

REFERENCE NUMBER: PA5/0102/09

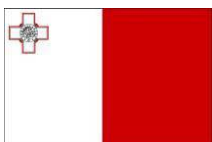
WORKS TENDER FOR THE PROVISION, INSTALLATION & COMMISSIONING OF INFRASTRUCTURAL, ELECTRICAL, PLUMBING AND STAGE WORKS FOR THE ENHANCEMENT OF THE DON BOSCO ORATORY THEATRE STAGE AREA

Date Published: 27th September 2019

Deadline for Submission: 8th November 2019 at 10:30am CET

Tender Opening: 8th November 2019 At 11:00am CET

Bid Bond requirements for this tender: *Not Applicable*



Operational Programme I – European Structural and
Investment Funds 2014-2020 –
*“Fostering a competitive and sustainable economy to meet our
challenges”*
Project part-financed by the European Regional Development
Fund
Co-financing rate: 80% European Union; 20% National Funds



KURA Association

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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 Conditions of Contracts issued by the NGO.

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 KURA Association, c/o Gozo Diocese, Bishop's Chancery, Republic Street, Victoria Gozo VCT 1000. 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 of the full tender offer on a USB (soft copies of CDs 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. Tender reference number and tender title must be clearly indicated on the sealed bid. Prospective tenders 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 works tender for the provision, installation and commissioning of infrastructural, electrical, plumbing and stage works for the enhancement of the Don Bosco Oratory Theatre stage area.
- 1.3 The place of acceptance of the works shall be the Don Bosco Oratory in Victoria Gozo, the time-limits for the execution of the contract shall be 20 weeks, and the INCOTERM<sup>2010</sup> applicable shall be **Delivery Duty Paid (DDP)**.
- 1.4 This is a lump sum contract.
- 1.5 This call for tenders is being issued under an open procedure.
- 1.6 The beneficiary of this tender is KURA Association.
- 1.7 This tender is an open contract.

## 2. Timetable

2.

|                                                                                                                                                                                                                 | DATE       | TIME          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------|
| Clarification Meeting/Site Visit (Refer to Clause 6.1)                                                                                                                                                          | N/A        | N/A           |
| <p>Deadline for request for any additional information from the NGO</p> <p>Clarification requests should be addressed to:<br/> <a href="mailto:kura.diocese.gozo@gmail.com">kura.diocese.gozo@gmail.com</a></p> | 14/10/2019 | 17.00 CEST    |
| Last date on which additional information can be issued by the NGO                                                                                                                                              | 25/10/2019 | 20.00 CEST    |
| Deadline for submission of tenders/Tender opening session (unless otherwise modified in terms of Clause 10.1 of the General Rules Governing Tendering for NGOs)                                                 | 08/11/2019 | 10.30hrs CEST |
| * 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 *co-financed* by the European Union/Government of Malta, in accordance with the rules of the European Regional Development Fund, Operational Programme I, 2014-2020 Programme
- 5.2 The Contracting Authority of this tender is *KURA Association*.

## **6. Clarification Meeting/Site Visit/Workshop**

### **6.1 No clarification meeting/site visit is planned.**

Meetings between economic operators and the NGO 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**

- (i) No Bid Bond is required. <sup>(Note 1)</sup>
- (ii) 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. Please also attach the minimum hourly workers' costs involving the provision of the employees' services. <sup>(Note 2A)</sup>
- (iii) Power of Attorney (if applicable) <sup>(Note 2A)</sup>
- (v) Submission of the declaration form that stipulates that following signature of contract, the successful bidder, will provide evidence in respect of the requirements stipulated regarding Energy Efficiency through the Energy Efficiency Form (if applicable) <sup>(Note 2A)</sup> Applicable.
- (vi) Information re Joint Venture/Consortium <sup>(Note 2A)</sup>

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

- (i) European Single Procurement Document <sup>(Note 2A)</sup>
  - (a) Data Concerning the economic operator to be submitted by filling Part II of the European Single Procurement Document (ESPD). Part II (2A.1 till 2A.13.1) of the ESPD seeks background information about the economic operator.
  - (b) Part II A Reference 2A.14 till 2A.16.6 need only be filled in if the procurement is Reserved. (Note 2A) (Not applicable for this tender)
  - (c) Part II A Reference 2A.17 till 2A.17.3 need only be filled in when the economic operator is part of a group, consortium, joint venture or similar. Furthermore in the case of a Joint Venture/Consortium or group of economic operators the tender must include a preliminary agreement

or letter of intent stating that all partners assume joint and several liability for the execution of the contract, that the lead partner is authorised to bind, and receive instructions for and on behalf of, all partners, individually and collectively. (Note 2A)

- (d) Part II A Reference 2A.18 need only be filled where the tender is divided into lots. (Note 2A) (Not applicable for this tender)
- (e) Data concerning exclusion grounds to be submitted by filling Part III of the European Single Procurement Document (ESPD). (Note 2A)
- (f) Economic Operators must declare that they meet the minimum criteria established hereunder by filling Part IV of the European Single Procurement Document (ESPD). If no Selection Criteria is requested by the Contracting Authority, the relevant part of the ESPD is to be left blank. (Note 2A)

- (ii) Declaration concerning *Selection Criteria* (Note 2A)

### (C) Technical Specifications

- (i) Tenderer's Technical Offer in response to specifications.

- 1) **Key Personnel** (Note 2A) The Key Personnel that the Contractor must deploy for this project are:
  - a. A warranted Architect who will assume all the responsibility in terms of the legal obligations as arising under Maltese law (Warrant Number to be declared);
  - b. A warranted Engineer (Warrant Number to be declared);
  - c. An electrician holding a Wireman License B. This Key Expert must fill in the Statement of Exclusivity;
  - d. Site Manager (MQF Level 4 in a related area of study) S/he will be responsible to oversee and co-ordinate the works with the Project Manager of the Contracting Authority in charge of the project. This Key Expert must fill in the Statement of Exclusivity; and
  - e. Health and Safety Officer

**The persons proposed in the roles of Site Manager and Electrician must fill in the Statement of Exclusivity Form**

- 2) **An Organisation and Methodology Report** (Note 3)
  - a. An outline of the objectives, methodology to be used, assumptions, risks and results to be achieved;
  - b. Detailed proposal of the intervention to be carried out, methodologies to be adopted for the execution of these works and techniques to be used;
- 3) **A Graphic Work Schedule** (Gantt Chart) (Note 3) of the proposed works that will be carried out taking into account the Execution Period of this tender which is of 20 weeks from Order to Start Works. The Schedule should be broken down according to the proposed phases of work and related actions. The Graphic Work Schedule shall be approved by the Contracting Authority.

Notwithstanding the approval by the Contracting Authority of this programme of works, the full responsibility for the execution of works and safety shall rest entirely with the Contractor as per Tender conditions.

- 4) A **Construction Management Plan** <sup>(Note 3)</sup> including details of the site logistics to be undertaken by the Contractor and a preliminary risk-assessment are to be submitted. These shall include inter-alia;
- Information on the strategy to be adopted by the Contractor to ensure access to the Oratory taking into consideration the various limiting factors of the site and how to cause the least disruptions to the operations and visitors visiting the Oratory;
  - Details on the infrastructural works and necessary dismantling of the stage and stage area that may be required;
  - Measures to ensure that during the execution of those works, no nuisances such as dust emissions and noise which would disrupt the daily functions of the Oratory, are present; and
  - Measures to ensure safety of both visitors and workers during the works that need to be carried out on site.

**Bidders are to ensure that all the above listed points are addressed in their submission.**

- (ii) Literature as per Form marked 'Literature List' to be submitted with the Technical offer at tendering stage <sup>(Note 2B)</sup> - Not applicable at tender stage however, once the contract is awarded, prior to ordering and/or purchasing materials or equipment, the contractor is obliged to submit literature that the Contracting Authority will request for the Contracting Authority to approve. No materials and or equipment may be ordered and/or purchased without the prior approval of the Contracting Authority.

Samples as per Form marked 'Samples List' may be requested during the adjudication stage to supplement the technical offer submitted. If requested, the Samples must be submitted within 5 working days of being notified to do so <sup>(Note 3)</sup>. - Not applicable at tender stage however, once the contract is awarded, prior to ordering and/or purchasing, should the Contracting Authority so request, the contractor is obliged to submit a sample of the following items for the approval of the Contracting Authority:

- i. Ceramic Tiles for Green Room and Workshop;
- ii. Fire-retardant Curtain
- iii. Double Vinyl Performance Surface

The above may not be ordered and/or purchased without the prior approval of the Contracting Authority.

**Bidders are to sign the technical offer form whereby the bidder confirms that all material and equipment purchased will be in accordance to the technical specifications outlined in Section 4 of the tender document and to the Bill of Quantities.**

#### **(D) Financial Offer**

- (i) The Tender Form and Tenderer's Declaration are to be completed and submitted with the offer. <sup>(Note 3)</sup>

A financial offer is to be submitted by filling in **Financial Bid Form**, and is to be calculated on

- (ii) the basis of **Delivered Duty Paid (DDP)<sup>2010</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 circumstances: either incorrect validity date, and/or incorrect value.*
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.*

**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 NGO's technical specifications and design documentation,
- (e) the Contractor's technical offer, and the design documentation (drawings),
- (f) the bill of quantities (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

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Communications between the Contracting Authority and/or its Representative 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

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 its Representative, 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. To this effect, the contractor and his employees shall be required to abide by the instructions issued from time to time by personnel responsible for the security of the underlying/adjoining properties and shall ensure that all works are carried out without jeopardizing the security of the place.

#### 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 drawings as well as any literature, documents or items required for the execution of the works and submit them for approval to the Contracting Authority and Representative, the procedure being agreed to between the parties as indicated in Clause 4 of the Special Conditions.
- 11.17 The Contracting Authority and the Representative shall make available the tender drawings (and any subsequent revisions to such drawings) to the Contractor at the latter's request and well as any drawings required to carry out the works as the need arises. Any such drawings will remain the property of the Contracting Authority and the Contractor may not reproduce or communicate them to third parties except with the Contracting Authority's agreement.

- 11.20 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 required time-frame, in accordance with the Technical Requirements and with the Period of Execution.
- 11.21 Furthermore, the contractor shall be expected to be co-operative and allow the use of his 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
- 11.22 The Contractor shall be obliged to follow any and all instructions issued by the Representative in relation to the Works in so far as these fall within the overall scope of the Contract.
- 11.23 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.
- 11.24 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 Representative to fulfill the obligations set out in the Legal Notice 281/2004 (SL 424.29)
- 11.25 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.
- 11.26 The Contractor shall not dismantle equipment and facilities prior to the approval of the Contracting Authority's Representative in charge of the project. The contractor shall give the Contracting Authority's Representative at least one week notice to allow for a final inspection and the measurement of works.
- 11.27 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.
- 11.28 Copies of the certificates shall be sent to the Contracting Authority's Representative before commencement of work and as necessary should the six (6) month certification period elapse.
- 11.29 The Contractor will be available to attend regular site, management and progress meetings as and when requested by the Contracting Authority.
- 11.30 A suitable "housekeeping" programme shall be established before commencement of the project, and be continuously implemented on the Site. During the execution of the works, the Contractor shall keep the site reasonably free from all unnecessary obstruction, and shall restore or dispose of any Contractor's equipment and surplus materials and clear away and remove from the site any wreckage, rubbish or

temporary works no longer required.

On completion of the Works, the Contractor shall clear away and remove from site all Contractor's equipment, surplus material, rubbish and temporary works of every kind, and leave such part of the site and works clean and in a workmanlike condition to the Contracting Authority.

11.31

Where during his course of work, the Contractor causes any damage to the Contracting Authority's equipment or facilities, the Contractor must report the damage immediately to the Contracting Authority. The Contracting Authority shall rectify the damage in any way is deemed fit by the Contracting Authority, the cost and expense thereof shall be borne by the Contractor. The Contractor is required to replace/repair or makes good the loss suffered by the Contracting Authority due to any damage caused by the Contractor during the execution of the work.

11.32

The Contractor shall be obliged to follow any and all instructions issued by the Project Manager representing the Contracting Authority in relation to the Works insofar as these fall within the overall scope of the Contract. Regular site, management and progress meetings will be organised by the Project Manager representing the Contracting Authority to monitor both the progress and the quality of the works.

11.33

#### Article 13: Performance Guarantee

13.1

The Contractor shall, within 15 days of receipt of the contract for signature, furnish the Contracting Authority with the original guarantee for the full and proper performance of the contract. It shall not exceed 4% where the amount of the total contract value is between €10,000 and €500,000 ex 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 fabric of the building or stage facility being enhanced through this contract for the amount of €750,000 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 every two weeks or whenever required by the Contracting Authority, 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 Contracting Authority shall approve the Programme of Works within ten (10) working days from submission by the Contractor to the Contracting Authority. Should the Contracting Authority 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

17.1

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

17.7

Further to the provisions of Article 17.7 of the General Conditions, the Contractor must submit a full set of the final drawings upon completion of the project and must do so within 50 days from issuing of the Partial Provisional Acceptance Certificate. Failure to do so will result in a daily penalty of fifty (50) euro up to a maximum of 5% of the contract value.

#### 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.

#### 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 the 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 Officer and the Contracting Authority 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. Unauthorised impact on traffic management within the area will result in a penalty of €1,000 per incident up to a maximum of 2% of the contract value.

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

- 23.3 The contractor shall be responsible for locating existing drains and services, and underground cables and pipes where applicable, 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 Representative in charge, 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 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 discoveries which are made during the works must be reported immediately to the Superintendence of Cultural Heritage. The contractor shall halt the works and follow all instructions given by the Superintendence of Cultural Heritage to protect or to investigate further the discovery.
- The Contractor shall co-ordinate and co-operate 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 three (3) 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 an original bank performance guarantee, a certified true copy of the Insurance Policy together with all documentation related to Health and Safety. The Contractor will be liable to a penalty of €50 per day for every day in which works would not commence on site due to compliance with the requirements of Article 31.1 of the Special Conditions to the Contract.

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

**32.1** The period of performance of this contract shall be 20 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.

**33.4** **Article 33 Extension of the Period of Execution of Tasks**

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.

Upon reaching the maximum penalty, the Contracting Authority reserves the right to terminate the contract and seek the services of a third party for the completion of works.

**Article 35: Modifications to the Contract**

**35.8** The Contracting Authority has a right to increase or reduce works of a similar nature by a maximum of 20% 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 excavation works, mechanical and electrical services and ancillary facilities, diversion of lift location and platform and further plastering. Such works would be resulting from close inspection of works accessible only once necessary demolition works and uncovering of existing facilities are exposed during the course of

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 only once demolition and uncovering of existing facilities takes place. These inter alia include works evident only once the interventions have commenced such as the alternative type of services, lift facilities, stage rotation equipment and & plastering interventions.

**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** Not Applicable

#### 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 interventions/methodologies shall be submitted to the Architect and/or Engineer in charge for written preliminary technical approval, prior to their implementation or procurement. All requests and documentation must be submitted with 15 calendar days prior to execution of works on site.

#### Article 40: Inspection and Testing

**40.2** As specified in 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:  
a) Vested in the Contracting Authority.

#### Article 43: Payments: General Principles

**43.1** Payments will be made in Euro.

Payments shall be authorized by the Contracting Authority, and paid by the Treasury Department.

| Payment Schedule      |                                                                  |                       |
|-----------------------|------------------------------------------------------------------|-----------------------|
|                       |                                                                  |                       |
| Pre-financing Payment | As per 44.1 of Special Conditions                                | 20% of contract value |
| Interim Payments      | As per measured works                                            | 75% 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** Pre-financing to the Contractor of 20% of the contract value shall be obligatory.
- 44.2** Pre-financing amounting to 20 % of the contract value shall be granted to the Contractor against the provision of a bank guarantee by Contractor in favour of the Contracting Authority of the equivalent amount.
- 44.3** Further to Article 44.3 of the General Conditions, the Contractor shall present to the Contracting Authority, within forty five (45) days of the signing of the contract, a bank guarantee of the amount equivalent to 20% of the contract value for the Contracting Authority to release the pre-financing payment of the same amount.
- 44.8** The pre-financing payment shall be repaid through percentage deductions in payment certificates as follows:
- (a) Advance payment equivalent to 20% of the contract value:
- Deductions shall commence in the payment Certificate in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention and materials on site) exceeds 10% of the Accepted Contract Amount less Provisional Sums; and
  - Deductions shall be made at the amortisation rate of 20% of the cumulative amount of each payment certificate (excluding advance payment and deductions and repayments for retention and materials on site) in the currency and proportions of the advance payment, until such time as the advance payment has been repaid in full; and
  - With every 10% of the pre-financing amount being amortised, the Contracting Authority shall authorize the relevant financial institution to release the equivalent 10% from the pre-financing guarantee granted in terms of Article 44.3 of these Special Conditions. Thus, the pre-financing guarantee shall decrease proportionately throughout execution of the contract.

#### 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 Contracting Authority 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 by the Contracting Authority and payment will be issued by the Treasury Department within the Ministry of Finance paid 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.

48.1.1 Furthermore, the Contracting Authority shall deduct any penalties which may be applicable in each interim payment certificate.

50.1 The Contracting Authority shall pay the contractor sums due within 60 days of the date on which an admissible payment is registered, in accordance with Article 43 of these Special Conditions. This period shall begin to run from the approval of these documents by the competent department identified 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 53: End Date

The contract will be co-financed through the European Regional Development Fund 2014-2020, therefore the payment obligations of this contract will be concluded by end December 2020.

#### Article 56: Partial Acceptance

- 56.2 The Contracting Authority 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 24 months defects liability periods shall run from the date of the Provisional Acceptance Certificate issued as per Article 57. However, the Contractor has to be responsible to carry out any maintenance required in the interim period from the date of issuing of the Partial Provisional Acceptance Certificate up to the date of issuing of the Provisional Acceptance Certificate. Any maintenance carried out in this period will be done at the exclusive expense of the Contractor and the Contractor cannot claim for compensation for such cost.

#### 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 Contracting Authority and once all necessary as built drawings, relevant manual of procedure and necessary certification of equipment (where applicable) are submitted by the Contractor.

#### Article 58: Maintenance Obligations

- 58.1 Further to the provisions of Article 58 of the general Conditions to the Contract, the Contractor shall be responsible for making good any defect in, or damage to, any part of the works which may appear or occur during the Defects Liability Period of 24 months from the issuing of the Provisional Acceptance Certificate.
- 58.6 Further to the provisions of Article 58 of the General Conditions to the Contract, the contractor shall guarantee that all the 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 from issuing of Provisional Acceptance Certificate) shall be carried out as specified in this document and approved by the Contracting Authority. 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.

58.9

The Guarantee Period for all items replaced or renewed as a result of the aforementioned diversion, shall recommence from the date on which the replacement or renewal is made to the satisfaction of the Contracting Authority and ends twenty four (24) months after this date.

If any damage occurs, during the Guarantee Period, the Contracting Authority shall notify the Contractor. If the Contractor cannot be reached, or is unable to take the measure required or fails to remedy a defect or damage within the time limit stipulated in the notification, the Contracting Authority may carry out the works itself or employ someone else to carry them out at the Contractor's risk and cost, in which case the costs incurred by the Contracting Authority will be deducted from monies due to, or from guarantees held against, the Contractor, or from both.

#### 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, that is the NGO and the Contractor, by agreement decide to refer the matter to arbitration.

#### Article 71: Further Additional Clauses

Not Applicable.

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

### **1. Preamble**

- 1.1. All submitted literature must clearly indicate the products being offered as part of the tender by means of highlighting or underlining the specific product. Generic literature without specific indication of the product being offered will not be considered in the adjudication.
- 1.2. The rates and prices tendered in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the Contract, include all constructional plants, supplies, labour, supervision, materials, insurance, profit, taxes and duties, together with all general risks, liabilities and obligations set out or implied in the Contract.
- 1.3. All rates shall include the costs and expenses directly or indirectly incurred to meet the provisions of this tender.
- 1.4. All rates shall include for any double handling of supplies.
- 1.5. All rates shall include for the necessary mobilisation costs.
- 1.6. All rates shall include for all necessary pre-cautionary measures and equipment necessary to abide by all the rules and regulations according to all issued legal notices by the Occupational Health and Safety Authority.
- 1.7. All items of work shall be measured in accordance with the provisions of British Standards.
- 1.8. The Tenderer shall inspect and examine the site and its surroundings, to assess the extent and nature of the works, access roads to the site and materials necessary. If any queries arise the Tenderer is requested to contact the Client for further clarification at Tendering Stage.
- 1.9. A rate or price shall be entered against each item in the Bill of Quantities, whether quantities are stated or not. The cost of Items, which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices, entered in the Bill of Quantities.

2. General directions and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. References to relevant sections of the contract documentation (including drawings and details) shall be made before entering rates or prices against each item in the Bill of Quantities

### **3. General Requirements**

#### **3.1. Scope**

The scope of the works is to supply works and goods, deliver, install, test, commission and certify infrastructural upgrading, electrical plumbing and other stage works for the Don Bosco Oratory Theatre Stage Area (using environmentally friendly material and products).

The contractor shall prepare the detailed designs and construction drawings in relation to the MEP works defined. Detailed designs and construction drawings shall be done under the supervision of a warranted engineer. All drawings shall be endorsed by the warranted engineer.

Prior to the commencement of works, the detailed designs shall be presented to the client for approval.

Final testing, commissioning, certification and as fitted drawings shall also be endorsed by a Warranted engineer assigned by the contractor.

#### **4. Pipe Work**

The contractor shall be responsible for the dismantling and carting away of the old pipe work as directed and the supply, installation and commissioning of all the pipe work and connecting up to the existing distribution pipe work. Pipes shall be of the polypropylene thermal fusion system type. Isolating ball valves shall be of the polypropylene system type.

##### **4.1 Pipe work Material**

The domestic cold water supply, hot water system, shall be run in polypropylene thermal fusion pipes conforming to DIN 8077, DIN 8078, DIN 16962 or equivalent Standards. All pipes offered shall marked with working pressure, brand and pipe size and standards complied to.

For the case of hot water and cold water, the pipes and fittings offered and installed must comply with EU regulations for potable water installation DIN 1988, BS 6920 or equivalent Standards. Pipe material shall be suitable for potable water, is nontoxic, has enough opacity to eliminate the formation of algae and does not support microbiological growth. Materials, fittings and construction methods used in water installations shall avoid imparting a direct

taste, odour, colour or turbidity to the water; the releasing of objectionable or toxic substances or the ability to support microbiological growth (this applies particularly to gaskets, grommets and insulation).

The working conditions for the cold water pipe work system shall be open loop in the range of 3 bar pressure at 20 degrees centigrade. Pipes and fittings shall be PN10 or higher and claimed by manufacturer of giving a service life of at least 50 years at a pressure of at 12 bar and a temperature of 20degC. Proof of such claim shall be submitted.

The working conditions for the hot water pipe work system shall be open loop at a pressure region of 3 bar at a temperature of 70 degrees centigrade. Pipes and fittings shall be PN16 or higher and claimed by manufacturer of giving a service life of at least 50 years at a pressure of at 6 bar and a temperature of 70degC. Proof of such claim shall be submitted.

##### **4.2 Valves and Fittings**

The valves used shall be of the same manufacturer of the polypropylene thermal fusion pipe system and capable of withstanding the operating conditions of the pipes. All pipes, fittings, valves and other accessories used in the system shall be of the same manufacture as the pipe unless the fitting required is not available in the manufacturer's range of equipment to compliment the pipes. In this case, any item used shall be fully compatible with the pipe system and compliant to specifications given below. The valves placed on plastic piping shall be installed in such a way so as to offer easy operation with good holding down bracketing to prevent lateral movement. The valves shall also be installed in such a way that these can be easily replaced (either flanged or with a socket union). Valves connecting to pipe work with OD greater than 50mm shall be of the flanged type, all other valves shall be of union type. Valves should not in any case be fused with the pipe work.

##### **4.3 Shut off / Regulating valves:**

Valves shall be of the same manufacture as the pipes on which they are installed.

##### **4.4 Thermal Insulation**

All hot water piping and accessories shall be properly insulated and finished in a smooth, clean workmanlike manner with all joints tightly finished. Insulation shall consist of pre-formed sleeves and not of the wrap around type. Sizes and performance of thermal insulation shall comply to BS 6700 or equivalent standard. The material shall be suitable for clean environments. Wherever possible the insulation shall be continuous over tube and fittings but allowing access to valves for operation. The insulation shall be applied tightly to the pipes and fittings eliminating all air pockets between pipes, walls and insulation. Each section shall be secured with retaining bands at each end, at the centre of each section where sections are around fittings.

All sleeved pipes shall have the space between the sleeve and the pipe filled with a suitable thermal and fire resisting insulating material.



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The pipe insulation material shall be used on hot water. The insulating material shall be: non-combustible, no toxic fumes are to be produced in case of fire, water resistant, rot-proof, odourless, asbestos free, non-hygroscopic, does not cause corrosion, prevents electrolytic action corrosion or decay, does not sustain vermin and will not encourage the growth of fungi, mould or bacteria. It shall be compatible with all surfaces on which it is likely to be used.

Insulation material shall withstand continuous operating temperatures of 100°C.

The thermal conductivity should not be greater than 0.035 W/mK at a mean temperature of 0°C.

Insulation thicknesses shall be as follows;

- ☐ For pipes ranging from 15 mm to 22 mm pipe → at least 20 mm insulation thickness (when installed) shall be used.
- ☐ For pipes ranging from 22 mm to 35 mm pipe → at least 30 mm insulation thickness (when installed) shall be used.
- ☐ For pipes ranging from 35 mm to 100 mm pipe → thickness of at least the internal diameter of the pipe (when installed) shall be used.
- ☐ For pipes greater than 100 → at least 100 mm insulation thickness (when installed) shall be used.

All insulated pipe work located on the roof and/or in the external shafts (i.e. exposed to the outdoor conditions) shall be additionally protected. This shall be done by means of a flexible thermoplastic elastomer such as having the following properties:-

- i. Does not harden, crack or peel in time;
- ii. Ozone and UV resistant;
- iii. Compatible with the insulation being offered;

All uninsulated pipe located on the roof and/or in the external shafts (i.e. exposed to the outdoor conditions) shall be UV rated.

### 4.5 Workmanship

The contractor shall be responsible for the dismantling of the old pipe work as directed and the supply, installation and commissioning of all the pipe work for the cold water supply, hot water system, connecting up to the existing distribution pipe work.

Contractor is also responsible for the connecting up to the system already installed as required.

Main supply pipes for the various installations shall be as follows: Any pipes, brackets, hangers, steelwork and the like, shall be protected by galvanizing.

Installation shall be performed as per pipe work manufacturer recommendations.

Horizontal pipes shall be supported at spacing of not more 0.75m for polyethelene and polybuthelene pipes and at all changes in direction.

Unless specified otherwise in the schedule polypropylene piping shall be run as surface piping carried on ceiling sliding supports. Spacing shall be as per manufacturers recommendations. Horizontal piping shall have adequate carrier support to eliminate sag.

All pipe penetrations shall be adequately protected and sleeved to B.S. 476 or equivalent Standards. No joining of pipes shall be allowed along penetrations or in chased walls. Running of pipes buried in the floor is not allowed.

Fixing to the building structures shall be as per manufacturer's recommendations. Percussion type boring devices and shot fired fixings shall not be used unless having a written approval by the Engineer.

Anchoring shall be performed as recommended by pipe supplier, this should include:

- ☐ pipe work support between fixed anchors to permit movement, i.e. loose fit brackets and rollers.
- ☐ felt or similar pads between pipe work and notched joists.

- ☐ Branches to fixtures to be sufficient length and unconstrained to prevent dislocation of connections.
- ☐ Allow adequate space between pipe work and structure.

#### 4.6 Testing and Commissioning

All systems shall be pressure tested at 1.5 times of the operating pressure for 24 hours. Testing shall be performed prior to concealment of any of the pipes.

Upon completion all system shall be properly flushed and tested. Hot water terminal units shall reach a temperature of 60 deg.C after 1 minute of operation. Cold Water systems shall remain always below 20 deg.C

### 5. Foul and Rain Water Systems

There shall be two separate systems of foul water.

- ➔ System A: Waste water from Washbasin, Sinks, Showers and Baths
- ➔ System B: Waste water from Water Closet, Sluice, or other wastes which are prone to contain faecal matter.

The Two Separate systems shall only meet downstream of a gulley or Inspections. Gravity water systems to be buried underground shall be carried out in PN4 uPVC material. These shall include all the necessary fittings such as water traps, galleys cleanouts, vents, tees, elbows, sleeves in walls, brackets fixing vents etc... The installation pipe work layout shall render the entire system effective to use.

For gravity cold water systems:

| Pipe OD (mm) | Pressure Rating | Minimum Wall thickness (mm) |
|--------------|-----------------|-----------------------------|
| 25           | PN 4            | 1.5                         |
| 32           | PN 4            | 1.6                         |
| 40           | PN 4            | 1.8                         |
| 50           | PN 4            | 1.6                         |
| 63           | PN 4            | 2.0                         |
| 75           | PN 4            | 1.8                         |
| 90           | PN 4            | 1.8                         |
| 110          | PN 4            | 2.2                         |
| 125          | PN 4            | 2.5                         |
| 160          | PN 4            | 3.2                         |
| 180          | PN 4            | 3.6                         |
| 200          | PN 4            | 4.0                         |

No part in the network for the foul and sewage system shall be designed with a diameter less than 40mm. No elbows shall be used in the water drain system, any required pipe directioning shall be performed by easy bends. The priority of the design will be the utmost care in having the system covered with enough rodding points to make possible cleaning of the system in case of blockages.

All fittings shall be either of the solvent type, using solvent cements

Material thickness and properties of pipe work shall conform to the respective standards MSA EN 13598-1:2003 MSA EN 681-1:2000, MSA EN 681-2:2000, MSA EN 682:2002 according to size and type used.

Under-floor / buried pipes in trenches shall be adequately encased in C15 concrete. Risers shall be laid plumb and bracketed to walls as per Manufacturer's recommendations. Rawl bolts shall be used wherever required to fix attachments / fixtures to the wall.

Buried pipes or pipes requiring disturbed works shall be reinstated to their original condition. In the event that finishing works are disturbed then the contractor shall reinstate the works to the finishing standard Pipe work shall be laid with a gradient of 1:40 and no allowance shall be considered for laying of drain pipes with a gradient lesser than 1:80. Reference can be made to B.S. 830 or equivalent standard, MSA EN 12056-2 :2000.

Trenching work shall be included in the laying of pipe work for the laying of drainage works, for connecting the sewage lines to mains and for other secondary drains as directed to make up the complete system.

Manholes and inspection points shall be left accessible for maintenance purposes by means of a manhole or otherwise. Contractor shall ensure to place all roding inspection chambers, tee pieces and other accesses in place so as to facilitate ease of working. Hidden corners and inaccessible locations will not be considered adequate areas for such provisions.

External inspections and gulley points shall be cast iron compliant to EN- D124 class D400.

### **5.1 Sanitary Ware**

White sanitary ware in Vitreous China shall be supplied and installed with accessories in chrome plated brass. The drawing indicates the proposed position of the appliances, while the Bill shows the quantities. According to final exigencies it may be necessary to alter the sittings of the appliances to within reasonable distance.

Bathroom accessories have to be quality approved prior to being installed in place. Each appliance shall be finished and installed complete ready for use without any leaks. All connectors, reducers and connections to existing systems shall be supplied by the contractor. Sanitary ware fixings inclusive of all drains and fittings shall be coordinated with other trades, ensuring that the final product shall be aesthetically pleasing and without breakage. On his part the Contractor shall inform the Engineer of any deviations from the original requirements.

Brass ware for any one room shall be supplied as a complete set. All sanitary drains shall connect to the foul water. Bottle traps shall be as specified in BOQ.

Sanitary ware Manufacturer shall be ISO 9001 compliant and shall present proof of compliance at tendering stage.

All Wall hung W/C`s shall be installed to the wall by stainless steel studs going right through the wall.

### **5.2 General Washbasin (Type B)**

Vitreous china wall hung wash hand basin approx. 450x300mm mounted on brackets with single tap hole. Compact single lever mixer for hot and cold water, chrome plated suitable for unbalanced pressure systems complete with grid (not pop up) 32 mm basin wastes. Bottle trap shall be as specified in BOQ. One pair ½ inch BSP chrome plated angle valves complete with stainless steel flexible pipe connector to mixer with compression type fittings.

### **5.3 Accessible washbasin (Type C)**

Vitreous china wall hung wash hand basin approx. 450x300mm mounted on brackets with single tap hole. Compact single lever mixer (long type) for hot and cold water, chrome plated suitable for unbalanced pressure systems complete with grid (not pop up) 32 mm basin wastes. Bottle trap shall be as specified in BOQ. One pair ½ inch BSP chrome plated angle valves complete with stainless steel flexible pipe connector to mixer with compression type fittings.

### **5.4 Dispensers for hand washing liquid soap**

The dispensers shall be:

- ➔ wall mountable and with an elbow operated lever as the sole dispensing mechanism.
- ➔ entirely manufactured from stainless steel.
- ➔ easy to remove from the wall mounting and to dismantle, for cleaning and disinfection purposes.
- ➔ The dispensers ( not including lever ) shall, when wall mounted, not project outwards by more than approximately 15cm. It shall have an interior removable container as a receptacle for the soap/alcohol with a capacity of between 500 and 1000ml.

### **5.5 Paper Towel Dispenser**

Paper Towel Dispenser shall be designed for the dispensing of paper towels stocked at a plan dimension of 7.5 x 24 cm and a minimum of 200 towels.

## 5.6 Mirror

Plain mirrors, size 800 mm by 300 mm by 6mm thickness are to be fixed on top of the W/B at a height gap of 200mm. The mirrors are to be fixed using screws with stainless steel cover caps. Mirrors shall be installed slightly inclined downwards

## 5.7 WC bowls (General Type)

W.C. approx. 600x360mm w.c. bowl, wall hung, rimless with a 7.5 litre concealed water cistern dual flush type with side inlet, overflow to sewers and complete with fittings. Heavy duty white toilet seat with cover and stainless-steel hinges

## 5.8 WC bowls (Accessible Type)

Water Closed Bowl shall be rimless, low level, wall hung intended for accessible compartments with a 7.5 litre concealed water cistern lever type flush system with side inlet, overflow to sewers and complete with fittings. Heavy duty white seat cover with stainless steel hinges.

## 5.9 Toilet roll holders

Toilet roll holders material is to be Stainless steel

## 5.10 Grab Rails

Stainless steel Grab rail set consisting of:

- 5 x600mm (35mm dia.) grab rail.
- 800mm hinged support rail with toilet roll holder.

## 5.11 Shower Mixer (Single Lever Type B)

Single lever mixer for hot and cold water, chrome plated suitable for unbalanced pressure systems. Complete with shower handle and handset and flexible pipe connector. Shower mixer shall be supplied complete with two non-return valves installed on the down drop.

## 5.12 Testing and Commissioning:

The Gravity systems shall be water tested for 24 hours. The system shall be filled with the working fluid, vented as necessary and brought to operating conditions and the flows than regulated to the design values.

The Engineer shall be notified days in advance of any testing of equipment and installation systems  
The contractor shall provide all equipment, plugs and other fittings required for the system testing.

## 6. Lifts

The lifts shall be supplied and installed as per MSA EN81-1: 2000, MSA EN81-70 and Lifts Regulations 2002 or its updated versions of the standard.

|                     |                                                                |
|---------------------|----------------------------------------------------------------|
| Type                | Passenger lift                                                 |
| System              | Hydraulic                                                      |
| Load                | 450 kgs                                                        |
| Speed               | 0.6 m/s                                                        |
| Entrances Served    | 1                                                              |
| Shaft internal Size | Circa 1450 x 1630 mm (actual measurements to be taken on site) |
| Cabin Size          | Not less than 1000 x1250 mm                                    |
| Pit                 | Circa 1200 mm (actual measurements to be taken on site)        |
| Head Room           | Circa 3600 mm (actual measurements to be taken on site)        |
| Travel              | Approximately 2500 mm                                          |
| Stops               | 2 in line                                                      |
| Levels Sequence     | 0 and 1                                                        |
| Control             | Simplex, automatic                                             |
| Door Opening        | 850 x 2000mm                                                   |
| Cabin Door          | Automatic Side sliding                                         |
| Landing Doors       | Automatic Side sliding                                         |

|                     |             |                                         |
|---------------------|-------------|-----------------------------------------|
| <b>Machine</b>      | <b>Room</b> | At level 0, circa 3000mm far from shaft |
| <b>Position</b>     |             |                                         |
| <b>Power Supply</b> |             | 415V 3ph 50Hz                           |

## 6.1 Electrical

Lift Electrical supply shall be through a three phase Distribution board. A three phase 4 Pole isolator switches shall be installed adjacent to the hydraulic pump or electric motor.

Three phase motor protector is to be supplied and install for each motor. The motor protector is to automatically isolate the power supply to the motor in event of: phase loss, phase reversal, 9% voltage difference between phases; voltage goes down below under voltage settings, the voltage goes over voltage settings.

In lift shaft there shall be:

- ➔ adequate lighting to maintain minimum 150-lux illuminations at pit floor.
- ➔ Lights to be installed at 0.5m from the highest and lowest point in the shafts with intermediate lamps at maximum 5m intervals. In the pit the lights switch to be adjacent to the access ladder. All lighting fixtures and switches are to be labelled.
- ➔ Electric power outlet (single phase) for light, tools, hoist, etc

## 6.2 Examination Certificate

An examination certificate issued by an approved ACAB together with a copy of the CE conformity certificate issued by a Notified Body shall be forwarded to the Client Engineer as part of the commissioning process.

## 6.3 Hoist way Equipment for Hydraulic lift

The lift installation shall include:

- ➔ Car Frame and accessories
- ➔ Guide Rails: Steel, T solid section.
- ➔ Guide Shoes.
- ➔ Guide Rail Lubricators.
- ➔ Buffers.
- ➔ Hydraulic System.
- ➔ Automatic Terminal Limits
- ➔ Automatic Self-Levelling: Provide a lift with a self-levelling feature to automatically bring the car to the floor landings and correct for over travel or under travel. Self-levelling shall, within its zone, be automatic and independent of the operating device. The car shall be maintained approximately level with the landing irrespective of its load. Tolerance to be maximum  $\pm 5\text{mm}$
- ➔ Wiring: Provide all necessary hoist way wiring included in the scope of the elevator system, in accordance with the Current Edition of the I.E.E Wiring Regulations.
- ➔ Emergency Terminal Stopping Device: Provide emergency terminal stopping devices for speeds as per MSA EN 81-1: 2000.
- ➔ Safety gear (Double acting type).

## 6.4 Hoist way Entrances

- ➔ Doors and Frames: Stainless Steel hoist way entrances at each hoist way opening.
- ➔ Lift wall interface with hoist way entrance assembly shall comply with elevator manufacturer's requirements.
- ➔ Doors: Flush Stainless-steel construction with internal channel reinforcements.

- Frames: Formed construction.
- Interlocks: Equip each hoist way entrance with an approved type tested interlock as required by MSA EN81-1: 2000. Interlock shall be designed to prevent operation of the car away from the landing until the doors are locked in the closed position as defined by the specified standard and shall prevent opening the doors at any landing from the corridor side unless the car is at rest at that landing or is in the levelling zone and stopping at that landing.
- Door Hanger and Tracks: Provide sheave type two point suspension hangers and tracks for each hoist way sliding door.
- Sheaves: Polyurethane tires with ball bearings properly sealed to retain grease.
- Hangers: Provide an adjustable slide to accommodate the up-thrust of the doors.
- Tracks: Drawn steel shapes, smooth surface and shaped to conform to the hanger sheaves.

#### 6.5 Car Enclosure

- Steel Cab: Cab walls to be of 14-gauge sheet steel: Finish and colour to be selected from the manufacturer's standard finish and colour chart.
- Cabin trim: All cabin trim including rounded corners and control panel, scratchproof stainless steel.
- Ceiling suspended type, including indirect LED lighting with translucent diffuser.
- Doors: Horizontal sliding car doors finished in scratchproof stainless steel and reinforced with steel for panel rigidity. Hang doors on sheave type hangers with polyurethane tires that roll on a polished steel track and are guided at the bottom by non-metallic shoes sliding in a smooth threshold groove. Doors shall incorporate both electrical and mechanical locking devices.
- Kick plate: one at 100 mm high and another at 900mm height made of scratch less stainless steel
- Finished Floor: Non-slip high quality rubber

#### 6.6 Door Operation

- Door Operation: A door operator with a VVVF motor shall be provided to operate the car and hoist way doors simultaneously. The microprocessor-based door operator system should operate under closed loop, automatically correcting any variations in the command profile. Door movements shall be electrically cushioned at both limits of travel and the door operating mechanism shall be arranged for manual operation in event of power failure. Doors shall automatically open when the car arrives at the landing and automatically close after an adjustable time interval (minimum 10 seconds) or when the car is dispatched to another landing.
- No Un-Necessary Door Operation: Car door shall open only if the car is stopping for a car or hall call, answering a car or hall call at the present position or selected as the next car up.
- Nudging Operation: The doors shall remain open as long as the electronic detector senses the presence of a passenger or object in the door opening.
- Limited Door Reversal: If the doors are closing and an infrared beam is interrupted, the doors will reverse and reopen partially. After the obstruction is cleared, the doors will begin to close.
- Closing speed of doors shall not be greater than 0.3m/s
- Door Protection Devices: Provide a door protection system using full curtain type infrared light beams. The beams shall project across the car opening detecting the presence of a passenger or object. If door movement is obstructed, the doors shall immediately reopen.

## **6.7 Car Operating Station**

A panel shall be provided which contains a bank of illuminated push buttons with tactile indication of each floor adjacent to the call button to correspond to the landings served, an emergency call button (clearly identified) and, door open and door close buttons, switches for lights and exhaust fan, key switches for inspection, and message indicators for lift operation. The emergency call button shall be connected to two bells that serves the emergency signal. The bells shall be situated in prominent locations as instructed by the Engineer. All buttons to have both raised markings and Braille markings. The controls shall be mounted on a panel located on a sidewall 400 mm from the doorjamb. It shall be installed at a minimum height of 900 mm and maximum height of 1200 mm.

A display car position indicator shall be integral to the car operating panel. As the car travels, its position in the hoist way shall be indicated by the illumination of the alpha/numeric character corresponding to the landing, which the lift is stopped, or passing.

The voice and visual indicator shall be included in the car-operating panel, indicating the weight present in the car, or any passenger overloads. The voice and visual indicator shall also give notification of the floor reached.

An emergency light and capacity plate shall be integrated into a module. Emergency light shall illuminate automatically upon loss of the building's normal power supply.

Special Accessories shall include:

- ➔ Independent service switch.
- ➔ CE marking.
- ➔ Name and contact number of supplier.
- ➔ Identification number of lift.

## **6.8 Control Systems**

The lift control system for each lift shall be microprocessor based and operate on extra low voltage.

Control of the lift shall be automatic in operation by means of push buttons.

The car shall be operated with a single set of push Buttons, one for each floor served. Registration of a call by momentary pressure on a button shall cause the corresponding call to be entered and the button to illuminate.

Maintenance control gear. Up/Down/ close/open Emergency Stop/ Control and inspection buttons to be installed in machine room as well as top of car. An emergency lift control cut out shall also be provided in the pit

The overload control device should prevent a start of a journey when the load exceeds the lifts rated loads. The cabin shall not move until the correct load is present in the car.

## **6.9 Hall Stations**

Hall fixtures shall be provided with necessary push buttons which shall illuminate to indicate call has been registered at that floor. Each hall station shall be installed at a minimum height of 1200 mm from floor.

A hall lantern shall be installed with an audible signal at each landing entrance for the lift. The lanterns, when illuminated, shall indicate when the lift car stopped at the landing .

## **6.10 Execution**

### **6.10.1 Examination**

Before starting works, verify all critical dimensions, and examine supporting structures and all other conditions under which the lift work is to be installed. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

### 6.10.2 Installation

Installation shall be performed by competent lift installation personnel in accordance with Lifts Regulations 2002 and MSA EN81-1: 2000, manufacturer's installation instructions and approved workshop drawings.

Installation is to comply with the latest edition of the I.E.E wiring regulations for electrical work required during installation.

### 6.10.3 Field Quality Control

Acceptance testing: Upon completion of the installation and before permitting use of lifts, perform acceptance tests as required by the Lifts Regulations 2002 shall be performed in the presence of the client engineer and documented.

Test certificates are to be handed over to the Engineer in charge.

### 6.10.4 Cleaning

Before final acceptance, all plastic protection from finished surfaces shall be removed and surfaces should be cleaned and polished in accordance with manufacturer's recommendations for type of material and finish provided.

### 6.10.5 Protection

During works, suitable signage and barriers shall be performed for health and safety reasons and to protect lift from damage or deterioration. These measures shall be maintained throughout the execution of the works.

## 7. Electrical Systems

### 7.1 Definitions

In the following text all standards and specifications are to be in EU denomination where applicable, whereby:

EN refers to European Norm

BS refers to British Standard;

ISO refers to International Standard Organisation

ELV refers to electrical or electronic systems operating at a nominal voltage not exceeding 50V;

Engineer refers to client engineer in charge or his delegate

IEE Regulations refers to the 16<sup>th</sup> edition of the Regulations for Electrical Installation issued by the British Institution of Electrical Engineers;

IP refers to the degree of protection afforded by specific items of equipment against ingress of solid bodies and liquids as specified in BS EN 60529;

Installation refers to positioning and fixing in place, wiring and connection, where applicable,

inclusive of preparatory civil works (drilling of holes, trenching etc.) and any associated hardware;

Supply and delivery includes the transport, insurance, handling, delivery to site and positioning in place, inclusive of preparatory civil works where applicable.

### 7.2 Compliance

The services installation (all material and works) detailed in this specification shall comply with the following:

- ➔ European and British Standards Institution documents MSA EN or BS EN or IEC standards as specified or their equivalent
- ➔ IEE Wiring Regulations “ Requirements for Electrical Installations “ 16<sup>th</sup> Edition including amendments
- ➔ Electricity Supply Regulations issued by Enemalta Corporation including amendments



- ➔ Standard Orders (Malta Board of Standards)
- ➔ Health and Safety Regulations
- ➔ Good trade practices and other applicable regulations

Workmanship shall be of a high standard throughout. The contractor shall ensure that the standard of finish demanded by this contract is achieved. Branded materials shall be assembled, constructed and joined in accordance with the manufacturer's instructions and recommendations.

### **7.3 Testing and Commissioning**

All the works provided as part of the contract shall be inspected and commissioned in accordance with the relevant MSA EN or BS EN or IEC standards to the satisfaction of the engineer. All the installations shall be inspected and tested in sections as the works proceed and on completion as complete systems and it shall be noted that the engineer may require inspection or testing during the course of works.

All tests shall be arranged in cooperation with the engineer and he shall be given prior notice of the time, location and nature of the test. No test shall be considered valid unless the engineer is present. All necessary skilled and unskilled labour shall be provided for attendance duties before, during and after the test.

Defects occurring at any time during the test shall be made good and a complete re-test shall be carried out, all at no extra cost. Where failure during a test, inspection or commissioning process results in damage to the building fabric and/or services not provided as part of this contract, or requires subsequent builder's work then these items shall be made good at no extra cost.

No section of the works shall be in any way concealed prior to testing and inspection and subsequent concealment where applicable shall only take place following written authority from the engineer. All necessary facilities, measuring and recording instruments for inspection / testing and commissioning are to be calibrated as necessary before use. The engineer reserves the right to call for a demonstration of the accuracy of any instrument used.

Furthermore, the Contractor shall complete a test certificate to be provided by the Engineer. Works shall be regarded as completed only when the installation satisfies the above tests. The Contractor shall certify, upon completion of works, that the installation is safe and complies with IEE and Enemalta Regulations and the other standards referred to in the specifications of this tender document. The safety, integrity and reliability of the installation shall be the responsibility of the Contractor only.

All systems shall be commissioned only after inspection and testing procedures have demonstrated the integrity of the system.

Electrical Installation - The voltage at terminal points shall be within the accepted tolerance level (4%) relative to the voltage at the main distribution panel.

### **7.4 Electrical Power and Lighting Installation**

The concept of installation shall be such that there are at least two separate Distribution Boards per floor/ward/department. One DB identified as essential and supplied from a Generator backup and the other DB identified as non-essential which is ultimately supplied by the service utility provider. In cases where all power and lighting points are deemed as essential, installation shall still be performed on at least two separate Distribution Boards per floor/ward/department. This is to avoid possible complete blackouts in the respective department and to facilitate preventive maintenance and testing without interrupting the normal operations of the respective department.

#### **7.4.1 Electrical Supply**

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

#### **7.4.2 Cable terminations**

The contractor shall ensure that panel boards and distribution boards are provided with facilities to terminate size, number and type of cable indicated and where necessary use fabricated steel extension boxes for glanding large and multiple cables.

#### **7.4.3 Switch fuses**

All switch fuses shall be according to BS 3185 or equivalent Standard heavy duty composite units of air break switches and fuses. All fuses are to be of the HRC type and complying with BS 88 or equivalent EN Standard. The rating of the switchgear shall be clearly marked. They shall have an inner locking mechanism for prevention of pulling out when switch is on.

The enclosure of the switchgear shall be fabricated sheet metal, finished in stove enamel or of epoxy resin of an approved quality.

#### **7.5 General Material Specifications (Electrical and Extra Low Voltage)**

- ➔ PVC conduit shall be rigid, heavy duty, self-extinguishing to BS 4607 or equivalent EN Standard and MSA EN 50086-1 :2001 PVC conduit fittings (tees, inspection boxes, elbows, etc.) shall be of the prefabricated type, heavy duty, self-extinguishing to BS 4607 or equivalent Standard.
- ➔ PVC trunking shall be heavy duty, self-extinguishing to MSA EN 50085-1 :2000
- ➔ Galvanized steel conduit and fittings shall be rigid, heavy duty to BS 4568 Part I or equivalent Standard
- ➔ Galvanized steel trunking and cable trays shall be heavy duty hot-dip galvanized after manufacture to MSA EN 50085-1 :2000
- ➔ Socket outlets shall be stainless steel polished, switched, fused and shuttered to BS 1363 or equivalent Standard.
- ➔ Double Pole switches shall be stainless steel polished, illuminated with neon lamp and red diffuser and fused to BS 5733 or equivalent Standard and shall only be employed in conjunction with a separate flex outlet
- ➔ Chord outlets shall comply with BS 4177 or equivalent Standard
- ➔ Ceiling roses shall be to BS 67 or equivalent Standard
- ➔ Switchboards and Distribution boards shall be to MSA EN 60439-1 :1994
- ➔ Moulded case circuit breakers shall be 3-pole to BS EN 60947-2
- ➔ Miniature circuit breakers shall be single or double pole to BS EN 60898 and MSA EN 60898-1 :2003
- ➔ Earth leakage circuit breakers (RCD) shall be 2-pole or 4-pole differential type with various tripping currents and a tripping time of 40ms at 150mA to MSA EN 61008-1:2001
- ➔ Cartridge fuses shall comply with BS88 (Part 6) or equivalent Standard
- ➔ Single-core cables shall be PVC-insulated. No colours other than brown, black and grey (phase), blue (neutral) and green/yellow (protective earth conductor) shall be allowed.
- ➔ BS6004 or equivalent Standard for general power and illumination applications
- ➔ BS6231 or equivalent Standard for ELV and control cables for internal wiring
- ➔ BS7211 or equivalent Standard for cables with low emission when exposed to fire
- ➔ Flexible cords shall be to BS6500 or equivalent Standard
- ➔ Armoured cables shall be 4-core XLPE-insulated, steel wire armoured (SWA) and PVC sheathed to BS 5467 or equivalent Standard. Conductors shall be copper.

→ Low voltage switchgear and control gear shall be to BSEN60947-3

#### **7.5.1 Conduit, Cable Trunking and Cable Tray Installation**

The electrical wiring installation shall be carried out using the appropriate type and size of trunking, conduit or other approved ducting. Unless otherwise specified, trunking, conduit and accessories shall consist of rigid, heavy gauge, (black colour for conduit), high impact PVC or similar plastic material having good cold bent characteristics, high resistance to impact and chemical damage and easy to join. All PVC conduits and accessories including circular boxes, socket outlet, telephone outlet and switch boxes shall comply with the requirements of BS 4670 or equivalent Standard or be of equally approved standard.

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

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

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

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

All PVC insulated cables other than flexible shall be protected throughout their length with trunking and conduit and associated loop-in, angle, inspection and outlet boxes. The use of elbows or tees will not be allowed in the Works.

Where steel conduit is indicated (such as outdoor locations), such conduit and fittings shall be Class B heavy gauge screwed welded galvanised type.

Unless otherwise specified or indicated in the Drawings, the entire trunking and conduit installation shall be run concealed in neatly prepared chases and ducts. Surface run ducts, conduits and trunking shall only be installed in false ceiling spaces, or in rooms as indicated in the Drawings. Conduit runs buried in floor shall be avoided.

All trunking, conduits and accessories shall be fixed in situ before plastering and flooring are carried out. All trunking, conduit, accessories and equipment shall be fixed in position in accordance with the manufacturers or suppliers recommendations and with the full and correct size of fixing bolts, screws, raw plugs, saddles, brackets, rawbolts and other fixings as appropriate to the surface to which they are fixed. Precautions shall be taken to prevent cement, dust and dirt from entering the conduit and trunking.

Conduit boxes carrying accessories including flush boxes for switches, socket outlets and lighting outlets shall be independently fixed to the building using the appropriate number, size, length and type of screws.

For fixing of small equipment to the building surface Raw plugs or similarly items shall be used. For the fixing of larger equipment use shall be made Rawbolts or other equally approved fixings.

All draw-in, junction and inspection boxes shall be easily accessible for wiring purposes. Draw-in boxes shall be so installed so that there are no more than two 90 degree bends between them. All conduit joints shall be soundly made. Conduits shall be connected to trunking with couplers and male bushes.

All conduits and trunking shall be thoroughly swabbed and cleaned before cables or wiring are drawn in.

Chases for conduit and trunking shall be neatly cut and holes neatly drilled by mechanical means. Chases and holes shall be made good after fixing of the conduit system by plastering with sand / cement mortar.

#### **7.5.2 Galvanized steel trunking**

The galvanised trunking shall be manufactured from hot dipped galvanised sheet steel complying with MSA EN 10142:2000, MSA EN 10147:2000. The thickness of the sheet shall be such that there is no sagging of

the trunking with the load of the cables. If in the opinion of the Engineer the trunking deforms with the weight of the cable the contractor shall be requested to remove the said trunking and replace it. The trunking shall be supplied complete with a clip on cover of the same material quality and thickness of the main trunking.

The cover shall be secured with self-tapping screws. Earth bonding shall be carried out between all sections of trunking to ensure electrical continuity using 12X2mm copper sections ( or equivalent means ) fixed by adequate screws. The trunking shall be bonded to the main earth terminal but cannot be utilized as an earthing conductor

All trunking shall be supplied and installed complete with fittings and accessories and shall be of an approved type and properly bonded.

### **7.5.3 Galvanized steel cable tray**

Cable tray shall be of the perforated 1-2mm (depending on size) sheet steel construction with a flanged height of 50mm and width as indicated on drawings and schedule of quantities. Cable tray shall be hot dipped galvanized after forming and shall be adequately supported to avoid sagging.

Any brackets and fixtures shall be hot dipped galvanized and shall be supplied by the same manufacturer as the tray.

Earth bonding shall be carried out between all sections of cable tray to ensure electrical continuity using 12X2mm copper sections ( or equivalent means ) fixed by adequate screws. The tray shall be electrically continuous and bonded to the main earth terminal but cannot be used as a means of earthing for any circuit.

All cables installed on the cable trays shall be secured to the tray by using cable ties.

Cable tray installed externally shall include a galvanized sheet steel cover along its entire length. The cover shall be fixed to the tray by means of self-tapping or drilling screws. Extra care shall be taken to avoid damage to the cables

### **7.5.4 PVC conduit and fittings**

PVC conduit and fittings shall conform to BS 4607 or equivalent Standard and shall be of medium gauge.

### **7.5.5 PVC Trunking**

PVC trunking shall conform to BS 4678 or equivalent EN standard, manufactured from self-extinguishing, acid resistant heavy gauge PVC, complete with a sealing overlapping lid. The thickness of the PVC shall be such that there is no sagging of the trunking with the load of the cables.

## **7.6 Wiring System**

The EU harmonized colour coding scheme shall be as detailed hereunder

- ➔ Single Phase Circuits - Phase brown, Neutral blue and Protective Conductor green and yellow
- ➔ Three phase Circuits - Phase 1 brown, Phase 2 black, Phase 3 grey, Neutral blue and Protective Conductor green and yellow

### **7.6.1 Multi-core Armoured Cables**

Armoured cables shall be XLPE insulated, PVC bedded, single wire armoured, annealed copper conductors, to BS 5467 or equivalent EN standard. For armoured cables sizes of 10mm.sq. or smaller, these can be PVC insulated, cores laid up, PVC bedded, galvanized steel wire armoured and PVC sheathed overall (PVC/SWA/PVC) 600V / 1000V grade to BS 6346 or equivalent EN standard.

Each cable is to be manufactured in one complete length and no through joints will be allowed without authorization of the Engineer. The Contractor shall be responsible for cable conductor phasing from the main switchboard. Feeder terminals shall be correspondingly marked at each end.

Armoured cables shall be suitable terminated using brass gland kits including locknut, earth tag and PVC shroud in accordance with BS 6121 or equivalent Standard.

### 7.6.2 Distribution Boards

The Distribution Boards shall be located in the positions indicated in the Tender Drawings but the exact and final location position and orientation shall be agreed on site with the Engineer.

Distribution boards shall be TPN, surface mounted and of robust moulded construction. Earth and neutral busbars of sufficient capacity to accommodate each individual circuit separately shall be included.

Distribution Boards shall consist of wall-mounting panels rigidly fabricated from high grade, rust-protected steel or from rigid plastic, designed and constructed to comply fully with MSA EN 60439-1 :2000 and suitable for operation from a 415V / 240V, 3-phase and neutral 50Hz, 4-wire electrical supply. Distribution boards shall have a minimum protection to IP30.

Distribution Boards shall be located as indicated in the Tender drawings but the exact position shall be as directed on site by the Engineer, The mounting height of Distribution Boards shall normally be 2000 MM above finished floor level as measured from the bottom of the casing, or as directed by the Engineer. Unless otherwise specified, or indicated in the Tender Drawings or directed by the Engineer, Distribution Boards shall be flush-mounted on the walls. The Distribution Boards shall be fitted with a lid with lock and two keys.

Unless otherwise stated, the incoming switchgear for the distribution boards shall consist of a residual current device (RCD) made up of a four pole MCCB and an earth leakage relay complete with core balance transformer. The relay shall have an adjustable tripping current in the range of 30mA - 500mA. Incoming devices shall have the facility to be padlocked in the ON or OFF position. Unused ways shall be blanked off.

All distribution boards shall include miniature circuit breakers, combined residual MCBs, RCDs and RCBO's, internal wiring, connections, labelling and accessories as required and as specified and indicated in the Tender Drawings and Bills of Quantities. RCBO's are to be of the single module type. The distribution boards are to be equipped with a four pole vertical busbar system allowing optional neutral switching on outgoing circuits. Busbars shall be fabricated from high conductivity copper conductors rated as indicated in the Tender Drawings. The neutral and earth bars shall be fully rated, full way copper bars. The enclosed TPN busbar assembly shall be furnished with the full complement of shrouded connections and suitable for accepting triple and single-pole, plug-in type MCB or RCBO as indicated in the Tender Drawings. Ample clearance shall be provided between live parts and the sheet steel protection to enable cables to be brought to their respective terminals in a neat and workmanlike manner. The neutral and earth bar shall have terminals so positioned as to facilitate cabling. The earth bar shall be adequately bonded to the panel casing. The front cover shall be of one-piece construction with a hinged and lockable lid. Knockout holes shall be provided for incoming and outgoing cables. Distribution Boards shall be finished in steel grey stoved epoxy powder paint coating presided by a phosphate pre-treatment to BS 4800 or equivalent Standard or equally approved standard or rigid plastic. All incoming and outgoing circuits shall be numbered and so labelled as to provide clear identification of the current being fed.

Distribution Boards shall be appropriately labelled to indicate the area and services fed from them and where not otherwise clearly obvious, their source of supply. The inscription shall be in white with a 4 MM high letters inscribed in black Traffolyte sheet or equal and shall be fixed to the lids of the equipment by screws. Details of labelling shall be agreed with the Engineer.

Distribution Boards shall be marked on a card fixed on the inside of the lid or door. This card shall clearly indicate the location of all the outlets fed from each distribution way and the size of the relevant circuit breaker rating. The information shall either be typed, printed on the card or presented in a similar legible manner.

Before ordering the Distribution Boards, the Contractor shall submit to the Engineer for his approval, the relevant proposed arrangement and technical details including fault short circuit level capability of all circuit breakers to be used, busbar arrangement and metering. The main Switchboard and Distribution Boards should preferably be the product of a single manufacturer, (particularly Distribution Boards).

### 7.6.3 Circuit Breakers

- ➔ Circuit breakers shall be suitable for operation from 415V/240V, 50Hz, 3-phase and neutral or single-phase and neutral alternating current supply as required and shall comply with the requirements of the IEE Regulations and tested in accordance with British Standard Specifications or other equally approved standard.
- ➔ MCCB's (Moulded Case Circuit Breakers) shall comply to BS 60947-2 or equivalent Standard. The incoming MCCB shall be 4 pole and a minimum breaking capacity of 35-50kA. The nominal current rating of the incoming MCCB shall be thermally adjustable from 0.6In to 1.0 In. Outgoing MCCB's shall be single or three pole, rated as shown on schedule with an approximate breaking capacity of 35 kA. Moulded Case Circuit Breakers shall comply to MSA EN 60947-2 :2001. Each pole of the MCCB shall provide over current protection by having inverse time and instantaneous tripping characteristics, and where applicable, be current limiting. The MCCBs shall be operated by a toggle type handle and shall have a quick-make, quick-break, over-centre switching mechanism that is mechanically trip free from the handle. Tripping due to over current or short circuits shall be clearly indicated by the position of the handle. The ON and OFF positions shall be clearly marked on the cover of the MCCB, providing positive indication of the circuit breaker contact position. An easy accessible push-to-trip button shall be provided on the cover of the MCCB. Circuit Breakers shall be completely enclosed in a high strength glass-polyester case. Ampere ratings shall be clearly visible from the front of the circuit breaker. Contacts shall be non-welding silver alloy. It shall have a minimum breaking capacity  $I_{cu}$  of 35KA for 1 second.
- ➔ Miniature Circuit Breakers (MCB) shall provide over current and short circuit protection and shall comply with BS387 Part 1 or equivalent Standard. The MCBs shall be type 3 and shall be capable of dealing with fault currents of 6KA for MCBs up to 30Amp rating and 10KA for higher rated MCBs. They shall be Single Pole or Triple Pole as indicated on the schematic. They shall be easily mounted on DIN rail. The Voltage rating shall be 240/415 V, 50 Hz. The input terminals shall be suitable for 25 sq. mm cable and the output terminals for 16 sq. mm cable. MCB's shall have a type D tripping characteristic where indicated.
- ➔ Residual Current-Operated circuit breakers (RCCB) shall comply with MSA EN 61008-1 :2001 and shall be supplied where specified as integral main incomers on Distribution Boards and Consumer Units. RCBO's shall have the same specifications where applicable as the MCBs, shall be of the single pole type unless otherwise indicated and shall have differential current protection apart from over current protection to the sensitivity as indicated on the drawings and shall comply to BSEN 1009. The size and sensitivity of RCCB's (or ELCB) shall be as specified in the Bills of Quantities or indicated in the Drawings.
- ➔ All MCCB's and MCB's and RCBO's indicated as spare in the schedule shall be installed and allowed and included for in the Tender Price.

#### **7.6.4 Socket Outlets and Fused Plugs**

Socket outlets used shall, unless so specified or indicated in the Tender Drawings, generally be of the 2-gang, 240V, 13A, double-pole switched, 3-pin, insulated pattern, stainless steel polished finish rocker-operated switch mechanisms, complying with BS 1363 or equivalent Standard and suitable for flush mounting and connection into a ring main circuit. Socket outlets and plugs shall be supplied complete with red pilot neon lamps and fixing screws. All computer socket outlets shall be of the 240 Volt 13 Amp one or two gang switched moulded type, flush mounted and stainless steel polished finish. Where two gang socket outlets are required, the Contractor may opt to use two single gang socket outlets as indicated in the Bill of Quantities. All computer power plugs shall be 13 Amp 3-pin type fused at 5 Amp to suit the computer socket outlets as specified above. All computer power socket outlets and plugs shall conform to the relative British Standard Specifications.

Thus reference shall be made to three different types:

- 13 Amp 2P+E switched socket outlet, shuttered and shall be in accordance with BS 1363 or equivalent Standard
- 5 Amp 2P+E switched socket outlet, shuttered and shall be in accordance with BS546 or equivalent Standard
- 16A 2P+E German Standard socket outlet, shuttered and shall be in accordance with BS 1363 or equivalent Standard

They shall be suitable for flush mounting, unless otherwise instructed and shall be stainless steel polished finish. Samples shall be presented at time of tendering for approval.

#### **7.6.5 Fused spur outlets**

Fused spur outlets 13A are to comply with BS 5733 or equivalent Standard and are to be double pole switch with pilot lamp and flexible cable outlet knockout when required. The spur outlets shall be of the stainless steel polished finish type.

These shall be suitable for connecting a fixed appliance to a ring main socket outlet circuit as prescribed in IEE Regulations.

The unit shall consist of rectangular metal box complete with metal overlapping plates and removable fuse carrier, fitted with cartridge type fuses.

They shall be of the switch type and of approved finish.

#### **7.6.6 Cord outlets**

Cord outlets are to be unfused when fed from a fused spur outlet and shall include a terminal block for proper termination of cables and a cord grip for the outgoing cable. The flex outlets shall be supplied with three pairs of terminals suitable for 2 x 2.5 sq. mm conductors.

#### **7.6.7 Tumbler Switches**

These shall be of the "quick make and break" type, suitable for AC operation. They shall be wired "on" when the knob is down and shall be to BS 1291 Part 1 or equivalent Standard for 5 Amp type and MSA EN 60335-1:2001, BS 5733:1979, BS 6220:1983 or equivalent standards for 15 Amp type.

#### **7.6.8 Lighting Switches, Ceiling roses and Lighting outlets**

All lighting switches shall have a current rating of not less than 15 Amps and shall be single-pole, rocker-operated, 250V grade, complying with MSA EN 60669-1 :2001. Lighting switches shall be of the stainless steel polished finish type, suitable for flush-mounting to walls.

Lighting switches shall be housed in square or rectangular conduit boxes and supplied complete with fixing screws. Where necessary, and particularly where six or more switches are required to be ganged, flush type switches shall be mounted on gridswitch cover plates.

Where multi-gang switch assemblies are installed, the switches shall be connected such that their layout relative to each other corresponds as far as practical to the layout of the groups of lights being controlled. Two-way switches shall be so connected that when their both dollies are up, the lights controlled are off,

Unless otherwise indicated, the mounting height of lighting switches shall be 1200 MM from finished floor level to the centre of the switch.

Where installation of ceiling switches is indicated, such as in toilets, these shall be pull-cord operated, white moulded PVC 15Amp type, supplied complete with 1500MM cord,

Ceiling roses shall be of the moulded white PVC type to BS 67 or equivalent Standard and shall be provided with a shrouded live terminal, an earth clamp and a 3-3-2 terminal combination or other suitable connection to facilitate loop-in and loop-out wiring. All lighting circuit loop-in and loop-out wiring shall be carried out at ceiling roses.

The mounting height of wall lighting point outlets shall normally be 2200 MM from finished floor level unless otherwise specified or indicated in the Tender Drawings. Lighting wiring shall be terminated in circular boxes. Where batten holders are fitted to wall outlet boxes, they shall be heat resistant and provided with two-terminal lamp holders incorporating heat-resistant wires connecting the base to the lamp-holder.

## **7.7 Light Fittings**

All lighting fittings shall be manufactured to comply with BS 3533 or equivalent Standard and the Electrical Equipment Safety Regulations 1975/76 and be suitable for operation on a 240 Volt, 50Hz, electrical supply. Where feasible, all lighting fittings shall be furnished with energy saving lamps on control gear.

All lighting fittings provided shall be so packed as to avoid breakage or damage during transport and shall be stored in a dry place.

All lighting fittings shall be supplied, assembled, installed, wired, connected, tested and commissioned by the Contractor. All lighting fittings shall be supplied complete with lamps, fluorescent tubes, ballasts, starting gear, power factor correction capacitors, internal wiring, connections, terminals, diffusers, louvers, shades, fixing brackets, attachments and accessories as required and shall be fully assembled and complete in all respects and ready for use.

Unless otherwise specified, all fluorescent fittings shall be fabricated from top quality sheet steel, pre-treated against rust and finished with a high quality, durable white coating.

For Energy saving purposes all Lighting shall be illuminated via LED Bulbs or tubes. Light Fittings with fixed SMD LED lights shall be certified for 50,000 hours of illumination or more.

Control gear shall be integral part of the luminaire.

The types of lighting fittings to be installed shall be as designated in the respective schedule. All lighting fittings shall be of a high-quality standard, produced by reputable manufacturers, robust and so designed and constructed as to be easily maintained. The types of lighting fittings to be used shall be indicated in the Drawings and Light fitting schedule.

### **7.7.1 Type A Recessed LED Lighting units/ Surface mounted LED Units.**

Recessed LED Units manufactured from welded sheet steel with white epoxy painting. The luminaires shall have a smooth surface frame for easy cleaning. Electronic driver included 110-277 V 50/60 Hz, total power 44 watts. Colour Temperature: 4000 K, IP40 rated. The unit shall be adequate for installation in 600mm by 600mm soffit tile ceiling.

### **7.7.2 Type B Compact circular**

Composed of 2 X 5.5 W LED. Compact circular luminaire suitable to be flush mounted on false ceiling, weatherproof IP 43 Class I rated and having a bakelite or polycarbonate base, clear structured glass



diffuser and complete with two PL lampholders for 240V. Fitting is to be supplied complete with 2 X 5.5 W LED ( daylight ). The approx. diam. shall be 250mm and 85mm height.

#### **7.7.3 Type C LED Self-Contained Maintained EXIT or FIRE ESCAPE Emergency**

The emergency exit sign shall be suitable for applications requiring attractive LED lit exit signage, universal installation and low energy consumption. It shall be an emergency exit / route sign, to EC Directive (running man), approx. 200mm x 100mm. Fire Exit Running Man signs shall be designed to highlight building evacuation routes in a property.

It shall be constructed from extruded brushed aluminum finish and clear acrylic panels. It shall be a self contained LED emergency light fitting rated IP42 or better, ultra bright energy efficient LED lights, power rating 240V 50 Hz, daylight, non maintained to be surface or recessed mounted in false ceiling panels, Nickel Cadmium or Nickel Metal Hydride battery with an autonomy of approximately three hours and complying with BS EN 60598-2-22 or equivalent standard.

Luminary shall have an aesthetic profile, and compact external design and shall be complete with an evenly illuminated Euro-Norm Exit legend or pictogram format. The luminary is to be supplied complete with bar hanger and brackets in case of recessed mounting type.

#### **7.7.4 Type D Self-contained LED emergency light fitting**

Self-contained emergency light fitting polycarbonate body and diffuser rated IP42 or better, ultra-bright energy efficient LED strip lights or equivalent, power rating 240V 50 Hz, daylight, non-maintained to be flush mounted in false ceiling panels, Nickel Cadmium or Nickel Metal Hydride battery with an autonomy of approximately three hours and complying with BS EN 60598-2-22 or equivalent standard. Luminary shall have an aesthetic profile, and compact external design. The luminary is to be supplied complete with brackets for recessed mounting in false ceiling panels.

#### **7.7.5 Emergency Lighting**

Emergency lights shall be supplied, located and fixed as specified, indicated in the Drawings or as directed on site by the Engineer. Emergency lights shall normally be positioned in accordance with BS 5266 or equivalent Standard or equally approved standard. Emergency lighting fixtures shall also be provided to illuminate fire and safety signs and fire-fighting equipment, offices and other rooms.

The power rating (or lumen output) of the Emergency lighting fixtures shall be as specified and indicated in the Tender Documents. The design of the Emergency lighting fixtures shall be suitable and aesthetically match the building architecture. All Emergency lighting fixtures shall be so designed and manufactured as to comply with the recommendations of BS 4533 or equivalent Standard or of an equally approved Standard. In addition they shall comply with the Fire Regulations.

Emergency lighting fixtures (Types C & D ) shall normally be wired as to obtain their electrical supply from the nearest Distribution Board or from the nearest unswitched local circuit as specified and indicated in the Drawings or as directed on site by the Engineer.

Tenderers shall supply with the Tender Offer full information, drawings and relevant technical literature covering the Emergency lighting fixtures being offered.

#### **7.7.6 Bonding and Earthing**

The main earthing terminal shall consist of a copper bar mounted horizontally along the length of the switch room. Minimum c.s.a shall be 75 -120mm<sup>2</sup>. The earth bar shall be supported with appropriate brackets fixed to the wall. No holes shall be drilled in the main earth bar. Ground earthing shall be by means of earthing conductors of the existing system and by means of earth electrodes to be provided by the contractor and connected by 70mm<sup>2</sup> copper conductors and appropriate clamps to the main earth bar. The contractor is to take note that the earth electrode shall be installed at a distance of approximately 25 metres from the distribution panels. Exact measurements are to be taken by the contractor on site.

Electrodes shall be made of solid copper, approximately 4.8m long and with a minimum diameter of 15mm. The head of the electrode shall be housed in a precast or moulded inspection box with adequate cover installed flush at FFL.

The Contractor shall be responsible for the bonding and earthing of all exposed metalwork, structural steel and gas and water service metalwork to the earthing termination at the intake position in accordance with the IEE Regulations.

All metal conduit and trunking connections, fittings, distribution boards, switchgear and accessories, shall be properly screwed together so as to ensure perfect mechanical and electrical continuity throughout. Great care shall be taken in bonding and earthing of the installation. Tests are to be carried out as the work progresses to verify the electrical continuity of metal conduits, trunking and earth continuity conductors. For the purpose of estimating the Tender Price, the Tenderer shall assume that the earthing system be brought up to the electrical station of the building.

The cross-sectional area of the protective (earth continuity) conductors for cables up and equal to 16 sq.mm shall not be less than that of the corresponding phase conductor. Protective conductors of 16 sq.mm and smaller shall consist of a single core PVC cable coloured green-yellow and run in the same conduit or trunking housing the associated phase conductor. Joints in protective conductors shall not be permitted.

Earth connections to apparatus shall be made directly to the terminals in connection boxes, socket outlets, fused connection units, etc. Clamping rings, screws or lugs embedded in plaster shall not be permitted.

All exposed metal parts/adjacent equipment, shall have a common bond in addition to the normal earth connection. The minimum size of bonding and earthing conductors shall be 4 sq. mm insulated stranded copper cable, coloured green and mechanically protected. Bonding and earth wires shall be attached at each end by means of a brass sweating socket, brass screw and spring washer.

The steel wire armouring of sub-main cables shall be well bonded together and to the respective switchboard, distribution board, sealing chamber and conduits at which they terminate and to all adjacent metalwork.

## **7.8 Wiring Accessories**

Standard

- MSA EN 60669-1 :2001
- BS 1363 or equivalent Standard
- BS 4662 or equivalent Standard
- MSA EN 61558-1:2001, MSA EN 61558-2-23:2000

Wiring accessories shall be suitable for flush mounting and finished in white. Switches shall be of the wide rocker type (45mm x 45mm for one gang switch and 22.5mm x 45mm for two gang switch). Industrial socket outlets, plugs and connectors shall conform with BS EN 60309- 2/ MSA EN 60309-2:2001, all supplied by the same manufacturer.

## **8. House Curtain**

- 8.1 The House Curtain drape is to be provided for Roman type 11.5 meters wide and 7.0 meters drop with 50% fullness, with relevant Truss for Logitudinal System opening. This is to be mounted directly to the proscenium ceiling.
- 8.2 Control panel is to be mounted below motor controller.
- 8.3 Drapes have to be made in NDFR (Non Durably Flame-retarded) velvet velour and lined with cotton sateen. The NDFR fabric has to withstand at least 5 water free dry cleaning cycles without effecting flame retardancy.

## **9. Stage Floor**

The existing stage does not meet current standards for health & safety and barrier free design. The "rake" or slope of the stage is no longer necessary for audience viewing since changes were made in the slope of the auditorium floor. A raked stage is a serious impediment to performers with physical or developmental handicaps who are easily disorientated in the unusual lighting conditions

of a stage. So the new performance area should be on the level, and entry ramps from the west corridor and east green room should conform to the usual slope of 1:12.

#### **10. Stage Performance Surface**

- 10.1 Provision of 150sq.m Black/Grey flooring 2 m wide cut in lengths of 12.28m
- 10.2 51 Panels full size 2x1m portable
- 10.3 12 Panels half-size 1x1m portable
- 10.4 Key
- 10.5 Edge Trim Long 2m x 15

## **SECTION 5 - SUPPLEMENTARY DOCUMENTATION**

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

### ***5.2 - Glossary***

### ***5.3 - Specimen Prefinancing Guarantee***

### ***5.4 - Specimen Performance Guarantee***

### ***5.5 - Specimen Retention Guarantee***

### ***5.6 - General Conditions of Contract***

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.

