Procurement Value, based on market research, is that of €400,000.00 excluding VAT.

The purpose of this value shall be the guidance of prospective bidders when submitting their offer and is not to be considered as a binding capping price.

Therefore, the published Estimated Procurement Value is not restrictive and final on the Contracting Authority. Economic Operators are free to submit financial offers above or below the Estimated Procurement Value. However, the Contracting Authority reserves the right to accept or reject Financial Offers exceeding the Estimated Procurement Value.

- 1.5 This is a bill of quantities contract.
- 1.6 This call for tenders is being issued under an open procedure.
- 1.7 The beneficiary of this tender is **Secretariat for a Catholic Education (SFCE)**.
- 1.8 This tender is not a reserved contract.

## 2. Timetable

| 2.                                                                                                                                                                                                                                                                                      | DATE       | TIME       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|
| Clarification Meeting/Site Visit (Refer to Clause 6.1)                                                                                                                                                                                                                                  | 12/04/2023 | 10:00      |
| Deadline for request for any additional information from the NGO<br><br>Clarification requests should be addressed to: <i>NGOs e-mail address</i><br><a href="mailto:tenders.schools@maltadiocese.org">tenders.schools@maltadiocese.org</a>                                             | 22/04/2023 | 17.00 CEST |
| Last date on which additional information can be issued by the NGO                                                                                                                                                                                                                      | 27/04/2023 | 20.00 CEST |
| Deadline for submission of tenders<br>(unless otherwise modified in terms of Clause 10.1 of the General Rules Governing Tendering for NGOs)                                                                                                                                             | 05/05/2023 | 09:00 CEST |
| Tender Opening<br><br>The general public will not be allowed to attend physically. However, tenderers are to leave their email address when submitting the tender and a TEAMS invitation will be sent to the bidders to connect should they wish to witness the tender opening session. | 05/05/2023 | 09:30 CET  |
| * All times Central European Time (CET) / Central European Summer Time (CEST) as applicable                                                                                                                                                                                             |            |            |

## 3. Lots

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

## 4. Variant Solutions



- 4.1 Variant solutions are not permissible.

## 5. Financing

- 5.1 The project is financed from NGO private funds.
- 5.2 The Contracting Authority of this tender is **Secretariat for a Catholic Education (SFCE)**.

## 6. Clarification Meeting/Site Visit/Workshop

- 6.1 A clarification meeting/site visit will be held on the date and time indicated in Clause 2, at Good Shepherd Convent', Triq Idmejda, Balzan 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 on the NGO's website as a clarification note as per the General Rules Governing Tendering for NGOs.

Meetings between economic operators and the NGO, other than that provided in this clause during the tendering period are not permitted.

## 7. Selection and Award Requirements

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

### (A) Eligibility Criteria

Economic Operators are to complete the Eligibility Section through the necessary documents as follows: <sup>(Note 2)</sup>

- (i) No Bid Bond is required.
- (ii) Declare agreement, conformity and compliance with the General Rules Governing Tenders for NGOs. <sup>(Note 2A)</sup>
- (iii) Declare agreement, conformity and compliance with the provisions of the Statement on Conditions of Employment by completing and submitting the form with title Statement on Conditions of Employment. <sup>(Note 2A)</sup>
- (iv) Power of Attorney (if applicable) <sup>(Note 2A)</sup>
- (v) Data on Joint Venture/Consortium (where applicable) <sup>(Note 2A)</sup>

**(B) Exclusion (including Blacklisting) and Selection Criteria - information to be submitted through the completion of the following declaration forms:**

- (i) Declaration concerning exclusion grounds <sup>(Note 2A)</sup> [Each sub-contractor must fill-in and sign the declaration concerning exclusion grounds]
- (ii) Declaration concerning *Selection Criteria* <sup>(Note 2A)</sup>

**(C) Technical Specifications**

- (i) Tenderer's Technical Offer in response to specifications. Tenderer's Technical Offer shall constitute the following:

**A. KEY EXPERTS:** <sup>(Note 2A)</sup>

Key Experts Form, the Self-declaration form for Key Experts relating to public employees (where applicable) the CVs, copy of warrant/s and documentation confirming the MQF level (or equivalent) of the qualification of the respective key expert must be submitted at tender bis submission stage. <sup>(Note 2A)</sup>

The following Key Experts are required:

- a) Key Expert 1: **Resident Site Manager** (MQF level 4 in related area of study) responsible for the works - to oversee and co-ordinate the works with the Supervisor in charge of the project. He or she shall act as a single point contact for the duration of works and must be on site at all times during the works. This key expert must fill in the Statement of Availability and Exclusivity;
- b) Key Expert 2: A **Quantity Surveyor** (MQF level 4 in Construction or Civil Engineering or Quantity Surveying) responsible for the measurement of the works.
- c) Key Expert 3: Accredited **Health & Safety Officer**;

**B. Tenderer's Technical Offer, comprising:**

- a) Tender Technical Offer Declaration Form addressing the requirements within and signed by the bidder <sup>(Note 3)</sup>. **(Note: Submission of an unsigned declaration form or a modified declaration form will automatically invalidate the tender bid).**
- b) A **preliminary Method Statement** clearly explaining the methodology to be employed to carry out the finishes as requested in the tender specifications. <sup>(Note 3)</sup>
- c) A **Management Plan** clearly explaining access to the site, machinery and equipment and human resources that the bidder proposes to employ to carry out the works outlined in the tender. The plan can also include drawings or sketches to explain the organization of the site and temporary works, phasing of works (if applicable), contractors' facilities and access to the site. <sup>(Note 3)</sup>
- d) A **Preliminary Risk Assessment and Health and Safety procedures** that the contractor intends to implement for the tender works which shall be elaborated upon, prior to commencement of works by the contractor if awarded the contract. <sup>(Note 3)</sup>
- e) A Gantt Chart: **Programme of Works** as outlined in the Works Tenderer Technical Questionnaire. The implementation period for this tender is 33 weeks from order to start works. <sup>(Note 3)</sup>

- (iii) **Literature** as per Form marked 'Literature List'. This includes the specifications of materials to be used during the works. <sup>(Note 2B)</sup>

No changes to the information provided in the Literature submitted will be allowed. Literature submitted shall be rectifiable only in respect of any missing documents. <sup>(Note 2B)</sup>

- (iv) Samples of the different items required within the tender document are not required at bidding stage but may be requested at tender evaluation stage and/or during the implementation period of the contract.

**(D) Financial Offer**

- (i) The Tender Form and Tenderer's Declaration are to be completed by the bidder and submitted with the offer; <sup>(Note 3)</sup>
- (ii) A financial offer is to be submitted by filling in the Bill of Quantities which has been issued with the tender (the locked version issued with the tender is to be used), and is to be calculated on the basis of Delivered Duty Paid (DDP)<sup>2020</sup> (Grand Total) for the works tendered. <sup>(Note 3)</sup>

**Notes to Clause 7:**

1. Tenderers will be requested to clarify/rectify, within five (5) working days from notification, the tender guarantee only in the following four circumstances: incorrect validity date, and/or incorrect value, and/or incorrect addressee and incorrect name of the bidder. Rectification in respect of the Tender Guarantee (Bid Bond) is free of charge.

2. A) 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.

B) Tenderers will be requested to rectify/submit only missing documents within five (5) working days from notification. No changes to the information provided in the Literature submitted will be allowed. Literature submitted shall be rectifiable only in respect of any missing information.

All Rectifications are free of charge.

3. No rectification shall be allowed. Only clarifications on the submitted information may be requested.

Request for Clarification and /or rectifications concerning a previous request dealing with the same shortcoming shall not be entertained.

## **8. Tender Guarantee (Bid bond)**

- 8.1 No tender guarantee (bid bond) is required.

## **9. Criteria for Award**

- 9.1 The sole award criterion will be the price. The contract will be awarded to the tenderer submitting the cheapest priced offer satisfying the administrative and technical criteria.

## SECTION 2 - EXTRACTS FROM THE PUBLIC PROCUREMENT REGULATIONS

### Part X of the Public Procurement Regulations

270. 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, a rejection of a tender or a cancellation of a call for tender after the lapse of the publication period, may file an appeal by means of an objection before the Review Board, which shall contain in a very clear manner the reasons for their complaints.

271. The objection shall be filed within ten calendar days following the date on which the NGO has by fax or other electronic means sent its proposed award decision or the rejection of a tender or the cancellation of the call for tenders after the lapse of the publication period.

272. The communication to each tenderer or candidate concerned of the proposed award or of the cancellation of the call for tenders shall be accompanied by a summary of the relevant reasons relating to the rejection of the tender as set out in regulation 242 or the reasons why the call for tenders is being cancelled after the lapse of the publication period, and by a precise statement of the exact standstill period.

273. The objection shall only be valid if accompanied by a deposit equivalent to 0.50 per cent of the estimated value set by the NGO of the whole tender or if the tender is divided into lots according to the estimated value of the tender set by the NGO for each lot submitted by the tenderer, provided that in no case shall the deposit be less than four hundred euro (€400) or more than fifty thousand euro (€50,000) which may be refunded as the Public Contracts Review Board may decide in its decision.

274. The Secretary of the Review Board shall immediately notify the Director and/or the NGO as the case maybe that an objection had been filed with his authority thereby immediately suspending the award procedure.

275. The NGO 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.

276. The procedure to be followed in submitting and determining appeals as well as the conditions under which such appeals may be filed shall be the following:

- (a) any decision by the General Contracts Committee or the Special Contracts Committee or by the NGO shall be made public by affixing it to the notice-board of the same NGO as the case may be or by uploading it on Government's e-procurement platform prior to the award of the contract if the call for tenders is administered by the NGO;
- (b) the appeal of the complainant shall also be affixed to the notice-board of the Review Board and shall be communicated by fax or by other electronic means to all participating tenderers;
- (c) the NGO and any interested party may, within ten calendar days from the day on which the appeal is affixed to the notice-board of the NGO and uploaded where applicable on the Government's e-procurement platform, file a written reply to the appeal. These replies shall also be affixed to the notice-board of the Review Board and where applicable it shall also be uploaded on the Government's e-procurement platform;

- (d) 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 appeal and any reply to it. This report shall be circulated to the persons who file an appeal and to all parties who submitted a reply to the appeal;
- (e) after the preparatory process is duly completed, the Director or the Head of the NGO 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 and any motivated letter;
- (f) The secretary of the board shall inform all the participants of the call for tenders, the NGO of the date or dates as the case maybe when the appeal will be heard;
- (g) When the oral hearing is concluded, the Public Contracts Review Board, if it does not deliver the decision on the same day, shall reserve decision for the earliest possible date to be fixed for the purpose, but not later than six weeks from the day of the oral hearing:  
Provided that for serious and justified reasons expressed in writing by means of an order notified to all the parties, the Public Contracts Review board may postpone the judgment for a later period.
- (h) The secretary of the board shall keep a record of the grounds of each adjournment and of everything done in each sitting;
- (i) After evaluating all the evidence and after considering all submissions put forward by the parties, the Review Board shall decide whether to accede or reject the appeal.

## 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.

For the purposes of contracts issued by NGOs, the term 'approval from the Central Government Authority' shall be substituted by the term 'approval by the Head responsible for that NGO'; Furthermore, any references to the Contracting Authority throughout the General Conditions shall be deemed to be referring to the NGO responsible for that procurement.

### 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

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 Contracting Authority's technical specifications and design documentation;
- (e) the Contractor's technical offer, and the design documentation (drawings);
- (f) the bill of quantities/financial bid (after arithmetical corrections)/breakdown;
- (g) the tender declarations in the Tender Response Format;
- (h) any other documents forming part of the contract.

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

### Article 4: Communications

Further to the contents in the General Conditions, the communication details of the Contracting Authority are:

Secretariat for Catholic Education,  
16, The Mall,  
Floriana, FRN 1472  
Tel: 27790060  
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Communications between the Contracting Authority and/or the Supervisor on one hand, and the Contractor on the other, shall be exclusively in writing and in the English language. Specific and standard procedures of communication (templates of request for information, contract submittal, site instructions, time of communication and for replies, frequency of meetings) shall be agreed among the Contracting Authority and the winning bidder within fifteen (15) days from the Commencement Date of the Contract, unless otherwise specified in these Special Conditions and in Section 4 - Technical Specifications.

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

- 5.6** The Contractor shall be responsible to provide all access necessary for verifying and inspecting the works carried out and the items being provided

## **Article 6: Assignment**

- 6.1** Requests from the contractor for a change in assignment will not be allowed except in the case of force majeure which results in the Contractor being unable to carry out the tasks assigned in the contract.

## **Article 8: Supply of Documents**

- 8.4** Any documents and drawings prepared by the Contractor are to be submitted for approval to the Contracting Authority and the Supervisor, the procedure being agreed to between the parties as indicated in Clause 4 of the Special Conditions.

## **Article 9: Access to Site**

- 9.1** In addition to sub clause 9.1 of the General Conditions, contractors may be required to suspend all or part of the works being carried out in order not to disturb any official function or activity held as indicated by the Contracting Authority. The contractor will be notified of such suspension of works at least 48 hours in advance and will not be eligible for compensation, apart from an extension of time.
- 9.5** The contractor is to note that access to the public/private buildings shall be maintained at all times and shall maintain pedestrian and vehicular access (where applicable) at all times.

## **Article 10: Assistance with Local Regulations**

- 10.3** The contractor is responsible for complying with local regulations at his expense to ensure the project is compliant with all the relevant local regulations.

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

- 11.9** As per article 15.4 of the Special Conditions
- 11.11** The contractor shall draw up and submit any documents literature or items required for the execution of the works and submit them for approval to the Contracting Authority and Supervisor, the procedure being agreed to between the parties as indicated in Clause 4 of the Special Conditions.
- 11.14** Any delay to commence or progress with works caused by the Contractor's failure to provide, develop and update any of these documents to the satisfaction of the Supervisor and approving Authorities shall be at the Contractor's risk.
- 11.17** Further to Article 11.2 in the General Conditions, the contractor shall deploy the necessary resources so as to maintain a good progress of work on the site and shall also, where necessary, undertake to perform works outside normal working hours, and on public holidays and weekends at no additional cost to the Contracting Authority, so as to ensure the completion of the Works within the the required time-frame, in accordance with the Technical Requirements and with the Period of Execution.
- 11.20** Furthermore, the contractor shall be expected to be co-operative and allow the use of his scaffolding or other elevation equipment and/ or other facilities available on site for the efficient execution of the above-mentioned works. Same contractor will not be entitled to

any compensation (financial or otherwise) for these services, etc

- 11.21** The Contractor shall be obliged to follow any and all instructions issued by the Supervisor in relation to the Works in so far as these fall within the overall scope of the Contract.
- 11.22** The Contractor shall be obliged to ensure avoidance of disruption and inconvenience to the day to day business on and around the site, including the co-ordination with other contractors that may be engaged on or in the vicinity of the site, the free movement of traffic and pedestrians, except where this is absolutely unavoidable. In particular, the Contractor shall take all such precautions as may become necessary so as to avoid causing any damage to adjacent buildings or property, including public spaces, during the execution of the Works.
- 11.23** The Contractor shall also, in addition to the above, take any necessary action to ensure and maintain the health and safety of his employees, together with those of the employees of any other contractor engaged on or in the vicinity of the site, together with the general public and shall follow any relevant instructions and /or recommendations of the contractor's Health and Safety Offices and the Contracting Authority Project Supervisor to fulfil the obligations set out in Legal Notice 88 of 2018 (or subsequent amendments)
- 11.24** In addition to other obligations arising under the Contract pertinent to the execution of the Works, the Contractor shall, following completion of same, fulfill all obligations during the Defects Liability Period as outlined in Article 58.6 of these Special conditions.
- The Contractor shall not dismantle the scaffolding or other elevation equipment prior to the approval of the Contracting Authority's architect and civil engineer in charge. The contractor shall give the Contracting Authority's architect and civil engineer in charge at least one week notice to allow for a final inspection and the measurement of works.
- 11.25** All lifting equipment used on site shall be certified by a warranted Mechanical Engineer every six (6) months, in accordance with the regulations issued by the Occupational Health and Safety Authority.
- 11.26** Copies of the certificates shall be sent to the Contracting Authority's Architect and civil engineer in charge/Project Supervisor before commencement of work and as necessary should the six (6) month certification period elapse.
- 11.27** A suitable "housekeeping" programme shall be established before commencement of the project, and be continuously implemented on the Site.
- 11.28** The Contractor will be available to attend regular site, management and progress meetings.

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

**13.1** The Contractor shall, within 15 calendar days of receipt of the contract, sign and date the contract and return it together with an original copy of the Performance Guarantee to the Contracting Authority. The amount of the guarantee shall be 4% where the amount of the total contract value is between €10,000 and €500,000 exclusive of VAT. If the same Contractor has more than one contract with the Contracting Authority, then the Contractor will be allowed to submit a single bid bond in accordance with the schedule stipulated in the Tender Form.

**13.3** The performance guarantee shall be in the format given in Section 5 and shall 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.

Furthermore, the Contracting Authority will not affect any payment to the Contractor until the performance guarantee has been submitted.



13.8 The performance guarantee shall be released within 30 days of the signing of the Provisional Acceptance Certificate including any snag lists.

#### **Article 14: Insurance**

14.1.a Without any prejudice to Article 14.1 a, b, c of the General Conditions, the contractor is required to insure for the whole duration of the contract against risk of damage to the historic fabric of the building being restored through this contract for the amount of €235,000 per accident with the number of occurrences unlimited.

14.2 Without any prejudice to 14.1 a, b, c of the General Conditions, the contractor is required to insure for the whole duration of the contract for the amount of €1,500,000 per accident with the number of occurrences unlimited against each party's liability for any loss, damage, death or bodily harm, that may be caused to third parties, or to any person that is authorized to be on site at any given time, or any damages to property belonging to third parties, including loss of profits that may be sustained by third parties.

14.3 Amount per personal injury and unlimited occurrences as specified in Article 14.2 of the Special Conditions.

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

15.1 The Contractor shall provide a detailed Programme of Works.

15.4 The Programme of Works shall be updated monthly or whenever required by the Supervisor, to be in line with the progress of the actual Works. The Programme of Works shall be accompanied by sufficient data and information together with all the necessary details of constructional plant, required labour force, etc. The Supervisor shall approve the Programme of Works within ten (10) working days from submission by the Contractor to the Supervisor. Should the Supervisor consider any alteration in or addition to the Programme of Works as submitted, the Contractor shall conform therewith without additional cost. Any changes to the Programme of Works shall be approved by the Contracting Authority.

#### **Article 17: Contractor's Drawings/Diagrams**

17.1 The Contractor shall submit to the Supervisor for approval any documents, programme of works, technical literature, samples and /or models that the Supervisor may reasonably require for the performance of the contract within 5 working days from written request by the Supervisor or from date when meeting where minutes are taken.

#### **Article 18: Tender Prices**

18.2 The contractor will ascertain that all the respective rates have included double handling, carting away and dumping fees.

18.3 The Contractor shall be deemed to have taken into account in his tender price all works, fees and costs that are necessary to complete the project and to fully hand over in operational condition.

18.4 The Contractor confirms that the tendered rates are inclusive of all work as specified as well as any other works which are of a contingent or indispensable nature for completing the work in its entirety and to the satisfaction of the Architect. The Contractor further confirms that the rates are inclusive of all materials necessary, profit and payment of customs duty, landing charges on all imported goods, all hire of plant and machinery required and also all transport of materials to the site of works, water and electricity costs, dumping charges, fuel costs, labour costs and in general all other costs which the Contractor may incur in the performance of his obligations under this Agreement.

## **Article 19: Exceptional Risks**

19.5 Further to the provisions of Article 19.5 of the General Conditions, if the Contractor is granted an extension of time in the implementation of the works, the Contractor cannot make a request for financial compensation for extension of time.

## **Article 20: Safety on Site**

20.2 Further to the provisions of the General Conditions, it is the obligation of contractors to carry out a suitable, sufficient and systematic assessment of all the occupational health and safety hazards which may be present at the place of work and the resultant risks involved concerning all aspects of the work activity.

20.3 Further to the provisions of the General Conditions, it is also the duty of a contractor to cooperate with other employers, contractors and, or self-employed persons who share a common work place, on the implementation of Health and Safety provisions. The contractor or his designate shall co-ordinate necessary actions in matters which concern protective and preventive measures, and shall inform all on site as well as the Health and Safety Project Supervisor regarding any potential risks.

## **Article 21: Safeguarding Adjacent Properties**

21.1 Further to clause 21.1 of the General Conditions, the contractor shall liaise and co-operate with the appropriate Authorities and occupiers of adjoining land and buildings likely to be affected by the works, for all matters regarding access, monitoring, third party rights, and similar.

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

22.3 The Contractor is responsible to obtain necessary permits that may be required if the works impact of traffic.

## **Article 23: Cables and Conduits**

23.3 The contractor shall be responsible for locating existing drains and services, and underground cables and pipes, for seeking instruction from the appropriate authorities as to how to deal with such services, and for carrying out any necessary work relating to deviations or protection, or any other works deemed necessary by the respective Utility or authority.

## **Article 25: Demolished Materials**

25.1 Demolition material unless indicated otherwise in the bills of quantities and by the supervisor in charge, shall become the property of the Contractor and the carting away and dumping charges are at the expense of the Contractor.

25.4 Further to article 25.4 of the General conditions, the contractor shall also take care to dispose of the waste material fully at his expenses and in an appropriate and environmentally friendly manner.

## **Article 26: Discoveries**

26.2 Further to provisions of Article 26.2 of the General Conditions, the Contractor shall observe the provisions set out in the Cultural Heritage Act 2002 (CAP 445) at all times.

26.3 Further to the provisions of Article 26.3 of the General Conditions, any in filled fissures, caverns, reservoirs/cisterns, hollows, Quaternary deposits, or other features of geological,

geomorphological, hydrological, palaeontological interest which are discovered must be reported immediately to the Superintendence of Cultural Heritage. The contractor shall halt the works and follow all instructions given by the Supervisor to protect or to investigate further the discovery.

The Contractor shall co-ordinate and co-operate with the Supervisor appointed by the Contracting Authority with the Local Authorities at all times.

## **Article 28: Soil Studies**

28.1 As per General Conditions of the Contract

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

30.1 As per Article 30 of the General Conditions

## **Article 31: Commencement Date**

31.1 The Commencement Date for this contract shall be 1 week from the Order to Start Works. The performance of the contract is to commence on order to start works. The order to start works will not be issued later than two (2) months from the last date of signature shown on contract.

No works however will be allowed to commence on site unless the Contractor has furnished the Contracting Authority with a certified true copy of the Insurance Policy together with all documentation related to Health and Safety as well as the performance guarantee. Delay in submitting the documentation following the elapse of the 1month period from the last date of signature of the contract, will result in daily penalties of €50 a day up to a maximum 2% of the contract value.

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

32.1 The period of performance of this contract shall be 33 ~~weeks~~ from the Commencement indicated in the Order to Start Works.

The contractor will be expected to commit sufficient resources to carry out works on more than one area at the same time, to guarantee the on time completion of all the Works as specified in this tender.

## **Article 33: Extension of the Period of Execution of Tasks**

33.4 Further to the provisions of Article 33 of the General Conditions, should the Contractor be granted an extension of the period of execution of the tasks that are the subject of this contract, the Contractor cannot make a claim for financial compensation for such extension in the period of execution of the tasks of the contract.

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

34.1 Any delay in performance from the approved programme of works for this contract, will be charged 0.1% of the contract value per calendar day of delay up to a maximum of 20% of the contract value.

## **Article 35: Modification to the Contract**

35.8 The Contracting Authority has a right to increase - the total amount of works of a similar nature by a maximum of 30% of the contract value which have become necessary for the purpose of achieving the scope of the contract. These inter alia include the detection of unidentified works evident only once the interventions have commenced such as the repetition of cleaning interventions due to stubborn dirt, the repetition of the application of biocides and herbicides, the consolidation, pinning, repair, stone replacement and re-pointing of areas of the stone fabric. Such works would be resulting from close inspection of works accessible only upon erection of scaffolding or exposed during the course of the works.

35.9 The Contracting Authority will have the right to instruct additional works up to a maximum of 15% of the contract value which have become necessary for the purpose of achieving the scope of the contract. Such works would be resulting from close inspection of works accessible during the course of works. These inter alia include works evident only once the interventions have commenced such as the alternative cleaning interventions, the application of alternative treatment and utilization of other materials other than those envisaged in the tender specifications.

35.11 The provisions provided for in Article 35.11 of the General Conditions shall not be applicable to this contract.

35.12 The provisions provided for in Article 35.12 of the General Conditions shall not be applicable to this contract.

35.13 The provisions provided for in Article 35.13 of the General Conditions shall not be applicable to this contract.

## **Article 37: Work Register**

37.1 The Contractor shall maintain a Work Register (Work Diary) on the site, containing detailed daily reports in the template specified and/or approved by the Contractor's representative (either the Construction/Project Supervisor or the Site Manager) and approved by the Supervisor, including at least the following information:

- (a) weather conditions, interruptions of work owing to inclement weather, hours of work, number and type of workmen employed on the site, materials supplied, equipment in use, equipment not in working order, tests carried out in situ, samples dispatched, unforeseen circumstances, safety, health and welfare of persons and damage to property, progress of the Works, as well as progress of the Works orders given to the Contractor;
- (b) detailed statements of all the quantitative and qualitative elements of the work done and the supplies delivered and used, capable of being checked on the site and relevant in calculating payments to be made to the Contractor;

This Work Register shall be made available in digital form and submitted once weekly.

## **Article 38: Origin**

38.1 No derogation to the rules of origin is authorised.

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

39.2 All designs, components, materials, and restoration interventions/methodologies shall be submitted to the Supervisor for written preliminary technical approval, prior to their implementation or procurement. All requests and documentation must be submitted with 10 calendar days prior to execution of works on site.

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

40.2 As specified in the General Conditions.

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

42.2 All equipment, temporary works, plant and materials on site owned by the Contractor or by any company in which the Contractor has a controlling interest shall, for the duration of the execution of the works be vested in the Contracting Authority.

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

43.1 Payments will be made in Euro.

Payments shall be authorized and paid by the Contracting Authority.

| Payment Schedule      |                                                                  |                       |
|-----------------------|------------------------------------------------------------------|-----------------------|
| Pre-financing payment | As per Article 44                                                | 10% of contract value |
| Interim Payments      | As per measured works on, indicatively every two months.         | 85% of contract value |
| Retention Monies      | As per payment schedule in Clause 45.2 of the Special Conditions | 5% of contract value  |

43.3 As per General Conditions.

### **Article 44: Pre-financing**

44.1 A pre-financing payment will be issued upon signature of contract and provision of Performance Guarantee.

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

45.2 The sum of money retained from the interim payments shall be of 5%. This sum shall be paid upon submission of an equivalent retention bank guarantee (issued in the form provided in this tender document) by the Contractor to the Contracting Authority when issuing the Provisional Acceptance Certificate as specified in Article 57. The bank guarantee will be released upon issuing of the final acceptance of the works as per Article 58. The said retention guarantee shall be released only after the conditions requested under Art 58 are satisfied. The retention guarantee will be released within 45 days from when the Final Acceptance Certificate is issued.

## **Article 46: Price Revision**

46.1 Tender prices are fixed and not subject to revision with the exception of that resulting from causes listed under Article 46.3 of the General Conditions.

46.3 As per General Conditions

## **Article 47: Measurement**

47.2 The works shall be measured as detailed in the Bill of Quantities, and as specified in the appropriate clauses in the Technical Specifications - Section 4. The appointed contractor shall satisfy the Supervisor that the materials are such as specified or equivalent.

## **Article 48: Interim Payments**

48.1 Interim Payments of sums due for the executed and provisionally accepted works shall be authorized and issued by the Contracting Authority against a valid invoice after works in accordance to quality and progress of works. The retention shall be released in accordance to Clause 45.2 of these special conditions. The Contractor shall submit his claim for progress payments to the Contracting Authority in writing. Such claims are to be supported by evaluation of the works executed and materials installed on site and show the value of the permanent works executed by him up to the end of the month. All claims shall be evaluated by the Contracting Authority in relation to the Bills of Quantities and Contract Rates and documentation produced by the Contractor and on the basis that such works have been executed in accordance with the Contract Documents and to the satisfaction of the Contracting Authority. Provided the Contracting Authority agrees with the statement, the relevant Payment Certificate will be issued.

## **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 persons referred to in Article 43.1 of these Special Conditions. These documents shall be approved either expressly or tacitly, in the absence if 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 the deadline expired, plus two percentage points (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).

## **Article 56: Partial Acceptance**

56.2 The supervisor will issue partial provisional acceptance upon completion of full works on the structure envisioned within the contract and not upon completion of works on parts of the structure

envisioned within the contract.

56.3 The maintenance period shall run from the date of the Provisional Acceptance Certificate issued as per Article 57.

### **Article 57: Provisional Acceptance**

57.6 Further to the provisions of Article 57 of the General Conditions, the Provisional Acceptance Certificate can only be issued once all pending snags included in the relevant snag list are appropriately addressed by the Contractor and to the satisfaction of the Supervisor.

### **Article 58: Maintenance Obligations**

58.6 Further to the provisions of Article 58 of the General Conditions, the contractor shall guarantee that works carried out through works specified in this tender document are adequately maintained for a period of 24 months from issuing of the Provisional Acceptance Certificate. The Contractor shall be responsible for remedying, at his expense, defects and damages during this period as specified in the General Conditions.

Any remedial works performed during the guarantee period (until 24 months after completion of ALL works described in this contract) shall be carried out as specified in this document and approved by the Supervisor. The contractor shall be responsible for providing all suitable means, for obtaining all permissions, and making all the necessary arrangements with all authorities concerned to carry out all the remedial works at any height levels at no extra cost to the Contracting Authority.

### **Article 66: Dispute Settlement by Litigation**

If no settlement is reached within 120 days of the start of the amicable dispute-settlement procedure, each Party may seek:

- a) either a ruling from a national court, or
- b) an arbitration ruling, in the case where the parties, i.e. the Contracting Authority and the Contractor, by agreement decide to refer the matter to arbitration.

### **Article 70: Further Additional Clauses**

70.1 The Supervisor will organise project management meetings (which may be held in person or on-line) and site meetings. The Contractor's representative must also attend these meetings in order to review the arrangements of future work. The Supervisor shall record the business of these meetings and supply copies of the record to those attending the meeting and Contracting Authority. In the record, responsibilities for actions to be taken shall be in accordance with the contract.

The Contractor's Key Experts must also attend these meetings when requested by the Supervisor and/or the Contracting Authority. The Supervisor shall notify the Contractor of the requirement of a particular Key Expert's attendance at least three (3) days prior to the meeting. The Contractor shall become liable to a penalty of €100 (one hundred euro) for each occurrence in which a Key Expert fails to attend meetings. Such penalties will be deducted from the next interim payment due.

70.2 Following the issue of an administrative order by the Supervisor, the Contractor shall execute the administrative order within the specified deadline. Without prejudice to other penalties which may be due in terms of the Contract, if the Contractor fails to respect the specified deadline for the respective administrative order, Contractor shall be liable to a penalty for mere delay in execution of the administrative order in the amount of €100 (one hundred euro) for each calendar day

following the deadline until Supervisor certifies the completion of the administrative order, which penalty shall be deducted from the next interim payment.

70.3 The Contractor shall be liable to a penalty of €2,000 (two thousand euro) if he fails to abide with any of the conditions of permits for works issued by ERA [Environment and Resources Authority], the PA [Planning Authority] and the BRO [Building Regulation Office] or any other Malta Government Authority and related to or in connection with this contract. This penalty shall be applied for each occurrence where the result of the non-compliance is irreversible. In case the effects and results of the non-compliance are reversible the contractor shall be liable to a penalty of €1,000 per calendar day commencing from the deadline set by the Supervisor to complete the remedial works. The reversibility of the breach of permit conditions shall be determined by the Supervisor. The penalties in this Article shall apply without prejudice to the other penalties that may be issued by the Planning Authority and/or other Governmental Entities. Penalties will be deducted with the next interim payment due.



## SECTION 4 -SPECIFICATIONS/TERMS OF REFERENCE (Note 3)

**Note:**

Where in this tender document a standard is quoted, it is to be understood that the Contracting 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 Contracting Authority.

### 5.1 EXTERNAL AND INTERNAL RENDERING

#### 4.1.1 GENERAL

This specification is based upon British, European or Maltese standards as listed below.

| <i>Specification</i>                                                        | <i>Standard Reference</i>                         |
|-----------------------------------------------------------------------------|---------------------------------------------------|
| Mortar for plastering and rendering as implemented by the relevant decision | EU Directive 89/106/EEC                           |
| Workmanship on Building Sites, Plastering and Rendering.                    | BS 8000: Part 10: 1989                            |
| Rendering and Plastering mortar                                             | EN 998-1 - Classification GP<br>(General Purpose) |
| Testing of rendering mortars                                                | EN 1015                                           |

#### 4.1.2 SUBSTRATES

- Existing substrates to be rendered shall be sound, free from loose areas and significant cracks or gaps, free from deteriorating, damp or unsuitable material, cleaned of loose mortar, fins, grease, dirt, efflorescence, mould or dust.
- All cutting, chasing, making good, fixing of conduits and surface outlets shall be completed. Surface flatness/regularity shall be within the specified tolerance limits.
- Existing substrate surfaces, and rendered surfaces to receive further coats of rendering, shall have an appropriately rough surface to achieve a good key. The surfaces shall be open textured, scratched or nail-floated, and shall be sufficiently mature before a subsequent layer is applied.
- Existing substrate surfaces, and rendered surfaces to receive further coats of rendering, shall have an appropriately rough surface texture to achieve a good key. The surfaces shall be sufficiently mature before a subsequent layer is applied
- Dubbing out shall be used to correct substrate inaccuracies. Dubbing out in smooth dense concrete shall be prohibited. The thickness of any dubbing coat shall not exceed 16mm, and the maximum overall thickness of any dubbing shall not exceed 20mm. The dubbing coat shall be mixed as an undercoat and shall be applied to achieve a firm bond. Each dubbing coat shall be allowed to set

sufficiently before the next coat is applied. The surface of each coat shall be cross-scratched or combed to provide a good key.

- f) Services chased into the substrate shall be isolated from the coating by covering with metal lathing fixed at staggered centres along both edges, to prevent cracking over conduits and other services.
- g) Substrate shall be damped down, just sufficiently to ensure uniform absorption, before the first coat is applied and as the work proceeds. Rendering in areas subjected to prolonged direct sunlight shall be avoided. Scaffolding works shall be erected such that there are no putlog holes and other breaks in render coats.
- h) Rendering shall be applied prior to the installation of aperture frames, and shall be applied such to assure all round covering area behind aperture frames.

#### **4.1.3 PRESCRIBED CEMENT-BASED MORTAR**

- a) Prescribed cement-based mortar shall consist of the application of a mortar containing portland cement and sand, in prescribed proportions, to the external or internal surface of the building, in one or more layers.
- b) The mix proportions for cement-based renderings shall normally conform to BS 5262, Code of Practice for External Renderings and BS 5492, Code of Practice for Internal Plastering.
- c) Cement, for use in mortar shall conform to BS EN 197-1 CEM 1/42.5.
- d) Sand for use in cement based mortar shall comply with BS EN 13139. Sand shall have a grading characteristic suitable for the required texture.
- e) For the **Finishing Coat**, the grade shall be adjusted to suit the type of finish approved by Architect. For smooth, textured finishes, it may be necessary to remove the coarser particles, whilst for the scraped texture finish, a larger proportion of coarser material may be retained.
- f) Water shall be clean and fresh, entirely free from oil, acid, alkali, vegetable or organic matter, or any other deleterious substance in suspension or in solution or as sediment.
- g) Cement-based mortar may incorporate additives (eg. air-entrainers) conforming to BS EN 934, and compatible with the other mortar constituents. The use of calcium chloride, or additives containing calcium chloride, is prohibited. These shall be submitted for the approval of Architect, accompanied by full technical literature.
- h) Cement-based mortar may incorporate lime to EN 459-1. This shall be submitted for the approval of Architect.
- i) Constituent materials may be batched by volume, using clean and accurate gauge boxes or buckets. The mix proportions shall be based on damp sand, with adjustments being made to the mix proportions to compensate for dry sand. Mixing of the mortar shall be carried out in a pan type, or a tilting drum mixer, properly maintained and in a clean condition.

#### **4.1.4 PRE-MIXED (FACTORY-MADE) CEMENT-BASED RENDERING MORTAR - GENERAL**

- a) Pre-Mixed (factory-made) cement-based renderings shall consist of mortar containing portland cement and sand, in agreed proportions, to the external or internal surface of the building, in one or more layers.
- b) Pre-mixed cement-based renderings shall conform to EN 998-1.

#### 5.1.5 INTERNAL PRE-MIXED (FACTORY-MADE) CEMENT – BASED RENDERING MORTAR

- a) Cement-based mortar for internal use shall consist of one Base Coat and one plain Finishing Coat, with an overall thickness of 13mm on vertical surfaces and 10mm on ceilings, exclusive of keying depths and dubbing coats.
- b) If metal lathing is used, this overall thickness shall be achieved from the surface of the metal lathing.
- c) Cement-based rendering for internal use to receive a Gypsum finish coat shall have an overall thickness of 9-10mm on vertical surfaces, and 7mm on ceilings, ready to receive a 3mm thickness of Gypsum.
- d) The nominal size of the Base Coat shall be less than 1.5mm.
- e) The thickness of the Base Coat plaster shall be 10mm (7mm for Ceilings).
- f) The hardened plaster shall be vapour-permeable with a  $\mu$  value of  $\leq 12$ .
- g) The hardened plaster shall have a compressive strength of Class CS III.
- h) The fire rating shall be Class A1.
- i) The nominal size of the Finishing Coat plaster shall be less than 0.6mm.
- j) The thickness of the Finishing Coat plaster shall be 3mm.
- k) The hardened plaster shall be vapour-permeable with a  $\mu$  value of  $\leq 12$ .
- l) The hardened plaster shall have a compressive strength of Class CS II.
- m) The fire rating shall be Class A1.

#### 4.1.6 EXTERNAL PRE-MIXED (FACTORY-MADE) CEMENT – BASED RENDERING MORTAR

- a) Cement-based mortar for external use shall consist of one **Base Coat** and one plain **Finishing Coat** having similar properties to those indicated for internal applications except for the following:
- b) Exposure classification - External Mortar
  - i. The classification of external environmental exposure shall normally be indicated in the Bills of Quantities and/or Drawings.
  - ii. The external exposure categories shall be as follows:
    - (a) Sheltered and Moderate
    - (b) Severe
- c) CLASSES - External Mortar
  - i. The class of external cement-based renderings shall be as follows:
    - (a) Sheltered and Moderate Environment  
Capillary water Absorption Class W1 (EN 998-1).
    - (b) Severe Environment

Capillary water Absorption Class W2 (EN 998-1).

d) Compressive Strength Class - External RENDERINGS

i. The compressive strength class of external renderings shall be as follows:

(a) Sheltered and Moderate Environment

Class CS III (EN 998-1)

(b) Severe Environment

Class CS IV (EN 998-1)

e) Cement-based rendering for external use shall normally have a single undercoat thickness of 8-12mm.

f) Where metal lathing is used, a first **Base Coat** of 3-6mm thickness shall be required, followed by a second **Base Coat** of 10- 14mm thickness.

g) The **Finishing Coat** shall be less than 8mm thick for a plain smooth finish, and 8-11 mm thick for a scraped finish (before scraping).

### 5.1.6 BEADS AND STOPS

a) Beads and stops shall be used in external angles, and stop ends, except where specified otherwise. At corners, neat meters shall be used at return angles. Beads and stops for internal use shall be aluminium type or approved un-corrodible equivalent.

b) Beads and stops shall be securely fixed mechanically using the longest possible lengths, properly plumb, square and true to line and level, ensuring full contact of the wings with the substrate. After the coatings have been applied, surplus material shall be removed, when still wet, from the surfaces of beads/stops exposed to view.

### 5.1.7 PRE-MIXED INTERNAL PLASTERING

a) Internal plastering shall consist of the application of a high quality proprietary gypsum-based, or lime-based, finishing mortar applied to internal wall surfaces.

b) Internal plastering shall conform to the recommendations of BS 5492: 1990, Code of Practice for Internal Plastering.

c) Gypsum plaster shall be applied in two layers, namely a **Base Coat** and a **Finishing Coat**.

### 5.1.8 PRE-MIXED INTERNAL PLASTERING – PREPARATION AND APPLICATION

(a) The **Base Coat** shall consist of a 10mm pre-mixed plaster based on gypsum, hydraulic lime and additional materials such as **expanded perlite** and specific additives to assist fluidity control, support adherence, setting and working times.

(b) The nominal size of the **Base Coat** plaster shall be less than 1.5mm.

(c) The hardened plaster shall be vapour-permeable with a  $\mu$  value of  $\leq 8$ .

(d) The hardened plaster shall have a compressive strength of  $\geq 2.5\text{MPa}$ .

(e) The fire rating shall be Class O.

- (f) When using a gypsum-based **Base Coat** for stone masonry surfaces, the same precautions for the substrate surfaces shall be taken as described for cement gauged renders.
- (g) Smooth concrete and dusty surfaces shall be treated with an appropriate adhesion primer, consisting of organic resins in a water-based emulsion.
- (h) The **Base Coat** plaster shall be applied initially as a thin coat firmly worked into the substrate, and then gradually brought to full specification thickness. The coat shall be brought to a level surface using a metal straight edge, and shall then be cross-scratched to form a mechanical key.
- (i) **Base Coats** on adjacent dissimilar materials shall be assisted by isolation layers and metal lathing, as specified above, and by plastering on metal lathing, after ensuring that the lathing is taut and fixed with key facing outwards.
- (j) Tying wire ends shall be bent inwards, and any cut edges, staples or nail heads shall be painted with bitumen to avoid rust staining.
- (k) Plasters shall be mixed in a paddle-type mixer, with machines and containers cleaned frequently, at least after every batch mix of gypsum plaster, and whenever different materials are used. Gypsum plasters shall not be used if initial set occurs before application.
- (l) The **Finishing Coat** for gypsum plastering shall be 3mm thick and shall be laid with a trowel, so as to achieve a tight matt smooth surface with no hollows, abrupt changes of level or trowel marks.
- (m) Rapid, premature or uneven drying out of the final coat shall not be allowed.
- (n) The **Finishing Coat** gypsum shall consist of gypsum, hydrated lime, rock powder and special adhesives and additives to increase workability and adhesion.
- (o) The nominal size of the Base Coat plaster shall be less than 0.2mm.
- (p) The hardened plaster shall be vapour-permeable with a  $\mu$  value of  $\leq 10$ .
- (q) The hardened plaster shall have a compressive strength of  $\geq 2.0\text{MPa}$ .
- (r) The fire rating shall be Class O.
- (s) The **Finishing Coat** shall be applied using a stainless steel rectangular trowel, over the whole surface. The trowel shall have specially ground edges, and shall be made from extra-hard stainless and abrasion-proof steel.
- (t) The finished surfaces shall be even and consistent and free from rippling, hollows, ridges, cracks and crazing.
- (u) The finished surface shall be to a true plane, to the correct line and level, with angles and corners to the right angle, unless specified otherwise, and with walls and reveals plumb and square
- (v) Surface flatness/regularity shall be acceptable if the deviation of the surface from a 1.8m straightedge does not exceed 3mm
- (w) The Contractor shall be required to prepare sample applications of the proprietary renders, on a variety of substrates and to retain the samples on site for a period of time specified by Architect, before the use of such renders is approved.

#### **5.1.9 APPLICATION OF LAYERS**

- (a) Coats shall be applied firmly in a continuous operation, between angles and joints to achieve a good adhesion to the previous coat. Undercoats shall be ruled to an even surface. When the undercoat has begun to stiffen, the surface shall be scored with a comb, so as to form wavy horizontal lines, spaced approximately 20mm apart, and 5mm deep, or cross- scratching.
- (b) Coats shall be applied in such a sequence that ensures a finishing layer that is slightly weaker than the background layer.
- (c) The undercoat shall be left for at least a week before the final coat is applied, in order to allow any cracking from the initial shrinkage to occur. In warm dry weather, the undercoat shall be cured by draping it with sheet polythene, held against the surface to prevent evaporation. When applying the undercoat on metal lathing, care shall be taken to work the render well into the interstices to obtain maximum key.
- (d) The final coat for smooth cement-sand finish shall be laid with a trowel, so as to achieve a tight matt smooth surface with no hollows, abrupt changes of level or trowel marks. The final coat for scraped cement-sand finish shall be scraped some hours after application, using a wooden float faced with expanded metal, or using an old saw blade. The scraping shall be sufficient to evenly remove the surface skin of the mortar and expose the larger particles of aggregate. Some of the aggregate will be dragged from the mortar by the scraping action. After scraping, the surface shall be lightly brushed with a soft brush to remove all dust, and to produce a clean crisp texture. About 3mm of thickness is expected to be removed by the scraping of a saw blade.
- (e) Rapid, premature or uneven drying out of the final coat shall not be allowed, and in warm or windy weather, the final coat shall be damped down, or sprayed gently with water. Curing under polythene sheeting shall be allowed provided the polythene can be arranged to hang clear of the surface in such a way that it does not form a funnel through which the wind could increase the rate of evaporation, and in such a way as to prevent the polythene sheeting from intermittent contact with the face. The surface shall be protected from rain. Curing shall last for a minimum period of 3 to 4 days.
- (f) The finished surfaces shall be even and consistent and free from rippling, hollows, ridges, cracks and crazing. The finished surface shall be to a true plane, to the correct line and level, with angles and corners to the right angle, unless specified otherwise, and with walls and reveals plumb and square. Surface flatness/regularity shall be acceptable if the deviation of the surface from a 1.8m straightedge does not exceed 3mm.

#### **5.1.10 PROPRIETARY RENDERING FOR EXTERNAL USE – SILICATE OR ACRYLIC-SILICONE**

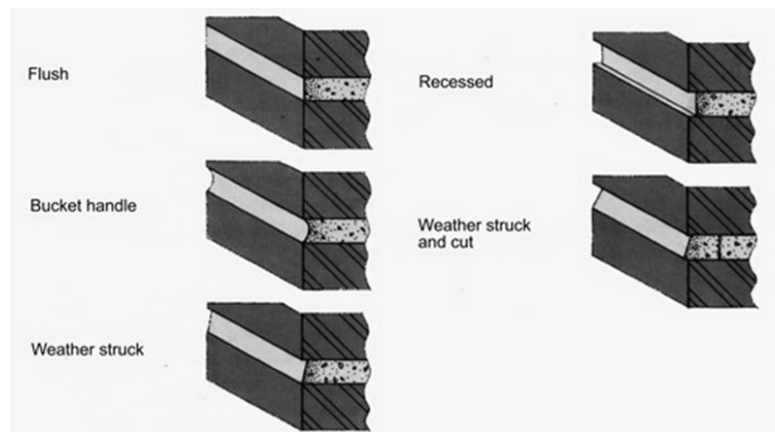
- (a) Proprietary renderings for external use shall consist of pre-mixed renders based on silicate or acrylic-silicone binders, applied to produce a durable surface, with specific surface textures, and, in particular, the texture referred to as "silicato".
- (b) These renders shall contain specially selected quartz sand, or other inert fillers, with special additives, suitable for providing a durable coating, with high permeability to water vapour, and a

- high water resistance, as well as resistance to algae and fungal attack, loss of colour and degradation with time.
- (c) They shall have an integral colour based on inorganic pigments with a high photo-stability. It shall also be fire retardant. It shall have a good adhesive power, and a good interactivity with the mineral substrate.
  - (d) They shall be capable of application with a steel spatula, to the specified thickness, and, once dry be given a uniform "silicato" or equivalent texture finish.
  - (e) Silicate and Acryl-Silicone renderings shall consist of a proprietary render, nominal size <3.0mm, free of solvents, and containing natural fillers such as marble and quartz, limestone and sand, capable of optimum adhesion with mineral substrates and developing a high mechanical resistance.
  - (f) The render shall have an integral colour. It shall be resistant to UV radiation.
  - (g) It shall be laid in a single operation. Partial renderings shall be separated by straight, horizontal merge lines as agreed with the Architect.
  - (h) Renderings shall also have the following performance characteristics:

|                              | Silicate | Acryl-Silicone | Unit          |
|------------------------------|----------|----------------|---------------|
| Compressive Strength         | ≥ CS III | ≥ CS III       | MPa           |
| Vapour Diffusion             | ≤ 140    | ≤ 190          | μ             |
| Water Absorption             | W2       | W2             | Kg/(m2.h 0.5) |
| Air Strata Equivalent        | ≤ 1.5    | ≤ 1.5          | m             |
| Kuenzle Factor               | ≤ 0.1    | ≤ 0.1          | Kg/(m.h 0.5)  |
| Resistance to Powder Flaking | ≥ 600    | ≥ 600          | hours         |
| Colour Fastness              | ≥ 600    | ≥ 600          | hours         |

#### 5.1.11 POINTING OF CONCRETE BLOCKWORK

- (a) Soft joints of the concrete blockwork shall be raked out and opened to a depth of approximately 20mm.
- (b) The joints shall be rectified and formed, in both the horizontal and vertical directions, in such a way so that the finished joint shall have a constant width, and true to the horizontal and vertical.
- (c) The joints shall be bucket handle pointed as indicated below with a proprietary mortar formed by a white cement-lime-sand-additives mix to match the existing concrete blockwork colour.



- (d) The mix shall have a compressive strength of  $\geq 7$  MPa.
- (e) When the joint pointing has dried, the whole block surface shall be rubbed down to produce a clean compact masonry surface, with regular joints across the surface.

### 5.1.12 APPLICATION OF OTHER ELEMENTS

#### GLASS FIBRE MESH

- (a) Trowel on enough plaster to cover a width of at least 1-2 metres x the full height of the wall, just wider than the fiberglass mesh. Straightedge the plaster with a 2 metre darby and fill in any deviations in the plaster.
- (b) Cut a measured length (drop) of fiberglass mesh slightly longer than the height of the plaster to be covered.
- (c) Apply a drop of reinforcing mesh from the top of the wall. The fiberglass mesh must not bridge over any construction joints. Trowel this mesh into the surface of the plaster. Mesh must not be exposed but retained as close to the surface as possible.
- (d) Press the fiberglass mesh into the plaster mix with a steel trowel starting at the centre and working outwards towards the sides, so that it is completely embedded in plaster mix forced right through the metal holes. Do not force the fiberglass mesh right into the plaster mix so that it is completely buried. The object is to embed the fiberglass mesh just below the surface. Do not embed the leading edge because this will be overlapped 100mm with the adjacent sheet and they will both be embedded together.
- (e) Apply the next section of plaster mix and drop of fiberglass mesh, making sure the 100mm fiberglass mesh overlap is also fully embedded.
- (f) Proceed with plastering and application of fiberglass mesh, ensuring adjacent drops overlap by at least 100mm.
- (g) Ensure the fiberglass mesh covers all exposed areas, including any recesses

around the exterior joinery and internal corners.



- (h) After the plaster mix has dried, trim off excess length accurately.
- (i) Ensure there are no wrinkles or trapped bubbles in the mesh and that it is fully embedded just below the surface of the plaster.
- (j) Ensure the fiberglass mesh is **not** laid over any expansion joints.

#### APPLICATION OF SECOND LAYER OF PLASTER IN CASE OF USE OF FIBERGLASS MESH

- (a) Ensure the fiberglass mesh pattern of the fiberglass mesh does not show through as the plaster shrinks back.
- (b) Prepare plaster mix as for the first base coat layer.
- (c) When the first base coat layer is touch dry, apply the second coat of plaster over the embedded fiberglass mesh, by trowelling.
- (d) Apply the second coat at the rate of approx. 2.5kg of dry plaster mix per m<sup>2</sup> of wall, applied evenly over the surface at about 1 to 2 mm thickness.
- (e) Trowel the second coat flat, and leave to touch dry before floating off with a large sponge, plastic or wooden float and water. This will remove any imperfections and leave a level surface.
- (f) Keep the finished surface of the second plaster coat moist for 4 to 5 hours once initial setting has occurred. A very fine mist water spray, such as from a pump-up hand sprayer is ideal to keep the surface moist without washing away any of the coating.
- (g) On hot windy days, the first coat of plaster will dry very quickly. If this happens, you should rotate around the house so that you avoid plastering walls that have heated up, if this is unavoidable, make sure that shade cloths can be used to prevent the plaster curing quickly. If the plaster is curing quickly, wet the walls down with a fine mist of water to make sure the plaster cures correctly. The plaster mix must not be applied when the outside air temperature is below 5°C or over 35°C, or when these temperatures will occur within 24 hours of application. The surface of the plaster mix must be protected from heavy rain for a minimum of 24 hours.
- (h) The plaster mix will mark glass, aluminum and joinery. Any deposits on these materials must be cleaned off immediately.

#### APPLICATION OF DECORATIVE SILICATO COATING

- (a) **SEALING**  
Before application of the Silicato, seal the Base Coat with primer tinted to the colour of the final textured coating. Seal the Base Coat within 14 days of applying the second layer, and leave no longer than four weeks before the application of the Silicato. Do not apply Silicato when the outside air temperature is below 5°C or above 35°C or when these temperatures will occur within 24 hours of application. Humidity must not exceed 85%.
- (b) **MIXING**  
Usually Silicato requires a minimum amount of on-site mixing. Mix the Silicato with a mechanical paddle mixer or similar machine, adding water at this time if necessary. Generally, when trowelling, add a small amount of water (250mls maximum) per 20-litre pail

of Silicato to bring it up to the desired consistency, this is dependent on how much tint has been added to the product.

Silicato will mark aluminium and joinery. Any deposits on these surfaces must be cleaned off immediately.

There must be no horizontal surfaces which will be subject to water ponding, a minimum slope of 15 degrees is required. Ensure there is no possibility of water leaking in behind the coating due to poor sealing around projections etc. Any exposed top or bottom edges of sheets must be protected by flashings. Work on shaded elevations or erect shade cloths. All stages of the plastering process must be protected from rain for a minimum of 24 hours or until dry.

#### **5.1.13 COLOUR**

The contractor will be required to execute samples on site with the Architect's colour preferences and shades for the Architect's approval for any of the options selected by the owners.

#### **5.1.14 SAMPLES**

The Contractor may be required to prepare sample applications of the renders, pointing and paint on a variety of substrates for final approval before the start of the Works.

## 5.2 INTERNAL AND EXTERNAL PAINTING

### 5.2.1 GENERAL

Where applicable sample size and frequency of sampling for compliance shall be established on the basis of standard statistical guidelines.

### 5.2.1 INTERNAL AND EXTERNAL PAINTWORK

Generally, painting work shall comply with the recommendations of BS 6150 - Code of Practice for Painting of Buildings. General workmanship, and, in particular, the preparation of surfaces for painting, shall also comply with BS 8000: Part 12. The appropriate environmental category, as defined in BS 6150, shall be Mild for interior conditions and Severe for exterior conditions.

### 5.2.2 PAINT – INTERNAL WALLS, FLOORS AND CEILINGS

- a) The paint shall comply with EN 13300, Paints and Varnishes, Water-borne Coating systems for Internal Walls and Ceilings.
- b) The paint shall comply with the ecological and performance criteria adopted by the EU for the award of the Eco-Label for internal paints and varnishes.

### 5.2.3 PAINT – EXTERNAL BLOCKWORK AND CONCRETE

- a) The paint shall comply with EN 1062-1, Paints and Varnishes, Coating Systems for Exterior Blockwork and Concrete.
- b) The dry film thickness on external areas shall be  $\geq$  Class E3.

### 5.2.4 PAINTING - TESTING

- a) Testing of shall be carried out in accordance with BS 3900 or the BS ISO equivalent.
- b) The Contractor shall supply test certification for the batches used.
- c) The following characteristics and limits shall *also* apply:

#### 1. Emulsion - Internal

|     |                                |                           |
|-----|--------------------------------|---------------------------|
| 1.1 | Film Dry Film Thickness:       | As per Product Datasheet  |
| 1.2 | Fire protection:               | EuroClass A2-s1, d0       |
| 1.3 | Fungal Resistance:             | Total absence of growth   |
| 1.4 | Permeability to Acqueus Vapour | Medium (sd < 1.5m)        |
| 1.5 | Wet Abrasion (Walls)           | Class 1 or 2 (ISO 11998)  |
| 1.6 | Wet Abrasion (Ceilings)        | Class 4 (ISO 11998)       |
| 1.7 | Power of Cover (Walls)         | Class 1 or 2 (ISO 6504-3) |
| 1.8 | Power of Cover (Ceilings)      | Class 3 or 4 (ISO 6504-3) |

#### 2. Emulsion - External

- |     |                                |                                 |
|-----|--------------------------------|---------------------------------|
| 2.1 | Film Dry Film Thickness:       | As per Product Datasheet        |
| 2.2 | Fire protection:               | EuroClass A2-s1, d0             |
| 2.3 | Fungal Resistance:             | Total absence of growth         |
| 2.4 | Permeability to Acqueus Vapour | Medium (sd < 1.5m)              |
| 2.5 | Permeability to Water          | W2min.(≤ 0.5, > 0.1kg/(m2.h0.5) |
| 2.6 | Resistance to CO2 penetration  | Class C1(sd>50m)                |
| 2.7 | w x sd (Kunzel Factor)         | ≤ 0.1kg/(m.h0.5)                |
| 2.8 | Gloss Matte                    | Matte                           |
3. Blockwork Stabilizing Solution - As per Product Datasheet
4. Blockwork Sealer - As per Product Datasheet
5. Oil or Alkyd Based
- |     |                          |                           |
|-----|--------------------------|---------------------------|
| 5.1 | Film Dry Film Thickness: | Min. 0.034mm              |
| 5.2 | Fire protection:         | EuroClass A2-s1, d0       |
| 5.3 | Fungal Resistance:       | Total absence of growth   |
| 5.4 | Wet Abrasion             | Class 1 or 2 (ISO 11998)  |
| 5.5 | Power of Cover           | Class 1 or 2 (ISO 6504-3) |

## 5.2.5 GLOSS LEVELS

- a) The following are informative guidelines for the specified gloss levels in accordance with EN ISO 2813:

| Gloss Level | % Incidence @ 600° | Incidence @ 85 ° |
|-------------|--------------------|------------------|
| Dead Matte  |                    | > 5              |
| Matt        |                    | > 10             |
| Mild Sheen  | < 60               | ≥ 10             |
| Gloss       | ≥ 60               |                  |

- b) All paints shall be thoroughly mixed and stirred before use. They shall be stored in such a way that minimizes exposure.
- c) The paint shall be supplied from the same batch.
- d) Thinning of materials, where necessary shall be carried out with the type of thinner and to the proportions recommended by the manufacturer of the paint.
- e) Substrate shall be thoroughly cleaned down to remove all dirt, grease, plaster and mortar deposits, efflorescence and under bound slurry, by brushing or rubbing with a dry cloth followed by wiping with a damp cloth. The surface shall then be allowed to dry. The surface shall be brushed to remove any loose aggregate. Any surface mould growths shall be removed, and residual growths shall be treated by washing with fungicidal wash, or approved equivalent. Cracks, holes and other imperfections shall be made good. Such making good shall be allowed to dry out thoroughly. Any fillers used shall be in accordance with the manufacturer's recommendations.
- f) Each coat of paint shall be allowed to dry out before the next is applied.
- g) No exterior or exposed painting shall be carried out under adverse weather conditions.

- h) No primer coats shall be applied until the surfaces have been approved by Architect. No undercoat or finishing coats shall be applied until previous coats have been similarly inspected and approved.
- i) RAL colours and textures shall be approved by Architect and provision must be made for the execution of trial areas on site as required.
- j) Painting shall be applied in a sequence and adjusted to take into account the completion timeframes of other trades. Paintwork shall only be applied in the appropriate conditions of temperature, humidity and cleanliness. For interior work, painting shall be applied only after the interior space is weather-tight, maintained at temperature and humidity levels, and lit to the levels, similar to those prevailing when the building is occupied, unless otherwise specified. Paint shall be roller or brush applied. All paintwork shall be left clean and unblemished, and all surfaces adjacent to painted surfaces cleaned from droppings or other marks.

#### **5.2.6 SAFETY DATA SHEETS**

Paint shall be supplied accompanied by the relevant safety data sheets

#### **5.2.7 SAMPLES**

The Contractor may be required to prepare sample applications of the renders, pointing and paint on a variety of substrates for final approval before the start of the Works.

## 5.3 EXTERNAL CERAMIC TILING

### 5.3.1 SCOPE OF WORKS

This documentation overviews the External Ceramic Tiling of the new premises for the Secretariat for Catholic Education proposed. These specifications are to be read with the Contract Conditions, Drawings, Indicative Details and all other documents forming part of this Tender.

This document puts forward a specification for the required designated items. The specification is intended as guidance for the supplier to produce a list of items within the parameters herein put forward.

### 5.3.2 TECHNICAL SPECIFICATION

All Technical specifications must conform with BS EN 14411:2012 and BS EN ISO 10545-2:1997. The tenderer is to submit all specifications and in particular the following specifications which must be conformant with tables in Annex A to Annex L. The specifications must be based on test methods according to the relevant EN code as specified in the tables in Annex A to Annex L:

- (a) Dimensions and Surface Quality
  - i. Length and width
  - ii. Thickness
  - iii. Straightness of sides
  - iv. Rectangularity
  - v. Surface flatness
  - vi. Surface quality
- (b) Physical Properties
  - i. Water absorption
  - ii. Breaking strength
  - iii. Flexural tensile strength or modulus of rupture
  - iv. Abrasion resistance,
  - v. Coefficient of linear thermal expansion:
  - vi. Thermal shock resistance
  - vii. Crazing resistance:
  - viii. Frost resistance
  - ix. Slipperiness
  - x. Bond strength/adhesion
  - xi. Moisture expansion
  - xii. Small colour differences
  - xiii. Impact resistance,

- xiv. Reaction to fire
- xv. Tactility
- (c) Chemical Properties
  - i. Resistance to staining,
  - ii. Resistance to chemicals:
  - iii. Release of dangerous substances

### 5.3.3 INSTALLATION PROCESS

#### GENERAL DESCRIPTION

Furnish all labour, materials, tools, equipment and services necessary for and reasonably incidental to complete the tile work as shown on the drawings. Related documents, drawings and general provisions of contract, including general and supplementary conditions apply to work of this section.

#### QUALITY ASSURANCE

- (a) Tile materials of each type to be provided to the above specification, colour and finish from the selected supplier. Provide setting, grouting and related materials of each type, colour and finish obtained from the source.
- (b) Deliver, store and handle materials in accordance with manufacturer's instructions.
- (c) The contractor, by commencing the work of this section, assumes overall responsibility to assure that all assemblies, components and parts shown or required within the work of this section comply with contract documents and are compatible with each other, with the conditions and expected use.
- (d) Installer Qualification: Engage an installer with a minimum of five (5) years commercial tile installations similar in material, design and scope to that indicated.
- (e) Pre-Installation Meeting: Prior to tile installation, conduct a pre-installation project meeting. Contractor, subcontractor, material suppliers, architect, project manager and client representative shall be notified of the meeting.
- (f) Field Mock-Up: Install a fully finished mock-up for each type of tile installation. Mock-up shall be a minimum of 2m x 2m that will be reviewed for joint quality, colour range, pattern and workmanship.
- (g) Extra stock: Furnish extra stock of quantity equal to 3% of amount installed, in full-size units, for each type, colour size and finish of tile.

#### SUBMITTALS

Verification Samples: Submit the following for each type, colour, size and finish included in the work.

- i. Full size tile and trim shapes.
- ii. Pedestal samples and technical data.
- iii. Grout colour samples, where it is to be used.
- iv. Sealant colour samples.

Product and Installation Data:

- v. Ceramic tile manufacturer's product and technical data indicating compliance with applicable standards herein.
- vi. Mortar and grout manufacturer's technical data sheets indicating suitability for the installation specified and compliance with applicable standards.
- vii. Pedestal manufacturer's technical data sheets indicating suitability for the installation specified and compliance with applicable standards.
- viii. Sealant manufacturer's product and technical data.

ENVIRONMENTAL

- (a) Comply with requirements of referenced standards and recommendations of material manufacturers for environmental conditions before, during and after installation.
- (b) Maintain environmental conditions and protect work during and after installation to comply with referred standards and manufacturer's printed recommendations.
- (c) It is important to protect adjacent surfaces during progress of the work in this section, paying particular attention to the waterproofing membrane that may be vulnerable.
- (d) If required illuminate the work area during installation, providing the same level and angle of illumination as will be available for final inspection.

EXECUTION

(a) Examination:

- i. Examine substrates where tile will be installed for compliance with requirements for installation tolerances and other conditions effecting performance of installed tile. Verify that substrates for setting tile are well cured, dry, clean, and free from oil or waxy films, and curing compounds.
- ii. Do not proceed with installation until unsatisfactory conditions have been corrected. Commencement of work signifies acceptance of substrate and installation conditions.

(b) Preparation:

Substrate Preparation: Repair and clean substrate in accordance with installation standards and manufacturer's instructions, and as follows:

- i. Remove any protrusions, bumps and ridges where applicable.
- ii. Fill and level depressions where screed is used to achieve the proper substrate, and in the case of pedestals assure that the waterproof membrane is fully laid to falls, not damaged, firm, and clean prior to installing pedestals.
- iii. Insure substrate/pedestal is within the following tolerance:
  - a. Maximum variation in substrate shall not exceed 1/8" in ten feet from required plane.
  - b. Jobsite Blending: Blend tiles before installing, in accordance with reference standards, to produce an even range and distribution of colour and finish.

(c) Installation:



- iv. Manufacturer's Instructions: Perform work in compliance with instructions and setting materials manufacturer's instructions.
  - v. General Installation Standards: Install tile in accordance with EN standards and appropriate methods.
  - vi. Installing Tile:
    - a. Install tile in pattern indicated. Align joints when adjoining tiles on floor, base, walls and trim are same size. Center tile fields in both directions. Adjust to minimize tile cutting and to possibly avoid tile less than half size.
    - b. Grind cut edges of tile. Provide straight cuts which align with adjacent materials.
    - c. Extend tile such to form a complete covering without interruption.
    - d. Terminate tile neatly at obstructions, edges, and corners, without disruption of pattern or joint alignment.
    - e. Provide tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints smooth even, without voids or cracks and to the stipulated joint size.
    - f. Where applicable mix mortar in strict accordance with manufacturer's recommendations. Do not spread more material than can be covered within 10 to 15 minutes maximum. If skinning occurs, remove mortar and spread fresh material. Spread mortar with notches running in one direction. Place tile in fresh mortar, press, push and pull the tile to achieve as near 100% coverage and contact of tile with setting material and substrate as possible. The coverage shall be sufficiently distributed to give full support of the tile. Make sure that all corners and edges are well backed with mortar. Leave no hollow corners or edges. Ensure there is a minimum 3/32" of mortar between tile and substrate after tile has been beaten into place. Use a beating block and mallet so that faces and edges of individual tiles are flush and level with faces and edges of adjacent tiles, and to reduce lippage.
    - g. Where pedestals are to be used, they are to be positioned in a stable manner, accurately set and leveled in strict accordance with manufacturer's recommendations. The final setting out of tiles must provide as near 100% coverage, with faces and edges of individual tiles flush and level with faces and edges of adjacent tiles, with minimum lippage.
- (d) Grouting (for mortar mix installation):
- i. Install grout in accordance with EN and manufacturer's recommendations.
  - ii. Mix grout material in strict accordance with manufacturer's directions.
  - iii. Apply grout to produce full, smooth grout joints of uniform width, even with edge of tiles free of voids and gaps.
  - iv. Before grouting entire area, do a test area, to assure there will be no permanent staining or discoloration of the tile. If necessary precoat exposed surfaces of tile with a grout release as recommended by the manufacturer.
  - v. Cure all setting and grouting materials in accordance with manufacturer's recommendations.
- (e) Cleaning and Protection

- i. Remove grout release and clean tile surfaces so they are free of grout residue and foreign matter, in accordance with manufacturer's instructions. Flush surface with clean water before and after cleaning. Do not use acid or acid-based cleaners to clean glazed tiles.
- ii. After cleaning, provide protective covering and maintain conditions to protect tile work from damage. Where tiled surfaces will be subject to equipment or wheel traffic, cover protective covering with hardboard or plywood.
- iii. Final clean up shall be done by finishing or polishing with a terry cloth, cheesecloth, or similar pad.
- iv. Leave finished installation clean and free of cracked, chipped, broken, unbonded and otherwise defective tile work.

#### **5.3.4 HANDOVER**

The installation will be checked to certify that the final product meets the requirements described above. Moreover, every individual balcony will be water tested to assure there is no ponding or areas where waterproofing membrane was damaged.

## 5.4 INTERNAL CERAMIC TILING

### 5.4.1 SCOPE OF WORKS

This documentation overviews the Internal Tiling of the new premises proposed for the Secretariat for Catholic Education. These specifications are to be read with the Contract Conditions, Drawings, Indicative Details and all other documents forming part of this Tender.

This document puts forward a specification for the required designated items. The specification being intended as guidance for the supplier to produce a list of items within the parameters herein put forward.

### 5.4.2 TYPES OF TILING

#### GRES TILING FOR PUBLIC AREAS

- (a) Tiles: dry-pressed vitrified gres tiles (B), group IIa , Lappato finish, to BS EN 14411
  - i. Manufacturer and product reference: submit a sample and technical literature for approval.
  - ii. Moisture absorption between 3% and 6%.
  - iii. Colour: as submitted sample.
  - iv. Finish: full polish.
  - v. Size: 450mmx450mm (indicative)
  - vi. Thickness: 8mm.
  - vii. Slip resistance value (SRV): N/A
  - viii. Surface Roughness(Rz) minimum to BS 1134:1µm
  - ix. Technical requirements: to Annex J, BS EN 14411:2006
- (b) Background/ Base: concrete floor screed or primary structure.
  - i. Preparation: clean base thoroughly before spreading intermediate substrate.
- (c) Intermediate substrate: 10mm size hardstone aggregate, to BS 812
- (d) Bedding: cement/sand bedding as per clause 720.
- (e) Joint width: 3mm.
- (f) Grout: cement-based grout. Submit technical literature for approval.
  - i. Colour: dark grey, sample to be approved.
- (g) Movement joints: as indicated by the engineer.
- (h) Accessories: plain skirting tiles to match:
  - i. Joint width: as for floor tiles.
  - ii. Grouting: as for floor tiles.
  - iii. Adhesive: as per clause 670

CERAMIC TILING FOR WET AREA FLOORS (TYPE 2)

- (a) Tiles: dry-pressed vitrified gres tiles (B), group I, profiled or stippled, to BS EN 14411
  - i. Manufacturer and product reference: submit a sample and technical literature for approval.
  - ii. Moisture absorption less than 3% Colour: as submitted sample.
  - iii. Finish: full polish.
  - iv. Size: 300mmx300mm (indicative)
  - v. Thickness: 8mm.
  - vi. Slip resistance value (SRV): R10
  - vii. Surface Roughness(Rz) minimum to BS 1134: 5-20µm minimum
  - viii. Technical requirements: to Annex H, BS EN 14411:2006
- (b) Background/ Base: concrete floor screed or primary structure.
  - i. Preparation: clean base thoroughly before spreading intermediate substrate.
- (c) Intermediate substrate: 10mm size hardstone aggregate, to BS 812
- (d) Bedding: cement/sand bedding as per clause 720.
- (e) Joint width: 2mm.
- (f) Grout: proprietary waterproof anti fungal grout to be approved by the Project Manager.
- (g) Movement joints: as directed by the Project Manager.
- (h) Accessories: none

CERAMIC TILING FOR WET AREA WALLS

- (a) Tiles: dry-pressed vitrified gres tiles (B), group I, profiled or stippled, to BS EN 14411
  - i. Manufacturer and product reference: submit a sample and technical literature for approval.
  - ii. Moisture absorption less than 3%
  - iii. Colour: as submitted sample.
  - iv. Finish: full polish.
  - v. Size: 300mmx300mm (indicative)
  - vi. Thickness: 6mm.
  - vii. Slip resistance value (SRV): N/A
  - viii. Surface Roughness(Rz) minimum to BS 1134: N/A
  - ix. Technical requirements: to Annex H, BS EN 14411:2006
- (b) Background/ Base: Concrete-infilled or hollow concrete blockwork walls or reinforced concrete primary structure.
  - i. Preparation: clean base thoroughly before spreading intermediate substrate.
- (c) Intermediate substrate: not required.
- (d) Bedding: thick bed cementitious adhesive-solid, as clause 710.
  - i. Adhesive: observe recommendations by the tile manufacturer.
- (e) Joint width: 4mm.
- (f) Grout: submit technical literature for approval. Grout in wet areas must be proprietary waterproof anti fungal grout.

- (g) Movement joints: not required.
- (h) Accessories: stainless steel trim at exposed edges.

MARBLE SLABS FOR DOOR THRESHOLDS

- (a) Stone type and colour: subject to the Engineer's approval.
  - i. Name: Bianco Carrara
  - ii. Petrological family: marble
  - iii. Colour: white
  - iv. Finish: Polished
  - v. Quality: Free from vents, cracks, fissures, discoloration, or other defects deleterious to strength/colour.
  - vi. Size: length: door width, width: combined thickness of primary wall structure and plastered finish
  - vii. Tolerance on length and width dimensions:  $\pm 1$  mm when nominal length or width is less than 600mm,  $\pm 1,5$  mm when greater than 600mm
  - viii. Thickness: 20 mm+/-10%
  - ix. Edge finish: rectified without chamfers
  - x. Slip resistance value (Pendulum Test Value to BS 14231): 25
  - xi. Surface Roughness(Rz) minimum to BS 1134: 10 $\mu$ m
  - xii. Abrasion resistance to BS 14157: 30
- (b) Background/ Base: reinforced concrete primary structure.
  - i. Preparation: clean base thoroughly before spreading intermediate substrate.
- (c) Intermediate substrate: 10mm size hardstone aggregate, to BS 812
- (d) Bedding: cement/sand bedding as per clause 720.
- (e) Joint width: not greater than 2mm.
- (f) Grout: as clauses 875 and 885

MARBLE SLABS FOR INTERNAL WINDOW CILLS

- (a) Stone type and colour: subject to the Engineer's approval.
  - i. Name: Baltic Brown
  - ii. Petrological family: granite
  - iii. Colour: dark brown/black stipple
  - iv. Finish: Polished
  - v. Quality: Free from vents, cracks, fissures, discoloration, or other defects deleterious to strength/colour.
  - vi. Size: length: door width, width: combined thickness of primary wall structure and plastered finish
  - vii. Tolerance on length and width dimensions:  $\pm 1$  mm when nominal length or width is less than 600mm,  $\pm 1,5$  mm when greater than 600mm
  - viii. Thickness: 20 mm+/-10%.
  - ix. Edge finish: half round on one longer side only
  - x. Abrasion resistance to BS 14157: 30

- (b) Background/ Base: hollow concrete blockwork wall or reinforced concrete primary structure.
  - i. Preparation: clean base thoroughly before spreading adhesive
- (c) Intermediate substrate: not required
- (d) Bedding: thick bed cementitious adhesive as per clause 710.
- (e) Joint width: joints to be avoided, but if required for large slabs, not to be greater than 2mm.
- (f) Grout: as clauses 875 and 885

#### MARBLE SLAB FOR VANITY UNIT TOP

- (a) Stone type and colour: subject to the Engineer's approval.
- (b) Name: Baltic Brown
- (c) Petrological family: granite
- (d) Colour: dark brown/black stipple
- (e) Finish: Polished
- (f) Quality: Free from vents, cracks, fissures, discoloration, or other defects deleterious to strength/colour.
- (g) Size: As per bathroom Drawings
- (h) Tolerance on length and width dimensions:  $\pm 1$  mm when nominal length or width is less than 600mm,  $\pm 1,5$  mm when greater than 600mm
- (i) Thickness: 20 mm $\pm$ 10%
- (j) Edge finish: rectified along the edge abutting the wall tiles, half round for the remaining edges.
- (k) Abrasion resistance to BS 14157: 30
- (l) Background/ Base: vanity unit.
- (m) Preparation: clean base thoroughly before spreading adhesive
- (n) Intermediate substrate: not required
- (o) Bedding: Thin bed reaction resin.
- (p) Joint width: not to be greater than 2mm.
- (q) Grout: submit technical literature for approval. Grout in wet areas must be proprietary waterproof anti fungal grout.
- (r) Grouting application as clauses 875 and 885

### **5.4.3 GENERAL**

#### SUITABILITY OF BACKGROUND/BASES

- (a) Background/ base tolerances: To permit specified flatness/ regularity of finished surfaces given the permissible minimum and maximum thickness of bedding.
- (b) New background drying times (minimum):
  - i. Concrete walls: 6 weeks.
  - ii. Brick/ block walls: 6 weeks.
  - iii. Rendering: 2 weeks.
  - iv. Gypsum plaster: 4 weeks.
- (c) New base drying times (minimum):

- i. Concrete slabs: 6 weeks.
- ii. Cement:sand screeds: 3 weeks.

#### **5.4.4 PREPARATION**

##### EXISTING BACKGROUNDS/BASES GENERALLY

- (a) Efflorescence, laitance, dirt and other loose material: Remove.
- (b) Deposits of oil, grease and other materials incompatible with the bedding: Remove.
- (c) Tile, paint and other nonporous surfaces: Clean.
- (d) Wet backgrounds: Dry before tiling.

##### EXISTING PLASTER

- (a) Plaster which is loose, soft, friable, badly cracked affected by efflorescence: Remove. Cut back to straight horizontal and vertical edges.
- (b) Making good: Use plaster or nonshrinking filler.

##### EXISTING PAINT

- (a) Paint with unsatisfactory adhesion: Remove so as not to impair bedding adhesion.

##### NEW IN SITU CONCRETE

- (a) Mould oil, surface retarders and other materials incompatible with bedding: Remove.

##### NEW PLASTER

- (a) Plaster: Dry, solidly bedded, free from dust and friable matter.
- (b) Plaster primer: Apply if recommended by adhesive manufacturer.

##### PLASTERBOARD BACKGROUNDS

- (a) Boards: Dry, securely fixed and rigid with no protruding fixings and face to receive decorative finish exposed.M40/4.7

##### HACKING FOR KEY

- (a) Keying: Roughen backgrounds thoroughly and evenly to a depth of 3 mm.
- (b) Backgrounds to be keyed: All smooth concrete surfaces and all stone masonry surfaces.M40/4.8

##### RAKING OUT FOR KEY

- (a) Soft joints in existing masonry: Rake out to a depth of 13 mm (minimum).M40/4.94.9

##### SPATTERDASHING FOR KEY

- (a) Spatterdash mix:
  - i. Cement: Portland to BS EN 197-1 type CEM I/42.5
  - ii. Sand: Clean coarse.

- iii. Proportions (cement:sand): 1-1.5:2.
- iv. Admixture: Sika Latex.
- v. Consistency: Thick slurry with no segregation.
- (b) Application/ finish: Thrown.
  - i. Thickness: 3-5 mm.
- (c) Curing/ drying: Keep damp until hardened. Dry out to provide securely bonded finish.

#### STIPPLING FOR KEY

- (a) Stipple mix:
  - i. Cement: Portland to BS EN 197-1 type CEM I/42.5.
  - ii. Sand: Clean coarse.
  - iii. Proportions (cement:sand): 1-1.5:2.
  - iv. Admixture: Sika Latex
- (b) Application/ finish: Brush applied to a deep close texture.
- (c) Curing/ drying: Keep damp until hardened. Dry out to provide securely bonded finish.

### **5.4.5 FIXING**

#### FIXING GENERALLY

- (a) Colour/shade: Unintended variations within tiles for use in each area/ room are not permitted.
  - i. Variegated tiles: Mix thoroughly.
- (b) Adhesive: Compatible with background/ base. Prime if recommended by adhesive manufacturer.
- (c) Cut tiles: Neat and accurate.
- (d) Fixing: Provide adhesion over entire background/ base and tile backs.
- (e) Final appearance: Before bedding material sets, make adjustments necessary to give true, regular appearance to tiles and joints when viewed under final lighting conditions.
- (f) Surplus bedding material: Clean from joints and face of tiles without disturbing tiles.

#### SETTING OUT

- (a) Joints: True to line, continuous and without steps.
  - i. Joints on walls: Horizontal, vertical and aligned round corners.
  - ii. Joints in floors: Parallel to the main axis of the space or specified features.
- (b) Cut tiles: Minimize number, maximize size and locate unobtrusively.
- (c) Joints in adjoining floors and walls: Align.
- (d) Joints in adjoining floors and skirtings: Align.
- (e) Movement joints: If locations are not indicated, submit proposals.

#### FLATNESS/ REGULARITY OF TILING

- (a) Sudden irregularities: Not permitted.
- (b) Deviation of surface: Measure from underside of a 2 m straightedge placed anywhere on surface.  
The straightedge should not be obstructed by the tiles and no gap should be greater than 3 mm.



#### LEVEL OF TILING ACROSS JOINTS

- (a) Deviation (maximum) between tile surfaces either side of any type of joint:
  - i. 1 mm for joints less than 6 mm wide.
  - ii. 2 mm for joints 6 mm or greater in width.

#### MORTAR BEDDING

- (a) Bedding mix:
  - i. Cement: Portland to BS EN 197-1 type CEM I/42.5.
  - ii. Sand for walls: To BS 1199, type A.
  - iii. Sand for floors: To BS 882.
  - iv. Grading limit: To BS 8204-1, table 1.
- (b) Batching: Select from:
  - i. Batch by weight.
  - ii. Batch by volume: Permitted on the basis of previously established weight:volume relationships of the particular materials. Use accurate gauge boxes. Allow for bulking of damp sand.
- (c) Mixing: Mix materials thoroughly to uniform consistence. Use a suitable forced action mechanical mixer. Do not use a free fall type mixer.
- (d) Application: At normal temperatures use within two hours. Do not use after initial set. Do not retemper.

#### SIT-ON TILE SKIRTINGS

- (a) Sequence: Bed solid to wall after laying floor tiles.
- (b) Bedding: cement based adhesive.

#### THIN BED ADHESIVE - SOLID (WALLS)

- (a) Application: Apply floated coat of adhesive to dry background in areas of about 1 m<sup>2</sup>. Comb surface.
- (b) Tiling: Apply thin even coat of adhesive to backs of dry tiles. Press tiles firmly onto float coat.
- (c) Finished adhesive thickness (maximum): 3 mm.

#### THICK BED ADHESIVE - SOLID (WALLS)

- (a) Application: Apply floated coat of adhesive to dry background. Comb surface.
- (b) Tiling: Apply thin even coat of adhesive to backs of dry tiles. Press tiles firmly onto float coat.
- (c) Finished adhesive thickness: Within range recommended by manufacturer.

#### THICK BED ADHESIVE - SOLID (FLOORS)

- (a) Application: Apply floated coat of adhesive to dry base and comb surface.
- (b) Tiling: Apply coat of adhesive to backs of tiles, filling depressions or keys. Press tiles firmly onto position.
- (c) Finished adhesive thickness: Within range recommended by manufacturer.

**CEMENT:SAND BEDDING (FLOORS)**

- (a) Mortar bedding mix: 1:3-4 cement:sand.
  - i. Consistency: Stiff plastic.
- (b) Laying: Lay suitably small working areas of screeded bed. Compact thoroughly to level.
  - i. Finished bed thickness: 15-25 mm.
- (c) Tiling: Within two hours and before bedding sets, evenly coat backs of tiles with adhesive. Press tiles firmly into position.
- (d) Finished adhesive thickness: Within range recommended by manufacturer.

**SEMIDRY CEMENT:SAND BED (FLOORS)**

- (a) Mortar bedding mix: 1:3.5-4 cement:sand.
  - i. Water content: A film of water must not form on surface of bed when fully compacted.
- (b) Preparation: Dampen base.
  - i. Laying: Lay suitably small working areas of screeded bed. Compact thoroughly to level.
  - ii. Finished bed thickness (minimum): 40mm
- (c) Tiling: Within two hours and before bedding sets, evenly coat backs of tiles with a neat cement slurry. Beat tiles firmly into position.

**5.4.6 MOVEMENT JOINTS/GROUTING/COMPLETION**

**DIVIDING STRIPS**

- (a) Material: stainless steel.
  - i. Thickness: 6-10mm.
  - ii. Colour: natural.
- (b) Installation: Set to exact finished level of floor.

**STRIP MOVEMENT JOINTS**

- (a) Manufacturer and product reference: submit technical literature to The Engineer.
  - i. Colour: light grey or other approved by architect.
- (b) Joint width: 6 to 12 mm wide.
- (c) Fixing to base integral anchors at 300mm centres.
- (d) Joints: Extend through tiles and bedding to base;

**GROUTING**

- (a) Sequence: Grout when bed/ adhesive has set sufficiently to prevent disturbance of tiles.
- (b) Joints: 6 mm deep (or depth of tile if less). Free from dust and debris.
- (c) Grouting: Fill joints completely, tool to profile, clean off surface. Leave free from blemishes.
  - i. Profile: horizontal.
- (d) Polishing: When grout is hard, polish tiling with a dry cloth.

COLOURED GROUT

- (a) Staining of tiles: Not permitted.
- (b) Type: cement based, to be approved by engineer.
- (c) Colour: to be approved by engineer
- (d) Evaluating risk of staining: Apply grout to a few tiles in a small trial area. If discoloration occurs apply a protective sealer to tiles and repeat trial.
- (e) Mixing: Mix thoroughly. Use the minimum of clean water needed as per manufacturer's instructions.

## 5.5 EXPOSED AGGREGATE CONCRETE PAVING

### 4.5.1 SCOPE OF WORKS

The works are to include the supply, transport and laying of exposed aggregate concrete of the new premises proposed for the Secretariat for Catholic Education. These specifications are to be read with the Contract Conditions, Drawings, Indicative Details and all other documents forming part of this Tender.

### 4.5.2 SPECIFICATIONS

The contractor shall submit technical data for the exposed aggregate concrete which will be used for exterior footpath areas.

### 4.5.3 SAMPLES

Following the award and when requested, the Contractor shall submit a **physical sample of not less than 1m<sup>2</sup>** of the exposed aggregate concrete to be supplied.

Colour and finish are to be similar to below image:



Aggregates are to be roundish marble pebbles rather than angular aggregates. It will be the contractor's responsibility to choose the proper aggregate diameter for the intended application.

It is envisaged that the area being finished with this material will be heavily used by bicycle commuters and thus needs to be smooth but not slippery.

Intended uses: Aggregates for concrete / Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas / Aggregates for mortar:

- EN 12620 - Aggregates for concrete
- EN 13043 - Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas
- EN 13139 - Aggregates for mortar
- EN 13242 - Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction

Material specification to conform to below table:

## Version 1.2 NGO e-procurement document

| Measures                      |                    |           | 0/1                   | 1,8/    | 3/       | 5/       | 8/1      | 12/1     | 16/2     | 22/3     | 30/5     | 50/7     | 70/12    |
|-------------------------------|--------------------|-----------|-----------------------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Intended Uses                 |                    |           | 13139                 | 13139   | 12620    | 12620    | 12620    | 12620    | 12620    | 12620    | 13242    | 13242    | 13242    |
| EN                            |                    |           | 1262                  | 1262    | 1304     | 1304     | 1304     | 1304     | 1304     | 1304     |          |          |          |
| EN Granulometry               | d/D                | EN 933-1  | 0/2                   | 2/4     | 2/5      | 5/8      | 8/12     | 12/16    | 16/22    | 22/32    | 32/56    | 45/80    | 63/90    |
| Fines Content                 | %                  | EN 933-1  | f22                   | F,<br>3 | f1,<br>5 | f1,<br>5 | f1,<br>5 | f1,<br>5 | f1,<br>5 | f1,<br>5 | f1,<br>5 | f1,<br>5 | f1,<br>5 |
| Particle Density              | Mg/ m <sup>3</sup> | EN 1097-6 | 2,7                   | 2,7     | 2,7      | 2,7      | 2,7      | 2,7      | 2,7      | 2,7      | 2,7      | 2,7      | 2,7      |
| Water absorption              | % WA               | EN 1097-6 | 0,80                  | 1,00    | 0,7      | 0,8      | 0,7      | 0,6      | 0,4      | <1,0     | <1,0     | <1,0     | <1,0     |
| Methylene blue                | MB                 | EN 933-9  | 2,<br>6               |         |          |          |          |          |          |          |          |          |          |
| Sand equivalent               | SE                 | EN 933-8  | 3,<br>4               |         |          |          |          |          |          |          |          |          |          |
| Resistance to fragmentational | LA                 | EN 1097   | 2,<br>6               |         |          |          |          |          |          |          |          |          |          |
| Resistance to wear            | M                  | EN 1097   | 15                    |         |          |          |          |          |          |          |          |          |          |
| Freeze/thaw resistance        | %F1                | EN 1367   | F,<br>1               |         |          |          |          |          |          |          |          |          |          |
| Sulphate content              | AS                 | EN 1744-1 | 0, 2                  |         |          |          |          |          |          |          |          |          |          |
| Content of chlorides          | % Cl               | EN 1744-1 | 0<br>,<br>0<br>0<br>1 |         |          |          |          |          |          |          |          |          |          |

Version 1.2 NGO e-procurement document

|                                 |     |           |             |
|---------------------------------|-----|-----------|-------------|
| Total Sulfur                    | % S | EN 1744-1 | 0<br>,<br>1 |
| Polishability Minimum           | PSV | EN 1097   | 42          |
| Humic Substances                | -   | EN 1744-1 | Absent      |
| Release of dangerous substances | -   | -         | Absent      |

Method of application of material to serve as guidance for the contractor

- Prepare A503 Steel Reinforcement (1 in No.) in bays with approved coverage of mesh.  
The steel reinforcement shall be included within the rate for item 4.00 in Bill D.
- Lay Concrete to 0.15m thickness between pre-set formwork or kerbs less 0.03m thick than approved levels.
- After approximately two (2) hours following the casting whereby the concrete would have had its initial set, the 0.03m topping can be prepared and placed at finished concrete casting and its setting time especially when taking into consideration location of works.
- Preparation of topping with mix multiples of 50kgs aggregates, 25kgs sand and 25kgs cement; materials as described in the overlying sections.
- This can be mixed for approximately 5 minutes until thoroughly blended.
- Transport the prepared mix by wheelbarrow over the prepared concrete to the place where it is spread and laid to levels.
- The surface is then trowelled smooth using magnesium, steel and bull floats.
- If required for exposed aggregate the surface retarder is sprayed over the surface after initial set of the topping - perhaps half an hour of laying.

#### **4.5.4 INTEGRALLY COLOURED CONCRETE**

The Contractor shall integrally add a proprietary colour, synthetic iron oxides admixture, to the exposed aggregate concrete mixture. Colour is to be approved by the Contracting Authority.

The colour additive shall be mixed and integrated with the exposed aggregate concrete mixture in accordance with the Manufacturer's Instructions, until colour additives are dispersed through-out the mixture.

The colour additive shall be compatible with any of the components of the exposed aggregate concrete and admixtures to be used.

Minor variations in appearance of integrally coloured concrete that are similar to natural variations in colour and appearance of uncoloured concrete shall be considered acceptable.

## **5.6 MARBLE WORKS**

### **5.6.1 SCOPE OF WORKS**

This documentation overviews Marble Floors / Stairs / Skirting / Sills / Thresholds / Vestibule of the new premises proposed for the Secretariat for Catholic Education. These specifications are to be read with the Contract Conditions, Drawings, Indicative Details and all other documents forming part of this Tender.

This document puts forward a specification for the required designated items. The specification being intended as guidance for the supplier to produce a list of items within the parameters herein put forward.

The materials supplied and workmanship carried out must all conform with the relevant BS and EN standards with particular reference to BS 5385-5:2009 and BS 8000-11:2011

### **5.6.2 GENERAL - SAMPLE SIZE AND FREQUENCY OF SAMPLING**

Where applicable, sample size and frequency of sampling for compliance shall be established on the basis of standard statistical guidelines.

### **5.6.3 SUBMISSIONS**

- (a) The Contractor shall submit shop drawings (including an electronic copy) of layouts & elevations based on the actual 'as-built' shell dimensions of all zones in this contract for approval prior to proceeding with the installation of works. Bedding, bonding, jointing and anchoring details with pertinent dimensions and identifying number of any unique elements are to be shown.
- (b) The Contractor shall submit actual size samples of the elements to be supplied and demonstrate the fixing system proposed in sample areas when so instructed by Architect. Such sample areas shall be formally presented for the approval of the Architect, and once approved, shall be used as quality prototypes against which the quality of the work laid shall be checked.

### **5.6.4 PATTERNS**

Patterns shall be as indicated in the Drawings. The Contractor's shop drawings will be required to indicate tolerances, corner details, detailed methods of fixing, and patterns, to show how the design intent specified will be respected.

### **5.6.5 MARBLE**

- (a) Marble shall be supplied in accordance with the thickness (generally 20mm) and dimensions indicated.



- (b) The surface finish and texture of the marble slabs shall be as indicated in the Drawings or Bills of Quantities. However, when tested in the wet the BNP pendulum test (Wet using rubber 4S) shall exceed 40.
- (c) All marble slabs shall be properly worked, edges to be bevelled throughout the whole thickness or as specified in drawings and are to be laid in lime mortar. All marble shall be polished including all exposed edges.
- (d) Laying shall include grinding and polishing of floors to a perfect smooth finish, and sealing of joints and cleaning.
- (e) Whenever feasible, slabs for window and door sills are to be in one piece.
- (f) Marble shall be supplied in the widths and lengths indicated in the approved shop Drawings, and shall be laid in the patterns indicated. Strips shall be laid with their edges forming straight unbroken lines, with the surrounding tiles, in each direction, to produce even flat surfaces (or laid to falls where so indicated), without ridges or corrugations.
- (g) Marble shall be shop cleaned at the time of final fabrication. After installation and pointing or caulking are completed, the contractor shall carefully clean the marble, removing all dirt, excess mortar weld splatter, stains, and/or other site incident defacements. Solutions which may cause discoloration are expressly prohibited.
- (h) Two anti-slip edge strips are to be incorporated at the edge of each marble step in consultation with Architect. These strips shall be a minimum of 12mm wide and spaced 25mm from each other and from the edge of the tread. These strips are to extend to within 100mm from the side edges of the marble treads.
- (i) After the marble work is installed, it shall be the responsibility of the Contractor to see that it is properly protected from damage. Boxing or other suitable protection shall be provided wherever required, but no lumber which may stain or deface the marble shall be used. All marble work in progress shall be protected at all times during construction by use of a suitable strong, impervious film or fabric securely held in place.

#### **5.6.6 LIME AND FINE AGGREGATE FOR MORTAR**

Lime used in mortar bedding shall conform with the appropriate standard. Sand shall conform to Type A in BS EN 13139: 2002. Coarse aggregate shall conform to BS EN 12620: 2002. Preparation of mortar bases shall conform to BS 8204-1:2002.

#### **5.6.7 DELIVERED ELEMENTS**

- (a) Elements delivered on site shall be checked to ensure that they are:
  - i. Undamaged, and their edges and corners not chipped;
  - ii. Of the specified dimensions and geometry;
  - iii. Worked so that the material bedding is normal to applied loading;
  - iv. Worked so that the joints are at right angles to the direction of the pressure exerted on them in conditions of use in the final position.

- (b) Elements delivered on site shall be handled by hand or tackle, crane or other suitable mechanical aids, in such a way as not to cause any damage, and shall be stored in a manner that provides adequate protection from humidity, mechanical damage, distortion, contamination or deterioration. Whenever possible, materials should be handled on the suppliers' pallets, cases or other packing. Lifting hooks, slings and forks shall be used only at the places, and in the manner intended by the manufacturer or supplier. Vulnerable edges shall be protected by spreaders placed under the load. Materials intended for use as whole units shall not be tipped or dumped upon delivery to site.

#### **5.6.8 APPLICATION AND LAYING**

- (a) Where applying units to walls, soft joints shall be raked out to a depth of at least 13mm, in order to provide additional key. Where hacking of a surface is required for additional key, backgrounds shall be roughened thoroughly and evenly, removing a surface to a depth of circa 3mm. Backgrounds shall be wet before applying tiling.
- (b) Lime-bedding for paving shall be mixed to a uniform stiff consistency, and laid with a finished bed thickness of 15 to 25mm.
- (c) Joints shall be true to line, continuous, and without steps. Joints on walls shall be aligned around corners, and to vertical and horizontal lines. Joints on floors shall be aligned to the main axis or to other features in the floors. Joints in floors and in skirting shall be aesthetically balanced. Setting out patterns around openings, fittings, movement joints, drainage points, or other features as indicated by Architect, shall be submitted for the approval of Architect before proceeding.
- (d) Skirting is generally of the sit-on type and bevelled top, that is, skirting shall be bedded to the walls after laying floor tiles. Where raised floors are used, skirting shall be fixed to the walls in such a manner that the floor tile can be removed without any damage to the skirting or tile.
- (e) Floor movement control joints in floors shall be proprietary metal section movement joints. They shall normally consist of aluminium side plates. The joint shall be filled with a polychloroprene (neoprene) rubber insert, in black, grey, or beige, depending on the colour of the adjacent flooring.
- (f) The sections shall be suitable for fixing in a lime mortar bedding, and shall be fixed to the base by means of stainless-steel screws, washers and plugs as instructed by the manufacturer. The joints shall include stainless steel tie bars, and flexible foam rubber "tails", as necessary, for fixing depths greater than 40mm. The joints shall be centred over the joint in the base and shall be set to the exact finished level of the floor.
- (g) All Works shall be accurately set out in accordance with Section 6 of BS 5606: 1990, Guide for Accuracy in Buildings. Existing benchmarks shall be protected and all critical co-ordinate points shall be marked in such a manner that they cannot be removed. Diagonal measurements shall be used to check for squareness, normally after the first line of tiling, and approval sought from Architect, prior to the continuation of the work.
- (h) After installation, but before any dirt or contamination can enter the joints, all joints shall be grouted with proprietary grouting by sweeping and rubbing to match the material colour.

- (i) Superfluous grout shall be washed clean off the finished surface after the grouting has nearly set and the tiling is to be left clean for inspection. All excess material is to be removed.

#### **5.6.9 SETTING OUT**

- (a) When setting out the works the Contractor shall:
  - i. Establish a centreline in each plain area,
  - ii. Obtain true and straight joint lines,
  - iii. Ensure that cut lines are neat, kept as large as possible and are laid to present a balanced appearance.
- (b) The Contractor shall submit proprietary literature for the grout that shall be used in all areas. This literature should indicate that the grout conforms to the requirements or the appropriate standards of hygiene that are determined by the use of the areas as specified.
- (c) Wherever site layout discrepancies occur the contractor shall draw attention to the Project Manager prior to proceeding with his works.

#### **5.6.10 GRANULAR FILL FOR BRINGING UP LEVELS**

- (a) Granular fill material for bringing areas up to level shall be crusher processed franka material.
- (b) Compaction shall be carried out at the material's Optimum Moisture Content (+/- 2%) in compacted layers not exceeding 150mm in depth. Segregation of material shall be avoided.
- (c) The finished surface levels of granular material shall have a tolerance of +/-20mm.
- (d) The Contractor shall adopt the requirements for grading complying with specification "Granular Fill".
- (e) The contractor will assure that no organic, metal, or other material that might cause staining to the marble after installation is contained within the granular fill.

#### **5.6.11 LEVEL SURVEYS**

- (a) A level survey is mandatory prior to and on completion of fill operations. This shall be intended to include any superimposed new layer. This survey shall be along an adequate grid to be jointly established with Architect.
- (b) The Contractor shall check that all preparatory work is sufficient, that the levels and tolerances required for his work have been achieved, and if not, shall carry out remedial work to correct such levels or tolerances.
- (c) All walls which are to receive marble tiling are to be properly treated to achieve a good key.
- (d) All waterproofing works shall be completed before installation of granite and marble elements. Nevertheless, the Contractor shall check such water-proofing layers where still exposed, and may be required by the Architect to carry out remedial work prior to Installation of tiling. In particular, the Contractor shall check that any top edges of water-proofing membranes are sealed using proprietary tape, or equivalent, prior to covering with marble.
- (e) Horizontal surfaces shall be laid to the falls where indicated on the Drawings.

- (f) The newly laid materials shall be cleaned from all traces of lime, adhesive or sealant by the use of proprietary detergent materials, as recommended by the manufacturer, and in accordance with the manufacturer's instructions.
- (g) The Contractor shall make good any damage to paintwork, walls etc and shall be responsible for cleaning up after completion of the work.

#### **5.6.12 COMPLIANCE – TESTING AND CERTIFICATION**

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

## **5.7 UNPLASTICIZED POLYVINYL CHLORIDE (PVC-U/uPVC) APERTURES**

### **5.7.1 SCOPE OF WORKS**

- (a) This documentation overviews the uPVC apertures of the new premises proposed for the Secretariat for Catholic Education. The extent of the areas concerned is shown on the drawings. These specifications are to be read with the Contract Conditions, Drawings and all other documents forming part of this Tender.
- (b) The works comprise the supply, hoisting, preparation of the primary support structure, installation, sealing, testing and commissioning of all aluminium works including glazing, apart from the aluminium, glazing and cladding works of the façade specified under section 3.
- (c) The works consist of:
  - i. Door assemblies to the secondary facades.
  - ii. Window assemblies to the secondary facades.
  - iii. Windows and/or other apertures to the courtyard and shafts.
  - iv. Screening to services / louvered zones / shaft covers.
- (d) The contractor will be handed over the site with the reinforced concrete structure with blockwork walls complete in rendered form. Floor surfaces will be handed over prepared for the fixing of the door/window frames to the superstructure but the tenderer is to allow for all necessary coordination and related works with the water proofer, the floor-tile layer and other tradesmen. Following the initial preparation by others, which works are related (but not limited) to waterproofing, floor level markings by surveyors and rain water drain installation, aluminium assemblies shall be installed prior to the final internal and external floor tiling.
- (e) The tenderer understands that he will be required to co-ordinate the aluminium and glazing works with other works and will not be entitled to claims for any such co-ordination or for any delays arising out of co-ordination programming requirements.

### **5.7.2 WORKING AT HEIGHTS (WHERE REQUIRED)**

If the Contractor shall be required to work at heights, they shall be using appropriate plant, machines and equipment and in accordance with local health and safety regulations and legislation. The Contractor is to refer to specification R-1 Specification for Scaffolding and Shoring.

### **5.7.3 SIZE (DIMENSIONS)**

The door and window size (dimensions) shall be checked and measured individually on site by the Contractor. Dimensions on drawings and Bill of Quantities are indicative for estimate purposes only.

#### **5.7.4 TYPE AND OPENING ARRANGEMENT**

The door and window type and opening arrangement (hinges, sliding, etc.) shall be as indicated in the Drawings and/or Bills of Quantities.

#### **5.7.5 ACCESS FOR ALL REQUIREMENTS (CRPD)**

Door and window apertures shall comply with the 'United Nations Convention on the Rights of Persons with Disabilities Act', Cap. 627 of the Laws of Malta.

#### **5.7.6 COMPLIANCE STANDARDS, PERFORMANCE CHARACTERISTICS AND FUNCTIONAL REQUIREMENTS**

Door and window apertures and their installation shall comply with all current European Standards, British Standards, Codes of Practice and Building Regulations relevant to their performance.

The window and door assemblies shall be manufactured and installed to the highest quality levels and the manufacturer/supplier/installer may be asked to produce certified evidence that they comply with the following standards: -

- i. The Glass and Glazing Federation (GGF) Trade Standards for uPVC Windows.
- ii. BS EN ISO 9001: 2008 and BS EN ISO 9002 'Quality Systems Model for Quality Assurance in Production, Installation and Servicing.'
- iii. BS EN 1026:2016 'Windows and Doors. Air Permeability. Test Method' and BS 6375-1:2015+A11:2016 - 'Performance of windows and doors - Classification for Weathertightness and Guidance on Selection and Specification' or the equivalent EN standard.
- iv. BS EN 12608 - The uPVC profiles shall be designed for use in a severe climate, S. 41.6.3 Windows and doors must meet the following ratings in respect of Exposure Category

Windows and doors must meet the following ratings in respect of Exposure Category B:

- i. Air permeability 600Pa
- ii. Water tightness 300Pa
- iii. Wind resistance 2000Pa

The performance of window/door apertures shall be in accordance with:

- BS EN 12608-1:2016+A1:2020 'Unplasticized poly(vinyl chloride) (PVC-U) profiles for the fabrication of windows and doors. Classification, requirements and test methods - Non-coated PVC-U profiles with light coloured surfaces'.
- BS 7412:2007 - 'Specification for windows and doorsets made from unplasticized polyvinyl chloride (PVC-U) extruded hollow profiles'.
- BS 6375 Part 1:2015+A1:2016, BS 6375 Part 2:2009, BS 6375 Part 3:2016+A1: 2013 - 'Performance of windows and doors. Classification of weathertightness and guidance on selection and specification'.
- BS EN 12207:2016 - 'Windows and doors. Air permeability'.
- BS EN 12208:2000 - 'Windows and doors. Watertightness. Classification'.

- BS EN1027:2016 - 'Windows and doors. Watertightness. Test method'.
- BS EN 12211:2016 - 'Windows and doors. Resistance to wind load. Test method.'
- BS 8213-4:2016 - 'Windows and doors - Code of practice for the survey and installation of windows and external doorsets'.

The ground floor apertures and those that are easily accessible from external areas must have key operated locks (unless designated "Egress" in which case key locks are not permitted) and laminated glass external leaves. Toughened or tempered glass in these locations is not acceptable.

The structural frame assemblies and installations must be capable of withstanding and accommodating satisfactorily wind loads and pressures in accordance with the requirements of BS EN 12211:2016.

The window assemblies must incorporate concealed drainage dispersal methods that discharge clear of the structure.

All screws, nuts, bolts, rivets and other fastenings shall be of corrosion resistant or treated material, eg. austenitic stainless or ferretic steel, bi-chromate treated steel and be compatible with other metallic fixings used in the manufacture of the window, in accordance with BS EN 1670:2007.

Generally, hardware and ironmongery fittings and fixings are to penetrate at least two thicknesses of the uPVC profile and/or penetrate the reinforcement by at least 2mm. Fixing positions shall comply with BS 8213:2016.

Each aperture must be permanently marked or labelled in an unobtrusive position that is not visible when the window is shut. The name or trademark of the fabricator must be included in such label.

### **5.7.7 REINFORCEMENT**

Reinforcement in uPVC apertures may be required in order for the aperture to:

- i. withstand excessive deflection due to heat warping, wind load or glass weight;
- ii. assist in keeping the profile straight;
- iii. assist in transportation and installation
- iv. provide local support to hardware and mechanical fixings
- v. enhance security
- vi. control the deformation of the profile due to temperature fluctuations.

The particular aperture size, style, application and the individual system used will determine if reinforcement may be required in uPVC apertures. If used, the internal reinforcement shall conform to the British Plastics Federation publication 323/1 and BS 7412:2007.

Reinforcement must be non-hygroscopic, meaning that it will not readily take up and retain any moisture. Moreover, it must have no adverse effect on the performance of the uPVC aperture.

Reinforcement made of mild steel sheet, hot-dip zinc coated (conforming to BS EN 10346:2015) and with coating designation Z275, shall only be used in profiles or systems designed and sealed so that no exterior moisture can come into contact with the reinforcement.

Reinforcement is to be fixed to the profiles at 300mm centres. Chambers accommodating such reinforcement must be properly sealed in order to eliminate any possibility of moisture ingress.

Austenitic stainless steel sheet or strip must conform to BS EN 10088-2:2014 'Stainless steels. Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes'.

Extruded aluminium alloy may also be used and must conform to BS EN 485-2-2:2016 +A11:2018 'Aluminium and aluminium alloys. Sheet, strip and plate Mechanical properties'.

Details of the reinforcement and the standards conforming to, must be shown clearly on the detailed manufacturing (shop) drawings

Where apertures cannot achieve the specified gusting requirements in the relevant standards, they shall be sub-divided with columns incorporated between the divisions. These structural columns must meet the specified gusting requirements and expressed in Pascals or km/h.

#### **5.7.8 LOAD BEARING APERTURES**

If an aperture is required to be structural or load bearing, the new aperture must be designed to take the same loads by means of structural members, corner posts, etc. These must fully and adequately transfer the specified loads to the structure beneath the window.

The Contractor must provide adequate temporary support during the dismantling, installation and all works related to such apertures. Calculations proving the adequacy of the structural members (temporary and permanent) must be provided.

#### **5.7.9 WINDOW MANUFACTURE**

All joints associated with uPVC window frame and sashes are to be hot fusion welded.

The joints must be completely moisture resistant and not permit any penetration into the profiles either externally or internally.

The residue of material resulting from hot fusion welded joints are to be carefully removed and neatly routed to just below the surface leaving a uniformed recessed feature.



All profile sections are to be multi-chambered extruded white/coloured uPVC as stated in the Drawings or Bill of Quantities. No reworked material must be used. The system must enable adequate drainage to be incorporated away from the central reinforcement chamber, regardless of the positioning of the profile. The raw material shall comply with the “British Plastics Window Group and Glass and Glazing Federation” Trade Standard for UPVC windows.

#### **5.7.10 POSITION OF WINDOW FURNITURE**

Window furniture to opening lights is to be positioned so that the handle etc. can be easily operated by the resident and according to the ‘United Nations Convention on the Rights of Persons with Disabilities Act’, Cap. 627 of the Laws of Malta.

Window furniture in kitchens and bathrooms is to be positioned on the opening light such that it can be easily reached by an average sized person leaning over sanitary and kitchen fittings, that is, below the centre line within the limit of the design of the window.

#### **5.7.11 GLASS AND GLAZING**

All windows are to be glazed with clear (unless otherwise stated in the Drawings and Bill of Quantities) laminated double/triple glazed sealed units (depending on the thermal Uvalue requirement of the window, that is, U-value of the frame + glazing) and shall comply with BS EN 1279:Parts 2,3 and 5. The u-value specified in the respective Bill of Quantity item, must be certified by the manufacturer. The glass shall be free from bubbles, scratches and other flaws. The glass shall be retained by suitable UPVC snap-on beads matching existing frame.

If apertures are required to have double or triple glazing to meet the specified Uvalue, the external panel shall consist of low emissivity (low-e) glass panel.

#### **5.7.12 WINDOW TYPES**

##### **SIDE AND TOP HINGED WINDOWS**

The side hinged casements and top hinged vents shall be fitted using two (2) stainless-steel projection hinges (friction stays) that allow cleaning when fully open. The locking mechanisms shall be multi-point espagnolette type. The gearing must enable the locking handle to be fitted in the lower third part of the sash and must engage into jambs, heads and sills/transoms and be coated with an anti-corrosion coating. The locking handle shall match aperture colour and provided with two (2) keys. All hardware shall meet the requirements of BS 7412:2007.

#### **TILT AND TURN**

The gearing for the “tilt” and “turn” modes must not be capable of being operated simultaneously such that the opening light is pivoted on one hinge. Windows shall therefore be fitted with a switch barrier to prevent this occurring. The tilt and turn safety feature shall ensure that the ‘tilt’ or ventilation option occurs first, followed by the ‘turn’ or cleaning option. The locking mechanisms shall be multi-point espagnolette type, operating around the sash. The number of locking points shall be dependent upon the window size. An anti-switch barrier shall be fitted to prevent selection from tilt to turn, while in the tilt and vice- versa. The window shall be closed before the alternative mode may be selected.

#### **5.7.13 FASTENING AND FIXINGS**

All screws, nuts, bolts, rivets and other fastening shall be of corrosion resistant material, stainless steel 300 series or other equal and approved. Where surface fixed and generally seen, screws, etc to match frame colour.

#### **5.7.14 MASTIC SEALANTS**

The mastic sealant for external/internal pointing shall be Low Modulus Silicone and must be compatible with the adjoining structure. The backing strip shall be “High Density Polyethylene Foam”. Both materials are to be used in strict accordance with the manufacturer’s instructions. Where recommended by the Manufacturer an appropriate primer must be used and applied in strict accordance with their instructions.

The depth of sealant is to be 10mm minimum to the full width of the gap with a backing strip used where necessary. The sealant must be applied in accordance with manufacturer’s instructions.

#### **5.7.15 DOORS**

Each door to be capable of being operated and locked from both inside and outside with the exception of emergency escape doors which must only be locked on the inside with a thumb turn.

Each door is to be hung on a minimum of three heavy duty hinges with zinc die cast bodies, nylon bushes and stainless-steel security pin. External projecting hinges shall not be used unless with prior approval in which case they must be a type where it is not possible to “punch out” the hinge pin, that is, a security screw to prevent removal of centre pin should be included. Inward opening doors to have a door stop.

Handles are to be satin anodised aluminium lever handles internally and externally with satin anodised aluminium back plates.

Doors to have multi point locking espagnolette bolt system operated by a six lever cylinder lock.

#### **5.7.16 ARCHITECTURAL MUNTINS (WHERE REQUIRED)**

The door/window apertures shall include fully-assembled architectural profiled muntin grids as indicated on the drawing. Each exterior and interior grid shall be aligned exactly back-to-back to simulate divided

lites (SDL type). Insulating glass panels shall have spacers in between the glass panels spacers aligned with muntins.

The muntin grid system shall be finished to match the uPVC frame unless otherwise noted.

Fully-assembled muntin grids shall have a profiled perimeter anchoring flange member profiled to resemble the mid-muntins and must not interfere with the adjacent glazing. Muntins shall be fixed in such a way as to be easily removable for maintenance purposes to allow for future glass washing or replacement of glazing units. Clear or same-coloured silicone cushion 'buttons' or equivalent shall be applied on all grid intersections where the muntin rests against the glazing when the muntin grids are placed against each glazed surface so as to prevent noise and allow for positive water-wash.

#### **5.7.17 GUARANTEE**

The aperture comprising all PVC-U profiles, sections, etc, shall be guaranteed for a minimum of 10 years. A 10-year guarantee is required for the hermetic seal to the doubleglazed/triple-glazed units and mastic sealants. The normal guarantees provided by the manufacturers of all other components i.e., ironmongery, gearing etc, will be accepted provided they are for a minimum of 12 months.

#### **5.7.18 MAINTENANCE MANUALS**

The contractor shall provide the Contracting Authority with three copies of a Technical Maintenance manual after completion of works, which is to incorporate:

- i. a set of record drawings.
- ii. a complete list of all components used in the windows and doors including names and addresses of the manufacturers of those components and availability of spares.
- iii. a detailed description of reglazing procedure.
- iv. all other relevant information regarding cleaning, maintenance etc.

## 5.8 INTERNAL TIMBER DOORS

### 5.8.1 SCOPE OF WORKS

This documentation overviews the Internal Timber Flush Doors of the new premises proposed for the Secretariat for Catholic Education. These specifications are to be read with the Contract Conditions, Drawings, Indicative Details and all other documents forming part of this Tender.

This document puts forward a specification for the required designated items. The specification being intended as guidance for the supplier to produce a list of items within the parameters herein put forward.

### 5.8.2 PRODUCT DESCRIPTION

#### ITEM CLASSIFICATION

The doors are to be a solid core flush door. The door system components include: door panels, door frame, hinges and ironmongery.

#### MATERIALS

##### (a) Wood Veneer Door Panel

- i. Stiles: laminated timber stiles running full length of the door
- ii. Rails: laminated timber
- iii. Cross banding (if included): high density tempered hardboard
- iv. Core: medium density particleboard or similar material
- v. Finished edges: solid wood to match face veneers, bonded to stile and cross band.
- vi. Face veneers: Door facing is to be a wood veneer, this being bonded to stiles, rails and hardback cross band.

##### (b) Plastic laminate Door Panel

- i. Core: medium density particleboard or similar material
- ii. Flush Door Facing:
- iii. High pressure decorative laminate
- iv. Apply faces prior to edges.
- v. Option for stiles to be a close grained hardwood - stained or painted to coordinate with face.

#### DOOR FRAMES

Factory produced fully assembled sets including frame, architraves and ironmongery. Wood jambs shall be in solid wood matching door facing. Hinge jamb for a 35 mm thick door is to be machined for standard weight radius mortise (3 ½” hinges) while for thicker than 45mm this is to accept 4” hinges.

#### HINGES

For up to 2.10 metres three (3) standard weight hinges are required. Four (4) hinges are required for doors greater than 2.10 metres. Hinges are to be in stainless steel or any other similar non corrosive metal.

Location of hinges: as per door technical details.

#### IRONMONGERY

Stainless steel (or equivalent metal door furniture material) door handle with integral key lock.

#### GLAZING IN TIMBER DOORS

Glazing beads shall be hardwood, matching the timber of the door, and shall be non-removable externally, (dismantling only on the inside). Beads shall cover the depth of the rebate and have mitred joints at corners. Intumescent glazing channels are to be installed wherever fire resistant glazing is in contact with timber.

### **5.8.3 EXECUTION**

#### SITE DIMENSIONS

The Contractor is responsible to verify the dimensions given in the Door Schedules with those on site and record any variances on an updated Door Schedule as per Clause 11.3.2.

#### DOOR SCHEDULE

Contractor to prepare a detailed door schedule and working drawing for approval, prior to ordering components.

#### ASSEMBLY

- (a) Adhesive: PVAC to BS EN 204 or as per item technical specifications
- (b) Joinery workmanship: As per standard section Z10 - Standard Performance for Joinery - L20 Internal Doors and Frames.
- (c) Accuracy: To BS 4787-1.

#### FINISH

- (a) The product is to be delivered to the site finished and ready to be installed.
- (b) The finish is to be with transparent (natural colour / grain) polyurethane (two-pack) sprayed finish or as per door technical specifications.

### **5.8.4 DELIVERY / STORAGE / HANDLING**

#### EVIDENCE OF PERFORMANCE

- (a) Certification
  - i. Provide per individual product certified evidence that all incorporated components comply with the specified performance requirements.

(b) Control Samples (Procedure)

- i. Finalize details of components listed.
- ii. Fabricate one of the designated items as part of the quantity required for the project.
- iii. Obtain approval of appearance and quality before proceeding with manufacture of the remaining quantity.

## 5.8.5 INSTALLATION

### PROTECTION OF COMPONENTS

(a) General:

- i. Do not deliver to site any components that cannot be installed immediately or placed in clean, dry, floored and covered storage.
- ii. Any stored components shall be stacked on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

(b) Priming/Sealing:

- i. Wood surfaces inaccessible after installation: Primed or sealed as specified before fixing components.

(c) Fixing Doorsets:

- i. Timing - After building is made weather tight and the work of wet trades is finished and dried out.
- ii. Built in wood frames:
  - a.(Built in wood frames) method of fixing: To backs of frames using galvanized anchor screws with plastic expandable anchors.
  - b. (Prepared openings) location: Correctly positioned in relation to door frames. Do not displace during fixing operations.
- iii. Fixing wood frames:
  - a.Spacing of fixings (frames not predrilled): Maximum 150 mm from ends of each jamb and at 1000 mm maximum centres.
  - b. All vertical members to be fixed plumb. Any additional space between substructure and frame to be packed with timber spacers at fixing points.
- iv. Sealant Joints:
  - a.Sealant
  - b. Manufacture: Acrylic sealant.
  - c.Product reference: submit literature for the approval of the Architect.
  - d. Colour: white.
  - e. Application: To prepare joints. Triangular fillets finished to a flat or slightly convex profile.
- v. Fixing Ironmonger Generally
  - a.Fasteners: Supplied by ironmongery manufacturer.
  - b. Finish/ Corrosion resistance: To match ironmongery.
  - c. Holes for components: No larger than required for satisfactory fit/ operation.

- d. Adjacent surfaces: Undamaged.
- e. Moving parts: Adjusted, lubricated and functioning correctly at completion.

#### **5.8.6 GENERAL PERFORMANCE**

- (a) Fire resistance rating: Not applicable.
- (b) Sound insulation rating: Minimum STC of 31. This is the normal sound transmission class (STC) for a 35 mm thick Flush door panels with wood veneer facings and particleboard core.
- (c) Glazing details: Not applicable
- (d) Perimeter seals: Required
- (e) Brush seal: Not required
- (f) Fixing: Screwed and plugged.
- (g) Preservative treatment: organic solvent as BWPDA Commodity Specification C5; desired service life: 30 years.

## **5.9 FALSE CEILINGS**

### **5.9.1 GENERAL**

This documentation overviews the False Ceilings of the new premises proposed for the Secretariat for Catholic Education. These specifications are to be read with the Contract Conditions, Drawings, Indicative Details and all other documents forming part of this Tender.

This document puts forward a specification for the required designated items. The specification being intended as guidance for the supplier to produce a list of items within the parameters herein put forward.

The materials and products used in the construction of suspended ceilings / ceiling linings shall comply with the requirements of this European Standard (BS EN 13964: 2004) or any other appropriate European Standard.

Access Panels, lighting points, fire detection and sprinklers, air conditioning supply and return, etc to be fully coordinated with services contractor and architect in due course.

### **5.9.2 DESCRIPTION OF WORK**

All works are to be installed to slopes as shown in the drawings, including all penetrations in the gypsum ceiling for all services. Works of this section include, but are not limited to, the following:

- i. All hangers and support system fully co-ordinated with building contractors included but not limited to location of fixing points with precast double T beams, including defining locations of any penetration through the web of the beam, frequency and distance from bottom edge
- ii. Any local reinforcement required to cater for the loads of the supported integrated services equipment, all edge beadings trim in aluminium or other approved equivalent, all shadow trim against wall, and other necessary accessories for a complete installation
- iii. Fire retarding qualities

### **5.9.3 SUBMITTALS**

Product Data: Contractor to submit manufacturer's specifications and installation instructions with project conditions and materials clearly identified or detailed for the required systems.



**5.9.4 GYPSUM FALSE CEILINGS****SYSTEM REQUIREMENTS**

- (a) Performance Requirements: Fabricate and install systems as indicated but not less than that required to comply with BS EN 13964: 2004 under the following condition: Maximum deflection is given in Table 6 (Class 1).

**Table 6 — Classes of deflection**

| Class                                                                                                                                                                                                                                          | Maximum deflection in mm <sup>A</sup> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| 1                                                                                                                                                                                                                                              | $L^B / 500$ and not greater than 4,0  |
| 2                                                                                                                                                                                                                                              | $L^B / 300$                           |
| 3                                                                                                                                                                                                                                              | No limit                              |
| <p>A The maximum deflection is the accumulative value of the deflection of the substructure component and the deflection of the membrane component</p> <p>B L is the span in mm between the suspension components or the suspension points</p> |                                       |

- (b) Material & Products shall comply with Clause 4.1 of BS EN 13964: 2004.
- (c) Mechanical Resistance shall comply with Clause 4.3 of BS EN 13964: 2004. Substructure Materials shall comply with Clause 4.3.2.2.
- (d) Safety in case of Fire shall comply with Clause 4.4 of BS EN 13964: 2004.
- (e) Hygiene, health and environment - Toxic gasses and dangerous substances shall comply with Clause 4.5 of BS EN 13964: 2004.
- (f) Durability shall comply with Clause 4.8 of BS EN 13964: 2004, with a Class B exposure in Table 7.

**Table 7 — Classes of exposure**

| Class | Conditions                                                                                                                                           |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| A     | Building components generally exposed to varying relative humidity up to 70 % and varying temperature up to 25 °C but without corrosive pollutants.  |
| B     | Building components frequently exposed to varying relative humidity up to 90 % and varying temperature up to 30 °C but without corrosive pollutants. |
| C     | Building components exposed to an atmosphere with a level of humidity higher than 90 % and accompanied by a risk of condensation.                    |
| D     | More severe than the above.                                                                                                                          |

**PROJECT CONDITIONS****Environmental Requirements:**

- i. Do not install gypsum board when ambient temperature is below 6 °C.
- ii. For adhesive attachment of gypsum board, and for finishing of gypsum board, maintain ambient temperature above 14 °C from one week prior to attachment or joint treatment, and until joint treatment is complete and dry.

### **5.9.5 GYPSUM BULKHEAD**

#### **COMPLIANCE**

- (a) Where applicable, sample size and frequency of sampling for compliance shall be established on the basis of standard statistical guidelines.
- (b) Where applicable, compliance shall be demonstrated through testing and/or certification of products and/or processes as outlined in the ensuing clauses.

#### **GYPSUM PLASTERBOARD**

- (a) Gypsum plasterboard shall comply with EU Directive 89/106/EEC as implemented by the relevant decision.
- (b) General requirements, characteristics and test methods for gypsum plasterboard shall comply with EN 520.
- (c) The gypsum plasterboards shall be installed in accordance with the recommendations of the Manufacturer.
- (d) The Contractor shall abide fully with the manufacturer's installation guidelines and recommendations. A copy, in English, of these guidelines shall be submitted to the Project Manager before the commencement of the installation.

#### **METAL FRAME SUPPORT SUB-STRUCTURE**

- (a) The support frame and channels shall be installed in accordance with the recommendations of the Manufacturer.
- (b) The Contractor shall abide fully with the manufacturer's installation guidelines and recommendations. A copy, in English, of these guidelines shall be submitted to the Project Manager before the commencement of the installation.
- (c) The support frame shall comply with BS EN 10142 and BS EN 10143, Specification for continuously hot-dip metal coated steel sheet and strip.

#### **SEALING**

The boards shall be sealed to using a proprietary sealant recommended by the manufacturer.

#### **DEFLECTION LIMIT**

The limiting deflection of the system shall be as indicated by the Manufacturer.

### **5.9.6 MINERAL FIBRE SUSPENDED CEILING**

#### **GENERAL**

Suspended ceilings shall comply with EU Directive 89/106/EEC and carry the CE mark. Technical requirements shall be as indicated in BS EN 13964, Suspended Ceilings, Requirements and Test Methods.

Unless indicated otherwise in the Drawings or BOQ the suspended ceilings shall consist of 600mm x 600mm Mineral Fibre Tiles (Regular Type) supported by exposed grid system for 24mm T Section.

The metal fixing system shall be a framework grid of lightweight corrosion-resistant steel or aluminium alloy. The framework, 24mm wide T-section flanges, shall be suspended or fixed to the main structure. The areas of installation of this system are indicated in drawings AR\_F\_L-1 and AR\_F\_L0.

#### COMPLIANCE

- (a) Compliance shall be demonstrated through testing and/or certification of products and/or processes as outlined in the ensuing clauses.
- (b) Where applicable sample size and frequency of sampling for compliance shall be established on the basis of standard statistical guidelines.

#### SUBSTRUCTURE

- (a) The deflection Class shall be Class 1 as per EN 13964.
- (b) The system shall be capable of sustaining 2.5 times its dead weight.
- (c) Mineral fibre false ceilings shall be suspended by grid system of hot galvanized steel strips, unalloyed steel DX51D+Z to EN 10142, other types of steel as specified in EN 13964 or aluminium alloys to EN 573-3 having a yield (0.2%) of at least 160N/mm<sup>2</sup>.
- (d) The system shall be capable of sustaining its integrity and stability during normal internal wind pressure loading.
- (e) Hangers shall be of the sliding/adjustable type, the two ends connected by a proprietary clip. The wire ends must always overlap the spring by at least 15mm.  
The connection between the hangers of the suspended ceiling and the concrete soffit is to be made using fisher expansion plugs and stainless steel screws. In steel beam construction, hangers must be attached to steel beams using metal clamps.  
Hangers should be CE marked, with the permissible load of the hangers and their fastenings in accordance with EN 13964. They should be installed vertically and splayed/angled only in exceptional cases.

#### FIRE CLASSIFICATION

The system shall be rated in accordance with EN 13501-1.

#### CLASSES OF EXPOSURE

The system shall be classified as exposure Class C (EN 13964).

#### HYGIENE

The system shall be rated as asbestos-free and as Class E1 with respect to formaldehyde release.

#### COMPATIBILITY WITH ELECTRICAL INSTALLATION

The system shall have the capability of permitting electrical installation to Cenelec Standard HD 384

### CORROSION PROTECTION

The corrosion protection shall be that indicated in EN 13964 for exposure Class C. Provision is to be made for linear expansion of the panel grid system. It is essential that the suspended ceiling should be constructed to reduce to a minimum transfer of heat to any structural members above it. Therefore panels are to make close contact with the ceiling grid and the integrity of the ceiling system is to be maintained at all points.

The size and positioning of the lighting units and ceiling fans which are to be accommodated within the suspended ceiling will be indicated on the drawings and confirmed on site. The supply and installation of these units will be done by others. However works are to include for cutting and making access to lighting units and ceiling fans. The system shall providing easy access to lighting and other services and adequately restrict dust accumulation. Ceilings should be easy to clean and have smooth and attractive finish.

Prior to all work described in this section the contractor carefully inspect the installed work for all other trades and verify that all such work is complete to the point where the installation may properly commence. The suspended ceiling is to be installed in strict accordance with all pertinent codes and regulations, the selected design, specifications, manufacturer's recommendations and the reference standards. The Contractor shall ensure that all structural ceilings are clean and fit to receive the suspension grid system and perimeter work. The Contractor shall check that any pre-fixed suspension points are secure and correctly positioned.

### PERFORMANCE CHARECTERISTICS

| MINERAL FIBRE TILES - GENERAL            |                           |
|------------------------------------------|---------------------------|
| Surface Finish                           | Fine Texture              |
| Colour                                   | White similar to RAL 9010 |
| Perforations                             | Micro                     |
| Thickness                                | 15mm min.                 |
| NRC                                      | 0.55                      |
| Sound attenuation                        | Dn,c,w 34dB               |
| Humidity Resistance                      | ≥ 85%                     |
| Light reflectance                        | ≥ 80%                     |
| Fire EuroClass                           | A2-s!. d0                 |
| MINERAL FIBRE TILES - MOISTURE RESISTANT |                           |
| Surface Finish                           | Proprietary Coating       |
| Colour                                   | White similar to RAL 9010 |
| Perforations                             | None                      |
| Thickness                                | 15mm min.                 |
| NRC                                      | 0.55                      |
| Sound attenuation                        | Dn,c,w 34dB               |
| Humidity Resistance                      | ≥ 85%                     |

|                           |            |
|---------------------------|------------|
| Light reflectance         | ≥ 80%      |
| Fire EuroClass            | A2-s!.. d0 |
| Cleanability (Mist Spray) | Yes        |

#### SETTING OUT THE WORKS

- (a) The contractor shall set out work with the following objectives:
- to establish the correct ceiling level;
  - to establish panel centres and joint lines, etc; including the layout at obstructions and irregular areas;
  - to avoid or minimise cutting in ceiling panels;
  - to agree the position of luminaires, service equipment, accessories and fittings that affects the setting out;
  - to establish the location of all battens and other fixing points.
- (b) The Contractor shall install the ceiling system and securely fix all components and comply with the following:
- erect the suspension system complete with hangers, primary grid and secondary grid;
  - provide additional suspension for luminaries, grilles, ducts and other equipment to be supported, including span bars, etc. where necessary;
  - adapt the system for obstructions, bulkheads and sloping sections;
  - fix all perimeter supports;
  - fix the ceiling panels including that provided by others;
  - fix perimeter and other trim;
  - check and adjust as necessary to the required level.
- (c) The Contractor shall protect the works during installation against any form of damage or deterioration. Such protection shall include coverings, guard rails, or other appropriate methods.

#### ALIGNMENT OF THE WORKS

- (a) The Contractor shall align the works continuously during installation using setting out stringing, leveling and/or other appropriate controls.
- (b) The Contractor shall ensure that the support grid is aligned to the tolerances indicated by the manufacturer.

#### SERVICE LIFE

The manufacturer shall provide the following information:

- Whether the surface is cleanable and the type of cleaning permitted
- Whether the surface is paintable and the effect of such paintability on the performance of the system
- Extensive maintenance documentation

#### **5.9.7 DELIVERY, STORAGE AND HANDLING**

- Delivery:

- i. Deliver material to site promptly without undue exposure to weather.
- ii. Deliver in manufacturer's unopened containers or bundles, fully identified with name, brand, type and grade.

(b) Storage:

- i. Store above ground in dry, ventilated space.
- ii. Protect materials from soiling, rusting and damage.

### **5.9.8 SAMPLES**

For any of the proposals submitted and/or selected by the owners, the contractor will be required to prepare all relevant documentation and execute samples on site for the Architect's approval.

## **5.10 SOUND INSULATION**

### **5.10.1 GENERAL**

This documentation overviews the Sound Insulation of the new premises proposed for the Secretariat for Catholic Education. These specifications are to be read with the Contract Conditions, Drawings, Indicative Details and all other documents forming part of this Tender.

This document puts forward a specification for the required designated items. The specification being intended as guidance for the supplier to produce a list of items within the parameters herein put forward.

Installation to be fully coordinated with light fixtures and electrical services and connections, gypsum board partitions, paint finish of wall surface behind panelling, etc. accordingly.

Following the award and when requested, the tenderer shall submit all relevant documentation and samples of the items below.

### **5.10.2 ROCKWOOL**

50mm Rockwool with black tissue facing shall be installed and should conform with BE EN 13162:2012: Thermal Insulation products for buildings; and shall achieve a fire performance of A1 classification in accordance with BS EN 13501-1, complying with the requirement of non-combustible materials.

### **5.10.3 DELIVERY, STORAGE AND HANDLING**

On-site storage shall be such as to ensure that all panels and associated materials are protected from damage, and storage area is climatically controlled to normal operational levels.

Prior to panel installation, the site must be free of all wet and dusty trades and the climatic conditions stabilized to normal operational levels. Panels shall be allowed to stabilize on site 24 hours prior installation.

Panels must be handled by persons wearing clean light-weight gloves. It is very important that personnel installing hardware (wall clips, screws, anchors, etc.) do not handle the panels before putting the clean lightweight gloves on.

#### **5.10.4 GUARANTEE**

Manufacturer's written guarantee covering the products supplied against defects in materials and workmanship under normal operating conditions for a period of five years is required.

## **5.11 ALUMINIUM AND GLAZING PARTITION UNITS**

### **5.11.1 COMPLIANCE – TESTING AND CERTIFICATION (WHERE APPLICABLE)**

Where applicable, compliance shall be demonstrated through testing and/or certification of products and/or processes as outlined in the ensuing clauses.

### **5.11.2 ALUMINIUM PROFILE – TYPE**

The aluminium profile shall be supplied from a reputable manufacturer. The profile shall be indicated by the manufacturer's designation, alloy type, temper grade and coating or anodising type.

If and where indicated only, the aluminium profile shall also include a thermal break to act as thermal insulation.

### **5.11.3 CONSTRUCTION/MANUFACTURING DRAWINGS**

The Contractor shall be responsible for verifying and taking all site dimensions prior to the manufacturing and installation of the units, and shall record such dimensions on the relative working drawings.

The Contractor shall submit detailed working drawings for approval before any procurement, manufacturing or installation works take place.

### **5.11.4 PRODUCTION**

Aluminium profiles and sections shall be extruded and fabricated from designated treated alloys conforming to BS EN 755: Part 1 to 9 (Aluminium and aluminium alloys. Extruded rod/bar, tube and profiles) including any dimensional tolerances.

### **5.11.5 ALLOY TYPE**

The aluminium shall be Alloy 6060 or 6063 and conforming to EN 755-9, and temper T4, T5 or T6 to EN 515.

### **5.11.6 CHEMICAL COMPOSITION**

The chemical composition of profiles and sections shall be in accordance with DIN EN 573-3 (Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3: Chemical composition and form of products.)



### **5.11.7 DIMENSIONAL TOLERANCES**

The applicable dimensional tolerances of extruded aluminium profiles and rolled products shall be those for Group I.

### **5.11.8 ANODISING – GENERAL**

Anodising for aluminium shall comply with the Qualanod requirements (or equivalent) and with BS EN 12373 Part 1 - 19 (Aluminium and aluminium alloys. Anodizing.), and performed at a QUALANOD Scheme registered plant.

### **5.11.9 ANODISING – THICKNESS**

The minimum depth of the anodizing shall be as follows:

Internal Applications: Class 15 (15 microns) minimum.

External Applications: Class 15 (15 microns) minimum.

Severe External Applications: Class 20 (20 microns) minimum. This class shall comprise applications affected by very aggressive urban pollutants and marine spray.

### **5.11.10 SURFACE COATINGS – GENERAL**

Coatings for aluminium shall comply with the QUALICOAT Scheme requirements and preferably performed in a QUALICOAT registered plant.

### **5.11.11 SURFACE COATINGS - THICKNESS**

The coating thickness when tested in accordance with EN ISO 2360:2017 (Non-conductive coatings on

non-magnetic electrically conductive base metals - Measurement of coating thickness - Amplitude-sensitive eddy-current method) shall comply with the following minimum thickness:

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Powders Class 1 and Class 2             | 60 microns                             |
| Two Coat powder Class 1 and Class 2     | 110 microns                            |
| Two Coat PVDF powder                    | 80 microns                             |
| Two coat PVDF liquid                    | 35 microns                             |
| Three coat metallized PVDF liquid       | 45 microns                             |
| Silicon polyester without primer liquid | 30 microns ( $\geq$ 20% Silicon Resin) |
| Water-thinnable liquid paints           | 50 microns                             |

|                             |            |
|-----------------------------|------------|
| Two component liquid paints | 50 microns |
| Electrophoretic Coating     | 25 microns |

#### **5.11.12 WORKMANSHIP**

All joints shall have true 45° mitres, jointed by mechanical means in such a way as to produce a flush, perfectly plane and true, water-tight surface.

The aluminium shall be protected and suitably buffered to prevent galvanic or similar reactions.

The units shall allow the drainage of any water that may collect in the frame to the outside. Drainage slot cuttings shall be lipped with nylon fringe surrounds.

The Contractor shall prepare and if so, required install prototype fully glazed samples for final approval, prior to the commencement of the Works.

#### **5.11.13 HARDWARE AND IRONMONGERY – CORROSION PROTECTION**

All hardware, unless otherwise stated, shall be manufactured from corrosion resistant materials or shall be suitably protected against corrosion.

All hardware, unless otherwise indicated, shall meet the requirements of EN 1670:2007 (Building hardware - Corrosion resistance) Grade 3 (High Resistance). Furthermore, hardware shall pass the 100-hour salt spray test (with the exclusion of internal brassware).

#### **5.11.14 HARDWARE AND IRONMONGERY – GENERAL**

All screws, nuts, bolts, washers, bolts and fastenings used for assembly and fixing shall be of 18/8 austenitic stainless steel (Type 304 or 316), aluminium or mild steel treated to give corrosion resistant properties equal to those of stainless steel.

All hardware shall be fixed in accordance with the manufacturer's instructions.

Anchoring and fixing shall have countersink anchor heads. All anchors and fixings shall be concealed and protected with capping plugs. The holes for the components shall not be larger than the minimum required for satisfactory fit and operation.

On completion, the ironmongery shall be checked, adjusted and lubricated as necessary to ensure correct functioning of all moving parts.

Frames for sliding units shall comprise the following fixtures:

- Lower Shock absorber plug;
- Upper Shock absorber plug and anti-burgler plug;
- Visible drainage holes shall have plastic bushing surrounds.

#### **5.11.15 HARDWARE AND IRONMONGERY – CORNER JOINTS**

The corner joints shall be fabricated from die-cast, anti-corrosion treated aluminium.

#### **5.11.16 HARDWARE AND IRONMONGERY – HINGES (IF APPLICABLE)**

The hinges shall comply with DIN EN 1935 (Building hardware - Single axis hinges - Requirements and test methods).

The hinges rating (load), quantity and arrangement shall be adequate for the door mass. The rating shall be taken as a single item.

The door mass and EN grade shall be as follows:

|           |    |    |    |     |     |     |
|-----------|----|----|----|-----|-----|-----|
| Mass (kg) | 40 | 60 | 80 | 100 | 120 | 160 |
| EN Grade  | 7  | 10 | 11 | 12  | 13  | 14  |

The performance shall be as follows:

|   |                |           |   |   |   |   |                        |
|---|----------------|-----------|---|---|---|---|------------------------|
| 4 | 7 (D)<br>4 (W) | See Above | 0 | 1 | 3 | 0 | See Above (D)<br>9 (W) |
|---|----------------|-----------|---|---|---|---|------------------------|

D = Doors

W = Windows

#### **5.11.17 HARDWARE AND IRONMONGERY – HANDLES (IF APPLICABLE)**

The opening handles (excluding sliding units) shall be fabricated from pressure die-cast aluminium with frame-matching baked coating.

#### **5.11.18 HARDWARE AND IRONMONGERY – SECURITY**

Unless otherwise indicated in the Drawings or Bills of Quantities all security closing shall comprise a shootbolt system with lower and upper pins.

#### **5.11.19 HARDWARE AND IRONMONGERY – STAY FRICTION HINGES (IF APPLICABLE)**

Stay friction hinges shall be manufactured from 430 grade stainless steel (ferritic) to BS EN 10051

(Continuously hot-rolled strip and plate/sheet cut from wide strip of non-alloy and alloy steels - Tolerances on dimensions and shape) or equivalent.

The hinge shall have raiser blocks to side hung stays to prevent rubbing on the channel and oblong fixing holes for retrofit adjustment.

#### **5.11.20 HARDWARE AND IRONMONGERY – SLIDING MECHANISM (IF APPLICABLE)**

Roller trolleys shall have win pulleys.

Roller trolleys for sliding frames shall be capable of adequate adjustment (normally 7 to 12mm) to ensure proper fit and operation.

Sliding hardware for sliding doors shall comply with EN 1527 (Building hardware - - Hardware for sliding doors and folding doors - Requirements and test methods).

The performance shall be as follows:

|   |   |          |   |   |   |   |   |          |
|---|---|----------|---|---|---|---|---|----------|
| - | 6 | # Varies | 0 | - | 3 | - | 1 | # Varies |
|---|---|----------|---|---|---|---|---|----------|

# Varies - Depends on the door mass.

#### **5.11.21 HARDWARE AND IRONMONGERY – OPENING/CLOSING MECHANISM (IF APPLICABLE)**

The opening and closing mechanism shall be as indicated in the Drawings or Bills of quantities, or as instructed by the Project Manager or Architect in charge.

#### **5.11.22 HARDWARE AND IRONMONGERY – CLOSING DEVICES (IF APPLICABLE)**

Controlled door closing devices shall comply with EN 1154:1996 (Building hardware - Controlled door closing devices - Requirements and test methods).

Door closers shall be of two types:

Rack and pinion type EN 2-4 overhead in a cast aluminium body with selectable closing force, adjustable closing speed and latching action (requiring a door stop).

Type EN 2-6 with adjustable back check action (restraining a flung-open door) and delayed action for disabled or load carrying users.

The performance shall be as follows:

|   |   |          |   |   |   |
|---|---|----------|---|---|---|
| 3 | 8 | # Varies | 0 | 1 | 2 |
|---|---|----------|---|---|---|

# Varies - Depends on the door mass.

Electrically powered hold-open devices for swing doors shall comply with EN 1155.

The performance shall be as follows:

|   |   |          |   |   |   |
|---|---|----------|---|---|---|
| 3 | 8 | # Varies | 1 | 1 | 3 |
|---|---|----------|---|---|---|

# Varies - Depends on the door mass.

Door co-ordinator devices shall comply with EN 1158.

The performance shall be as follows:

|   |   |          |   |   |   |
|---|---|----------|---|---|---|
| 3 | 8 | # Varies | 0 | 1 | 3 |
|---|---|----------|---|---|---|

# Varies - Depends on the door mass.

#### **5.11.23 HARDWARE – PANIC AND EMERGENCY EXIT DEVICES (IF APPLICABLE)**

Emergency exit devices operated by lever handle or push pad shall comply with EN 179:2008 (Building hardware - Emergency exit devices operated by a lever handle or push pad, for use on escape routes - Requirements and test methods).

Panic exit devices operated by horizontal bar shall comply with EN 1125:2008 (Building hardware - Panic exit devices operated by a horizontal bar, for use on escape routes - Requirements and test methods).

The performance shall be as follows:

|   |   |          |   |   |   |            |   |                         |                                         |
|---|---|----------|---|---|---|------------|---|-------------------------|-----------------------------------------|
| 3 | 7 | # Varies | 0 | 1 | 3 | 4 (EN 179) | 1 | 4(EN 179)<br>2(EN 1125) | A/B<br>(EN 179)<br><br>A/B<br>(EN 1125) |
|---|---|----------|---|---|---|------------|---|-------------------------|-----------------------------------------|

# Varies - Depends on the door mass.

#### 5.11.24 HARDWARE AND IRONMONGERY – LEVER HANDLES (IF APPLICABLE)

Lever handles shall comply with EN 1906:2012 (Building hardware - Lever handles and knob furniture - Requirements and test methods).

The performance shall be as follows:

|   |   |     |   |   |   |   |   |
|---|---|-----|---|---|---|---|---|
| 3 | 7 | --- | 0 | 0 | 3 | 0 | A |
|---|---|-----|---|---|---|---|---|

#### 5.11.25 HARDWARE AND IRONMONGERY – MECHANICALLY OPERATED LOCKS (IF APPLICABLE)

Mechanically operated locks, latches and locking plates shall comply with EN 12209:2016 (Building hardware. Mechanically operated locks and locking plates. Requirements and test methods).

The performance shall be as follows:

|   |   |             |   |     |   |   |               |   |               |                  |
|---|---|-------------|---|-----|---|---|---------------|---|---------------|------------------|
| 3 | X | #<br>Varies | 0 | --- | C | 1 | # #<br>Varies | A | # #<br>Varies | #<br>#<br>#<br>C |
|---|---|-------------|---|-----|---|---|---------------|---|---------------|------------------|

# Varies - Depends on the mass.

# # Varies - Depends on type of application.

# # # - For lever locks only.

#### 5.11.26 HARDWARE AND IRONMONGERY – BOLTS (IF APPLICABLE)

Door and window bolts shall comply with EN 12051:1999 (Building hardware - Door and window bolts - Requirements).

The performance shall be as follows:

|   |   |       |   |   |   |   |
|---|---|-------|---|---|---|---|
| 3 | 3 | ----- | 0 | 0 | 3 | 4 |
|---|---|-------|---|---|---|---|

#### 5.11.27 HARDWARE AND IRONMONGERY – CYLINDER LOCKS (IF APPLICABLE)

Cylinder locks shall comply with EN 1303:2015 (Building hardware - Cylinders for locks - Requirements and test methods).

Cylinder locks shall be of the double type.

The performance shall be as follows:

|   |   |     |   |     |   |   |
|---|---|-----|---|-----|---|---|
| 1 | 6 | --- | 0 | --- | 1 | 3 |
|---|---|-----|---|-----|---|---|

**5.11.28 DOORS – STRENGTH REQUIREMENTS**

The classification of strength requirements shall comply with EN 1192:1999 (Doors - Classification of strength requirements).

**5.11.29 WINDOWS AND DOORS – OPERATING FORCES**

The requirements and classification of operating forces for doors shall comply with EN 12217:2015 (Doors - Operating forces - Requirements and classification).

Methods of test for operating forces shall be in accordance with EN 12046-1:2020 (Operating forces. Test method - Windows) and EN 12046-2 (Doors).

**5.11.30 WINDOWS – MECHANICAL PROPERTIES (IF APPLICABLE)**

The classification of racking, torsion and operating forces shall comply with CSN EN 13115 (Windows - Classification of mechanical properties - Racking, torsion, and operating forces).

The classification or test methods for conformity purposes shall be as follows:

- Resistance to repeated Closing and Opening / Closing (Repeated) = 10,000 cycles (EN 12400:2002 Windows and pedestrian doors - Mechanical durability - Requirements and classifications).
- Resistance to Soft and heavy body Impact (Windows) = Heavy Duty (EN 13049:2003 Windows - Soft and heavy body impact - Test method, safety requirements and classification).
- Resistance to Soft, Heavy and Hard Body Impact (Doors) = Severe (EN 949:1998 Windows and curtain walling, doors, blinds and shutters - Determination of the resistance to soft and heavy body impact for doors, and EN 950:1999 Door leaves - Determination of the resistance to hard body impact).

**5.11.31 EXTERNAL DOORS AND WINDOWS – WEATHER PERFORMANCE (IF APPLICABLE)**

The ensuing classifications shall be applicable if indicated in the Bills of Quantities.

The weather performance classification shall be as follows:

|                             |                                         |
|-----------------------------|-----------------------------------------|
| Permeability to Air         | Class 4 (CSN EN 12207, Test EN 1026)    |
| Watertightness              | Class 9A (EN 12208:1999, Test EN 1027)  |
| Resistance to Wind Pressure | Class C3 (EN 12210:2016, Test EN 12211) |

**5.11.32 EXTERNAL DOORS AND WINDOWS WITH THERMIC BREAK TYPE – THERMAL PERFORMANCE (IF APPLICABLE)**

The ensuing classifications shall be applicable if so indicated in the Bills of Quantities.

The thermal performance shall comply with current local regulations. Typical guidelines are indicated in the Malta Building Regulations - Document F, MRI, Malta, 2003.

#### **5.11.33 EXTERNAL DOORS AND WINDOWS – ACOUSTIC PERFORMANCE (IF APPLICABLE)**

The acoustic performance classification (EN ISO 717-1: 2013 Acoustics - Rating of sound insulation in buildings and of buildings elements - Part 1: Airborne sound insulation) shall be as follows:

|          |                            |
|----------|----------------------------|
| Acoustic | > 37dB (Test EN ISO 140-3) |
|----------|----------------------------|

#### **5.11.34 EXTERNAL DOORS AND WINDOWS – SECURITY (IF APPLICABLE)**

The burglar resistance shall be Class WK2 (ENV 1627 - 1630).

#### **5.11.35 ALUMINIUM UNITS FOR USE BY PERSONS WITH DISABILITY**

Units and fittings shall comply with the requirements of the Commission for the Rights of Persons with Disability as per LN 198 of 2019 and according to “Access for All: Design Guidelines”, 2011.

#### **5.11.36 GLAZING – GENERAL**

All glazing shall be installed in compliance with the recommendations in BS 6262-4:2018 (Glazing for buildings - Code of practice for safety related to human impact).

All glass shall be laminated safety glass, if not indicated otherwise in the Bill of Quantities, complying with

ISO 12543-1:2011 (Glass in building - Laminated glass and laminated safety glass - Part 1: Definitions and description of components parts).

Any glazing panel which is positioned within an area defined as within a critical impact zone or prone to human impact by BS 6206:1981 (Specification for impact performance requirements for flat safety glass and safety plastics for use in buildings) shall comply with Class 2B2 of BS EN 12600.

Doors and side glazed panels must be Class 2B2 of BS EN 12600 if the width is greater than 900mm.

The impact test method shall comply with BS EN 12600.

All glass shall be free from scratches, bubbles, cracks, ripples, dimples and other defects.

The thickness, appearance and tint (where indicated) of glass shall be as indicated in the Drawings or the Bill of Quantities.

All glazing shall be accurately sized, with clean undamaged edges. Glazing units shall be set on all four sides of the aluminium frame and sealed with the specified weather gaskets in such a way as not to be disturbed, should gaskets need replacing. Proprietary compressible rubber shall be applied at intervals between the profiles and the glass.

#### **5.11.37 GLAZING – TINT (IF APPLICABLE)**

Tinted glazing shall be installed only when so indicated in the Drawings or in the Bill of Quantities.

The Contractor shall provide the technical documentation clearly indicating the loss in percent of the visible light transmitted by the tint.

#### **5.11.38 GLAZING – TEMPERED (IF APPLICABLE)**

Tempered glazing shall be installed only when so indicated in the drawings. Tempered glass can be with holes or cut-outs/hinges/grooves/notch to EN 12150 standard. The Contractor shall provide the technical documentation to EN-12150-1 standards.

#### **5.11.39 GLAZING - LAMINATED SAFETY GLASS**

Laminated glazing shall be installed only when so indicated in the Drawings or in the Bill of Quantities. The Contractor shall provide the technical documentation to CSN EN-12543.

#### **5.11.40 GLAZING GASKETS (IF APPLICABLE)**

The aluminium profile gap dimensions shall allow for the installation of pre-formed weatherstrips on both sides of the glazing.

Weatherstrips and gaskets shall be manufactured from EPDM (ethylene propylene diene terpolymer) to the following classification of CSN EN 12365-1 (Building hardware - Gasket and weatherstripping for doors, windows, shutters and curtain walling - Part 1: Performance requirements and classification):

|          |          |   |   |   |   |   |
|----------|----------|---|---|---|---|---|
| External | G /<br>W | 3 | 3 | 4 | 5 | 4 |
| Internal | G /<br>W | 4 | 2 | 1 | 5 | 5 |

The weatherstrips shall be continuous along the whole of the perimeter of the glazing panels to which they are applied. All weatherstripping shall not shrink, warp or adhere to closing surfaces, such as to

impair the operation of the aperture. It shall be possible to renew the weather-stripping without removing the outer frame from the structure.

#### **5.11.41 DOUBLE- GLAZING (IF APPLICABLE)**

Double-glazing for external openings units shall be hermetically sealed, with aluminium spacers, and consisting of two safety laminated glass as indicated in the Drawings or Bills of Quantities.

The vacuum may be filled with argon, krypton or an argon/krypton mix.

#### **5.11.42 GLAZING – FIRE RESISTANCE (IF APPLICABLE)**

The ensuing classifications shall be applicable if indicated in the Drawings or the Bills of Quantities.

Where fire resistance of the glass is specified, it shall be in accordance with the classification in BS EN 357 (Glass in building. Fire resistance glazed elements with transparent or translucent glass product. Classification of fire resistance).



#### **5.11.43 SEALANTS**

Frame to building sealing shall consist of a high-performance, non-priming, gun-grade elastomeric polyurethane sealant.

The colour shall be as indicated in the Drawings or Bills of Quantities.

The sealant shall comply with EN ISO 11600:2002 (Building construction - Jointing products - Classification and requirements for sealants), Type F, Class 25LM.

Sealant between glazing panels shall be transparent and comply with EN ISO 11600:2002 (Building construction - Jointing products - Classification and requirements for sealants), Type G, Class 25LM.

#### **5.11.44 DOOR MASTER KEY SYSTEM (IF APPLICABLE)**

The ensuing classifications shall be applicable if indicated in the Drawings or Bills of Quantities.

Doors shall be equipped with a mechanical master key system. The system shall permit the opening of locks by their own individual key and by the master key.

The locking system shall be patented by a reputable manufacturer. The cylinder aperture shall offer protection from picks and breaking tools with supplementary anti-drill protection. The key combinations shall be in compliance with current relevant European Standards.

The system shall allow for future additions and expansions.

The cylinders shall comply with BS EN 1303:2015 (Building hardware. Cylinders for locks. Requirements and test methods).

The classification level shall be as follows:

|   |   |    |   |    |   |   |
|---|---|----|---|----|---|---|
| 1 | 5 | NA | 0 | NA | 0 | 4 |
|---|---|----|---|----|---|---|

The manufacturer shall maintain a key duplication control system whereby authorization for duplication is mandatory.

On completion, the Contractor shall provide a detailed “MASTER KEY CHART” showing the floor level, location, door number, cylinder type and key marking.

#### **5.11.45 CLEANING**

After installation is complete and any surrounding work is substantially complete, the Contractor shall clean all units and lubricate all hinges / pivots and locks, where applicable.

On completion, all protective materials (eg. Peel-offs) shall be removed. All glazed elements shall be cleaned to the satisfaction of the Project Manager or Architect in charge.

## **SECTION 5 - SUPPLEMENTARY DOCUMENTATION**

### **5.1- Draft Contract Form**

### **5.2 - Glossary**

### **5.3 - Specimen Performance Guarantee**

### **5.4 - Specimen Retention Guarantee**

### **5.4 5.7 - General Conditions of Contract**

The full set of General Conditions for Works Contracts is included in the tender package.

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.