Open National Bidding
for Works

Construction of a Changing Room and BMX/Skate Board Tracks

Procurement Reference No: MSC/ONB/1/2022-2023

Issued on: 11th October 2022

Section I: Instruction to Bidders

1. Introduction

The **Mauritius Sports Council** also referred as the Employer, invites eligible local contractors to submit their bid for the works described in detail hereunder. Any resulting contract shall be subject to the terms and conditions referred to in this document.

The Works are "**Construction of a changing room and BMX/Skate board tracks**

Participation is limited to citizens of Mauritius or entities incorporated in Mauritius. Joint Ventures should be among entities incorporated in Mauritius

1.1 Clarifications, if any, should be addressed by email to: ***The Secretary of the Tender Committee, Mauritius Sports Council on asukai@msportsc.com.***

The *Employer* will respond in writing to any request for clarification, provided that such request is received 14 days prior to the deadline for submission of bids.

The Employer shall respond to such request at latest 7 days prior to the deadline set for submission of bids.

1.2 Bidders are advised to carefully read the complete Bidding document, including the Particular Conditions of Contract in Section IV, before preparing their bids. The standard forms in this document may be retyped for completion but the Bidder is responsible for their accurate reproduction.

2. Validity of Bids

The bid validity period shall be **90 days** from the date of bid submission deadline.

3. Works Completion Period

The Intended Completion period is **150 calendar days** from start date of works.

4. Site Visit

Bidders or their designated represen*tatives are requested to carry out site visit to take cognizance of the works and site.* The purpose of the site visit is for bidders to know the site, its difficulties and to ask any clarification if any. Bidder will need to make arrangement for such visit by calling **Mr J. Jowaheer on 2061562.**

5. Sealing and Marking of Bids

Bids should be sealed in a single envelope, clearly marked with the Procurement Reference Number, addressed to the Public Body with the Bidder's name at the back of the envelope.

6. Submission of Bids

Bids (one original and soft copy on CD/USB) should be deposited in the Bid Box located at **MSC Office, Royal Rd, Belle Rose** not later than **Monday 7th November 2022 by 14.00 hours** at latest. Bids by post or hand delivered should reach the above-mentioned address by the same date and time at latest. Late bids will be rejected. Bids received by e-mail will not be considered.

7. Bid Opening

Bids will be opened by the MSC on **Monday 7th November 2022 at 14.15 hours**. Bidders or their representatives may attend the Bid Opening if they choose to do so.

8. Evaluation of Bids

The Public Body shall have the right to request for clarification during evaluation. Offers that are substantially responsive shall be compared on the basis of evaluated cost to determine the lowest evaluated bid.

9. Eligibility Criteria

To be eligible to participate in this bidding exercise, Bidder should:

(a) have the legal capacity to enter into a contract to execute the works;

(b) be duly registered with the CIDB under the grade that would allow him to perform the value of works for which he is submitting his bid. (Note 1)

(c) not be insolvent, in receivership, bankrupt, subject to legal proceedings for any of these circumstances or in the process of being wound up;

(d) not have had your business activities suspended;

(e) not be under a declaration of ineligibility by the Government of Mauritius in accordance with applicable laws at the date of the deadline for bid submission or appearing on the ineligibility lists of African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group and World Bank Group;

(f) not have a conflict of interest in relation to this procurement requirement; and

(g) have a Business Registration Card.

Note 1 Sub-contractors undertaking works are also subject to registration with CIDB as applicable to Contractors.

10. Qualification and Experience Criteria

Bidders should have the following minimum qualifications and experience:

(a) valid registration certificate with the CIDB in **Building Construction works** under the grade that will enable the contractor to perform the works quoted for.

(b) Specific experience in two Building works of a similar nature over the last 5 years, each of value not less that MUR 4M that have been successfully completed. **To submit proof for the specific works such as letter of acceptance, completion certificates etc as completed by the main contractor**. **Failure to submit same may result in the disqualification of the bidder.**

(c) A Site Agent having as minimum qualification: A diploma in construction related field and 5 years' experience **as site agent** in the construction sector as; or any equivalent qualifications acceptable to the Parastatal body.

(d) Minimum amount of liquid assets and/or credit facilities net of other contractual commitments of the Bidder of *the amount of MUR 1.0M.* **Failure to submit same may result in the disqualification of the bidder.**

(e) Audited account as file at the Registrar over the last 3 Years

(f) A foreman with at least 10 years' experience in the construction field.

(g) A health and safety officer having a minimum of 3 years as experience.

(h) One Electrical Engineer registered with the Council of Registered Engineers of Mauritius having at least 5 years post registration experience to attend all site meetings, to supervise all electrical works, to submit all shop drawings and technical datasheet, to reply to queries on technical issues and to act as the representative of the Contractor for Electrical Works.

(i) A surveyor with at least 5 years' experience in construction field.

11. Contents of bid

The Bid shall comprise the following:

(a) duly filled Bid Submission Form;

(b) duly filled Priced Bill of Quantities

(c) duly filled Qualification Information Form and attachments required

(d) report on the financial standing of the Bidder for the last three years, such as certified copies of Financial Statements or Audited Accounts as filed at the Registrar of Companies before the deadline set for submission of bids

(e) Valid Registration certificate with the CIDB, as applicable

(f) **Signed C.V and undertaking of the proposed Site Agent, Foreman, electrical Engineer, Health, Safety Officer and surveyor.**

(g) Documentary evidence of liquid assets and/or credit facilities (Note 1);

(h) Any other documents deemed necessary as per the requirements of this bidding document

Note 1
Bidders to demonstrate access to, or availability of, financial resources such as liquid assets, lines of credit, and other financial means, other than any contractual advance payments to meet the overall cash flow requirements for the contract and its current commitments. Documentary evidence may comprise but not limited to Bank certificate, Certificate from Auditors, Certificate from a Professional Accountant registered with MIPA, Certificate from Insurance companies.

12. Joint Venture

Bids submitted by a joint venture of two or more firms as partners shall comply with the following requirements:

i. The Bid shall include all the information required as per the Qualification Information form for each joint venture partner;

ii. The Bid shall be signed so as to be legally binding on all partners;

iii. The Bid shall include a copy of the agreement entered into by the joint venture partners defining the division of assignments to each partner and establishing that all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms; **alternatively**, a Letter of Intent to execute a joint venture agreement in the event of a successful bid shall be signed by all partners and submitted with the bid, together with a copy of the proposed agreement;

iv. One of the partners shall be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all partners of the joint venture; and

v. the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

13. Prices and Currency of Payment

Bidders should quote for the whole works. Prices for the execution of works shall be quoted and fixed in Mauritian Rupees. Items for which no rate or price is entered by Bidders, shall not be paid for by the Public Body when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.

Bids shall cover all costs of labour, materials, equipment, overheads, profits and all associated costs for performing the works, and shall include all duties. The whole cost of performing the works shall be included in the items stated, and the cost of any incidental works shall be deemed to be included in the prices quoted.

14. Bid Securing Declaration

Bidders are required to subscribe to a Bid Securing Declaration in the Bid Submission Form.

15. Margin of Preference

Margin of Preference shall not apply.

16. Award of Contract

The Bidder having submitted the **lowest evaluated responsive bid** and qualified to perform the works shall be selected for award of contract. Award of contract shall be by issue of a Letter of Acceptance in accordance with terms and conditions contained in Section IV: General Conditions of Contract and Particular Conditions of Contract.

17. Performance Security and signing of contract

Within twenty-eight (28) days of the receipt of the Letter of Acceptance from the *Employer*, the **successful Bidder shall furnish a Performance Security from a bank**, in the amount equal to **10% of the Bid price (inclusive of VAT)**, in accordance with the conditions of contract, using for that purpose the Performance Security Form included in Section V Contract Forms.

The contract agreement shall be signed within 28 days after the successful bidder receives the letter of acceptance unless the parties agree otherwise.

Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the contract within the required time may constitute sufficient grounds for the annulment of the award.

18. Notification of Award and Debriefing

Prior to the expiration of the period of bid validity, the Employer shall, for contract amount above Rs 15 million, notify the selected bidder of the proposed award and accordingly notify unsuccessful bidders. Subject to Challenge and Appeal, the Employer shall notify the selected Bidder, in writing, by a Letter of Acceptance for award of contract. Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

The Public Body shall after award of contract, exceeding Rs 1 million and up to Rs 15 million, promptly inform all unsuccessful bidders in writing of the name and address of the successful bidder and the contract amount.

Furthermore, the Public Body shall attend to all requests for debriefing for contract exceeding Rs 1 million, made in writing within 30 days the unsuccessful bidders are informed of the award.

19. Advance Payment

The Public Body shall provide an Advance Payment on the Contract Price as stipulated in the General Conditions of Contract. The Advance Payment shall be guaranteed by an Advance Payment Security as per the format contained in Section V.

The Advance Payment shall be limited to 10% percent of the Contract Price, less any provisional and contingencies sums.

20. Integrity Clause

The Public Body commits itself to take all measures necessary to prevent corruption and ensures that none of its staff, personally or through his/her close relatives or through a third party, will in connection with the bid for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to.

21. Rights of Public Body

The Mauritius Sports Council reserves the right:

(a) to split the contract as per the lowest evaluated cost per lot; and

(b) to accept or reject any bid or to cancel the bidding process and reject all bids at any time prior to contract award without incurring any liability to the Public body.

22. Challenge and Appeal

Unsatisfied bidders shall follow procedures prescribed in Regulations 48, 49 and 50 of the Public Procurement Regulations 2008 to challenge procurement proceedings and award of procurement contracts or to file application for review at the Independent Review Panel.

(a) The address, Tel. No. & Email address to file Challenges in respect of this procurement is:

The Director
Mauritius Sports Council
Royal Road, Belle Rose
4541009
E-Mail address: Directormsc@msportsc.com

(b) The address to file Application for Review is:

The Chairperson
Independent Review Panel,
5th Floor,
Belmont House
Intendence Street
Port Louis
Tel : +230 260 2228
Email : irp@govmu.org

Section II: Bidding Forms

Note: Bidders are required to fill all the forms in this section and submit as part of their bid. Non-submission of any form may lead to rejection of the bid

Bid Submission Form

Date: _____

Bid's Reference No: _____

Procurement Reference No:_____

To:

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Documents, including Addenda issued;

(b) We offer to execute in conformity with the Bidding Documents the following Works: _____;

(c) The total price of our Bid excluding VAT is: _____(MUR):

(d) Our bid shall be valid for a period of *90* days from the date fixed for the bid submission deadline in accordance with the Bidding Documents or up to **4th February 2023** whichever is later, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(e) We hereby confirm that we have read and understood the content of the Bid Securing Declaration attached hereto and subscribe fully to the terms and conditions contained therein, if required. We understand that non-compliance to the conditions mentioned may lead to disqualification.

(f) If our bid is accepted, we commit to obtain a Performance Security in accordance with the Bidding Document;

(g) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 8;

(h) We are not participating, as a Bidder in more than one bid in this bidding process;

(i) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible under the laws of Mauritius;

(j) We have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption as per the principles described hereunder, during the bidding process and contract execution:

i. We shall not, directly or through any other person or firm, offer, promise or give to any of the Public Body's employees involved in the bidding process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

ii. We shall not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.

iii. We shall not use falsified documents, erroneous data or deliberately not disclose requested facts to obtain a benefit in a procurement proceeding.

We understand that transgression of the above is a serious offence and appropriate actions will be taken against such bidders.

(k) We understand that this bid, together with your written acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;

(l) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive; and

(m) If awarded the contract, the person named below shall act as Contractor's Representative:

Name: .....

In the capacity of: .....

Signed: .....

Duly authorized to sign the Bid for and on behalf of: .....

Date: .....

Seal of Company .....

BID SECURING DECLARATION

By subscribing to the undertaking in the Bid Submission Form:

I/We accept that I/we may be disqualified from bidding for any contract with any Public Body for the period of time that may be determined by the Procurement Policy Office under section 35 of the Public Procurement Act, if I am/we are in breach of any obligation under the Bid conditions, because I/we:

(a) have modified or withdrawn my/our bid after the deadline for submission of bids during the period of bid validity specified by the Bidder in the Bid Submission Form; or

(b) have refused to accept a correction of an error appearing on the face of the bid; or

(c) having been notified of the acceptance of our bid during the period of bid validity,

(i) have failed or refused to execute the Contract, if required, or

(ii) have failed or refused to furnish the Performance Security, in accordance with the Instructions to Quote.

I/We understand this Bid Securing Declaration shall cease to be valid

(a) in case I/we am/are the successful bidder, upon our receipt of copies of the contract signed by you and the Performance Security issued to you by me/us ; or

(b) if I am/we are not the successful Bidder, upon the earlier of

(i) the receipt of your notification of the name of the successful Bidder; or

(ii) thirty days after the expiration of the validity of my/our bid.

In case of a Joint Venture, all the partners of the Joint Venture shall be jointly and severally liable.

Qualification Information

1. Individual Bidders or Individual Members of Joint Ventures

1.1 Constitution or legal status of Bidder: [*attach copy]*

Place of registration: [*insert]*_____

Principal place of business: [*insert]*_____

1.2 Bidder shall provide *[insert number]* of works of a nature and amount similar to the Works performed as Contractor over the last 5 years.

Project/Contract name and country	Name of client and contact person	Type of work performed and year of completion	Value of contract (national currency)
(a) (b)			

1.3 Proposed subcontracts and firms involved. Refer to General Conditions of Contract Clause 7.

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

[Bidders have to ascertain that sub-contractors executing works are duly registered with the CIDB in accordance with CIDB Act 2008.

1.4 Name, address, and telephone, telex, and facsimile numbers of banks that may provide references if contacted by the Public Body

2. Additional 2.1 Bidders should provide any additional information Requirements requested in the Bidding Document.

BILL OF QUANTITIES

Procurement Reference Number: **: MSC/ONB/1/2022-2023**

Construction of a Changing Room and BMX/ Skate Board Tracks

Item No	Brief Description of Works	Unit of Measure	Qty	Unit Price (Rs)	Total Price (Rs)
A	**<u>Preliminaries and General Costs</u>** *Bidders are required to submit their bid on a fixed price basis which is to include for all possible increase in costs of Labour, materials, freight, transport, fuel, changes in exchange rates, taxes excluding VAT.* ***Allow for preliminaries and general costs in connection with, but not limited to, the following:***				
A1.0	The Contractor is to allow for costs related to Preliminaries and General Conditions of Contract requirements including the following but not limited to: setting out of the works, site management, Contractor's office, overheads, tools, plants, store, stacking and storage of materials, Project Manager's facilities such as office, transport to site, insurances, bonds, watchmen, light, electricity, protection of existing building and internal amenities, security of workmen, office equipment etc and works on site, temporary hoardings and gantries, police requirements, coloured photos for recording (25nos) etc.	**SUM**			
A2.0	Allow for the provision of safe means of working at all levels in accordance with the Health and Safety Act (2005), in particular to Part VI of the Act. **To submit a health and safety report prior to start the works.**	**SUM**			
A3.0	Supply and fix signboard of standard dimension made up of plain aluminium/aluco bond sheet fixed on metal support with the name of the project, name of client, name of the supervising body and contractor. Works to include all fixation, painting of metal etc.	**SUM**			
	Bill No 1:Total Brought Forward to Main Summary				

Item No	Brief Description of Works	Unit of Measure	Qty	Unit Price (Rs)	Total Price (Rs)
B	**CHANGING ROOM**				
B1	**SUBSTRUCTURE- (Changing Room/Office) (ALL PROVISIONAL)** Excavate in all type of soil, including rock, hard rock and the like. Dispose of excavated material in spoil heaps, backfill with selected excavated soil and cart away surplus. Excavation should be free of water, mud. Rate to include for temporary support to sides of excavations and pumping, bailing and the like. Floor level shall be at about 0.3 m above ground level or as directed by Project manager. All in strict accordance with engineer's specifications and drawings. Any damage done to exiting property shall be made good by the contractor at his own cost. Excavate trench up to 1.2 m or up to firm soil as approved by Project Manager	m^3	90		
B2	Use excavated materials for backfill including extra overs well compacted in layers of 300 mm fill to make up level , all to Project Manager's specification and approval	m^3	40		
B3	Haul up excess excavated material and cart away.	m^3	50		
B4	Supply and lay compacted spalls hard core of size 0/200mm thick.	m^3	45		
B5	Supply and lay 100 mm thick crusher run 0/20 , well compacted, all to Project Manager's specification.	m^3	12.5		
B6	Supply and lay 25 mm thick 0.2 wash rock sand , well compacted, all to Project Manager's specification	m^3	6.2		
B7	Supply and lay DPM over the whole floor area with all lapping.	m^2	125		
	Bill No 2:Total Changing Room- Sub - Structure				

Item No	Brief Description of Works	Unit of Measure	Quantity	Unit Price (Rs)	Total Price (Rs)
	CHANGING ROOM – Sub structure contd.				
B8	Approved quality anti-termite treatment from selected approved supplier in accordance with manufacturer's specifications and to Project's approval. Rate to include for treatment at perimeter of building and submission **of ten years warranty,** all to the Project Manager's approval.	m²	125		
B9	In situ concrete grade 15 N/mm² as per specifications 50 mm thick blinding to bottom of excavations pits and trenches well compacted	m^3	3.5		
B10	Sawn formwork to Sides to foundation, columns, ground /plinth beams.	m²	75		
B11	In situ concrete grade 30 N/mm^2, well vibrated, as per engineer's specifications. Concrete to be cast against excavation face for bases and strip footing. In bases, strip footing, stub columns, ground/plinth beams and 125mm floor slab.	m^3	39		
B12	Reinforced bars to MS 10 / BS 4449 hot rolled mild steel as specified Rods of various diameters	Kg	200		
B13	Reinforced bars to MS 10 / BS 4449 hot rolled deformed high yield steel as specified Rods of various diameters	Kg	700		
B14	Supply and lay Mesh A142 on floor with all lapping, anchorage in plinth beams etc.	m²	125		
B15	Hollow concrete block walling 150 mm thick block wall up to plinth beam with all wall ties at each 2-3 rows, mortar etc.	m²	100		
S1	Construction of a soak away of size 1.5mx1.5mx2m deep with all excavation, backfilling with stone of varying sizes, geotextile membrane all complete.	Nr	1		
S2	Construction a septic tank of size 1.5mx3mx1.5m deep all as per drawings. Reinft., formwork, excavation, concrete(m/s)	Nr	1		
S3	Construction of a Absorption pit of size 2.0mx2.0mx2.0m deep with all excavation, backfilling with stone of varying size, geotextile membrane all complete. Septic tank to be connected to Absorption pit with 2m long 110mm dia. Pipes.	Nr	1		
	Bill No 3: Total Changing Room- Sub - Structure				

Item No	Brief Description of Works	Unit of Measure	Quantity	Unit Price (Rs)	Total Price (Rs)
	CHANGING ROOM				
C1	**SUPER STRUCTURE- (Changing Room/Office)** **(ALL PROVISIONAL -Waller** Hollow concrete block BS6073 : minimum Part I average compressive strength 3.5 N/mm² Type A in cement and sand mortar (1:3), with tie columns at centres/blockwork junctions, reinforcement at junctions and corners, wall ties at corners and openings as per specifications. 150 mm thick block wall (Internal and External)	m^2	160		
C2	Ditto- 100 mm thick block wall (Internal)	m^2	25		
C3	In situ concrete grade 30 N/mm2, well vibrated, as per engineer's specifications. To submit cubes test result for 7 and 28 days. To include concrete in columns, roof beams, slab, concrete up stand for water tanks, cills and lintels etc	m^3	35		
C4	Erection of sawn formwork Sides of columns, lintel, cills, roof beams, roof slab. Concrete up stands for water tanks etc.	m^2	100		
C5	Erect formwork to slab with all props, girders, etc. and fully tight together to prevent concrete laitance.	m^2	125		
C6	Supply, cutting, bending and placing of Reinforced bars including lapping as to MS 10/ BS4449 hot rolled mild steel as specified Rods of various diameters	Kg	300		
C7	Supply, cutting, bending and placing of Reinforced bars including lapping as to MS 10/ BS 4449 deformed high yield steel as described Rods of various diameters incl. concrete up stand for water tanks	Kg	2700		
	Bill No 4:Total Changing Room - Waller				

Item No	Brief Description of Works	Unit of Measure	Quantity	Unit Price (Rs)	Total Price (Rs
D1	**Roofer - (Changing Room/Office) – Finishes - Waterproofing/ rendering** Cement and rock sand screed (1:3) with the appropriate falls (1% minimum) towards rain water pipes. Rate to include for plasticiser compound as per manufacturer's specifications to roof screed as described smooth floated finish laid to falls and cross falls and to slopes and work around roof outlets including forming of 50 x 50 mm fillet at junctions' wall and slabs. Provide 50mm thick screed to falls and cross falls.	m^2	125		
D2	**Roof Waterproofing** Supply and lay one coat of polyurethane based primer/concrete sealer and 2 layers of waterproofing membrane all as per specifications or similar approved. Rate shall include for ten years warranty and application to upstands up to 200 mm high and returns (Tenderer to submit technical information). On screed concrete surfaces (measured flat) with upstand as directed by Project Manager	m^2	140		
D3	Supply and fixed rain water pipes (75 mm dia length 3m each), including all fittings such as bend etc connected to catch pit as per Project Manager's Approval.	m	15		
E	Cement and sand (1:3) plastering smooth trowelled finish 10 mm thick to internal walls and 15mm thk to external walls with all making good to defective block walls or r.c beams / columns/ to Changing rooms, toilet, shower, office etc. Works to include all cleaning, scaffolding for internal and external rendering. Internal rendering to include soffit of slab.				
E1	**Walls and Ceiling Finish:** Internal Surfaces Cement and rock sand (1:3) render smooth finish on the following surfaces: all walls (100mm or 150mm), attached column reveals, sides of down stand beams and soffit of suspended slab. Rate to include for waterproofing tape jay concrete or similar to junctions of block wall and concrete element	m^2	340		
E2	**External wall finishes** Cement and rock sand (1:3) render smooth finish on the following surfaces. Rate to include for corner/junctions of block wall and concrete element 15 mm thk do to external surface	m^2	150		
	Bill No 5:Total Changing Room – Waterproofing & Rendering				

Item No	Brief Description of Works	Unit of Measure	Quantity	Unit Price (Rs)	Total Price (Rs)
F	**(Changing Room/Office) – Finishes –Tiles and Painting**				
F1	Cement and sand (1:3) screed smooth trowelled finish 22 mm thick screed to receive ceramic tiles to Changing room, toilet, shower, duct, Referee room and office.	m^2	125		
F2	Supply and lay 300 x 300 or greater size as approved by Project Manager's, 8 to 10 mm thick homogeneous anti -skid ceramic floor tiles complete with 3 mm thick joints at all exposed edges / or polishing of exposed edges, all adhesive with / and including all cutting fittings, margin reveals, s/s strips, inlays, laid to pattern, PVC floor drain with bends and 100mm skirting. Supply to: changing room, toilet, shower, kitchen, verandah, office etc	m^2	125		
F3	Supply and lay wall tiles 200x200x6mm or greater size as approved by Project Manager to EN 177 or equivalent to the following surfaces: Toilet, changing room and shower walls. The sample shall be submitted for approval. The wall shall be rendered with 15 to 20mm mortar and any other materials to receive the wall tiles to toilet up to height of 1.5m and shower/urinals up to soffit of slab.	m^2	170		
F4	Prepare and apply one coat of sealer and 3 coats of anti-fungus emulsion paint or similar approved to all internal wall surfaces in strict accordance with manufacturer's specifications and colour to project manager's approval	m^2	120		
F5	Prepare and apply one coat of sealer and 3 coats of water emulsion paint or similar approved to all external walls in strict accordance with manufacturer's specifications and colour to project manager's approval.	m^2	300		
F6	Reinforced concrete vanity table for wash basin of dimension 1.0X0.6x0.1.Rate to include for all necessary concrete, formwork, reinforcement (m/s) and the like, all to Project Manager's specifications and approval. To also include a granite as top finish of table and an aluminium cup board with two doors and all fittings such as hinges, handles etc below the table.	Nr	1		
	Bill No 6:Total Changing Room – Tiles and Painting				

Item No	Brief Description of Works	Unit of Measure	Qty	Unit Price (Rs)	Total Price (Rs)
G	**(Changing Room/Office) – Finishes-sanitary wares, plumbing** Supply and install the following sanitary appliances, make Duravit or similar approved complete with taps, stops, angle valves. Colour to Project Manager's approval. Rate to include for supply and installation of all necessary tap wares and ironmongeries to Project Manager's approval.				
G1	WC pan set c/w cistern, angle valve, pressure hand washing, etc.	Nr	4		
G2	Wash hand basin c/w push taps and chrome plated bottle trap, angle valve. Wash hand basin to be laid on top of vanity table.	Nr	5		
G3	Porcelain urinal of rectangular shape or as approved by Project Manager with all angle valves and piping connection for water reticulation. The urinal should be fully functional and the press button should be changeable.	Nr	1		
G4	Reinforced concrete vanity table for wash basin of dimension 1.8X0.6x0.1.Rate to include for all necessary concrete, formwork, reinforcement (m/s) and the like, all to Project Manager's specifications and approval. To also include a granite as top finish of table and an aluminium cup board with all fittings and three doors below the table.	Nr	2		
G5	Bevelled Mirror 450x600mm with all fixation.	Nr	5		
G6	Heavy duty toilet paper holder with all fixation.	Nr	4		
G7	Heavy duty soap dispenser with all fixation	Nr	3		
G8	Supply and fix all pressure water pipes and fittings PN16 connecting all sanitary wares and sink.	m	40		
G9	Discharge PVC pipes 40mm Diameter for shower, kitchen, WHB etc.	m	25		
G10	Fittings such as bend, tees, elbow etc for PN16	Nr	25		
G11	Fittings such as bend, tees, elbow etc for discharge pipes	Nr	10		
G12	Supply and fix sewer 110mm dia. Pipes to all WC with pan adaptors (4nos)	m	15		
G13	Fittings for 110mm dia. Pipes such as tee, elbow etc	Nr	10		
G14	Supply and connect water pipes 20mm dia. with main CWA meter and to the water tanks with all fittings (4 Nos) with non-return valve.	m	100		
G15	Supply and install 2000 l fibre water tank on concrete platform (m/s). Provision for connection to roof water tank and building	Nr	1		
G16	Supply and install 1000 l fibre water tank on roof on concrete up stand (m/s) with non-return valve	Nr	1		
G17	Provision of shower kit all stainless with angle valve	Nr	6		
	Bill No 7:Total Changing Room – Sanitary wares and Plumbing				

Item No	Brief Description of Works	Unit of Measure	Qty	Unit Price (Rs)	Total Price (Rs)
H	**(Changing Room/Office) – Openings/ burglar bars** Design, supply, fabricate and install the following powder coated aluminium openings (80 microns minimum) to satisfy the function of the building complete with glass to BS standard and as per manufacturer's specification and to Project manager's approval. All aluminium openings exposed externally shall be in approved sections including all necessary mullions, transoms, handle, stainless steel compass, neoprene gasket, beading, glazing beads with mitre cut joints and the like. Aluminium openings shall resist cyclonic wind speed 280 km/hr. (Contractor shall submit design calculation and shop drawings, with samples to consultants, prior to fabrications for approval). Perimeter of aluminium openings shall be auto seal silicone sealant or equivalent not exceeding 5mm wide to be approved all round. Glass thickness to be to Manufacturer's specifications and project manager's approval.				
H1	Aluminium flush door of size 0.9x2.1m ht with all hinges and locking devices. (D2)	Nr	8		
H2	Aluminium semi-glazed doors 0.9m wide x 2.5m high for toilets with all hinges, locking devices, etc.(D1)	Nr	3		
H3	Aluminium glazed, top hung window to suit overall structural size 600 x 600 mm. (W1)	Nr	7		
H4	Aluminium glazed, top hung window to suit overall structural size 900 x 600 mm. (W2)	Nr	2		
H5	Aluminium glazed, top hung window to suit overall structural size 1500 x 600 mm. (W3)	Nr	1		
H6	Aluminium double leaf glazed, window to suit overall structural size 1500 x 1500 mm. (W4)	Nr	2		
H7	Aluminium double leaf glazed, window to suit overall structural size 1200 x 1500 mm. (W5)	Nr	1		
H8	Supply and fix burglar bars made up of square 12mm dia. Galvanised bars with spacing 125mm c/c, two flat bars at top and bottom, painting with primer, undercoat and gloss finish, all fixation with M12 bolts	m^2	10		
H9	Supply and fix collapsible powder coated bars to external doors with all fixation and locking devices.	m^2	7.5		
	Bill No 8:Total Changing Room= Openings and burglar bars				

Item No	Brief Description of Works	Unit of Measure	Qty	Unit Price (Rs)	Total Price (Rs)
I	**BMX/SKATE BOARD TRACKS 1 & 2** **Construction of flat/elevated surface**: Excavate in all type of soil/materials, including rock, hard rock and the like, and cart away. Excavation should be free of water, mud. Rate to include for temporary support to sides of excavations and pumping, bailing and the like. Floor level shall vary as per drawings but min. to be at about 0.3 m above ground level or as directed by Project manager, all in strict accordance with engineer's specifications and drawings. Any damage done to exiting property shall be made good by the contractor at his own cost. To remove all top soil and cart away. Site shall be levelled prior to start excavation. To include all setting out and to take spot levels for Track 1&2 as directed by Project Manager. The level shall be plot down on a sheet of paper and longitudinal sections be done. (3 Nos in total). The works shall be done by an experience surveyor. The setting out shall be done by the surveyor taking into account all heights, curve, etc. Formwork to be class 1. Works to include side drains with slab and grating.				
I1	Removal of top soil 200mm deep and cart away	m^3	85		
I2	Excavate trench to the width of the track. Excavation shall be done up to 400mm deep. Compact formation level to 90 % B.S Heavy. To submit at least 4 test result from an approved laboratory by Government.	m^3	265		
I3	Haul up excavated material and cart away.	m^3	180		
I4	Supply and lay 350 mm thick hard core such as spalls of size not less than 200mm , well compacted, all to engineer's specification.	m^3	180		
I4	Supply and lay 150 mm thick crusher run, well compacted, all to engineer's specification. To submit at least 3 test result from an approved laboratory by Government of Mauritius.	m^3	80		
I5	Supply and lay 50mm thick rock sand 0.2 well compacted, all to engineer's specification.	m^3	30		
I6	Supply and lay 0.23 mm thick polyethylene sheeting in one layer minimum lapping 150 mm. All to engineer's specifications (measured nett).	m^2	560		
I7	Supply and fix stainless steel handrail with all fixation and of 1.0m height.	m	55		
I8	Supply and install galvanised angle bar of size 100x100x3mm thk laid and anchored in concrete at edges of flat and curved part with fish tail support	m	40		
	Bill No 9:Total BMX/SKATE BOARD TRACK 1 & 2				

Item No	Brief Description of Works	Unit of Measure	Qty	Unit Price (Rs)	Total Price (Rs)
J	**BMX/SKATE BOARD PUMP TRACK 1 & 2** **Construction of elevated platform/staircase**: In situ concrete grade 30 N/mm^2, well vibrated, as per engineer's specifications. Concrete to be cast against excavation face for bases and strip footing, bases, floor etc. for the construction of elevated platform including all handrail, security block wall, staircase, **control joint with groove filled up with approved sealant** etc. Works to include all excavation in any type of materials incl. rock and cart way surplus materials. To also supply and spread compacted spall 0/200 followed with 125mm 0/20 crusher run, DPM, Mesh and concrete and on top finishes, Both tracks will be design to be fully functional.				
J1	Supply and lay compacted blinding 50mm thick	m^3	6		
J2	Concrete in bases, strip footing, columns, beams and slab. Top finish shall not be slippery and should allow good traction in all weather condition.	m^3	82		
J3	Backfilling with excavated materials/ imported spalls	m^3	80		
J4	Formwork to bases, strip footing, columns, beams, staircase,drain etc.	m^2	370		
J5	Reinforced bars to MS 10 / BS 4449 hot rolled deformed high yield steel as specified Rods of various diameters.	Kg	4700		
J6	200mm Hollow concrete block BS6073: minimum Part I average compressive strength 3.5 N/mm² Type A in cement and sand mortar (1:3), with tie columns at centres/blockwork junctions, reinforcement at junctions and corners, wall ties at corners and openings as per specifications.	m^2	350		
J7	Rendering of block wall with 15mm thick mortar all properly levelled.	m^2	400		
J8	Supply and paint rendered surface with 3 coats of anti-fungus paint. Colour to be as approved by client	m^2	400		
J9	Supply and install 200mm dia. PVC pipe for drainage and connected to soak away. Works to include excavation not exceeding 400mmX400mmx400mm deep with at least 150mm rock sand as bedding	m	25		
J10	Construction of soak away 2.0mx2.0mx2.0m deep with all stone of varying size not exceeding 300mm dia., placing of geotextile membrane and concrete kerb as perimeter. 50mm thk. aggregates shall be spread on top	Nr	3		
	Bill No 10:Total BMX/SKATE BOARD TRACK 1 & 2				

Item No	Brief Description of Works	Unit of Measure	Qty	Unit Price (Rs)	Total Price (Rs)
K	**Site works/Path Way** Excavate in all type of soil/materials, including rock, hard rock and the like, and cart away. Excavation should be free of water, mud. Rate to include for temporary support to sides of excavations and pumping, bailing and the like. Floor level shall vary as per drawings but min. to be at about 0.2 m above ground level or as directed by Project manager, all in strict accordance with engineer's specifications and drawings. Any damage done to exiting property shall be made good by the contractor at his own cost. To remove all top soil and cart away. To include all setting out and ensure pathway is levelled. Setting out of path way to be done by qualified surveyor with all curve etc. done as per norm.				
K1	Excavate trench to the width of the path way. Excavation shall be done up to 500mm deep. Compact formation level to 90 % B.S Heavy. To submit at least 4 test result from an approved laboratory by Government of Mauritius.	m^3	130		
K2	Haul up excavated material and cart away.	m^3	130		
K3	Supply and lay 300 mm thick hard core such as spalls of size not less than 200mm , well compacted, all to engineer's specification.	m^3	80		
K4	Supply and lay 150 mm thick crusher run, well compacted, all to engineer's specification. To submit at least 3 test result from an approved laboratory by Government.	m^3	40		
K5	Supply and lay 50mm thick rock sand 0.2 well compacted, all to engineer's specification.	m^3	15		
K6	Supply and lay eco- brick to level. The eco-brick shall be of size 300x300or bigger as approved by client. The open space inside the brick shall be filled with coral sand or aggregates.	m^2	270		
K7	Supply and install concrete kerb along both sides of path way. Works to include all excavation, mass concrete, jointing etc.	m	270		
K8	Construction of manholes with light duty steel manholes cover all as per drawings	Nr	4		
K9	Construction of gully trap all as per drawings	Nr	5		
K10	Supply and fix galvanised metal grating of size 0.4x1.0m long each with 25x25mm angle bar along the 1.0 length and 8mm flat bars inside with 25mm spacing c/c.	m^2	16		
	Bill No11: Site works/Path way				

Item No	Brief Description of Works	Unit of Measure	Qty	Unit Price (Rs)	Total Price (Rs)
	Electrical works- To include all trucking, wiring/cables, cost for electrical engineer fees etc. The electrical works shall be based on a design and build one. The items below are indicative and may be changed if necessary. The works shall include changing room and on site.				
L	Supply, install, test and commission Led Lighting Type A as per specifications c/w electrical wiring and switch.	Unit	16		
L1	Supply, install, test and commission Led Lighting Type B as per specifications c/w electrical wiring and switch	Unit	4		
L2	Supply, install, test and commission floodlights Type C as per specifications c/w electrical wiring and switch	Unit	4		
L3	Supply. Install, test and commissioning waterproof double sockets as per specifications c/w electrical wiring.	Unit	12		
L4	Supply. Install, test and commissioning electrical distribution boards c/w switchgears as per specifications with RCBO rating 2 Nos 2P10A 30mA, 4 Nos 2P16A 30mA, Isolator 2P 40 and outgoing 3Cx 2.5mm2 for the changing room/office.	Unit	1		
L5	Earthling System	Lot	1		
L6	.Testing and commissioning	Lot	1		
L7	Supply and fixed solar street light (6m high) along the path way and near the tracks. The solar light should be complete with all poles, fixation with appropriate bases, concrete, reinft. (m/s) etc.	Unit	10		
L8	Supply and fix air conditioner split unit 18,000 BTU to office with all electrical wiring, switch etc.	Unit	1		
L9	To prepare as made drawings, commissioning and testing certificate	Lot	1		
L10	Engineer's fees for design, signature and supervision.	Lot	1		
L11	.Any other items not mentioned above but deemed necessary to complete the project. To submit details.	Lot	1		
	Bill No 12: Electrical works				

Main Summary

Bill No	Bill of Quantities	Amount (MUR)
1	**Bill No 1: Preliminaries,**	
2	**Bill No 2: Changing Room – Sub- Structure**	
3	**Bill No3: Changing Room – Sub - Structure**	
4	**Bill No 4: Total Changing Room - Waller**	
5	**Bill No 5: Total Changing Room – Waterproofing & Rendering**	
6	**Bill No 6: Total Changing Room – Tiles & painting**	
7	**Bill No 7: Total Changing Room- Sanitary wares and Plumbing**	
8	**Bill No 8: Total Changing Room- Openings and burglar bars**	
9	**Bill No 9: Total BMX/Skateboard Tracks 1 & 2**	
10	**Bill No 10: Total BMX/Skateboard Tracks 1 & 2**	
11	**Bill No 11: Site works/Pathway**	
12	**Bill No 12: Electrical works**	
	Sub- Total 1	
14	**Contingency sum**	**900,000**
	Sub- Total 2	
	Add VAT – 15%	
	Total Amount	

Bill of Quantities Authorised By:

Name:		Signature:	
Position:		Date:	
Authorised for and on behalf of:		Company	

Section III: Statement of Requirements

A. SCOPE OF WORKS, SPECIFICATIONS AND PERFORMANCE REQUIREMENTS

SCOPE OF WORKS

The project consists of general **Construction of changing room and BMX/Skate board track at Beau Vallon**.

The upgrading works will comprise of the following:

- Construction of a reinforced concrete changing room and office. Works to include all setting out, sub-structure, superstructure and finishes all as described in the BOQ.
- Construction of a path way made up of eco-brick, kerb etc.
- Construction of two BMX/Skate Board tracks all as per drawings. Bidder to appoint a surveyor for setting out. Works to include all excavation, concreting, hard core filling, reinforcement etc.
- Construction of control joint at location to be shown on site for a total length of about 50m. The control joint shall be saw cut within 12 hours of casting of concrete. The groove shall be about 10mm and filled up with an approved sealant. The location of the joint shall be mostly at end of the curved part. To include same in costing.
- The concrete finish for the track 1 & 2 should be as per norm and appropriate for skate board and BMX. The finish shall be non-slipping and allow for good traction in al weather conditions. Special care to be taken while concreting.
- Construction of a septic tank, manholes, gully trap and all connected with either 110mm pvc pipes or 40mm dia, pvc pipes with all fittings.
- Cleaning of site and cart away all debris.
- All plumbing works with pressure pipes, fittings to connect all sanitary wares, water tanks, CWA main so that the system is fully functional.
- The electrical works are indicative. The works shall be carried out as per the specification in the tender doc. And the quantities may change if need be based upon the electrical engineer's design.

Scope of works Authorised By:

Name:		Signature:	
Position:		Date:	
Authorised for and on behalf of:		Company	

SPECIFICATIONS

EXCAVATION

Inspection of Site

The Contractor is deemed to have visited the Site and to have ascertained the nature of the material to be excavated.

Dealing with water

The Contractor's attention is drawn to the depths below ground level of the foundations and the consequent possibility of having to deal with water. Unless otherwise specified the Contractor will be required by pumping or other means to keep the excavations dry during construction.

Shoring of existing structure

The Contractor's attention is drawn to the requirements for shoring parts of the structure of the existing building during construction and the consequent need to carry out the excavation in stages. He is not allowed to excavate within the proximity of the existing structure without the drawings and/or instructions by the Engineer to do so.

Excavation Dimensions

The excavations are to be executed to the widths and depths shown on the Drawings or to greater depths if instructed by the Engineer to obtain satisfactory foundations.

If the contractor excavates to any widths or depths greater than those shown on the Drawings, or as instructed by the Engineer he shall at his own expense fill in such widths or depths beyond that instructed or shown with concrete Grade "D" to the satisfaction of the Engineer.

Rock

"Rock" means any hard material, which in the opinion of the Engineer can be removed only by use of compressors or by wedging and the Engineer's opinion shall be final. Decomposed rock, tuff or other material which can be removed by pick, traxcavator or other mechanical plant will not be classed as rock. All material classified as rock may, if approved by the Engineer, be used as hardcore filling and the measured quantities of imported filling will be adjusted accordingly. All rock so used must be broken to the required size as hereafter described before being used.

Blasting

No blasting will be permitted.

Bottom of excavations to receive foundations

The Contractor shall report to the engineer when secure bottoms to the excavations have been obtained. Any concrete or other work executed before the excavations have been inspected and approved, shall if so directed, be removed and now work substituted after the excavations have been approved, all at the Contractor's expense. The surface of the bottoms to excavations shall be levelled or graded to falls as required, with 50mm layer of concrete Grade "D" blinding (maximum 20mm gauge aggregate) and finished to a smooth surface with a wood float.

Hardcore filling

Hardcore for filling under float, etc, shall be good hard stone ballast to the approval of the Engineer, broken to pass not greater than a 150mm ring or to be 75% of the finished thickness of the layers being compacted whichever is the lesser and graded so that it can be easily and thoroughly compacted by rolling.

The filling is to be laid in layers each of a consolidated thickness not exceeding 225mm and well watered and rolled with a vibrating roller (minimum 14 tons) or a ten ton roller. Where rolling is impossible, compaction shall be by hand or mechanical tampers. The top surface of the hardcore shall be levelled or graded to falls as required and blinded with similar material broken to 25mm gauge and surfaced with a 25mm layer of stone dust, well watered and rolled to receive concrete as described.

Materials found in excavations

No material found in the excavation is to be used in the works without the written permission of the Engineer.

CONCRETE WORK

Architect/Engineer

For the purpose of the concrete structure the Structural Engineer shall be deemed invested with the duties and be the representative of the Architect.

Code of Practice

All workmanship, materials, tests and performance in connection with the reinforced concrete work shall be in conformity with the latest edition of the British Standard Code of Practice (C.P. 110 "The Structural use of Concrete") where not inconsistent with these Preambles.

Supervision

A competent person approved by the Engineer shall be employed by the Contractor, whose duty will be to supervise all excavation operations, making and erection of formwork, bending and fixing of reinforcement and all stages in the preparation and placing of the concrete. All cubes shall be made and site test carried out under his direct supervision, in consultation with the Engineer.

Contractor's plant equipment and construction procedures

Not less than 30 days prior to the installation of the contractor's plant and equipment for processing, handling, transporting, storing and proportioning ingredients and for mixing, transporting and placing of concrete, the contractor shall submit drawings for approval by the Engineer, showing the proposed general plant arrangement, together with a general description of the equipment he proposes to use.

After completion of the installations, the operation of the plant and equipment shall be subject to the approval of the Engineer.

Where these Preambles, the Bills of Quantities or the Drawings require specific procedures to the followed, such requirements are not to be construed as prohibiting the use by the Contractor of alternative procedures if it can be demonstrated to the satisfaction of Engineer, that equal results will be obtained by the use of such alternatives.

Approval of plant and equipment or their operation, or of any construction procedure, shall not operate to waive or modify any provisions or requirements contained in these preambles governing the quality of the materials or of the finished work.

Levels and Foundations

The foundations of the works shall be carried down to depths as may be directed by the Engineer and they must be cut as nearly to the size of the concrete as possible and the vacant spaces between the concrete and the solid ground, excepting where otherwise shown, must be carefully filled in as instructed by the Engineer.

All temporary timbering shall be removed but should any timber be left in or should any other work be done beyond that specified, it will be at the Contractor's own cost.

Tolerances

On all setting out dimensions of 7.5m and over a maximum non-cumulative tolerance of plus or 6mm will be allowed, and for those under 6m the allowable maximum non-cumulative tolerance will be plus or minus 3mm. On the cross sectional dimensions of structural members, unless otherwise required by the Drawings, a maximum tolerance of plus or minus 3mm will be permitted.

The top surface of concrete floor slabs and beams shall be within 6mm of the normal level and line shown on the Drawings. Walls and columns shall be truly plumb and non-cumulative tolerance of 3mm in each storey and not more than 12mm out of plumb in their full height will be permitted. The contractor shall be responsible for the cost of all corrective measures required by the Engineer to rectify work which is not constructed within the tolerances set out above.

Materials generally

All materials which have been damaged, contaminated or have deteriorated or do not comply in any way with the requirements of these Preambles shall be rejected and shall be removed immediately from the site at the Contractor's own expense.

No materials shall be stored or stacked on suspended floors without the Engineer's prior approval.

Samples and Testing

Every facility shall be provided to enable the Engineer to obtain samples and carry out tests on the materials and construction. If these tests show that any of the materials or construction does not comply with the requirements of these Preambles, the Contractor will be responsible for the costs of the tests and the replacement of defective materials and/or construction.

Cement

Cement unless otherwise specified shall be Portland Cement of a Brand approved by the Engineer and shall comply with the requirements of B.S. 12, and a manufacturer's certificate of Test in accordance with B.S. 12 shall be supplied for each consignment delivered to the site.
Cement may be delivered to the site either in bags or in bulk.

If delivered in bags each bag shall be properly sealed and marked with the manufacturer's name and shall be stored in a weatherproof shed of adequate dimensions with a raised floor. Each consignment shall be kept separate and marked so that it may be used in the sequence in which it is received. Any bag found to contain cement which has set or partly set, shall be completely discarded and not used in the works. Bags shall not be stacked more than 1.5m in height.

If delivered in bulk the cement shall be stored in a waterproof silo either provided by the cement supplier or by the Contractor but in either case the silo shall be to the approval of the Engineer.

Aggregates:

Aggregates shall conform with the requirements of B.S. 882 and the sources and types of all aggregates are to be approved in all respects by the Engineer before work commences.

The grading of aggregates shall be one within the limits set out in B.S. 882 and as later specified and the grading, once approved, shall be adhered to throughout the works and not varied without the approval of the Engineer. Fine aggregate shall be clean, crushed rock sand and coral sand, of hard quality and shall be free from lumps of stone, earth, loam, dust, salt, organic matter and any other deleterious substances. Coral sand shall be washed in running water to the satisfaction of the Engineer. It shall be graded within the limits of zone 1 or 2 of Table 2 of B.S 882.

Coarse aggregate for concrete Grade 'A', 'B' and 'C' shall be crushed blue basalt stones to the approval of the Engineer. It shall be hard, clean and roughly cubical in shape, non-porous, free from dust, decomposed stone, clay, earthy matter, foreign substances or friable, thin, elongated or laminated pieces. It shall be graded within the limits of Table 1 of B.S. 882 for its respective nominal size. If in the opinion of the Engineer the aggregate meets with the above requirements but is dirty or adulterated in any manner it shall be screened and/or washed with clean water, if he so instructs at the Contractor's expense.

Aggregates shall be delivered to the site in their prescribed sizes or gradings and shall be stock-piled separately on paved areas or boarded platforms in separate units to avoid intermixing, excessive segregation and contamination with other materials. On no account shall aggregates be stock-piled on the ground. Fine aggregates shall be allowed to drain until it has reached uniform moisture content before it is used.

Water

The water used for mixing concrete shall be from an approved source, clean, fresh and free from harmful matter.

Admixtures

No admixtures except the ones specified for waterproof concrete shall be allowed. The Contractor may use an approved "plasticiser" which will be added to the mixing water in the proportion recommended by the manufacturer and strictly in accordance with their written instructions, to achieve better workability. No additional cost will be paid for the use of the plasticiser.

CONCRETE STRENGTHS

Grades of Concrete:

Grades 'A', 'B' and 'C' concrete shall have the following minimum strengths as given by Works Cube Tests:

		Grade A	**Grade B**	**Grade C**
Min. crushing strength in N/mm^2	) at 7 days	21	17	14
	) at 28 days	30	25	20

Grade 'D' and 'E' concrete shall be of the following nominal mixes and may be measured either by volume or by weight. No cube tests will be required for Grades 'D' and 'E' concrete. These grades will be used for unreinforced concrete, with a maximum slump of 50mm.

Grade	**D**	**E**
Nominal mix by concrete)	1.10	1.10 (with plums not exceeding 20% by total volume of
Max. gauge of coarse aggregate	40mm*	40mm*

(* or 20mm for blinding concrete where described).

Measuring of Concrete Materials

Cement

The quantity of cement shall be measured by weight. Where delivered in bags, each batch of concrete is to use one or more whole bags of cement.

Aggregate

(i) For Grades 'A', 'B' and 'C' concrete, aggregates may be measured by weight in weigh batching machine as described hereafter.

(ii) For Grades 'D' and 'E' concrete, aggregates shall be measured by weight or by volume. Where measured by volume, approved gauge boxes of such a size as will give the correct proportions shall be used.

Weigh batching machine

Weigh batching machine shall be of an approved type and shall be properly maintained and checked for accuracy at weekly intervals.

Concrete Mixes 'A', 'B' and 'C'

As specified above.

The Contractor shall have two alternatives to achieve the specified concrete strengths.

Alternative 1 Design Mix

Contractor can use minimum amount of cement by weight per cubic metre of finished concrete as set out below, if he provides strict with CP 110 Clause 6.5. requirements for design mixes.

6.5.1 Target mean strength.

6.5.2 Evidence of suitability of proper mix proportions.

6.5.3 Trial mixes.

6.5.4 Additional Trial Mixes

The copies of this clause is available from the Engineer's office on request by the contractor.

The minimum cement content by weight shall be

Minimum cement content Per cubic metre of finished concrete	450 kg	360 kg	250 kg

Alternative 2

If the contractor fails to achieve the requirements of alternative 1 and/or prefers nominal volumetric mix, he shall use the following:

	Mix A	**Mix B**	**Mix C**
	1:13/16:2	1:1 ¾:3	1:2 ½:4
Cement	1 bag of 50 kg	1 bag of 50 kg	1 bag of 50 kg
Crushed rock sand	1 cu. ft	1¼ cu.ft	1 7/8 cu.ft
Coral sand 10mm to 5mm	½ cu. ft	7/8 cu.ft	11/4 cu.ft
Graded aggregates 20mm to 10mm	5/8 cu.ft	7/8 cu.ft	1¼ cu. ft
Graded aggregates	1 7/8 cu. ft.	3 cu. ft	3 ¾ cu ft
Maximum water Cement ratio	.45	.50	.60
Maximum slump	50mm	50mm	50mm

Average works cube strength obtained from Work Cube Tests of nominal volumetric mixes shall be 10% higher than the minimum concrete strengths specified.

Ready Mix Concrete

Ready mixed concrete may be used subjects to the approval of the Engineer.

When it is used the contractor shall ensure that all the requirements of these specifications are complied with. The Engineer may at his discretion waive temporarily the requirements of preliminary trial mixes as required under the heading of trial mixes laid down for alternatives design mix.

Further to above requirements the contractor shall ensure that supply and delivery of ready mixed concrete comply with the recommendations of M.S. 1926.

The concrete shall be transported to the site in approved containers and shall be continuously agitated until it is delivered on site. The Contractor shall ensure that no water is added after it is delivered.

For plant mixed concrete the contractor shall check that the delivery note for each batch shows the time when water is first added to the concrete materials, and the time interval between the delivery and the mixing of water is 20 minutes less than the final setting time of cement.

Samples of works cube shall be taken at the place where concrete is finally placed in the structural members.

Waterproof Concrete

Where “waterproof concrete” is specified, sealocrete or other approved waterproofing material and plasticising agent shall be added to the mixing water in the proportion recommended by the manufacturers and strictly in accordance their written instructions. Waterproof concrete shall be grade B mix and shall meet all the strength requirements of the specified grade, except that the fine aggregate shall consist solely of rock sand.

Changing proportion of Aggregates

The Engineer may any time during the contract, require the proportions of fine to coarse aggregates to be altered in order to produce a mix of greater strength or improved workability and provided that the total proportions of aggregate to cement remains unchanged, no claim for additional cost will be considered.

Testing Equipment

The Contractor shall provide the following equipment for carrying out control tests on the site:

a) Straight edges 3m and 1.2m long for testing the accuracy of the finished concrete;

b) A graduated glass cylinder for use in the silt test for organic impurities in the sand;

c) Slump test apparatus;

d) Six inches steel cube moulds with base plates and tamping rods to B.S. 1881.

Work Cube Tests

Work cubes are to be made at intervals as required by the Engineer and the Contractor shall provide a continuous record of the concrete work. The cubes shall be made in approved 150mm moulds in strict accordance with the Code of Practice.

Six cubes shall be made on each occasion, three from different batches, of the concrete at the place where it is deposited.

Each cube shall be marked with a distinguishing number (numbers to run consecutively) and the date on which it is made. A record shall be kept on site giving the following particulars:

(a) Cube No.
(b) Date Made
(c) Location in Work
(d) 7-day Test

Date

Strength

(e) 28-day Test

Date

Strength

Cubes shall be forwarded by the Contractor to an approved Testing Authority, in time to be tested two at 7 days and two at 28 days. The remaining two cubes shall be tested when necessary.

Copies of all work cube Test results shall be forwarded to the Engineer and one shall be retained on the site.

If the prescribed concrete strengths are not attained and maintained throughout the carrying out of the contract, the Contractor will be required to increase the proportion of cement and/or substitute better aggregates so as to give concrete which does comply with the requirements of the contract. The Contractor may be required to remove and replace at his own cost any concrete which fails to attain the required strength as ascertained by Work Cube Tests.

The Contractor must allow in his rates for all expenses in connection with the preparation, conveyance to the Testing Laboratory, and testing of cubes.

MIXING and PLACING CONCRETE

Concrete Mixer:

The concrete shall be mixed only in approved power driven mixers of a type and capacity suitable for the work. Mixers shall be of a capacity sufficient to take one whole bag of cement per batch. Smaller size mixers shall not be used. The mixer shall be equipped with an accurate water measuring device which shall be checked weekly for accuracy. All materials shall be thoroughly mixed dry before the water is added and the mixing of each batch shall continue for a period of not less than two minutes after the water has been added and until there is a uniform distribution of the materials and the mass is uniform in colour.

The entire contents of the mixed drum shall be discharged before recharging. The volume of mixed materials shall not exceed the rated capacity of the mixer. Whenever the mixer is started, 10% extra cement shall be added to the first batch and no extra payment will be made on this account.

Consistency:

As a check on concrete consistency slump tests may be carried out and shall be in accordance with B.S 1881. The Contractor shall provide the necessary apparatus and allow for the costs of such tests. The slump of the concrete made with the specified water content, using dry materials, shall be determined and the water to be added under wet conditions shall be so reduced as to give approximately the same slump.

Conveying:

The concrete shall be mixed as near to the place where it is required as is practicable to avoid rehandling and flowing, and only as much as is required for a specified section of the work shall be mixed at one time, such section being concerned and finished is one operation without delay. All concrete must be efficiently skilled and used in the works within twenty (20) minutes of mixing. It shall be discharged from the mixer direct either into receptacles or barrows and shall be distributed by approved means which do not cause segregation or loss of ingredients or otherwise repair the quality of the concrete. Approved mechanical means of handling will be provided they are not longer than 6m and their slope do not exceed 1 vertical to 2 horizontal is not less than 1 vertical to 3 horizontal.

Depositing

Placing of concrete in supported elements e.g slab, bed shall not be started until the concrete previously placed in top parts of columns is no longer plastic and has been in place at least for two hours.

Concrete shall be placed from a height not exceeding 1.3m directly into its permanent position and shall not be worked along the shutters to that position. Unless otherwise approved, concrete shall be placed in a single operation to the full thickness of slabs with beams and similar members. The Engineer shall allow concrete to be placed for walls exceeding 150mm thickness from a height approved system of formwork is used.

In addition, contractor will ensure that the concrete shall be deposited continuously such that no concrete shall be deposited on concrete which had hardened sufficiently to cause the formation of seams or places of weakness within the section. Placing shall be carried out at such a rate that the concrete which is being integrated with fresh concrete is still plastic.

Concrete in columns may be placed in a height of 3m with careful placing and vibration to achieve satisfactory results. Where the height of the column exceeds 3m suitable openings must be left in the shutters on that this maximum lift is not exceeded.

Concrete shall be placed continuously until completion of the part of the work between construction joints as specified hereinafter or of a part of approved extent. At the completion of a specified or approved part a construction joint of the form and in the positions hereinafter specified shall be made. A record of all such joints must be made by the contractor and a copy supplied to the Engineer.

CURING and PROTECTION

Periods and means of curing and protection:

Care must be taken that no concrete is allowed to become prematurely dry and the fresh concrete must be carefully protected within two hours of placing from rain, sun and wind by means of massive sacking, polythone sheeting, or other approved means. The protective layer and the concrete itself must be kept continuously wet for at least seven days after the concrete has been placed. The Contractor must allow for the complete covering of all fresh concrete for a period of 7 days. Heasian or polythene sheeting shall be in the maximum widths obtainable and shall be secured against wind. The Contractor will not be permitted to use old cement bags, hessian or other material in small piece.

Protection of foundation concrete

Concrete in foundations and other underground work shall be protected from admixture with falling earth curing and after placing.

Executive loads before curing

Traffic or loading shall not be allowed on the concrete except with the written permission of the engineer.

FAULTY CONCRETE

Any concrete which fails to comply with these preambles or which shows signs of setting before it is placed shall be taken out and removed from the site. Where concrete is found to be defective after it was set, the concrete shall be out and replaced in accordance with the Engineer's instructions. On no account shall any faulty, honey combed, or otherwise defective concrete be repaired or matched until the Engineer has made an inspection and issued instructions for the repair. The whole of the cost whatsoever, which may be occasioned by the need to remove faulty concrete shall be borne by the contractor.

REINFORCEMENTS

Type of Reinforcement:

The steel reinforcement shall comply with the latest requirement of the following British Standards:

Round mild, medium tonsile and to B.S 765 (Imperial units) high tonsile and steel bars.

Hot rolled bars for the reinforcement of concrete	to B.S 1449 (metric units)
Cold twisted steel bars	to B.S 1144 (imported units)
Cold worked steel for the reinforcement of concrete	to B.S 4461 (metric units)
Fabric reinforcement	to B.S 1221

It shall be in Imperial or Metric sizes as detailed on the drawings.

Testing of Reinforcement

If required by the Engineer the contractor shall submit a test certificate of the rollings, and/or shall arrange for testing by MOW or other approved authority. Reinforcement shall be free from loose mill scale or rust, grease, paint or other substance likely to reduce the bond between the steel and concrete.

Fixing and Reinforcement:

Reinforcement shall be accurately bent to the shapes and dimensions shown on the Drawings and/or schedule and in accordance with B.S. 1478. Reinforcement must be cut and bent sold and no welded joints will be permitted unless so detailed. Reinforcement shall be accurately placed in position as shown on the drawings and shall be secured against displacement by using No. 18 S.W.C annealed binding wire or suitable clips at inter-sections and laps, and shall be supported by concrete or metal supports, steel chairs, spacers or metal hangers to ensure the correct position and cover before concreting and shall be kept in the same position during concreting. However, such supports, chairs etc. shall have minimum 12mm cover made of concrete blocks where the concrete surface is exposed to weather and/or without finishes.

No laps shall be permitted except the places shown on the drawings without the prior approval of the engineer.

Spacing Blocks:

Spacing blocks of approved size and shape made of concrete similar to that used in the surrounding construction and fixed to the reinforcement or formwork by No. 18 S.W.C wires set into the spacer blocks or toher approved means shall be provided where necessary to ensure that the requisite cover is obtained. The contractor is to include for providing sufficient such spacer blocks in his prices for steel reinforcement when such supplier has been nominated.

Where composite blocks or minor forms from construction are just spare block are to be provided. These will generally consist of concrete blocks as described above made to fit the width of the rib less 3 mm of reinforcement bars used per on the top surface with wire ties at each

Concrete cover to reinforcement:

Unless otherwise instructed the concrete cover to rod reinforcement over main bars in any face shall be:

Foundations against each face	3 (75mm)
Foundations against blinding	2 (50mm)
Columns	1½ (38mm)
Beams	1 (25mm)
Slabs	½ (13mm)

Positions and correctness of reinforcement:

No concreting shall be commenced until the engineer has inspected the reinforcement in position and until he has approved the same. The contractor shall give two clear days notice of his intention to concrete.

Irrespective of whether any inspection and/or approval of the fixing of the reinforcement has been carried out as above, it shall be the contractor's sole responsibility to ensure that the reinforcement complies with the details on the drawings or schedule and is fixed exactly in the positions shown therein and, in the positions, to give the prescribed cover.

The contractor will be held entirely responsible for any failing or defect in any portion of the reinforced concrete structure and including any consequent claims, third party claims, etc, where it is shown that the reinforcement has been incorrectly positioned or is incorrect in size or quantity with respect to the detailed Drawings or schedules. Unless permitted by the Engineer, reinforcement shall not be after being embedded in hardened concrete.

Protection of exposed reinforcement

Where reinforcement projects frame concrete setting of the structure and this reinforcement is executed to remain exposed to more than a month it is to be with a cement to prevent rust staining on the finished concrete. This is to be brushed off the reinforcement prior to the continuation to converting.

The Contractor shall be responsible for the co-ordination with the Electrical and other sub-contractors for incorporating electrical conduit, pipes, fixing locks, chases, holes and the like in concrete members as required and must ensure that adequate notice is given to sub-contractors informing them when concrete members incorporating the above are to be poured. The contractor shall submit full details including position of these items to the Engineer for approval before the work is put in hand. All fixing blocks, chases, holes, etc, to be left in the concrete shall be accurately set out and cast with the concrete.

FORMWORK

Materials and Design

Formwork shall be constructed of timber or steel or precast concrete or other approved material with sufficient strength to withstand pressure resulting from placing and vibration of the concrete and with rigidity to achieve the specified tolerances.

The design and Engineering of the formwork as well as its construction shall be the responsibility of the contractor. The Formwork shall be designed for the loads, lateral pressure, pressure due to cyclonic winds and other loads likely to be encountered on site.

Shops drawings for formwork including the location and reshoring shall be submitted for approval by the Engineer before erection.

Construction

All formwork shall have joints close enough to prevent leakage of liquid from the concrete and formwork shall be jacked or dedged and clamped or bolted to permit adjustments before concreting and to permit easing and removal of formwork without jarring the concrete. Formwork shall be securely braced and strutted against lateral deflections and vertical movements. Where formwork is supported on previously constructed portions of the reinforced concrete structural frame, the Contractor shall by consultation with the Engineer ensure that the supporting concrete structure is capable of carrying the load and/or is sufficiently propped from lower floors or portions of the frame to permit the load to be temporarily carried during construction.

Formwork shall be cambered to compensate for anticipated deflections prior to hardening of the concrete.

Preparation for Concreting

The Contractor's attention is drawn to the various surfaces textures and applied finishes required and the faces of the formwork next to the concrete must be of such material and construction and be sufficiently true to provide a concrete surface which will in each particular case permit the specified surface treatment or applied finish.

At construction points contact surface of the form squeating for flush surfaces shall overlap 300mm and shall held right against the hardened concrete to prevent effects or loss of mortar.

Methods of fixing and positioning of the formwork which results in holes through the concrete and/or left in metal ties or similar in the concrete shall require Engineer's approval.

All surfaces which will be in contact with concrete shall be piled or greased to prevent adhesion of mortar. Oil or grease shall be of a non-staining mineral type applied as a thin film before the reinforcement is placed. Surplus moisture shall be removed from the forms prior to placing of the concrete.

Temporary openings shall be provided at the base of columns, wall and seam forms and at any other points where necessary to facilitate cleaning, and inspection immediately before the pouring of concrete. Before the concrete is placed the shuttering shall be trued-up, and the interior of the form shall be completely cleared of all extraneous materials including accumulated water.

The reinforcement shall then be inspected for accuracy of fixing, immediately before placing the concrete the formwork shall be well wetted and inspection openings shall be closed.

Defective Formwork:

Defective formwork shall be removed or strengthened and improved by the contractor according to the instructions by the Engineer.

Formwork to Construction Joints etc.

Formwork forming the construction joints and expansion joint shall be rigid, tight to avoid loss of mortar and true in square.

Formwork shall be inspected and passed by the Engineer before placing reinforcement and concreting.

Stripping Formwork:

Formwork shall be removed without undue vibration or shock and without damage to the concrete. No formwork shall be removed without the prior consent of the Engineer and the minimum periods that shall elapse between the placing of the concrete and the striking of the formwork will be as follows:

Beam side walls and columns (unloaded)	2 days
Slab soffits (with props designed to left under)	7 days
Beam soffits (with props designed to left under)	10 days

Subject to work cubes achieving the specified strengths and the loads due to construction on them being lighter than the designed loads. The props can be removed for:

Slab ……..	…… ……..	10 days
Beams	…… ……..	21 days

If the Contractor wishes to take advantage of the shorter stripping times as permitted above for beam and slab soffits when propos are left in place, he must so design his formwork that sufficient props as agreed with the Engineer can remain in their original position without being moved in any way until expiry of the minimum time for removal of props. Stripping and re-propping will not be permitted.

Contractor shall be responsible for consequent damage arising from early stripping of formwork.

Making good:

After removal of formwork all projections, etc, on the concrete surface shall be chipped off, and made good to the requirements of the Engineer. Any voids or honeycombing shall be treated as described in “faulty concrete”.

Fair-face etc.

Where fair-face is specified the contractor shall make a sample of area formed by sides not less than 1.2m for approval by the Engineer and the Architect. Same will apply to Board Marked. Tamped and finishes.

Related Uniformed Surfaces

Top of walls or buttresses, horizontal offsets and similar unformed surfaces occurring immediately adjacent to formed surfaced shall be struck smooth after the concrete is placed and shall be floated to a texture reasonably insistent with that of the formed surfaces.

CONCRETE BLOCKLAYER

Concrete blocks

Concrete blocks for walling shall comply with B.S 2028 Type A (for load bearing walls) and of compressive strength not less than:

Average of 12 blocks …….. 500 lbs/sq. in. Gross area

Lowest individual block ….375 lbs/sq. in. Gross area

Blocks for non load-bearing walls are to be class B blocks.

Blocks shall be hollow two-hole type and shall be cured for not less than 28 days before they are used in the works. The Contractor shall supply a certificate from the supplier for each consignment of block received to the effect that the blocks meet the requirements and strength of the latest relevant B.S. Any block for which a certificate cannot be produced will be condemned and must be removed

from site. All blocks supplied shall be of the same height and blocks of dissimilar dimensions will not be accepted. Half length blocks and specials shall also be provided as specified or required to break bond.

Mortar

Mortar to be used for all Type A blockwall shall be composed of 1 part of cement to 3 parts of sand. Mortar for Type B blockwork shall be composed of one part of Portland cement, one part lime, and five parts of sand. All mortar shall be measured in specially prepared gauge boxes and thoroughly mixed dry or clean and water tight mixing platforms, with water added from a fine rose until all parts are completely incorporated and brought to a proper consistency.

All mortar must be used within thirty minutes of mixing. No partially or wholly set mortar will be allowed to be used or re-mixed.

Setting and jointing

All blocks shall be lightly wetted immediately before being bedded and jointed to minimise absorption of water from the mortar.

Blocks are to be well buttered with mortar as previously specified. The blocks shall be laid fair-faces on the outside face, in stretcher bond with

10mm. thick, full, flushed up and grouted solid joints. The joints shall not vary by more than 3mm and four consecutive joints shall not exceed

38mm and four consecutive joints shall not exceed 38mm. Joints shall be raked out where surfaces of walling are to be plastered.

Laying of blocks

All walls throughout the work shall be carried up evenly in courses, no part being allowed to be carried up more than 900 mm. higher at one time than any other part and in such cases the joining shall be made in long steps so as to prevent cracks arising and all walls shall be levelled around at each floor.

All put-log holes shall be carefully, properly and completely filled up on completion of walling work.

All walling shall be properly protected while mortar is setting.

Walls shall be kept thoroughly wet for at least three days or for such longer period of time as the Architect may direct. Walls exposed to the sun shall be protected with a sacking which shall be kept wet.

Fair Face Blocks

Where walling is to be finished fairfaced, the blocks are to be selected free from defects. Joints shall be raked out as works proceed and pointed with a neat flush joint.

The work shall be carried out regularly with all horizontal joints truly horizontal and no part shall be more than 900mm above adjacent work during construction.

Sample Panel

The Contractor shall include in his tender for erecting a sample panel on site of 200mm blockwork, not less than 1 square metre in area and built off a suitable concrete foundation. The sample, when approved, to form the standard for all concrete blockwork in the contract.

The sample area and concrete foundation to be removed when ordered and the surface of the ground made good.

Horizontal and vertical joints shall be 10mm finished thickness, and raked out 12mm deep where face of wall is to be rendered and in other cases to be left finished flush or as otherwise instructed. The joint grooves between blocks shall be completely filled with cement, lime mortar. No portion of the wall during construction to be more than 900mm above adjoining work. All work to be executed truly level, perpendicular and properly bonded together without continuous upright joints.

Cement, sand and lime

Cement and aggregates for this trade except where separately specified for precast concrete blocks shall be as specified for "Concretor" and lime shall be dry hydrated lime to B.S 890 Class B.

Air bricks

Form and leave neat holes in walls and supply and build in approved louvred pattern concrete air bricks where shown. The opening shall be rendered on all sides, the bottom sloped towards external face.

Bedding and pointing

Bedding and pointing of timber door and window frames shall be in cement mortar. Where frames are in metal they shall be bedded and pointed in mastic. Lugs or ties shall be built into walls as described.

Fixing blocks and holes

Provide and build into walls all necessary fixing blocks and and leaving leave out or cut away as necessary holes for pipes, conduits and the like and make good after fixing by other trades and specialists.

Build in lugs

Form or leave mortices in walls for, and build in lugs and and the like all necessary fixing for metal windows and doors, door frames and lining, sanitary fittings, rainwater pipes, clips and bearer of various types.

When building up the walls, the openings shall be made about 200mm wider than the external dimensions of the door's frames, and when the latter are placed, complete with lugs, the walling completed in concrete mix type C.

Damp-proof course

Where indicated on drawings provide 2-ply felt damp-proof course. Felt to be of a manufacture approved by the Architect and to be laid on a 25mm thick bed of cement mortar (1:3 mix) on walls.

The damp-proof courses to stand the full thickness of walls, partitions and beams in one width and to be overlapped 6" at all jointings and corners.

Measurements

The Contractor must allow in his prices for block walling for plumbing

angles, all straight and raking cuttings, cutting under soffits, waste, split courses necessary for bond, bonding at angles, intersections and junctions of walling of different thicknesses, cutting and fitting to columns, cutting and pinning to beam, cutting and fitting around end of cills and lintels, cutting and pinning ends of structural timber.

The rates of blockwork must also include for fixing all door, window and like openings, forming reveals to same and for cutting and waste to walling in short lengths to mullions and jamb of openings.

The rates of blockwork must also include for hoisting and building off beams and slab at any level, all necessary scaffolding and for work built overhead.

1. MATERIALS

1.1. Aluminium

All materials shall be manufactured of extruded sections of aluminium alloy 6063 (T5) to BS EN 755-9 and shall comply with the requirements of BS 8118. All aluminium sections shall present clear straight and sharply defined lines, which shall be free from defects and imperfections that may impair their strength.

All screws, bolts and other necessary accessories shall be of aluminium or stainless steel or other non-corrodible material and shall match in colour and consistency of the finish of the anodization or the polyester powder coating or duranar coating as applicable.

1.2. Glass and Glazing

Windows shall be glazed in accordance with the recommendations given in BS 6262.
Attention is drawn to the glazing safety recommendations of BS 6262-4. Glass to be used is to comply to the requirements of BS 952 with minimum thickness of 6mm, unless stated otherwise. All glass should bear manufacturer's labels, indicating quality and thickness.

1.3. Approval

The Engineer's approval at the source of supply may be required prior to procurement. Such approval shall not prevent subsequent disapproval or rejection of materials by the Engineer if the quality is less than required by the Contract.

1.4. Steel

To comply with equivalent.

1.5. Weatherstripping

Mohair pile schlegel inserted into keyed grooves.

1.6. Glazing Tape

Vulcanized butyl tape with continuous neoprene spacer. Black colour 440 by Tremco Manufacturing Co., or approved equal.

1.7. Accessories

Shims, spacers, expansion bolts and screws, non-ferrous, clips, angles and fastening devices, galvanized steel, stainless steel.

2. DESIGN, MANUFACTURE, ERECTION & ADJUSTMENTS

The Contractor shall be responsible for the correctness and accuracy of the dimensions of the finished articles. All items shall be installed plumb, straight, square, level and in proper elevation, plane location and alignment with other work. All work shall be designed for

(1) Adjusting to field variations, fitting with proper joints and intersections, adequately anchoring in place, strictly in accordance with best practice.
(2) Allowing full expansion and contraction of window framing members without causing stress within the window assembly as a result of such expansion and contraction.
(3) Tolerating structural deflection and distortion of structure, under design criteria conditions, without imposing load on window assembly.

He shall carefully check the dimensions indicated on the Drawing, verify any changes, and ascertain the sizes at Site which will enable him to prepare Final Working Drawings for fabrication and erection purposes. Such Drawings shall be submitted to the Engineer for his verification and approval.

Fabrication orders can only be placed after the contractor has obtained in writing the approval of the Engineer on the above Drawings.

Where aluminium surfaces come in contact with metals other than stainless steel, zinc, white bronze or small areas of other metals compatible with aluminium surfaces, they shall be kept from direct contact with such parts by providing one of the following systems to protect surfaces, in contact with dissimilar metals:

(i) Paint the dissimilar metal with one coat of heavy-bodied bituminous paint.
(ii) Apply a good quality elastomeric sealant between the aluminium and the dissimilar metal.
(iii) Paint the dissimilar metal with one coat of primer and one coat of aluminium paint
(iv) Use a no absorptive tape or gasket in permanently dry locations.

Moreover, steel anchors and connecting members shall be hot dip galvanized or zinc plated after fabrication.

Aluminium surfaces in contact with lime mortar, concrete, plaster or other masonry materials, shall be painted with alkaline- resistant coatings such as heavy-bodied bituminous paint or water- white methacrylate lacquer.

Aluminium in contact with wood or absorptive materials which may become repeatedly wet shall be painted with two coats of aluminium metal and masonry paint or a coat of heavy-bodied bituminous paint. Alternatively paint the wood or other absorptive material with two coats of aluminium house paint and seal joints with a good quality of caulking compound.

Where aluminium is in contact with treated wood, wood shall be treated with pentachlorophenol, 5% minimum concentration or approved equal, followed with the protective measures described for aluminium in contact with wood or other absorptive materials.

The aluminium work shall be designed and anchored so that the work will not be distorted nor the fasteners overstressed from the expansion and contraction of the metal.

The Contractor shall be responsible for the protection of all aluminium work until the completion of the works, and only units in perfect working order and in perfect condition shall be accepted.

Upon completion, the Contractor shall clean all aluminium work as required by removing protective tape or other coating, using mild soap or detergents and clear petroleum spirits.

Acids, caustics and abrasives shall not be used. Where cleaners are used to remove excess sealing compounds care shall be exercised to prevent damage to seals or staining or damage to adjacent work.

Upon completion of the project and just prior to the handing over of the building to the owner or at a time as directed inspect, test and adjust installation as follows:

(1) Inspect all units for damage and correct same immediately.
(2) Test and adjust all hardware and replace all faulty items.
(3) Adjust all weatherstripping so as to leave each opening unit in its most weathertight position.
(4) Test all operable elements and ensure easy and smooth operation.

3. SUBMITTALS

Prior to proceeding with any production, the following shall be submitted for review, approval, and selection by the Engineer:

(1) *Design Data*: Structural calculations for the most adverse loading combination is to be submitted. All openings shall be design to resist a minimum 3s gust of 280km/h, as compatible with CP3: 1972: Chapter V-2:1972, as far as cyclonic loading is concerned. All Structural calculations shall bear the signature of a Registered Professional Engineer.

(2) Catalogue of all aluminium sections to be used with their corresponding second moment of areas (I values).

(3) *Shop drawings*: Drawings shall indicate elevations of doors, windows and frames, full-size sections, thickness and gages of metal, fastenings, proposed method of anchoring, size and spacing of anchors, details of construction, method of glazing, details of operating hardware, mullion details, method and materials for weather-stripping, material and method of attaching sub frames trim, installation details, and other related items. All the shop drawings shall be signed by a Registered Professional Engineer (Civil/Structural) of Mauritius for compliance with the specifications and submitted calculations.

(4) *Product Data:* The Contractor shall submit manufacturer's specifications for materials and fabrication, installation instructions, and recommendations for maintenance for the approval of the Engineer. Certified test reports showing compliance with project requirements where test methods are indicated shall be included.

(5) *Finish Sample*: 300 mm long pieces of frame material of each shape and finish specified for review before delivery of materials. 300 mm square samples of each type of glass indicated, and 300 mm long samples of each colour of gasket and sealant.

(6) *Quality Control Programme*: Quality Control assurance programme covering production, assembly, and glazing procedure.

(7) Certificate of origin and/or bill of lading.

4. DELIVERY AND STORAGE

a. The aluminium and aluminium finishes shall be adequately protected to prevent damage thereto during fabrication, storage, shipping, handling and installation.
b. The delivery, handling and storage of units shall be as per approved methods of manufacturer and protected from damage and staining.
c. All sills and stools shall be protected after installation with boards, heavy paper or other suitable protection, secured in place, to prevent staining or scratching. No protection shall be removed after final cleaning.
d. Glass and glazing materials shall be protected during delivery, storage and handling to comply with manufacturer's directions and to prevent damage to glass and glazing materials from moisture, temperature changes, direct exposure to sun and from other causes.

5. WARRANTY

1. The Contractor shall submit a written warranty of five years for any defects in manufacturing.
2. In addition to the above, insulating glass units shall carry manufacturer’s standard warranty of minimum five years for defective materials and ten years for seals.
3. The Warranty shall include a statement that the openings shall resist cyclonic winds of not less than 280 km/h and shall be water tight.

6. TESTING

Performance test certificates should be submitted giving air and water infiltration figures taken at specified loadings.

As and when required by the Engineer, the Contractor shall carry out the following tests in accordance with the relevant British standards:

- Tests as per BS4873
- Tests as per BS5368
- Tests as per BS4315

CERTIFICATE FOR ALUMINIUM OPENINGS

In accordance with the requirements of (Clauses 1.1 and 1.3) of the Specifications of the contract for the Supply and fixing of Aluminium Openings for the project (Name of Project)……..
…… I, the undersigned Registered Professional Engineer, hereby certify that the aluminium openings which have been fixed at (Location) …….
have been designed and fixed to resist cyclonic winds of 280 Km/hr.

Name of Engineer:……
Registration Number with the Council of Professional Engineers:……..……

Signature:……..
The following part is to be signed by the Contractor.
In the event of a failure of these openings due to cyclonic winds of 280 km/hr or less, (Name of Contractor) ……..undertakes to replace these openings and make good all damages resulting from the failure of these openings.
Name:…….
In the capacity of:……

Signed:……..……
Duly authorized to Sign the certificate for and on behalf of……..
Date:……

Seal of Company:……..…

The Waterproofing System

The Waterproofing system, unless otherwise specified, shall meet the following performance specifications:

EITHER

A SSS elastometric bitumen system in double layers, torched bonded and of total minimum thickness of 4.2mm with granular finished as described below:

a) The first layer should be a SBS (Styrene-Butadiene-Styrene) elastometric bitumen system reinforced with non-woven glass fibre Md (50gm2) torched applied with a minimum thickness of 1.7mm.

b) The second layer should be a SBS (Styrene-Butadiene-Styrene) elastometric bitumen system reinforced with non-woven glass fibre matt having a minimum thickness of 2.5mm. This layer should have a granular finish colour white for better reflection and applied by torch.

OR

Any other alternative system provided it is duly supported with all technical specifications and back up information and literature to allow a proper assessment of the treatment proposed.

2. Performance Specifications of the Waterproofing System

2.1. The system shall, unless specified otherwise, be resistant to foot traffic and light concentrated loads associated with installation and maintenance operations.

2.2. The System shall comply with European, South African or American standards.

2.3. The System and its installation shall conform strictly to Manufacturer's specifications.

3. Preparation of surface to receive the Waterproofing treatment

3.1. The waterproofing Contractor shall ensure that the scope of the substrate is adequate to receive waterproofing and is according to Manufacturer's specifications.

3.2. All concrete surfaces to be waterproofed shall be reasonably smooth and free from holes and projection which might puncture or otherwise damage the waterproofing system to be applied.

3.3. The surface of the substrate shall also be dry and shall be thoroughly cleaned of dust and loose materials prior to the laying of the waterproofing system.

3.4. Prior to the application of the new treatment, the waterproofing Contractor shall be required to issue a certificate stating that the surface is ready to receive the new waterproofing treatment and is according to Manufacturer's specifications. It is hereby made clear that, should the waterproofing system fail to perform as required, no discharge of responsibilities shall be allowed on the grounds of the existing conditions prior to the application of the waterproofing system.

4. Inspection of Waterproofing System

4.1. The waterproofing treatment shall be carried out to the satisfaction of the Engineer.

4.2. The contractor shall ensure that the waterproofing system is free from wrinkles, buckles, blisters (trapped air) and other damage. Any damage or defects to the waterproofing system shall be corrected at the Contractor's cost, and to the Engineer's approval.

4.3. The contractor shall carry out a water test on the finished work, and seek the Engineer's approval for same. The test shall consist in filling the whole treated area with water (after plugging the rainwater pipe outlets) and retaining the water on the treated surface for 24 hours, as directed by the Engineer. Any leak/defect found shall be repaired at the Contractor's cost and another water test carried out to confirm the same, the whole to the Engineer's satisfaction.

4.4. The contractor shall clean adjacent surfaces of spillage and spattering or any adhesive materials used in the works.

5. Water Test

5.1. The contractor shall allow in his rates for a water test to be carried out after laying the screed to fall, to confirm the absence of any leakage. The Test shall be verified and approved by the Engineer.

6. Guarantee Certificate

6.1. On satisfactory completion of the waterproofing works, the Contractor shall submit a certificate of guarantee against leakage, defective materials and defective installation of the completed waterproofing system. Any such defects or leakage occurring during the guarantee period shall be promptly and completely corrected including all affected work at no additional cost to the Employer.

6.2. The said guarantee shall be in effect for a period of ten (10) years from the start date of the practical completion certificate. The guarantee shall be signed by the Contractor and countersigned by the Manufacturer's representative and shall be submitted to the Employer.

General Notes

1. The risk of falls should be prevented by observing safe work practices when working close to the edges and strict supervision should be ensured.

2. The fragility of the roof material should be ascertained prior to start of the operations and fragile roof should be identified with a warning sign.

3. Persons undertaking the works should have appropriate training.

4. Unauthorized access should be prevented by blocking off access routes and access equipment.

5. The use of permit to work system should be considered.

6. More care and precaution is needed in case of adverse weather conditions such as windy conditions.

7. Persons working on roof should be physically fit and provided with Personal Protective Equipment such as non-slip shoes, hard hats, tool belt and respiratory protection should be provided.

8. Minimize the need for manual handling and provide the workers with information on weights of material.

9. Segregation of the work area as well as appropriate signage should be used to prevent contact with access equipment.

ELECTRICAL WORKS REQUIREMENTS

1.0 Note to Bidders

(i) Instruction

The bidder is advised to read carefully these instructions and to ensure that he has complied with the requirements herewith in all respects before submitting the bid.

(ii) Bidding Documents

The bidding documents are to be based on the following set:

1. Note to bidders
2. Scope of Works
3. Conditions of Contract
4. Technical Specifications
5. Bill of Quantities
6. Schedule of Materials
7. Legend
8. Drawings: (i) General Layout/s (Indicative Only)
   (ii) Schematic Layout/s
   (iii) Earthing

The bidder should check that he is in the possession of a complete set of Bidding Documents, as above, and by reference to index and content summary pages, he should ensure that all pages are in correct sequence and that none is missing. Any discrepancy or other irregularity should be immediately notified to the Client.

(iii) Discrepancies

Should the Bidder conclude from the bidding document that there exists any inconsistency, discrepancy or conflict within the content thereof of figures and words indistinct or be in doubt as to the true meaning of any part of the Bidding Documents, he must notify the Client for clarifications, prior to the submission of the bid.

For any other information, please contact Client Ministry/Department.

2.0 Scope of Works

The scope of works for electrical and allied works shall consist of but not limited to the supply, installation, testing and commissioning of the following: -

a) Distribution boards, control panels, switch gears, etc.
b) Switches, sockets and accessories.
c) LV cables/wirings in conduit/trunking/cable trays.
d) Indoor and outdoor lighting
e) Air Conditioners, Wall & Extract Fans etc.
f) Earthing System.
g) Civil Works icw Electrical Works

Note: If required, the successful bidder shall arrange for elevator or otherwise for execution of above works at no additional cost.

2.1 Manner of Execution

The contractor shall supply, install, test and commission the equipment and Electrical Works in the manner set out in the non-exhaustive specifications or where not set out, to the satisfaction of the Project Coordinator (Electrical) and all reasonable variations on site shall be carried out in accordance with such directives as the Electrical Engineer may give.

It is understood that the project shall be completed for the fixed sum awarded inclusive of any item which might not be mentioned in the specifications, schedules, drawings but deemed necessary for the completion of the project and proper functioning of the system/equipment.

2.2 Schedule of Materials

Materials for this project should be as per specifications/schedules. All materials and equipment shall be new and of the best quality. The Contractor shall have to submit samples of the electrical accessories proposed to be used on the project or relevant documentation at no extra costs for approval or otherwise to the Engineer or his representative prior to ordering the lot and installation.

Full catalogue or where applicable leaflet containing technical data as proof of compliance with the specifications shall be attached and submitted with the offer to enable ease of evaluation. Omission to provide technical data will entail elimination from consideration.

2.3 Schedule of Works

The bidder shall submit a detailed programme of works for Electrical Works inclusive of shipment dates and delivery on site. The bidder shall indicate the time period for the execution and completion of the installations and for the whole project.

2.4 Site Exigencies

The selected bidder shall respect security arrangements in force at the site and shall seek necessary permission and security pass for yard access if any for execution of the work. The contractor shall carry out works outside normal office hours where deemed necessary and authorised by Project Coordinator (Electrical) without any increase in contract cost. Claims for overtime works shall not be entertained. The site shall be kept tidy and no materials/refuse shall be kept which may cause obstructions.

The contractor shall mention the site of storage if the equipment are not stored at the official site. The contractor shall provide all site amenities, testing equipment and tools inclusive of articulating booms/lifts for verification/testing purposes for the Project Coordinator (Electrical).

3.0 Conditions of Contract

3.1 Site Visit

Bidders are advised to visit the site before submission of bid so as to be fully acquainted with the nature of the site and extent of work involved. Bidders shall contact the Ministry for site visit arrangement.

3.2 Bill of Quantities, Drawings & Compliance Sheet - Not applicable at this stage

The bidders shall fill in the Bill of Quantities (BOQ) and Compliance sheet and submit same together with the bid documents.

The BOQ and **Compliance sheet** have been prepared with a view to provide a common basis for bidding. Before submission of bid, it is deemed that the bidder has acquainted himself with all conditions prevailing on site. All the specifications, PAS, drawings are complementary and should be read accordingly. The bidders are advised to carry out measurement and check the quantities of materials. In case of discrepancies, omissions or errors, the bidder shall inform the Client prior to submission of the bid. No extra claim shall be entertained afterwards on this issue.

The Bidders shall fill in the compliance sheets for the major equipment and submit same together with the bid documents. Equipment/materials for this project shall be as per specifications/schedules or as indicated on the drawings. Before supplying materials for the project, the proposed materials shall be vetted by the Project Coordinator (Electrical).

3.3 Liaison with CEB/Client Ministry

The contractor shall liaise with the representatives of the CEB and Client Ministry/ESD for connection /disconnection facilities or switching of the main supply etc. for the electrical installations. All structural/civil works icw with sheds/cubicles for switchgears, earthing, etc. shall be included in the contract.

3.4 Civil/Structural Works

All structural/civil works icw with LV pillars, sheds/cubicles switchgears, earthing, etc. shall be included in the contract. All structural/civil works to be approved by the Project Coordinator (Civil).

3.5 Guarantee Period

The Electrical installations shall be guaranteed against manufacturing defects, bad workmanship and other defects not related to normal wear and tear for a period of one (1) year or as mentioned from date of successful commissioning in presence of Project Coordinator (Electrical).

In the event of a defect, the Contractor shall at his own expense, within 48 hours, make good such defects as instructed to the satisfaction of the Project Coordinator (Electrical).

Retention money will normally be released at the end of the one-year guarantee period, subject to maintenance being carried out satisfactorily during that period.

3.6 Provisional Sum/Contingencies

Provisional sum/contingencies included in the contract price shall be expended or used as the Project Manager may in writing direct and not otherwise. In so far as the sum included in the contract price is not expended or used, it shall be deducted from the contract price.

3.7 Removal of existing Electrical installations

The Electrical installations and all electrical accessories shall be dismantled and removed. Prior to removal the client will provide all lists of items that need to be handed-over and other items shall be carted away.

All items in working condition that should be handover to client shall be removed with care without them being damaged in the process

3.8 Continuity of Electrical supply

The contractor shall liaise with the Client Ministry to ensure a smooth running and minimum disruption of activities before submitting the detailed programme of works. The contractor shall ensure the continuity of electrical supply to the playground. Temporary electrical installation/supply shall be provided as and when needed. All electrical items required shall be supplied.

3.9 Maintenance work

It is required to carry out servicing and maintenance work to the electrical items and electrical installation as mentioned below. The servicing shall be carried out as mentioned in this document or as per manufacturer recommendation:

- Electrical Installation, Electrical panels and electrical items.
- Air-Conditioning system.
- Fire alarm system.
- Lighting System

ELECTRICAL WORKS REQUIREMENTS

4.0 Electrical Installations

This section provides a brief description of the electrical works related to this contract. The selected Electrical Contractor shall carry out the works to the full satisfaction of the Project Coordinator (Electrical).

4.1 Regulations

The installations shall conform in all respects to the latest edition of Institution of Electrical Engineers (IEE-U.K.), Wiring Regulations (BS 7671) with any subsequent amendments.

4.2 Electrical Supply

The new installations shall be furnished with a 400V/230V, 50Hz power supply derived from a CEB source.

4.3 Distribution Boards (DBs) - Electrical Panels Main Distribution Boards, Sub-main Distribution Boards, Sub Distribution Board, Sub Distribution Boards

The **DB** shall be to IP 659, IK 10 and shall be vandalproof made of galvanised steel with textured polyester resin finish, self extinguishing type, reversible hinged lockable door and removable rear panel. It shall have having the wordings “DANGER ELECTRICITY” neatly & prominently painted. The outdoor DB shall have breaking capacity ≥ Bus bars. It shall have adequate natural or fan assisted ventilation. It shall be mounted & enclosed in concrete acceptable to the Project Manager.

The panels shall be integrated with rails/perforated plates and shall be big enough to accommodate incoming and outgoing feeders and the following:

1. MCCBs/MCBs and RCDs/RCBOs as per schematic layouts.
2. Bus bars/Distribution blocks of specified ratings with supports and spare connectors. Copper Earth Bar Terminal with suitable number of outlets & sizes.
3. Meters, Selector/Timer switches, Contactors, Indicators etc.
4. All accessories (Terminals, Distribution Blocks, Face Plates etc.) to make a complete panel.

Distribution boards shall be wall mounted or floor standing type as specified. All circuits and instruments in the board shall be properly labelled with Perspex and danger notices fixed on panels. Plasticised schematic layout shall be fixed in respective Distribution Boards.

Panels shall be located as shown in drawings and shall be solidly & properly earthed.

4.4 Busbars and Distribution Blocks

Compact rigid copper busbar to BS 5486 of specified ratings at least 440V, 3 phase TPN c/w Earth bar. The busbars shall be enclosed in a metal DB to IP 659, IK 10 as specified above.

The busbars shall be able to sustain faults currents of at least 25 kA.

The system shall include the following:
i. Junction/feeder boxes for connection to cables
ii. Accessories such as Tees, bends, etc.
iii. Transparent protective front cover
iv. Galvanised supports and fixing brackets.

The busbar shall be marked prominently at the outside with the wording **"DANGER"**.

Distribution Blocks shall be self extinguishing type to EN 60695-2-11. They shall be rail mounted and supplied with insulated black plate and transparent protective front cover. They shall be 2P or 4P as specified with minimum Isc 16/25 kA.

4.5 Labels and Danger Notices

Identification labels of laminated plastic materials (perspex) engraved, black on white with no less than 6mm 'Limo' style letters shall be fixed on or adjacent to all distribution gears with at least 2 brass screws.

Suitable warning notices in red lettering on white background shall be provided on each distribution boards. Label shall bear identifications on drawings and voltage also.

Suitable "Danger" plates shall be securely affixed on the distribution boards and mounted in prominent position. Each danger notice shall be fabricated in enamel sheet steel. Symbols shall be in red on white background and shall be to British Standards.

All cables ending in electrical panel shall be properly labelled as per a cable schedule.

4.6 Switchgears

 # Moulded Case Circuit Breaker MCCBs shall comply with BS 4752, shall be 4 poles of minimum breaking capacity 25 kA at 440 Volts, shall have adjustable nominal (Io), thermal (Ir~0.7-1 In) and magnetic releases (Im~3.5-10 In). It shall be supplied with all necessary accessories such as adaptor for fitting, auxiliary contacts, alarm contacts, shunt trip, under voltage releases and all mounting accessories such as terminals, spreaders and insulation seals etc. It shall incorporate the following:

i. Positive opening indication
ii. Test button for mechanical release control
iii. Rotary retractable door mounted handle on the front of the unit of the Main MCCBs

 # Miniature Circuit Breakers (MCB) shall be to BS EN 60898 and shall be 2/4 poles as specified or as per schematic layouts. The minimum breaking capacity of the MCBs shall be 6/10 kA and shall have type B/C/D tripping characteristics as specified.

 # RCBOs or **Residual Current Device (RCD)** to IEC 61008-1 **Type A, 2P/4P** of sensitivity 30-300 mA with minimum breaking capacity 6/10 kA associated with MCBs shall be used where specified. These shall provide protection against earth leakages and short circuit/overload. ***Type Hpi*** *shall be used for computer and sensitive equipment.*
RCCBs shall not be accepted.

 # Power Contactor

The contactor shall conform to IEC 61095 and shall have the following characteristics:
- Power: 25-40 Amp, 400 V/50 Hz supply or as specified
- Voltage relay coils – 230 V/50 Hz or as specified
- At least 2 N/O & 2 N/C contacts
- Self cleaning contacts
- Easy frontal/lateral clipping of auxiliaries
- Mechanical life : around 10^6 cycles

These shall be used as directed.

 # Selector Timer Switch

The selector timer switch shall conform to IEC 61095 and shall have the following characteristics

- 230 V/50 Hz supply
- Programmable time switch
- Change Over Switch with manual override
- Ample Working Reserve
- Analogue Dial

These shall be used for external lighting or as directed

 # PIR Motion Detector

The PIR Motion/Presence Detector shall have the following specifications:

- AC supply 230V/50Hz
- Light level adjustment: 5-1000 lux
- Delay Timer: Pulse 5-300s
- Flexible detection range mounting
- Reset button incorporated
- Manufactured to BS

The PIR Motion/Presence Detector shall be used for toilets (lights+extract fans) or as directed.

4.7a Switches and Sockets

- The lighting switches shall be to BS 3676 recessed metal clad vandal proof and IP 65 outdoor-weather proof type complete with very flat base plate, rated as specified. The number of gangs and ways shall be as indicated in the drawings. The lighting switches shall be flush mounted and fixed at around 1500mm above the finished floor level.

- All sockets shall be to BS 1363 switched recessed metal clad vandal proof and IP 65 outdoor-weather proof type with shuttered openings and shall be provided with neon indicators. The number of gangs shall be as indicated in the drawings. The sockets shall be flush mounted and fixed at around 300mm from the finished floor level, or as specified.

4.7b Combined Lightning Current and Surge Arrestor

Voltage Rating/Frequency	200 - 240 or 380-440 V_{rms}/47-63 Hz
Nominal Discharge Current/ph	25 kA 8/20□s one time
Max Surge Discharge Current/ph	50kA for 240V and 100kA for 440V 10/350□s one time
Follow Current Extinguishing capability/ph	50 kA_{rms}
Response Time	<100 ns
Leakage Current	<250 □□ (Ph/E)
Let through Voltage at	700 V Ph/N 3 kA 8/20 □s one time 700 V Ph/E
Protection level	5.0 kV at In
Indication for operation/fault	LED green/red
Suitable for Neutral point connections	EE-EN-IE
Standard	Type1 IEC 61643-1

It shall be enclosed within a modular design to IP 55

Associated MCB/RCD shall be included for complete installation

It shall be backed by a five (5) year guarantee

4.8 Type of Installation and Cables

The cables shall be routed mostly in fire-retardant PVC trunkings, concealed conduits, cable trays, ducts, PVC underground pipes, galvanized conduits, manholes or as specified. The cables shall be neatly grouped without any crossing and shall be properly clipped at recommended interval of 1 metre and at bends according to recommended cable space factor requirements. All cabling shall be complete with end terminations, cable glands, lugs, etc. Bending radii of cables shall conform to BS.

Cables shall comply with BS 6500 and IEC 60502. Cables shall be of 1 KV grading conductors of high conductivity copper wires. The cabling between the Main Distribution Panel/Board and various distribution boards shall be of copper conductor XLPE/SWA/PVC insulated and of specified sizes as per schematic drawings. Sufficient Inspection boxes to the nearest minimum requirements shall be provided to permit periodical inspection and to facilitate replacement of wires if necessary. The inspection/junction boxes shall be mounted flush with the wall or ceiling concrete. Ventilating holes shall be provided in the installation where required.

Colour code of cable shall be as follows:

First phase	Brown
Second phase	Black
Third phase	Grey
Neutral	Blue
Earthing	Yellow-Green

The contractor shall submit shop drawings for indicating the cable routes, type of installation including dimensions for the cables and associated details to Project Coordinator (Electrical) for approval.

4.9 Wiring & Conduit for Final Circuits

Wiring for final circuits shall, unless otherwise specified, be carried out in non-armoured 1kV grade single-core PVC-insulated cables manufactured in accordance with BS 6004. Cables shall be stranded copper conductor and self-coloured insulation to BS EN 50525.

All cables shall be within fire-retardant trunkings/concealed heavy duty orange conduits/galvanized perforated steel cable trays as approved by the Project Coordinator (Electrical). Within the trunking/conduits/cable trays, circuits shall be bunched at reasonable intervals and shall be properly labeled. They shall be supplied with cable straps at 2000mm intervals. Inspection boxes shall be provided to permit periodic inspections and maintenance works.

Flexible fire retardant trunkings/ heavy duty conduits/cable trays of adequate dimension shall be used in order to satisfy cable space factor. Separate twin trunkings/conduits shall be used in offices for power and data cables.

Manufacturer's standard fittings (e.g bends, tees, end plates) shall be used throughout.

4.10 Underground Cables

The **armoured** underground cables shall be routed through yellow/orange high pressure PVC pipes in trenches as per drawings. They shall run in continuous lengths; no cable joint shall be permitted. The stipulated space factor shall be observed for the pipes.

The contractor shall make all necessary allowance in his quotation for Warning tapes and any trenching work which shall include excavation, backfilling as well as erection of electrical manholes. Shop drawings to be submitted after award of contract.

4.11 Manholes

Manholes (Electrical Drawpits) shall be built with reinforced concrete according to drawing. Openings of sufficient size shall be made on the sides for entry of PVC pipes. The manholes shall have waterproof galvanised metal covers on top of which shall be marked "DANGER ELECTRICITY". All opening shall be properly sealed to prevent ingress of water, dust and rodents. The layout of the manhole is attached in the Appendix.

4.12 Earthing System

The Earthing system shall be to BS 7430. For the earthing of the **MDB**, there shall be a combination of copper plate of minimum size 600mm x 600mm x 3mm installed at a depth of at least 2 metres below ground level and 4 copper rods of minimum diameter 25mm and 2 metres long and spaced at twice their length apart as earth electrodes.

The earthing of the MDB shall form a connected array of earth plate and rods driven into the ground, linked and bonded together by the BS recommended swa copper conductors to form an equipotential ground plane.

The Earth Resistance shall be less than 5 ohm.

The above number of earth rods shall be increased until the acceptable earth resistance is achieved. Electrically conductive Ground Enhancing Materials may be used to achieve low ground resistance in accordance with the manufacturer's instructions.

Concrete inspection pits c/w galvanised removable covers marked 'EARTH' shall be erected for main earthing to enable inspection and testing as per drawing.

5.0 LIGHTING AND LUMINAIRES

Lighting Installations

All luminaires shall comply with BS 4533 and manufactured to European Standards.

All light fittings shall be installed c/w lamp/tube, LEDs, driver, electronic starter, control gears choke and pf compensating ballast.

All luminaires shall be carefully stored before erection and handed over in new conditions.

Energy Saving LED Fittings

The LED tubes shall have the following specifications:

- Power rating: 230V, 50Hz
- Efficacy: > 100 lm/W
- Beam angle: min. 210º
- Colour Temperature:>4000K industrial white
- Colour rendering: Ra>80
- Life span: around 25,000 hours
- Certification: IEC 62776
- Proof of certification shall be submitted with quotation

TYPE A

Flat Led Rectangular Panel Light Fitting - 1300x250mm (TYPE A) – (Main Building and Store)

- Body: Flat slim design ceiling grid module size around 1300mm x 250mm
- Light source: LED modules
- Luminous flux : 5500 – 6000lm,
- Electrical Supply: 230 V, 50 Hz
- Integral power supply and driver
- Efficacy: at least100 lm/W
- Beam angle: around 90-100º
- Color Temperature: >4000K
- Type: recessed for false ceiling and surface mounted in concrete ceiling.
- Material Housing:
  Back cover: treated steel

  Frame, light guide and diffuser: polycarbonate/polystyrene

  Optic cover: micro-lens made of acrylic

- Lifetime: 30,000 hours
- Manufactured to European Standards

TYPE B

Weatherproof Bulkhead (Toilet)

The ceiling mounted luminaire shall be circular/oval and shall have the foll. features:

- Body: Die cast Aluminium and tempered glass
- Integral power supply and driver
- White LEDs in wide beam optics configuration
- Fitted with: **12-15 W, 230V LEDs**
- Insulation Class I/II to IP 55
- Manufactured to European Standards

TYPE C (periphery of building)

Weatherproof Rectangular Light Fitting Type C - 1300x100mm

Weatherproof type SMD LED luminaire shall be dust proof and water resistant to at least IP 55, impact resistant at least IK07 with white UV stable glass reinforced polyester housing material.

The light fitting shall comply with the following:

- Linear type at least 1m length
- Mains voltage/ Mains frequency: 230 V +/- 6 %V, 50 Hz
- Type: Built-in LED Driver with LED linear module
- Mounting: Wall/ceiling mounted using fastening brackets
- Initial LED luminaire efficacy: at least 110 lm/W
- Power: 25-30 W
- Luminous flux: at least 3100 lm
- Correlated colour Temperature: At least 4000 K (Day light)
- Life span: At least 40,000 hrs

TYPE D

Emergency Light Fittings

- The electrical supply for the Emergency Exit Luminaires shall be of 230 V, 50 Hz.
- The Emergency Exit Luminaires shall be surface mounting and non-maintained type.
- The Emergency Exit signs shall be of white & green silk-screened pictogram with an optimum contrast value between the pictogram and the background luminance. Luminous flux to be at least 180 lm with autonomy of 3 hours minimum.

6.0a Wall Fans N/A

The Wall Fans shall have the following specifications:

- AC supply 230V/50Hz
- ON/OFF Switch with Power ON Neon Indicator
- Diameter of sweep around 400-450mm
- Integral 3 speed Regulator
- Fitted with in built thermal protection
- Cord Operated and Swing Mechanism
- Noise level not greater than 50 dBA at 1 m on high speed
- Easily removable metallic safety grille
- Manufactured to IEC 60335-2-80

The fan shall be provided c/w a power socket with neon indicator.

6.0b Extractor Fans

Extractor Fans shall be to the following specifications:

a) Wall/glass mounted

b) Steel protected by polyester spray paint or High impact resistant thermoplastics

c) Single phase 230 V, 50 Hz

d) Air flow rate: around 350 m^3/h (100 l/s) /

e) Motor/electrical connection protected to IP 55

f) Automatic external shutters to prevent ingress of water

g) Removable safety grille for maintenance/servicing

h) Noise level shall not be greater than 50 dBA at 1 metre.

i) Wired remote switch for fan speed control

j) Connected to PIR Controller for presence detection in Toilets

7.0 Air Conditioners

Air Conditioner of capacities as specified in drawings shall be supplied, installed, commissioned and tested at the locations shown on the drawings. The units shall be to the specifications given below.

A. Split Wall Mounted Air Conditioner

Indoor unit :

1. The units shall be inverted type of capacity as specified
2. The units shall be of the wall mounted type, slim, compact and of elegant design
3. Horizontal air flow with Orientable 4 way Air Deflection
4. Auto/Variable fan speed and thermostatic temperature control
5. Wireless LCD Remote Control Operating Unit
6. Auto Restart feature
7. One touch anti fungus electrostatic multistage air filter
8. Aluminium Coil Fin & Seamless Copper Tube
9. Environmentally friendly refrigerant
10. Variable Speed Control on compressor (DC Inverter Technology)

Capacity Btu/hr	**Noise level at 1 metre at high fan speed/high cool**
12,000	42 dBA
36,000	48 dBA

Outdoor Unit: 1. Weatherproof and suitable for use in tropical climates

2. Rotary type compressor with EER> 3.2

GENERAL NOTES for electrical works

1. Quotation for the above shall include supply, installation, testing and commissioning.
2. Delivery period after order is placed shall be mentioned.
3. Original leaflet containing technical data shall be attached to the quotation as proof of compliance with specifications.
4. Make and country of origin of the air conditioner shall be clearly specified.
5. The compressor of the air conditioner shall be guaranteed for a period of **5 years** and all other parts shall be guaranteed for a period of at least 1 year. These guarantee periods shall be effective only as from the date of successful commissioning of the air conditioner.
6. The position of the indoor/outdoor units may be subject to changes, if any, and this shall be considered by the bidder when quoting. Note that no variation will be accepted upon this item after award of this contract.
7. The contractor shall undertake all the electrical installations from the existing DB to the oudoor unit and indoor unit of the air conditioner using appropriate MCB, RCD, cables and trunking. **A DP switch with neon of appropriate rating will be supplied and installed for the indoor unit of the air conditioner by the Electrical Contractor.**
8. Any supports, mounting brackets, etc. (to be hot dipped galvanised) shall be supplied and installed by the successful bidder, who is expected to make a site visit before quoting. Should the indoor/outdoor unit of the air conditioner require some base (metal or concrete), this shall be provided by the bidder who shall quote for this item too.
9. The air conditioner shall be provided with suitable drain pipes, with sufficient slope for perfect drain. The drain pipes shall be leak proof and shall be securely fixed as and where required on the wall inside and outside the building till about 50 mm from ground level (outdoor) or connected to the nearest service drain.
10. The installation of the air conditioners may necessitate some civil and masonry works (drilling of holes in order to pass the pipes) and/or modifications to window panes/frames/metal work which shall be undertaken by the successful bidder and these openings shall be properly sealed in order to avoid leakage or loss of cool air. It is imperative for the bidder to include civil works separately in his quotation.
11. All the refrigerant pipes (which shall be vapour sealed) and drain pipes inside the building shall be enclosed within trunkings of suitable dimensions and shall be securely fixed to the wall. The successful bidder shall be expected to execute a high-quality trunking work by making use of accessories (i.e. angle exterieur, interieur, embout, jonction, etc.).
12. The air conditioner shall be equipped with wireless remote control by means of which the air conditioners may be switched on and off, the temperature and fan speed may be controlled and from which one may read the room/office temperature via an LCD display.
13. The air conditioner shall be equipped with appropriate valves along the refrigerant pipes so as to allow isolating and separating the indoor unit from the outdoor unit without any loss of refrigerant.
14. The bidder shall submit as part of the contract, upon completion of works, a comprehensive operations and maintenance manual inclusive of an exploded diagram of the air conditioner showing the different parts and associated part numbers.
15. The bidder shall, upon completion of works, test the air conditioner in the presence of the Project Manager. All test equipment (decibel meter etc.) to be provided by the Contractor. Test certificates shall be submitted in duplicate copies to the Client.
16. The bidder shall provide free servicing on a quarterly basis during the one year guarantee period. Such servicing shall consist of cleaning of filters and checking the performance of the unit/s. The reports shall be submitted to the Ministry.
17. Any breach to comply with the above during quotation shall lead to disqualification of the bidder

8.1 Maintenance of Air Conditioning system

During the one-year maintenance period (defect liability period) the contractor shall be responsible of the Preventive Maintenance and Servicing of the **Air conditioning** System as describe below:

a) Semester Servicing to be carried out on the system up to the end of the Maintenance period.
All servicing shall be carried out as per manufacturer recommendation.
b) Attending/Intervening to breakdowns and/or emergencies on the system
c) All maintenance/servicing works to be scheduled and notified at least 2 weeks before to Client and service reports handed to the client after satisfactory completion of maintenance/servicing

9.0 Specifications for Fire Alarm System

This contract is inclusive of the complete supply, installation, testing and commissioning of equipment and associated items for Fire Detection System and Fire Alarm System to BS 5839 and EN 54.

9.1

I. Main control and indicating panel.

The main flush mounted panel shall be located in the Hall or as specified

It shall consist of a Conventional Fire Alarm Panel with the following features:

1. Individual zone alarm relays
2. Individual zone isolation
3. One man walk test facility without interruption to rest of system
4. Monitored outputs for open & short circuit faults
5. Repeater panels - to enable essential signals from main panel to be repeated as specified
6. Integral power supply to provide standby power in case of mains and generator failure. (Maintenance free Nickel cadmium batteries and charger)
7. Integral Manual Call Points, Sounders and Strobe Flashers
8. Micro processor based modular upgradable design for sequential polling of devices.

The main LCD text display & LED indicator panel shall have the following indications: Status,
Fire alarm, Maintenance alarm, Device fault, System faulty, Auto reset, Test mode, Supply fault, Mimic display etc.

II. Breakglass Manual Call Points:

- To be compatible to BS 5839. Resettable operating element with incorporated lift flap against accidental activation.
- Shall have LED indication.
- Flush mounting.
- Shall be to IP 54 with weather resistant gasket.
- Test facilities such as key insertion

III. Point and Volumetric Detectors (with at least 3 levels of sensitivity)

(a) **Photoelectric (Optical) Smoke Detectors**

- shall be to BS 5445 Part 7
- based on light scattering principles c/w infra red LED
- pulse light source
- 3 pulses to trigger alarm
- dual chamber type for visible and invisible smoke detection

(b) **Ionisation Smoke Detectors**

- shall be to BS 5445
- suitable for detecting visible smoke and invisible products of combustion
- certified radioactive source shall mechanically secure
- dual chamber type for changing environmental conditions

(c) Temperature/Heat Detector

- shall be to BS 5445 Part 8
- electric thermistor detector element
- operating point set at 75^0C for fixed high temperature detector
- operating range 20^0C-60^0C for rate of rise heat detector

IV. Electromechanical Sounders

Indoor Siren:

a) Operated on 230V AC
b) Adjustable Sound output : ≈ 100 dBA at 1m or 5dBA above background noise
c) Two distinct sounds possible for “Alert” & “Evacuate”
d) Continuously rated for 150 hours
e) Vandalproof to IP 44

Outdoor Siren:

a) Operated on 230V AC
b) High sound output: at least 115 dBA at 1m
c) Operation : 2500 Hz
d) Continuously rated for 100 hours
e) Vandal proof to IP 55

V. Strobe Flashers

- High Intensity RED colour Xenon Flashers/bright LED
- Flash cycle: at least 30Hz
- Minimum 100mm tall and 70mm diameter
- Rated to IP 44

9.2 Power Supply

Integral power supply to provide at least 24 hours of standby power in case of Mains/Generator failure. (Maintenance free Nickel cadmium batteries and charger)

In case of Mains/Generator failure, the battery unit shall be capable to sustaining the normal load of the alarm system for a period of 12 hours, followed by the load of all sounders for a period of 45 minutes. It shall include the following:

i. enough space for batteries
ii. protection for battery/regulator circuits
iii. reverse polarity protection
iv. automatic battery load test

The power supply shall also incorporate the appropriate charging circuit.

9.3 Cabling

The wirings shall be carried out in non-flammable propagating type conduits and accessories to BS 4607. One pair of cables shall be used. The conductor size shall be at least 1.5 mm^2. The fire resistant MICC cables or acceptable equivalent shall have “Fire Alarm Cable” printed on them.

NOTE:

- A mimic panel depicting the layout of detectors, call points, sirens etc. shall be affixed next to the FAP
- Instructions to operate the panel during a fire or fault shall be affixed next to the FAP.
- Free training to users and technical staff shall be dispensed by the contractor

9.4 Maintenance of the Fire alarm System

During the one-year maintenance period (defect liability period) the contractor shall be responsible of the Preventive Maintenance and Servicing of the **Fire alarm System** as describe below:

a) At least Semesterly servicing to be carried out on the system upto the end of the Maintenance period.
All servicing shall be carried out as per manufacturer recommendation and as per actual regulations
b) Attending/Intervening to breakdowns and/or emergencies on the system
c) All maintenance/servicing works to be scheduled and notified at least 2 weeks before to Client and service reports handed to Client after satisfactory completion of maintenance/servicing

TESTS ON COMPLETION

On completion of all the installations, the electrical contractor shall carry out tests in the presence of Project Coordinator (Electrical) and submit to the ministry three signed copies of the tests certificates by a Registered Professional Electrical Engineer.

Testing and measuring equipment shall be of very good quality and shall be provided by the electrical contractor in all cases.

The following tests shall be carried out:

(i) Insulation test
(ii) Continuity and Polarity tests
(iii) Earth loop impedance test
(iv) Earth Resistance test
(v) RCD tripping time
(vi) Operation of protective devices
(vii) Load test
(viii) Voltage test
(ix) Phase Sequence and Phase Rotation tests
(x) Functional Test
(xi) Any other test requested by the Project Coordinator (Electrical)

Tests on equipment/plant/electrical device

Tests on the above shall be carried out as per Manufacturer’s recommendations or as directed by the Project Coordinator (Electrical).

Drawings

Upon completion of the works, the bidder shall submit to the Ministry three copies of as "fitted diagrams" signed by the Registered Professional Electrical Engineer

(i) The Electrical installations and layouts
(ii) Schematic diagrams of circuits and protective gears
(iii) Location of Distribution Boards & cable routes
(iv) Earthing System

B. DRAWINGS

S/N	DRAWING TITLE	Drawing Number
1	SITE PLAN	BV/22/01
2	SECTIONS	BV/22/02
3	REINFORCEMENT DETAILS FOR TRACKS	BV/22/03
4	PLAN-CHANGING ROOM	BV/22/A 01
5	SECTIONS	BV/22/A 02
6	ELEVATIONS	BV/22/A 03
7	SCHEDULE OF OPENINGS	BV/22/A 04
8	FOUNDATION LAYOUT	BV/22/ST 01
9	FOUNDATION REINFORCEMENT DETAILS	BV/22/ST 02
10	REINFORCEMENT BEAMS LAYOUT & REINFORCEMENT DETAILS	BV/22/ST 03
11	ROOF SLAB REINFORCEMENT DETAILS	BV/22/ST 04
12	WALL TILES DETAILS & REINFORCED STRUCTURAL WALL	BV/22/ST 05
13	STRUCTURAL NOTES	BV/22/ST 06
14	SEPTIC TANK DEATILS	BV/22/ST 07
15	MANHOLES, GULLY TRAP & SOAK AWAY DETAILS	BV/22/ST 08
16	PLAN – TRACK 1	BV/22/B 01
17	SECTIONS – TRACK 1	BV/22/B 02
18	PLAN- TRACK 2	BV/22/C 01
19	SECTION – TRACK 2	BV/22/C 02

Section IV: General Conditions of Contract and Particular Conditions Of Contract

Any resulting contract shall be placed by means of a Letter of Acceptance and shall be subject to the General Conditions of Contract (GCC),
(Ref: W/GCC10/12-21), for the Procurement of Works (available on website *ppo.govmu*.org) except where modified by the Particular Conditions of Contract below.

Procurement Reference Number: MSC/ ONB/1/ 2022-2023

The clause numbers given in the first column correspond to the relevant clause number of the General Conditions of Contract.

Particular Conditions of Contract

A. General	
GCC 1.1 (r)	The Employer is ***Mauritius Sport Council.***
GCC 1.1 (v)	The Intended Completion Date for the whole of the Works shall be 150 calendar days as from the signature of contract.
GCC 1.1 (y)	The Project Manager is Mr. M Balloo.
GCC 1.1 (aa)	The Site is located at Beau Vallon.
GCC 1.1 (dd)	"The Start Date shall be *7 days from the handing over of site.*
GCC 1.1 (hh)	The Works consist of construction of changing room, Construction of BMX/Skate Board and path way all as described in the scope of works.
GCC 2.2	Sectional Completions are: *N/A*
GCC 2.3(i)	The following documents also form part of the Contract: N/A
GCC 3.1	The language of the contract is English The law that applies to the Contract is the law of Mauritius.
GCC 5.1	The Project manager may delegate any of his duties and responsibilities.
GCC 8.1	Schedule of other contractors: N/A
GCC 13.1	Except for the cover mentioned in (d)(i) hereunder, the other insurance covers shall be in the joint names of the Contractor and the Employer and the minimum insurance amounts shall be: (a) for the Works, Plant and Materials: (for *the full amount of the works including removal of debris, professional fee etc...)* (b) for loss or damage to Equipment: MUR 500,000 (c) for loss or damage to property (except the Works, Plant, Materials, and Equipment) in connection with Contract *for an amount representing the value of the properties that are exposed to the action of the contractor in the execution of the works. It will extend to the property of the Procuring Entity as well). MUR 1,000,000* (d) for personal injury or death: (i) of the Contractor's employees: *[The Contractor shall take an adequate insurance cover for its employees for any claim arising in the execution of the works]*.3,000,000 (ii) of other people: [*This cover shall of an adequate amount for Third Party shall be extended to the Employer and its representatives and the occurrences shall be for any one or an unlimited number of occurrences]*. MUR 5,000,000 (e) for loss or damage to materials on-site and for which payment have been included in the Interim Payment Certificate, where applicable. The Contractor shall choose to take the insurance covers indicated above as separate covers or a combination of the Contractor's All Risks coupled with the Employer's liability and First Loss Burglary, after approval of the Employer. All insurance covers shall be of nil or the minimum possible deductibles at sole expense of the contractor.
GCC 14.1	Site Data are: N/A

GCC 20.1	The Site Possession Date(s) shall be *the date of handing over of site.*
GCC 23.1 & GCC 23.2	Appointing Authority for the Adjudicator: **No Adjudicator shall be appointed for this Contract.**
GCC 24.	In case a dispute of any kind arises between the Employer and the Contractor in connection with, or arising out of, the contract or the execution of works or after completion of works and whether before or after repudiation or other termination of Contract, including any dispute as to any opinion, instruction, determination, certificate or valuation of the Employer's Representative, the matter in dispute shall, in the first place, be referred in writing to the employer's representative, with a copy to the other party. The Employer and the Contractor shall make every effort to resolve the dispute amicably by direct informal negotiation. If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Public Body or the Contractor may give notice to the other party of its intention to refer the matter to *"* the competent courts of Mauritius"
B. Time Control	
GCC 25.1	The Contractor shall submit for approval a Program for the Works within 14 days from the date of the Letter of Acceptance.
GCC 25.3	The period between Program updates is 07 calendar days. The amount to be withheld for late submission of an updated Program is *MUR 5,000.*
C. Quality Control	
GCC 33.1	The Defects Liability Period is: 365 calendar days.
GCC 34.1	Delete sub-clause 34.1 and replace by the following: Should any defect arise during the contractual period and up to the end of the Defects Liability Period and the Contractor fails to correct the Defect within the time specified in the Project Manager's notice, this shall constitute a breach of the Contractor's obligations under the contract. The Project Manager shall assess the cost of having the defect corrected and recover the money from monies due to the contractor or from the Performance Security.
GCC 39.7	Interim Payment for Plant and Material on site **is not** applicable.
D. Cost Control	
GCC 40.1	Amend clause 40.1 by replacing 21 days by 7 and 42 days by 28 days.
GCC 41.1 (l)	*Cyclone class III, flooding, torrential rain, rain of intensity not less than 20mm or any other events beyond the control of the contractor.*
GCC 43.1	The currency of the Employer's country is: **Mauritian Rupees.**
GCC 44.1	The Contract is not subject to price adjustment.
GCC 45.1	GCC Clause 45 is not applicable.
GCC 46.1	The liquidated damages for the whole of the Works are MUR 5,000 per calendar day. The maximum amount of liquidated damages for the whole of the Works is 10% of the Contract price.
GCC 47.1	The Bonus for the whole of the Works is not applicable.
GCC 48.1	The Advance Payments shall be *10% of contract value* and shall be paid to the Contractor within 10 days after signature of the Contract and submission of the approved Advance Payment security from a local bank by the contractor no later than *15 days from the date of the letter of acceptance*.
GCC 49.1	The Performance Security amount is *10% of contract sum and inserted at contract signature stage*.
E. Finishing the Contract	
GCC 56.1	The date by which operating and maintenance manuals are required is *on practical completion date of the project*. The date by which "as built" drawings are required is *on practical completion date of the project*.
GCC 57.2 (g)	The maximum number of days is: 60 days
GCC 59.1	The percentage to apply to the value of the work not completed, representing the Employer's additional cost for completing the Works, is 20%.

Section V- Contract forms

Performance Security

.....Bank Name and Address of Issuing Branch or Office.....

Beneficiary: .....*Name and Address of Public Body*.....

Date.....

PERFORMANCE GUARANTEE No.: .....

We have been informed that .....*[name of the Contractor]* ..... (hereinafter called "the Contractor") has entered into Contract No.....*[reference number of the Contract]* ..... dated..... with you, for the execution of .....*[name of Contract and brief description of Works]* .....(hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance security is required.

At the request of the Contractor, we ..... *[name of Bank)*.....hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ..... *[amount in figures (amount in words)]* ..... such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire and returned to us not later than twenty- one days from the date of issuance of the Defects Liability Certificate, calculated based on a copy of such Certificate which shall be provided to us, or on the.....day of ....., ..., whichever occurs first. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

…….....*Seal of bank and*

***Signature(s)*.....**

Advance Payment Security

[Bank's Name, and Address of Issuing Branch or Office]

Beneficiary: ***.....[Name and Address of Employer]*** **…….**
Date:*.....*
Advance Payment Guarantee No.: ***.....***

We have been informed that . . .. . ***[name of the Contractor]*** . . . . . (hereinafter called "the Contractor") has entered into Contract No. . . . . ***[reference number of the Contract]*** . . . . . dated . . . . with you, for the execution of . . . . . ***[name of contract and brief description of Works]*** . . . . . (hereinafter called "the Contract").

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum . . . . . ***[name of the currency and amount in figures]*** [1]. . . . . (. . .. . ***[amount in words]*** . . . . .) is to be made against an advance payment guarantee.

At the request of the Contractor, we . . .. . ***[name of the Bank]*** . . . . . hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of . . .. . ***[name of the currency and amount in figures]*** ******. . . . . (. . . . . ***[amount in words]*** . . . . .) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number . . .. . ***[Contractor's account number]*** . . . . . at . . .. . ***[name and address of the Bank]*** . . . . . .

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the . . . day of . . . . , ... [2], whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

. . . . . ***[Seal of Bank and Signature(s)]*** . . . . . .

Note –

All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.

1 The Guarantor shall insert an amount representing the amount of the advance payment denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

2 Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

Ref

Date

Name and address of the contractor

Letter of Acceptance

Subject: . . . . ***[Notification of Award Contract No]***. . . . . .

This is to notify you that your Bid dated ……..***[insert date]*** for execution of the ……***insert name of the contract and identification number, as given in the Appendix to Bid]*** ……. for the Accepted Contract Amount of .Rs ……..…….. ***[insert amount in numbers and words and name of currency]***, exclusive of VAT, as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by *(insert name of Corporate Body).*

You are requested to furnish the Performance Security in accordance with the General Conditions of Contract, using for that purpose of the Performance Security Form included in Section V (Contract Forms) of the Bidding Document.

Authorized Signature: .....

Name and Title of Signatory: .....

Name of Agency: .....

Attachment: Contract Agreement

Contract Agreement

THIS AGREEMENT made the . . . . . .day of . . . . . ., ..., between . . . . . ***[name of the*** Employer***]***. . . . . (hereinafter "the Employer"), of the one part, and . . . . . ***[name of the Contractor]***. . . . .(hereinafter "the Contractor"), of the other part:
WHEREAS the Employer desires that the Works known as . . . . . ***[name of the Contract]***. . . . . .should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,
The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents***.***

(a) the Letter of Acceptance
(b) the Bid
(c) the Addenda Nos . . . . . ***[insert addenda numbers if any]***. . . . .
(d) the Appendix to the General Conditions of Contract
(e) the General Conditions of Contract;
(f) the Specification
(g) the Drawings*;* and
(h) the completed Schedules,

3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Mauritius on the day, month and year indicated above.

Signed by:	Signed by: .....
for and on behalf of the Employer	for and on behalf the Contractor
in the presence of:	in the presence of:
.....	.....
Witness, Name, Signature, Address, Date	Witness, Name, Signature, Address, Date