



THE URBAN DEVELOPMENT CORPORATION OF TRINIDAD AND TOBAGO LIMITED (UDECOTT)

REQUEST FOR PROPOSALS FOR THE MODIFIED DESIGN-BUILD SERVICES FOR THE COMMUNITY CENTRES

The Urban Development Corporation of Trinidad and Tobago Limited (UDECOTT) invites suitably qualified and experienced Small and Medium Enterprises (SMEs) to submit proposals for the following:

SITE VISIT DATES AND TIMES

1. La Seiva Community Centre October 30, 2024 1:00 p.m.
2. Guapo Community Centre November 1, 2024 10:00 a.m.
3. La Romaine Community Centre November 1, 2024 2:00 p.m.
4. Damarie Community Centre November 4, 2024 10:00 a.m.
5. Lower El Dorado Community Centre November 4, 2024 1:00 p.m.
6. Spring Village Community Centre November 5, 2024 10:00 a.m.

Small and Medium Enterprises are defined as entities with a total revenue of less than \$20 million earned over the past three (3) years. **UDECOTT reserves the right to award one (1) project per contractor.**

In accordance with the Public Procurement and Disposal of Public Property Act, 2015 (as amended), suppliers of goods, works and services, interested in conducting business with UDeCOTT must be registered on the OPR Procurement Depository. The relevant guidelines for registration can be found on the OPR website via <https://oprtd.org/procurement-depository/>. Therefore, UDeCOTT is inviting suitably qualified suppliers to register and apply for pre-qualification in the OPR's Procurement Depository for the following:

Line of Business Code: 72121101 - Commercial and Office Building New Construction Service

The tender process for this project will be conducted via UDeCOTT's E-Tender System. The RFP package will be available on the E-Tender System from **Friday October 25, 2024**. To access the Tender, Proponents must register on the E-Tender System via <https://udecott.etenderworld.tt/login.php>.

Should you encounter any technical difficulties in accessing or using the system, you are to immediately contact our IT Helpdesk at 225-4004 ext. 206 or etenderhelpdesk@udecott.com, carbon copying the Office of the Chief Procurement Officer at tenders@udecott.com.

The successful contractor shall be chosen using competitive selection process as set out in the Request for Proposals (RFP).

INFORMATION SESSION AND SITE VISIT

An **Online Information Session** will be held via **Microsoft Teams** on **Wednesday October 30, 2024 at 9:00 a.m.** A **Site Visit** will be held at the following locations, dates and times are shown in the list above. Interested parties are kindly asked to confirm their availability, together with the **names and preferred email addresses** of their representatives who will be in attendance, via email to tenders@udecott.com.

SUBMISSION

Proponents are advised that submissions must include ALL the documents as set forth in the RFP and must be in accordance with the terms therein.

Failure to do so may result in disqualification.

The deadline date for submissions is **November 22, 2024 at 2:00 p.m. (AST)**.

Additional information may be requested through email forwarded to the attention of **The Office of the Chief Procurement Officer** at tenders@udecott.com.

UDeCOTT reserves the right to reject any or all proposals for failure to comply with any mandatory requirements stated in the RFP.

Please visit our website at udecott.com for further details and updates.

THE OFFICE OF THE CHIEF PROCUREMENT OFFICER

FREQUENTLY ASKED QUESTIONS (FAQs)

MODIFIED DESIGN-BUILD SERVICES FOR THE DAMARIE, GUAPO, LA ROMAINE, LA SEIVA, LOWER EL DORADO AND SPRING VILLAGE COMMUNITY CENTRES

What is the purpose of this Request for Proposal?

The purpose of this Request for Proposal is to identify and contract a suitably qualified and experienced contractor with the specialised expertise necessary to undertake the Project.

Are Proponents required to purchase the RFP package?

There will be no cost for the RFP package.

Are interested parties required to register with the Office of the Procurement Regulator?

Proponents are advised that in light of the proclamation of the Public Procurement and Disposal of Public Property Act, 2015, all proponents interested in conducting business with UDeCOTT must be registered on the OPR Procurement Depository. The relevant guidelines for registration can be found on the OPR website via <https://oprtd.org/procurement-depository/>. Proponents are required to apply for pre-qualification in the OPR's Procurement Depository for the following:

Line of Business Code: 72121101 - Commercial and Office Building New Construction Service.

What are the Locations, Dates and Times of the sites?

The Site locations for the Community Centres are as follows:

- 1. La Seiva Community Centre October 30, 2024 1:00 p.m.**
- 2. Guapo Community Centre November 1, 2024 10:00 a.m.**
- 3. La Romaine Community Centre November 1, 2024 2:00 p.m.**
- 4. Damarie Community Centre November 4, 2024 10:00 a.m.**
- 5. Lower El Dorado Community Centre November 4, 2024 1:00 p.m.**
- 6. Spring Village Community Centre November 5, 2024 10:00 a.m.**

Is it mandatory to attend the site visit and online information session?

Attendance to the site visit and online information session is **not** mandatory. It does however provide a greater understanding of the requirements of the RFP.

Are there any eligibility requirements for this Procurement Process?

In order to be eligible for evaluation and/or consideration to provide the Services, Proponents must be able to demonstrate the following:

- Incorporation or otherwise registered to do business in Trinidad and Tobago **prior** to the award of any contract for the provision of the Works, as evidenced by the Certificate of Incorporation or Registration (as applicable),
- Submission of valid statutory clearance/compliance certificates, namely;
 - VAT Clearance Certificate
 - BIR Clearance Certificate
 - NIS Certificate of Compliance

Are Proponents required to submit a Bid Bond with their Proposals?

No Bid Bond is required for this RFP.

Proponents are to note that the responses provided as guidance to these Frequently Asked Questions does not relieve the Proponent of its obligation and responsibility to fulfil and comply with all requirements of the Request for Proposals.



USER REQUIREMENTS FOR THE SPRING VILLAGE COMMUNITY CENTRE

Modified Design-Build Services using the FIDIC Yellow Book:
Conditions of Contract for Plant and Design Build

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BACKGROUND

UDeCOTT, on behalf of the Ministry of Sport and Community Development, is desirous of completing the Design-Build Services for the Spring Village Community Centre. In this regard, UDeCOTT wishes to retain the services of a qualified, experienced and competent Design Build Contractor to perform design and works in accordance with the Scope and Specifications. The preferred proponent is expected to provide full designs, construction documents and specifications for all statutory approvals and construction. The format of implementation will be a Design Build Contract.

Sites will be revaluated and the main access to the site and parking will be determined by UDeCOTT and the Client Ministry. The facilities will comprise of a main assembly hall and a combination of outreach activity spaces will be all located within a two-storey facility. As a guide and in instances where the available land area is less than 1,859 m², it is recommended that a two storey structure be constructed.

DESIGN-BUILD CONTRACTOR RESPONSIBILITIES

1. Preparation of site surveys to determine the exact conditions of the Project Site and any other investigative surveys or assessments that may need to be completed as part of its proposal.
2. Preparation and submission of Designs and Drawings (Architectural, Civil/Structural Engineering, Mechanical, Electrical Engineering and Plumbing and Fabrication). Designs and drawings shall be completed to a level of detail, adequacy and completeness.
3. Statutory Approvals (Fire, Electrical, WASA etc.)
4. Project Programme & Works Scheduling
5. Project Insurances
6. Project Delivery
7. Contract Management
8. Subcontractor Coordination and verification of works.
9. Temporary hoarding of the site including gateway for vehicular and pedestrian access and maintenance of access throughout the duration of the project. The hoarding shall be maintained in a secure condition throughout the duration of the project.
10. Temporary Utilities as required for the project site (water, electricity). The site shall be adequately lit to ensure visibility.
11. Health Safety, Security and Environmental Management during the works inclusive of Covid-19 management protocols.
12. Site Waste Management and disposal.
13. Furnishing all labour, materials, tools, equipment, and services necessary for the successful completion of the construction of the project as stated in the RFP and the BOQ, and in accordance with the approved drawings, specifications and defined requirements.
14. Product Specifications
15. Preparation and submission of as built drawings, equipment guarantees/warranties, equipment manuals, test certificates.
16. Ensure all design are reviewed by UDeCOTT and the End User.

17. Ensure a copy of all project drawings are issued to UDeCOTT. On-site drawings to identify any changes made on-site.
18. Ensure all product data/specifications are submitted to UDeCOTT for review
19. Where applicable, ensure that methodologies associated with Notice to Correct are submitted for UDeCOTT non-objection.
20. Testing (for example Concrete Testing, compaction testing etc.) is to be completed by an independent testing agency.
21. Familiarization of the Site surroundings/Environs so as to ensure Tendered sum includes for all reasonable associated security risks. A guard booth must be constructed at the entrance gates to house security personnel. The guard booth shall be equipped with chairs, desks, lighting and power, a cellphone with credit maintained by either the Contractor or the Security Provider for emergency calls. Emergency Contacts shall be listed by the Guard Booth. The Site security personnel shall be in place for 24 hours and adequately resourced and trained for emergency situations. The security personnel shall have a log book to maintain logs of all persons and vehicles accessing the site. The Contractor shall retain a scanned copy of workers identification cards on site.
22. The Contractor shall provide a CCTV surveillance system for the site throughout the duration of the project. The system shall monitor the site, all access points to the site, the road way bounding the site and any other vulnerable areas. Faces and license plates of vehicles shall be easily recognizable. The system shall have Wifi capabilities and provide remote monitoring capabilities to be shared with UDeCOTT site staff.
23. Provide site office accommodation for the Employer and Engineer for the duration of the Project. UDeCOTT site office should be positioned away from the entrance gate and away from the site boundary located closest to the road way to minimize risks. The provisions of the site office facilities will be provided at no cost to the Employer and must comply with the Laws.

The site building shall be as follows:

- a) 1 site office, 12' x 16' minimum with air conditioning used by the Engineer and Employer;
- b) Access to 1 toilet room for the exclusive use by the Engineer and the Employer;

- c) The site office, equipment and furnishings shall be maintained by the Contractor in a clean and orderly condition, which includes washing of the floors, bathrooms and trash removal at least twice per week;
- d) The site offices and toilet room for the Engineer shall be equipped with keyed locks and the Contractor shall furnish a sets of keys to the Engineer;
- e) The site offices for the Engineer shall be furnished with the following furniture, fittings and equipment for the whole duration of the Works:
 - 2 (two) desks and 2 (two) deluxe chairs with swivel base on casters and adjustable arms, 2 (two) visitors chairs
 - 1 (one) white board, wall mounted, 36" x 48"
 - 1 (one) multifunction copier machine (copy, print, scan and fax) RICOH Aficio MP1600L or equivalent. The equipment is to be maintained for the duration of the project (supply of inks, cartridges and paper at the Contractor's cost)
 - 1 (one) mini-refrigerator 4 cubic feet capacity 33"H x 18"W x 20"D
 - 1 (one) water cooler to receive 18 litres bottled water (supply of paper cups and bottled water at the Contractor's cost)
 - Independent high-speed internet access.
 - All furniture, fittings and equipment shall be in good shape and commercial grade. All temporary structures, facilities and arrangements shall be removed by the Contractor at the completion of the Works.

DESIGNS

Concept

The concept approach to the design of the facility is to place the more frequently used outreach programs in one zone or module while allowing the hall to remain as an independent module. This gives all the community members greater access to the more critical services offered by the proposed programs. Part of the design intent is to allow equal access to all areas of the facility while maximizing flexibility, and controlling maintenance and operating costs. In order to bring an awareness of the environmental issues and conservation practices, the centre by its design should demonstrate energy conservation in its approach to the use of natural lighting. The large overhangs and buffer zones between the main volumes will significantly reduce the cost of cooling.

Given that the construction cost represents a significant investment in the community, proposed materials, finishes and equipment should be chosen with the view that maintenance and long term operation of the facility is the responsibility of the community itself. Therefore, easy

replacement and ongoing upgrade of specific speciality rooms must be looked at carefully. It is intended that the facility be used as a change agent for the positive upgrade of skill sets across a wide generational range. In order to maximise the social interaction between the widest range of users, generous public porches and breakout zones form an integral part of a "Community bonding experience".

Flexibility of use is an important part of the design of the facility; all areas are intended to change and adapt to the needs of the community. Therefore the offices can become consultation areas by changing the furniture configuration. All lobbies and covered porches can be used for informal exhibitions and casual events. The entire facility must be designed as a modern resource centre with access to Wi-Fi.

Since retraining will eventually become a normal part of our times, this centre will likely be the first intervention space to that the community seeks. In the event of any national emergency. The centre is also expected to play a major role in relief efforts, to this end, all local, regional and international building codes must be adhered to.

AMENITIES

The community centre's design should include the following facilities (and as shown on the Conceptual Design included in the Tender Document):

1. Provision of a Community column free Multi-Purpose Hall theatre style seating minimum 100 capacity. Teak stage flooring with a minimum stage depth of 10 feet and minimum height of 24". Teak floor moulding to be installed in the Auditorium. The hall should include a stage with electrical outlets and fixed walls to hide backstage view. There shall be an alternative access to the back stage changing rooms. Backstage flooring should be at the same elevation as the stage. Male and Female Back stage change rooms (inclusive of toilet, shower sink and countertop, mirror and wooden bench). Minimum of 8No. electrical outlets to be provided in the Auditorium. Ceiling lighting in Auditorium to also include down lighters along the sides and centre of the Auditorium, to provide a level of light in pathways while the main lights are off during performances. Installation of two (2) communication outlets ceiling height, for the installation of Access Points.

Locations to be approved by the Client to ensure full coverage at Auditorium level.

2. Control Room with operable window in direct line of sight to the stage. Provision of desk and mixer board and shelving for the storage of the sound system equipment in the Control room.
3. Provisions for Sound and Stage Lighting systems and a Public Address System throughout the facility. (see specification on page 28)
4. A Teaching Kitchen with allowances for two stoves (one electric and one gas) that can accommodate minimum 8 persons at one time. Industrial type Range Hoods with ducted extractor system to be supplied and installed. 2 No. deep double basin stainless steel kitchen sinks to be installed with hot and cold water supply, specifications to be approved. Overhead and under counter cabinetry to be installed and comprised of 100% hardwood. Cabinetry to fit small gas tank for gas stove.
5. Servery area linked to the teaching kitchen with provision of a solid surface counter and one row of shelving below. Above counter GFCI outlets. Square hood roller shutter windows to be installed.
6. A Computer Room with minimum 10 stations and 1No. Administration desk:
 - a. Installation of Work Stations. Layout and materials to be approved by the Client. Workstations work surface to be made from solid surface. Minimum size of work stations 30" (w) and desktops 29" high and 24" deep. All workstations to have a privacy screen partitions constructed of same material and no higher than 12".
 - b. Each Workstation to have a grommet, communication outlet (CAT6 Ethernet) and duplex outlets. Grommets to be 7" from the centre line to the left or right and with enough room to clear the frame on the top. Corner stations to have grommets at the same depth as regular stations. Workstations not to be interrupted by doors. Dedicated space to be provided for the printer.
 - c. Installation of Admin desk to have a grommet, communication outlet (CAT6 Ethernet) and 2No. duplex outlets. The desk is located by the entrance or at the front of the room facing in; person's back must not be to the clients.
 - d. 1No. wall mounted Network Closet to be installed. Pulling of CAT 6 Ethernet cables including all required in wall and ceiling raceways and installation of female end "keystone" communication port with the other male end "keystone" jack terminating at the Network Cabinet. Specifications as follows:

- i. Dimensions: 23.5"W x 22"D
 - ii. Rack Height: 13U - 15U
 - iii. Colour: Black
 - iv. Load Capacity: 200 lbs
 - v. Construction:
 - 1. Sturdy and rugged welded frame construction
 - 2. Reinforced lockable door
 - 3. Two-section, swing-out design allows access to the front and rear of equipment
 - 4. Includes adjustable depth equipment mounting rails
 - 5. Removable and reversible door and side panel
 - 6. Cable pass-through knockouts
 - vi. Two (2) extractor fans (included)
 - vii. Include PDU strip mounted internally in the Network Cabinet
 - viii. Fits all standard 19" rack mount devices up to 20" mountable depth
 - ix. Warranty: Minimum one (1) year repair or replacement
 - e. Installation of four (4) duplex electrical wall outlets, one (1) behind the Network Cabinet for use with networking equipment and three (3) below the cabinet. Installation of one (1) 4 port communication outlet beneath the Network Cabinet.
 - f. Provision of one (1) duplex and one (1) communication outlet for the tv (both 7 feet from the floor) and pulling of one (1) HDMI cable from television mount location through floor to Admin desk. Location at the front of the room.
 - g. Installation of one communication outlet to ceiling height, centre of room for installation of an Access Point.
 - h. Installation of a keypad access.
 - i. Painting of interior walls (2 colours, one (1) accent wall). Paint colours to be confirmed by the Client.
7. Audio Visual Room:
- a. Installation of duplex outlets on all walls. Installation of an additional duplex outlet and communication outlet at the front of the room for the Admin desk.
 - b. Provision of one (1) duplex and one (1) communication outlet for the tv (both 7 feet from the floor) and pulling of one (1) HDMI cable from television mount location through floor to Admin desk. Location at the front of the room.

- c. Installation of one (1) communication outlet to ceiling height, centre of room for installation of an Access Point.
 - d. Installation of a keypad access.
 - e. Painting of interior walls (2 colours, one (1) accent wall). Paint colours to be confirmed by the Client
8. Install conduit/ raceway from the external entry pole to the Room where the Network Cabinet is located. Upgradable commercial grade Wi-Fi capabilities.
 9. Manager's Office for two persons, duplex outlets on all walls. Office to be located at the front of the facility, in close proximity to the lobby area. Installation of one (1) communication outlet to ceiling height in lobby area on the ground floor for installation of an Access Point.
 10. Male and Female Washrooms with provisions for the differently abled. All Washrooms and Change Rooms/ Dressing Rooms to have extractor fans that operate on a timed basis. Washroom to be equipped with commercial grade accessories including soap dispensers, paper towel holders, toilet paper holders and hand dryers.
 11. Storage area to hold a minimum of 100 chairs and 10 tables.
 12. Janitorial room with an appropriate Janitorial sink.
 13. Electrical/ Service Room with vented metal door.
 14. Provision of a Security System with upgradable Wi-Fi capabilities. Ensure no blind spots. Cameras to be located externally, covering all access points to the Site, within corridors, lobby area and in the carpark. Cameras to be digital, 4MP and higher. Monitors and DVR to be located in the Administrative Office with drops to be provided at the Security room for the installation of an additional monitor in the Security room. Keypad access to be on UPS (minimum 1 hour). Keypad access to be provided in the Computer lab, Administrative Office, Manager Office, Control Room and Audio Visual Classroom Room. An additional request to exit button for keypad access to be installed at a lower level at the location of the Manager's desk in the Administration Room and Manager's office.
 15. Provision of an ADA 8 passenger lifts/elevators for all members of the public.
 16. Provisions for all physically challenged members of the Community.
 17. Fire Detection (addressable system) and Fire Suppression Systems.
 18. HVAC system, inclusive of exhaust fans for all washrooms. External AC condensers installed at ground floor level to be secured with operable burglar proofing. Fire access

ladder to be installed for condensers installed at roof level. No cassette ac units.

19. Tank Farm (secured with medium security fencing (same colour as perimeter fencing) and roller gate) to be located away from the front of the facility. Covered housing for pumps and heater.
20. Provision of 100% back up power (Standby Generator) with fuel capacity for a minimum of eight (8) hours inclusive of ATS. Generator to be located away from the front of the facility.
21. Signage (commercial grade internal rooms and external signage with UV protection). Schedule and material to be approved by the Client. See Finishes specifications below.
22. Fixed Pane windows with impact resistant glass in the upper level of the Auditorium to increase natural lighting.
23. Decorative stone exterior wall tile feature at the front of the building.
24. LED Lighting fixtures with minimum 2 year warranty.
25. Emergency wall mounted lights to be installed.
26. External lighting to be energy efficient with low maintenance requirement.
27. Integrated communication system.
28. Site Drainage. Box drains (larger than 450mm x 450mm) and located within the premises to be covered with provisions for maintenance of the drains.
29. A clearly defined and controlled perimeter fencing (medium security fencing with colour to be confirmed by the Engineer). Palisade fencing to the front of the facility. Pedestrian access and vehicular access to be located in the vicinity of the guard booth.
30. External Waste Disposal Area integrated in the fencing, to be accessible both internally and externally of the premises
31. Secured parking area, inclusive of wheel stops, with 1 spot that is ADA compliant.
32. Integrated landscaping inclusive of a decorative feature/ planters at the front of the facility.

DESIGN REQUIREMENTS

Preparation and submission of Designs and Drawings (in accordance with the “Design-Build Proposal /Approach”) shall include the following: -

1. Designs and drawings shall be completed to a level of detail, adequacy and completeness which will be acceptable for submission to the Town & Country Planning Division (TCPD) to meet the requirements for Final Approval.
2. Preparation and submission of the geotechnical investigative report.
3. Technical Specifications (Materials and Workmanship, Codes)
4. Listing, Description and Layout of proposed basic furniture, fixtures and equipment.
5. Cut sheets for all plumbing, electrical, HVAC, IT, equipment, fittings and fixtures and any special architectural features. Confirmation of local agent and spares readily available.
6. Architectural and Engineering Designs and Drawings (plans, elevations, sections and details) shall include as required but not be limited to the following:

f) Site Plan –

- Site plan of the project showing location of applicable buildings, drives, and major mechanical equipment, parking and landscape elements.
- Clear delineation of the project limit lines
- Preliminary spot elevations
- Primary spot elevations
- Existing utilities
- Proposed utilities
- Site drainage
 - Site sections as needed to explain overall relationships
 - A coordinated drawing of the infrastructural elements
 - Box drains located within the premises to be covered

g) Garbage Collection and Disposal systems

- h) External Perimeter Fencing (medium security fencing)
- i) Security Booth (main entrance location)
- j) Building Plans
 - Plans of all floors showing proposed structural system and structural elements, vertical shafts, interior partitions, floor elevations
 - Key dimensions, bay sizes and overall dimensions
 - General notes indicating major extent of materials and any special conditions or equipment
 - Overhead items noted
 - Building sections keyed
 - Key Project limit lines noted if not otherwise clear
 - Independent access to male and female public washroom
 - Preliminary finish schedule
 - Area summary
- k) Roof Plan
 - Major roof-mounted MEP equipment and openings
 - Roof Framing, Structural and Finishing Details
- l) Building Sections
 - Major vertical heights
 - Ceiling heights
 - Typical wall sections keyed
- m) Building Elevations
 - All elevations with extent of glazing, façade and finishes detailed.
 - Minor elevations if they contain significant items (loading docks, bridges, etc.)
 - All materials called out in notes
 - Floor lines indicated
 - Overall dimensions
 - Set-backs and overhangs indicated
 - Relationship to existing and finished grade clearly shown

n) Structural

- Comprehensive evaluation, analysis and design report of the proposed structural building systems and elements.
- Structural system description of any applicable alterations
- One line drawing of any applicable floor and roof framing plans
- Typical member sizes noted
- Structural Details of all connections and special conditions (large spans, cantilevers, etc.)
- The QA/QC requirements for Structural Steel for implementation (inclusive of the submission of Mill Certificates, Welder Certification, Weld Test Reports, Torque Wrench Calibration Certification and Bolt Torque Test Report).

o) MEP

- Comprehensive evaluation, analysis and design reports, inclusive of calculations, of the proposed MEP systems
- External MEP equipment must not detract from the front facade of the building
- Preliminary system selection
- Energy sources identified, entrances noted on architectural drawings
- Equipment requirements included in architectural drawings
- External MEP equipment must not detract from the front facade of the building
- Utility corridors and risers spaces sized and indicated on architectural drawings
- Special features noted on electrical drawings
- One-line system schematics over architectural plans
- Mechanical - Air Conditioning System, Ventilation
- Electrical
- Main Infrastructure – Power and Telecommunications
 - I. Supply & Distribution System
 - II. Lighting – Internal and External systems. Photometric plots for

external lights.

- III. Power Systems
- IV. Telecommunication System - telephone, internet and television service.
- V. Information Technology Systems
- VI. Fire Alarm System
- VII. Security System
- Plumbing
 - I. Potable Water System Potable Water Booster Pump
 - II. Water Storage
 - III. Pipework
 - IV. Hot water System
 - V. Sanitary Waste and Vent System
 - VI. Sanitary Fixtures

7. All designs shall be prepared in accordance and in compliance with the guidelines, regulations and statutory requirements of all Governmental Statutory and Regulatory Agencies, which include:

- a) Town & Country Planning Division (TCPD)
- b) Water and Sewerage Authority (WASA)
- c) Trinidad and Tobago Electricity Commission (T&TEC)
- d) Port of Spain City Corporation
- e) Local Health Authorities
- f) Ministry of Works and Transport (MOWT - Designs Branch, Highways and Drainage Division)
- g) Division, Traffic Management Branch and other applicable Divisions)
- h) Regional Corporations
- i) Trinidad and Tobago Fire Services
- j) Environmental Management Authority (EMA)
- k) Telecommunications Services of Trinidad & Tobago (TSTT)
- l) Cable Company

8. The Proponent shall assume full responsibility for the professional quality, completeness, accuracy and co-ordination of all design documents and its conformance with all applicable laws, rules, regulations and orders governing said work.
9. All design documents (including drawings, plans, schedules, equipment manuals etc.) shall describe with specificity all elements, details, components, materials, and other information necessary for the complete construction of the Works and the delivery of the Works fully functional and operational for its intended purposes, including compliance/satisfaction of all testing, permitting, qualifications, certifications, validations, and obtaining regulatory certification and approvals by all applicable regulatory authorities required to render the Project and all its components operational and functionally and legally usable for their intended purpose.
10. The Proponent shall perform all Design Services described in, contemplated by, inferable from, or necessary or desirable to achieve the objectives specifically stated in the Scope of Works and in the Employer's requirements and the Contract, including all Design Services necessary for the Project to be properly constructed by the Contractor and used by the Employer in accordance with all applicable guidelines, requirements and standards.
11. All design and construction documents shall be prepared using the English (metric) system, unless otherwise specified in the Contract.
12. Design services shall be performed by licensed design professionals. The standard of care for architectural and engineering services performed shall be the highest degree of care and skill used by design professionals practicing under the same time and locality conditions.
13. As-built drawings for architectural, Civil/Structural Engineering, Mechanical, Electrical Engineering and Plumbing.
14. The proposed codes and standards to be used in the designs include the following:

ARCHITECTURAL DESIGNS

PLANNING	<ul style="list-style-type: none"> • Town and Country Planning Regulations • Regional Corporation Regulations
BUILDINGS/ STRUCTURES	<ul style="list-style-type: none"> • International Building Code (IBC) 2015. • Caribbean Uniform Building Code (CUBIC) • AWPA U1 – User Specification for Treated Wood: 2012 • American Society of Civil Engineers code ASCE-7-05 • International Building Code (IBC) for earthquake loading using equivalent static analysis and compared to CUBIC. A peak ground acceleration of 0.4g shall be used. • American National Standards Institute (ANSI) • American Concrete Institute ACI 318 • American Institute of Steel Construction (AISC manuals) • ASHRAE Standard 189.1
LIFE SAFETY	<ul style="list-style-type: none"> • NFPA 101-2015 – Life Safety Code • NFPA 1-2015 – Fire Code
UNIVERSAL ACCESSIBILITY	<ul style="list-style-type: none"> • Accessible and Usable Buildings and Facilities ANSI A177.1:2014
SUSTAINABILITY	<ul style="list-style-type: none"> • LEED v4 Guidelines
LOCAL REGULATIONS	<ul style="list-style-type: none"> • GORTT Office Outfitting Policy • The Occupational Safety and Health Act 1, 2004 as amended 2006

STRUCTURAL ENGINEERING DESIGNS

VERTICAL LOADS	<ul style="list-style-type: none"> • American Society of Civil Engineers (ASCE): ASCE 7-05 Minimum Design Loads for Buildings and Other Structure
EARTHQUAKE LOADS	<ul style="list-style-type: none"> • ASCE 7-05 and International Building Code (IBC) 2009 - (Refer to Seismic Research Unit website http://www.uwiseismic.com/Maps.aspx for Hazard Maps of Trinidad and Tobago -2475 year Return Period)
WIND LOADS	<ul style="list-style-type: none"> • ASCE 7-05 (Trinidad 117mph, Tobago 130mph – 3 sec. Gust for Trinidad and Tobago)

- REINFORCED CONCRETE
 - American Concrete Institute (ACI): ACI 318-08 or latest Building Code Requirements for Structural Concrete
- STRUCTURAL STEEL
 - American Institute of Steel Construction (AISC): Manual of Steel Construction (Load & Resistance Factor Design), Specification for Structural Steel Buildings (AISC 360-10),
 - AISC 341 – 10 including Supplement No. 1 dated 2006 (Seismic Provisions for Structural Steel Buildings
 - AISC 358 - 10 including Supplement No. 1 dated 2009 (Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications
- STRUCTURAL MASONRY
 - ACI 530-05 / ASCE 5-05 / TMS 402-02
- STEEL REINFORCEMENT
 - ASTM A615 GR 60 – $F_y = 60$ ksi, $F_u = 75$ ksi
- STRUCTURAL STEEL MATERIAL:
 - ASTM A992 – $F_y = 50$ ksi (Wide Flange and Hot Rolled Sections)
 - ASTM A36 – $F_y = 36$ ksi (Plates)
- OTHER STANDARDS
 - ASTM – American Society for Testing and Materials
- IMPORTANT NOTE:
 - **The structural designs should comply to the Ministry of Works and Infrastructure latest Structural Design Guidelines for Trinidad & Tobago**
 - **All structural drawings should be stamped and signed with a registered Civil / Structural Engineer’s Board of Engineers’ stamp of T&T.**
 - **All designs must be accompanied by structural design calculations** which must include the following:
 - Design Data Sheet
 - Design Methodology Sheet with assumptions made in the modelling of the structure.
 - Drawing of the complete mathematical model used in the structural (manual or computer) analysis.
 - Clear input and output data.
 - An electronic copy of the computer structural model.
- LOCAL REGULATIONS
 - Trinidad and Tobago Standard - Recommendations for the Design of Building – TTS 16 90 400 (1978)
 - National Building Code of Trinidad & Tobago
 - BAPE WIND CODE (1981)
 - Wind Speed Maps for the Caribbean for Application with the Wind Load Provisions of ASCE 7 shall be used to determine reference velocities as defined in ASCE 7.

MECHANICAL AND ELECTRICAL ENGINEERING DESIGNS

- | | |
|------------|--|
| ELECTRICAL | <ul style="list-style-type: none"> • ANSI C37.13 – 2015 Standard For Low-Voltage AC Power Circuit Breakers Used In Enclosures • ANSI C37.14 - 2015 Standard for DC (3200 V and below) Power Circuit Breakers Used in Enclosures • ANSI C57.12.00 – 2010 Standard For General Requirements For Liquid-Immersed Distribution, Power, And Regulating Transformers • ANSI C57.12.01 – 2015 Standard For General Requirements For Dry-Type Distribution And Power Transformers • ANSI C63.12 – 2015 Standard Recommended Practice For Electromagnetic Compatibility Limits And Test Levels • ANSI C80.1 - 2015 Electrical Rigid Steel Conduit • ANSI C80.3 - 2015 Electrical Metallic Tubing - Steel (EMT-S) • ANSI C80.6 - 2018 Electrical Intermediate Metal Conduit |
| HVAC | <ul style="list-style-type: none"> • ASHRAE Handbook—HVAC Applications, 2019 • ASHRAE Handbook—HVAC Systems and Equipment, 2020 • ASHRAE 55 – 2017 Thermal Environmental Conditions for Human Occupancy • ASHRAE 62.1 - 2019 Ventilation for Acceptable Indoor Air Quality • ASHRAE 90.1 - 2019 Energy Standard for Buildings except Low-Rise Residential Buildings • ASHRAE Standard 90.4 - 2019 Energy Standard for Data Centers • ASHRAE Standard 170 - 2021 Ventilation of Health Care Facilities • ASHRAE Standard 185.1 - 2020 Method of Testing UV-C Lights for Use in Air-Handling Units or Air Ducts to Inactivate Airborne Microorganisms • ASHRAE Standard 202-2018 Commissioning Process for Buildings and Systems • ASHRAE 2020 Smart Grid Application Guide: Integrating Facilities With The Electric Grid • ASME A17.1 / CSA B44 – 2019 Safety Code for Elevators and Escalators |

- PLUMBING
AND
MECHANICAL
- ASME B31 – Standards of Pressure Piping
 - ASME B31.3 – 2020 Process Piping
 - ASME B31.8 - 2018 Gas Transmission and Distribution Piping Systems
 - ASME B31.9 – 20120 Building Services Piping
 - ASME B31.12 - 2019 Standard on Hydrogen Piping and Pipelines
 - Health Technical Memorandum 01-01 Management and Decontamination of Surgical Instruments (medical devices) used in Acute Care
 - Health Technical Memorandum 02-01 Medical Gas Pipeline Systems
 - Health Technical Memorandum 03-01 Specialized Ventilation for Healthcare Premises
 - Health Technical Memorandum 04-01 Safe Water in Healthcare Premises
 - Health Technical Memorandum 08-02 Lifts
 - ICC IFC 2021 International Fire Code
 - ICC IPC 2021 International Plumbing Code
 - ICC IMC 2021 International Mechanical Code
 - ICC IFGC 2021 International Fuel Gas Code
 - ICC IECC 2021 International Energy Conservation Code
 - ICC IPSDC 2021 International Private Sewerage Disposal Code
 - ICC ISPSC 2021 International Swimming Pool and Spa Code
 - ASME B16 – Standards of Pipes and Fittings
 - ICEA Class H Flexible Cables
 - IEEE 730 Software QA Plans
 - IEEE 830 Recommended Practice for Software Requirements Specifications
 - NFPA 10 – 2018 Standards on Portable Fire Extinguishers
 - NFPA 13 – 2019 Standard for the Installation of Sprinkler System
 - NFPA 14 - 2019 Standard for the Installation of Standpipes and Hose Systems
 - NFPA 15 – 2022 Standard water spray fixed systems for fire protection
 - NFPA 17 – 2021 Standard for Dry Chemical Extinguishing Systems
 - NFPA 17A – 2021 Standard for Wet Chemical Extinguishing Systems
 - NFPA 20 – 2019 Standard for the Installation of Stationary Pumps for Fire Protection
 - NFPA 22 – 2018 Standard for Water Tanks for Private Fire Protection

- NFPA 24 – 2022 Standard for the Installation of Private Fire Service Mains and Their Appurtenances
- NFPA 45 – 2019 Standard on Fire Protection for Laboratories Using Chemicals

LIFE SAFETY

- NFPA 54 – 2021 National Fuel Gas Code
- NFPA 58 – 2020 Liquefied Petroleum Gas Code
- NFPA 59 – 2021 Utility LP-Gas Plant Code
- NFPA 59A – 2019 Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)
- NFPA 70 – 2020 National Electric Code
- NFPA 72 – 2019 National Fire Alarm and Signalling Code
- NFPA 75 – 2020 Standard for the Fire Protection of Information Technology Equipment
- NFPA 88A – 2019 Standard for Parking Structures
- NFPA 90A – 2021 Standard for the Installation of Air-Conditioning and Ventilating Systems
- NFPA 91 – 2020 Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids
- NFPA 92 – 2021 Standard for Smoke Control Systems
- NFPA 99 – 2021 Health Care Facilities Code
- NFPA 101 - 2021 Life Safety Code
- NFPA 110 – 2022 Standard for Emergency and Standby Power Systems
- NFPA 111 – 2022 Standard on Stored Electrical Energy Emergency and Standby Power Systems
- NFPA 418 – 2021 Standard for Heliports
- NFPA 780 – 2020 Standard for the Installation of Lightning Protection Systems
- NFPA 820 – 2020 Standard for Fire Protection in Wastewater Treatment and Collection Facilities
- NFPA 900 – 2019 Building Energy Code

LOCAL REGULATIONS

- Requirements of the OSH Authority in accordance with the OSH Act 2004 with amendments of 2006
- Requirements of the EMA of Trinidad and Tobago & Water Pollution Rules 2019
- Requirements of the Trinidad and Tobago Fire Service (TTFS), Ministry of National Security of Trinidad and Tobago
- Requirements of the Electrical Inspectorate Division, Ministry of Public Utilities of Trinidad and Tobago

- Requirements of the Public Health Department in accordance with the Public Health Ordinance Act
- SMACNA HVAC Duct Construction Standards
- The National Plumbing Code of Trinidad and Tobago
- Trinidad & Tobago Electricity Commission Wiring for Light & Power 8th Edition
- Trinidad & Tobago Electrical Wiring Code Part 1 - Low Voltage Installations (TTS 171: Part 1: 2015)
- Trinidad & Tobago Electrical Wiring Code Part 2 - High Voltage Installations (TTS 171: Part 2: 2002)
- Trinidad & Tobago Electrical Wiring Code Part 3 – Renewable Energy Systems and Interconnection Requirements (TTS 171: Part 3: 2011)
- Workplace Design – Lighting of Indoor work places – Specification (TTS 611-2008)
- Water and Sewerage Authority Guidelines for Design and Construction of Water and Wastewater Systems in Trinidad and Tobago

Testing

Testing will be carried out in accordance with the tests/inspections described in the Quality Control Plan and the Technical Specifications (Materials and Workmanship). The Proponent shall always ensure that materials and equipment are examined and tested for compliance with the specifications and quality control is then performed at the recommended frequency. Materials must be tested for compliance with stipulated specifications both at source and once it is delivered to site.

The Proponent shall prepare and submit a description of all the relevant tests and time periods for the testing of Materials and Works. These include but are not limited to steel reinforcement bar, reinforced concrete, masonry, structural steel, welding.

Workmanship Compliance Checks will include:

- a) checking, inspecting, examining and measuring;
- b) trials and demonstrations;

- c) fine testing carried out by manufacturers and suppliers in compliance with a specified standard or specification; and
- d) testing of equipment (air conditioning units, transformers, generators etc.)

All materials used or supplied shall be accompanied by valid and approved material certificates, tests and inspection reports. The minimum extent of examination and testing to be carried out and the acceptance levels/codes shall be specified by suppliers in the purchase order and/or subcontract documents.

An inspection schedule/plan shall be developed by the Proponent for procured equipment and materials. The Proponent's Construction Inspectors and Construction Supervisors shall carry out inspection surveillance activities. These include but may not be limited to; witnessing tests, verifying documentation and inspections/examinations. From these activities, reports shall be developed recording progress, findings, non-conformance and resolutions.

Materials, fitting and fixtures shall be inspected by the Proponent, upon receipt from the suppliers, for compliance with the technical requirements and regulations, including availability of required documentation and markings. If materials and/or documents do not comply, then they shall be clearly identified and if possible, segregated until further action is determined. Material deliveries shall be checked against shipping documents (dispatch note, freight note, and delivery receipt) for type and quantity, and for obvious transport damage, and to ensure that markings correspond to the order specification.

A Material Receiving Notice (MRN) shall be completed if the checks are satisfactory. Material that has been checked and accepted shall be stored according to type and class of material so as to effectively prevent damage and/or error of use. Sub-Consultants and Sub-Contractors shall be required to assign qualified/experienced inspection personnel to carry out all required examinations and tests in accordance with an agreed quality plan (inspection and test plan). These activities shall be carried out

in accordance with the agreed procedures and guides and result in the appropriate reports. The Proponent's Construction Inspector and Construction Supervisor shall monitor the quality control activities of its Sub-Consultants and Sub-Contractors and carry out his own examination of material, equipment and documentation to the necessary degree to determine the state of acceptance.

The Proponent shall ensure that the Employer and/or inspection authorities are given sufficient notice to witness the final inspection and tests, if required (egg. Pressure testing of water lines, testing of elevators, generators, sewer lines). The Client shall retain the design rights and other intellectual property rights and copyright of all documents prepared by the Proponent in the course of the Proponent's engagement.

SPECIFICATIONS

Finishes

1. All interior and exterior walls are fair faced and painted, while all interior floors to be as specified in the conceptual design package. In the absence of the specification in the concept, all floors should be porcelain tiles with special provisions for the appropriate rubber flooring to the gym. Colour palette selections and finishes selections to be provided for the Client approval. A minimum of three (3) sample options for each type of tile to be presented to the Client for approval. Floor tile trim/ border to be provided throughout the Centre. All paint systems shall provide a minimum of 5 years warranty.
2. Apron slabs to have an aesthetically pleasing yet slip resistant finish eg. Grano, external slip resistant tile etc. Apron walkways further from the building footprint to have a broom finish.
3. Carpentry and Joinery/Kitchen Cupboard: 100% Full Teak wood and solid surface countertops. Colour samples to be presented to the Client for approval.
4. The floor to floor ceiling height should be a minimum of 10'-0" (also above the stage), since a large percentage of the ground floor areas are designed for group activities. The utility and toilet areas are 8'-0" high on both floors with moisture resistant finish of either 2' x 2' acoustical ceiling tiles or gypsum. However, the assembly hall must be designed to offer the highest possible closed board ceiling at a minimum of 12ft. Configuration of the ceiling must offer some acoustic control and temperature modulation. In this phase of the project the hall will be air conditioned, therefore all electric systems must cater for this installation. Ceilings in all areas must have heat barriers and insulation of R30. A Minimum eave of 3'- 0" is required with natural cross ventilation in case of loss of power.
5. Windows: All windows shall be metal framed with integrated burglar proofing and tinted glass. All window specifications to be submitted for approval.
6. Doors are metal framed with tempered glass vision panels in all the administrative areas, kitchen and servery, control room and Auditorium. All

doors are metal solid core doors throughout the facility with commercial grade door closures. All door specifications to be submitted for approval. Where alternate external doors are proposed, provisions must include for the installation of sliding burglar proofing.

7. Grillwork to protect glass front feature to be provided.
8. All plumbing fixtures to be Armitage or equal and bathroom wall tiles to 6 feet height with tile strips installed to corners. All Plumbing fixtures and accessories to be submitted for approval.
9. Vanities: metal or teak wood framing with Solid Surface Countertops
10. Toilet Partitions: Banyan series or other equally approved patent commercial partitioning that ensures water tightness and installed as per manufacturer's instructions.
11. Roof Sheeting – charcoal grey.
12. Perimeter Fencing: Medium or High security, to be approved by the Client. Front of facility to have a wall and wrought iron/ palisade wall that enhances the front of the facility.
13. Main External sign letters to be routed 3/4inch, PVC, painted and UV coated, inclusive of the coat of arms. A mockup of the proposed signage to be provided for approval.
14. Washroom Accessories to be commercial grade, stainless steel fixtures (Banyan series or equivalent) including soap dispensers, paper towel holders, toilet paper holders and hand dryers.

Sound and Stage lighting:

PA system with 2 Zone common areas paging with Opti voice capabilities Audio System Design

- The Public Address (PA) system shall be designed for sound reinforcement during assemblies and speeches and Performances.

Basic components of system

- Loudspeakers
- Subwoofer
- Digital mixer
- Audio snake
- Wireless microphones
- Wireless paging microphone
- Mixer power amplifier
- Flush mount ceiling speakers
- Portable speaker

Standard equipment list for Auditorium.

List of standard Auditorium System equipment

Item No.	Description	Quantity
1	Flexible array Loudspeaker	2
2	Dual 10" Powered Subwoofer	1
3	Digital Stereo 8 channel Mixer	1
4	Audio Snake	1
5	Wireless Microphones	2

List of standard PA System Equipment

1	Flush mount ceiling speakers with removable or rotatable badges		Quantity varies depending on size and number of rooms
2	Portable Speaker with rechargeable battery	1	
3	Mixer Power Amplifier	1	

	Wireless Paging Microphones	1	
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Component Performance Specification

Loudspeakers shall satisfy the following minimum performance specifications: -

- a. The Loudspeaker shall be a 1000-watt self-powered two-way, ported loudspeaker system utilizing Eight (8) mid/high-range drivers.
- b. The Loudspeakers shall have a 12-inch LF high performance subwoofer. The enclosure shall be made of High impact composite materials with M8 threaded insert points.
- c. The Loudspeaker shall have an integrated 2-channel mixer with independent level controls.
- d. The Loudspeaker shall allow for control over its vertical coverage pattern by manual louvered adjustment with automatic changes to its internal EQ to maintain optimum tonal balance.
- e. The Loudspeaker shall be designed for wall mount installation or suspended up to 20 ft high.
- f. The Loudspeaker shall have a Nominal Dispersion of 100° H x 40° V with variable adjustments for the vertical axis.
- g. The Loudspeaker input shall have a nominal rated impedance of 10 k ohms (10 kΩ)
- h. The Loudspeaker shall have an Input Impedance of 2.2 kΩ (MIC), 10 kΩ (Line)
- i. The Loudspeaker input connections will allow for direct connection XLR /1/4" XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-) 1/4" TS/TRS, (2) RCA
- j. Exposed cosmetic surfaces of the Loudspeaker should be Black and the acoustically transparent grille component should be formed of powder-coated perforated steel.
- k. Each Loudspeaker shall have a bandwidth of 43 Hz - 20 kHz and a maximum continuous acoustic output of 132dB SPL.
- l. The Loudspeaker shall have an internal dynamic limiter with distortion at rated power being 0.1% Max (30 Hz - 15 kHz)
- m. Dimension shall not exceed 664.66 mm x 334.3 mm x 372.5 mm (26.1" x 13.1" x 14.6")
- n. Warranty shall be 5 years.

Subwoofer shall satisfy the following minimum performance specifications: -

- a. The Subwoofer shall be a 1000-watt self-powered compact format system utilizing two ten (10") high excursion LF drivers. The enclosure should be made of High impact composite materials with high impact composite end caps.
- b. The Subwoofer should be designed for installation in specialist localities

- including but not limited to House of Worships, Resorts and Hospitality venue.
- c. The Subwoofer shall have a Polarity switch to adjust polarity of subwoofer for easy correction of low-frequency overlap between the main loudspeaker and subwoofer.
 - d. The Subwoofer shall possess line output EQ that sets the Subwoofer's output to a high-pass filter or full
 - e. Range, which allows for easy crossover selection when used with a main loudspeaker.
 - f. The subwoofer shall have a Dynamic Limiter.
 - g. The Subwoofer shall have a Nominal Dispersion being Omni-directional.
 - h. The Subwoofer input shall have a Cross over frequency within the range 40 – 100 Hz.
 - i. The Subwoofer input connections will allow for direct connection XLR /1/4" XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-) 1/4" TS/TRS,
 - j. Exposed cosmetic surfaces of the Subwoofer should be Black and the acoustically transparent grille component should be formed of powder-coated perforated steel. Each Subwoofer shall have a bandwidth of 38 Hz – 250 Hz and a maximum continuous acoustic output of 130dB SPL,
 - k. The Subwoofer should have a dynamic limiter with distortion at rated power being 0.1% Max (30 Hz - 15 kHz)
 - l. Warranty should be 5 years.

Audio snake

- a. The number of input connections should be at least 12.
- b. The number of output connections should be at least 4.
- c. The connections should be XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-)
- d. The cable should be of suitable length to position the casing of the head at the back of the stage and the tail in the control room.
- e. The head enclosure should be made of metal.
- f. The connections should have numbered wires for identification at the tail end.
- g. Warranty should be 5 years.

Wireless microphones

- h. Working Range should be 91 m (300 ft) Line of Sight
- i. Audio Frequency Response 50 to 15,000 Hz
- j. Total Harmonic Distortion of Ref. ± 33 kHz deviation with 1 kHz tone 0.5%, typical
- k. Dynamic Range of 100 dB, A-weighted, typical
- l. Audio Input Level should be max of -16 dBV, min (0 dB) +10 dBV
- m. Input Impedance 1 M Ω
- n. RF Transmitter Output 10 mW, typical
- o. Power Requirements must be 2 LR6 AA batteries, 1.5 V, alkaline

- p. Battery Life should be up to 14 hours (alkaline)
- q. Receiver
- r. XLR connector 200 Ω
- s. 6.35 mm (1/4") connector 50 Ω
- t. XLR connector -27 dBV (into 100 k Ω load)
- u. 6.35 mm (1/4") connector -13 dBV (into 100 k Ω load)
- v. RF Sensitivity
- w. 105 dBm for 12 dB SINAD, typical
- x. Power Requirements 12–15 V DC @ 235 mA, supplied by external power supply (tip positive)
- y. Warranty should be 1 years.

Mixer Power Amplifier for Opti voice paging shall satisfy the following minimum performance specifications: The mixer/amplifier should employ Class-D amplification together with a digital signal processing architecture running at 48 kHz / 24 bit.

- a. The mixer/amplifier should incorporate a switch-mode power supply allowing normal operation from AC outlets ranging from 100 – 240 V ($\pm 10\%$) at 50/60 Hz. The amplifier should have an IEC 320-C14 electrical power inlet and should be equipped with a removable power supply cord. A power switch should be located on the front panel.
- b. The product should include protection from shorted loads and general overheating.
- c. The mixer/amplifier's physical size should be 1 RU in height by 1 RU in width and be capable of rack mounting.
- d. The product should have venting with a single fan, continuous left-to-right airflow. Each output channel should have output trim controls.
- e. The mixer/amplifier should have two output channels with a frequency response of 55 Hz to 20 kHz (+0/-3 dB) and drive 70/100 V distributed audio systems.
- f. The mixer/amplifier should have THD+N at rated power less than or equal to 0.3%. Output connections should be made via 2-pin touch-proof Euroblock connectors.
- g. The mixer/amplifier should meet or exceed the following performance specifications: channel separation (crosstalk) less than or equal to -60 dB below rated power at 1 kHz and dynamic range of 88 dB.
- h. The mixer/amplifier should incorporate 3 line-level inputs (two RCA stereo, one 3.5 mm stereo) and one microphone input for paging applications. Two of the line level inputs should be selectable via a switch on the front panel while the third input should override line input channels upon connection.
- i. The nominal input sensitivity should be 0 dBV for line level inputs and -40 dBV for microphone inputs.
- j. The microphone input should be mounted on the rear, support dynamic microphones and select telephone systems with PTT switching.
- k. The paging microphone input should have automatic ducking capabilities activated via a selector switch on the rear panel.

- l. The microphone input should bypass master volume control via a selector switch on the rear panel.
- m. All inputs should have individual input gain controls with the exception of the 3.5 mm priority input connector on the front panel.
- n. The mixer/amplifier should have an auxiliary line-output via two RCA connectors. The front panel should also have user-accessible treble, bass and master volume controls.
- o. Warranty should be 5 years.

Flush mount ceiling speakers shall satisfy the following minimum performance specifications: -

- a. The full-range loudspeaker shall contain a single full-range 2.25-inch transducer, low frequency range down to 83 Hz, and sensitivity of 86 dB SPL / 1 W @ 1 m
- b. The full-range Loudspeaker shall meet the following performance specifications: On-axis system frequency response should be 83 Hz to 19 kHz (-10 dB) with the use of recommended active equalization.
- c. The Loudspeaker sensitivity should be 86dB SPL in half-space environment with 1 W input at 1 meter.
- d. The long-term power handling rating should be 20 W (AES test methodology using IEC system noise, 2-hour duration). Maximum continuous output shall be 99 dB SPL and the maximum peak output should be 105 dB SPL, both in half-space environment.
- e. The nominal coverage pattern should be 160° conical at 1-4 kHz.
- f. The Loudspeaker shall be constructed of an engineered-plastics front baffle with an integrated steel formed enclosure. The Loudspeaker shall consist of PC-PBT plastic materials that are resilient to cooking oil exposure. The Loudspeaker should be plenum rated for use in air handling spaces and in compliance with the following safety standards; UL1480 for Fire Alarm and Signaling Systems, UL2043.
- g. The transducers shall be located behind a perforated steel grille with a powder-coated finish.
- h. The Loudspeaker shall contain standard mounting arms.
- i. The Loudspeaker shall be available in black or white.
- j. The Loudspeaker shall fit a modern aesthetic with the option to remove logos.
- k. Input connectors shall be a Euro block pin connector with loop-through, located on the front baffle.
- l. The Loudspeaker shall have a nominal rated impedance of 16 ohms and should be wired in parallel with a line voltage matching (stepdown) transformer with a level selector appropriate for output taps of 1, 2, 4, 8, 16 Watts and Bypass (16 ohms).
- m. The Loudspeaker input connections shall allow for direct connection to 70-volt, 100-volt or low-impedance amplifiers. Loudspeaker back can dimension shall be 127 x 125 mm (5.0 x 4.9 in) and net weight should be 1.63 kg (3.6 lbs) with grille. Outward front baffle dimensions should be 182 mm (7.2 in).
- n. Warranty should be 5 years.

Portable speaker/ Monitor shall satisfy the following minimum performance specifications: -The Portable speaker shall be suitable for use in commercial setting including Houses of worship, Schools and Universities, Resorts and Hospitality venues or Live music performances

- o. The Portable speaker shall be a multiple driver, full-range portable loudspeaker system with internally supplied power amplification and active equalization for multiple operating modes. The transducer complement shall consist of high-excursion full range drivers, With a dedicated low frequency driver.
- p. The Portable speaker shall have a Rechargeable lithium-ion battery allows performance of up to 8 hours.
- q. The Portable speaker shall have an Onboard 3-channel mixer which offers reverb, and EQ controls on two channels, with a dedicated channel for either wired (3.5 mm) or wireless music sources via Wireless Bluetooth® streaming.
- r. The Portable speaker shall allow for multiple placement orientations with Auto eq to maintain tonal consistency.
- s. The Portable speaker shall be compatible with standard 35 mm pole mounts.
- t. The nominal horizontal beam width of the portable speaker shall be 140°, and the vertical coverage shall be 40°.
- u. The Power Amplification for transducers shall be supplied by the integrated power supply providing 130 W continuous pink noise, band-limited from 65 Hz to 14 kHz (-3 dB).
- v. The input connectors of the Portable speaker shall consist of one XLR with equalization for a dynamic handheld microphone, one ¼" TRS, stereo RCA, and one 1/8" TRS receptacle. The output connectors of the portable speaker shall consist of one ¼" balanced TRS
- w. Warranty should be 5 years.

Digital Mixer shall satisfy the following minimum performance specifications: -

- a. Digital stereo 8 Channel mixer containing eight high-quality audio preamps with
- b. XLR-combo jacks for microphones or instruments, and switchable phantom power
- c. Aux inputs for additional sources minimum four
- d. USB-A and -B for USB drive playback or PC/Mac interfacing
- e. Balanced ¼" TRS and XLR stereo outputs
- f. Independent headphone output
- g. The Digital Mixer shall offer Updated, studio-quality effects with advanced digital audio processing. Effects include compressor, limiter, de-esser, noise gate, chorus, flanger, phaser, tremolo, delay, and reverb
- h. The Digital Mixer shall have on built in on board tonal presets for different instruments or equipment such as Shure/Sennheiser mics, Acoustic/Electric

- Guitars, Saxophone, DJ controllers and the likes of the industry.
- i.** The Mixer shall have sound processing for natural-sounding vocals and instruments
 - j.** The Digital mixer shall have EQ focusing the sound presets for effective adjustments on the fly
 - k.** The digital mixer shall offer Independent EQ, dynamics and effects per individual channel, Dedicated reverb for Aux sends, and a global shared reverb for use across all channels
 - l.** The digital Mixer shall offer Master output EQ to compensate for venue acoustics
 - m.** The Digital Mixer should allow for Full end-to-end tonal optimization when used Loudspeakers and Subwoofers with cross over range between 40 – 100 Hz.
 - n.** The digital mixer shall have Seamless Live Control with Tactile controls and indicators designed for live on-stage use by musicians and DJs
 - o.** The Digital Mixer shall offer an uncluttered user interface
 - p.** The digital Mixer shall be able to create and store Built-in tap tempo delay, chromatic tuner, and recallable scenes.
 - q.** The digital mixer shall allow for low light operations with LED display and illuminated controls are easy to read.



USER REQUIREMENTS FOR THE LA SEIVA COMMUNITY CENTRE

Modified Design Build Services using the FIDIC Yellow Book:
Conditions of Contract for Plant and Design Build

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BACKGROUND

UDeCOTT, on behalf of the Ministry of Sport and Community Development, is desirous of completing the Design-Build Services for the La Seiva Community Centre. In this regard, UDeCOTT wishes to retain the services of a qualified, experienced and competent Design Build Contractor to perform design and works in accordance with the Scope and Specifications. The preferred proponent is expected to provide full designs, construction documents and specifications for all statutory approvals and construction. The format of implementation will be a Design Build Contract.

Sites will be revaluated and the main access to the site and parking will be determined by UDeCOTT and the Client Ministry. The facilities will comprise of a main assembly hall and a combination of outreach activity spaces will be all located within the two-storey facility.

DESIGN-BUILD CONTRACTOR RESPONSIBILITIES

1. Preparation of site surveys to determine the exact conditions of the Project Site and any other investigative surveys or assessments that may need to be completed as part of its proposal.
2. Preparation and submission of Designs and Drawings (Architectural, Civil/Structural Engineering, Mechanical, Electrical Engineering and Plumbing and Fabrication). Designs and drawings shall be completed to a level of detail, adequacy and completeness.
3. Statutory Approvals (Fire, Electrical, WASA etc.)
4. Project Programme & Works Scheduling
5. Project Insurances
6. Project Delivery
7. Contract Management
8. Subcontractor Coordination and verification of works.
9. Temporary hoarding of the site including gateway for vehicular and pedestrian access and maintenance of access throughout the duration of the project. The hoarding shall be maintained in a secure condition throughout the duration of the project.
10. Temporary Utilities as required for the project site (water, electricity). The site shall be adequately lit to ensure visibility
11. Health Safety, Security and Environmental Management during the works inclusive of Covid-19 management protocols.
12. Site Waste Management and disposal.
13. Attend fortnightly meetings with the Client/ Engineer.
14. Furnishing all labour, materials, tools, equipment, and services necessary for the successful completion of the construction of the project as stated in the RFP and the BOQ, and in accordance with the approved drawings, specifications and defined requirements.
15. Product Specifications
16. Preparation and submission of As-built drawings, equipment guarantees/warranties, equipment manuals, test certificates. Warranties to be provided on all equipment, with a minimum warranty of 1 year, unless otherwise stated.
17. Ensure all design are reviewed by UDeCOTT and the End User.

18. Ensure a copy of all project drawings are issued to UDeCOTT. On-site drawings to identify any changes made on-site.
19. Ensure all product data/specifications are submitted to UDeCOTT for review
20. Where applicable, ensure that methodologies associated with Notice to Correct are submitted for UDeCOTT's non-objection.
21. Testing (for example Concrete Testing, compaction testing etc.) is to be completed by an independent testing agency.
22. Familiarization of the Site surroundings/Environs so as to ensure Tendered sum includes for all reasonable associated security risks. A temporary guard booth must be constructed at the entrance gates to house security personnel. The guard booth shall be equipped with chairs, desk, lighting and power, a cellphone with credit maintained by either the Contractor or the Security Provider for emergency calls. Emergency Contacts shall be listed at the Guard Booth. The Site security personnel shall be in place for 24 hours and adequately resourced and trained for emergency situations. The security personnel shall have a log book to maintain logs of all persons and vehicles accessing the site. The Contractor shall retain a scanned copy of workers identification cards on site.
23. The Contractor shall provide a CCTV surveillance system for the site throughout the duration of the project. The system shall monitor the site, all access points to the site, the road way bounding the site and any other vulnerable areas. Faces and license plates of vehicles shall be easily recognizable. The system shall have Wifi capabilities and provide remote monitoring capabilities to be shared with UDeCOTT site staff.
24. Provide site office accommodation for the Employer and Engineer for the duration of the Project. UDeCOTT's site office shall be positioned away from the entrance gate and away from the site boundary located closest to the road way to minimize risks. All UDeCOTT personnel shall be allowed to park on site. The provisions of the site office facilities will be provided at no cost to the Employer and must comply with the Laws. The site building shall be as follows:
 - a) 1 site office, 12' x 16' *minimum* with air conditioning used by the Engineer and Employer;
 - b) Access to 1 toilet room for male and 1 toilet room for female for the exclusive use by the Engineer and the Employer;
 - c) The site office, equipment and furnishings shall be maintained by the Contractor in a clean and orderly condition, which includes washing of the floors, bathrooms and trash removal at least twice per week;
 - d) The site offices and toilet rooms for the Engineer shall be equipped with keyed locks

- and the Contractor shall furnish a sets of keys to the Engineer;
- e) The site offices for the Engineer shall be furnished with the following furniture, fittings and equipment for the whole duration of the Works:
- 2 (two) desks and 2 (two) deluxe chairs with swivel base on casters and adjustable arms, 2 (two) visitors chairs
 - 1 (one) white board, wall mounted, 36" x 48"
 - 1 (one) multifunction copier machine (copy, print, scan and fax) RICOH Aficio MP1600L or equivalent. The equipment is to be maintained for the duration of the project (supply of inks, cartridges and paper at the Contractor's cost)
 - 1 (one) mini-refrigerator 4 cubic feet capacity 33"H x 18"W x 20"D
 - 1 (one) water cooler to receive 18 litres bottled water (supply of paper cups and bottled water at the Contractor's cost)
 - Independent high-speed internet access.
 - All furniture, fittings and equipment shall be in good shape and commercial grade. All temporary structures, facilities and arrangements shall be removed by the Contractor at the completion of the Works.
 - One Tablet with the following minimum specification:
 - Operating System: Android 10.0 or above
 - Screen Size: 10 or above
 - Touchscreen: Yes
 - Pen/stylus : Yes
 - Processor: Qualcomm SDM865 Plus
 - Processor Speed: Octa Core (1x3.09GHz + 3x2.4GHz + 4x1.8GHz)
 - RAM: 8GB (RAM)
 - Internal Memory: 512GB
 - Micro SD Slot: Yes
 - Cameras: Rear: 10MP or above, Front: 8MP or above
 - External Memory: 8,000mAh or Higher
 - Network: 5G or Wi-Fi (802.11 a/b/g/n/ac/ax 2.4G + 5GHz)
 - Bluetooth: Yes
 - Speakers: yes

NOTE: The Tablet remains the property of UDeCOTT, following the completion of the project.

DESIGNS

Concept

The concept approach to the design of the facility is to place the more frequently used outreach programs in one zone or module while allowing the hall to remain as an independent module. This gives all the community members greater access to the more critical services offered by the proposed programs. Part of the design intent is to allow equal access to all areas of the facility while maximizing flexibility, and controlling maintenance and operating costs. In order to bring an awareness of the environmental issues and conservation practices, the centre by its design should demonstrate energy conservation in its approach to the use of natural lighting.

Given that the construction cost represents a significant investment in the community, proposed materials, finishes and equipment should be chosen with the view that maintenance and long term operation of the facility is the responsibility of the community itself. Therefore, easy replacement and ongoing upgrade of specific speciality rooms must be looked at carefully. It is intended that the facility be used as a change agent for the positive upgrade of skill sets across a wide generational range. In order to maximise the social interaction between the widest range of users, generous public porches and breakout zones form an integral part of a "Community bonding experience".

Flexibility of use is an important part of the design of the facility; all areas are intended to change and adapt to the needs of the community. Therefore the offices can become consultation areas by changing the furniture configuration. All lobbies and covered porches can be used for informal exhibitions and casual events. The entire facility must be designed as a modern resource centre with access to Wi-Fi.

In the event of any national emergency. The centre is also expected to play a major role in relief efforts, to this end, all local, regional and international building codes must be adhered to.

AMENITIES

The community centre's design and refurbishment works should include the following (and as shown on the Schematic Designs included in the Tender Document):

1. Construction of a Pavilion inclusive of Male and Female Showers and Change Rooms, toilets and storage area
2. Installation of Football field lighting
3. Supply and installation of a playpark area
4. Community Gym with access isolated from the Community Centre's main entrance, inclusive of Male and Female Change rooms with 1 toilet, sink and shower each and a Storage Area. Change rooms to be equipped with commercial grade accessories including mirrors, soap dispensers, paper towel holders, toilet paper holders and hand dryers. Installation of gym rubber flooring mat with border and duplex outlets to facilitate being outfitted with equipment for minimum 10 persons.
5. A Teaching Kitchen with allowances for two stoves (one electric and one gas) and space that can accommodate minimum 8 persons at one time. Industrial type Range Hoods with ducted extractor system to be supplied and installed for both stoves. 2 No. deep double basin stainless steel kitchen sinks to be installed, specifications to be approved. Overhead and under counter cabinetry to be installed and comprised of 100% hardwood. Cabinetry to fit gas tank for gas stove. Solid surface countertop and tiled backsplash. An external access to the kitchen to be provided.
6. Servery area linked to the teaching kitchen with provision of a solid surface counter and one row of shelving below. Above counter outlets. Square hood roller shutter window to be installed.
7. Multi-Purpose Hall (200-300) theatre style seating capacity. Stage with electrical outlets and fixed walls to hide backstage view. Backstage wall and fixed walls on stage to have an accent colour. Upgrade Teak stage flooring, ensure teak handrail at steps. Male and Female Back stage change rooms (inclusive of toilet, shower, sink and countertop, counter and wooden bench). Change rooms to be equipped with commercial grade accessories including soap dispensers, paper towel holders, toilet paper holders hand dryers and

clothes racks. There shall be an alternative access to the back stage changing rooms. Backstage flooring should be at the same elevation as the stage. Wheel chair ramp to stage located to the side of stage or concealed (where applicable). Installation of two (2) communication outlets ceiling height, for the installation of Access Points. Locations upon approval to ensure full coverage at Auditorium level.

8. Control Room with operable window in direct line of sight to the stage. Provision of desk and shelving for the storage of the sound system equipment and mixer board installed.
9. Provisions for Sound and Stage Lighting systems and a Public Address System throughout the facility. (see specification on page 28)
10. A Computer Room with minimum 10 stations and 1No. Administration desk:
 - a. Installation of Work Stations. Layout and materials to be approved by the Client. Workstations work surface to be made from solid surface. Minimum size of work stations 30" (w) and desktops 29" high and 24" deep. All workstations to have a privacy screen partitions constructed of same material and no higher than 12".
 - b. Each Workstation to have a grommet, communication outlet (CAT6 Ethernet) and duplex outlets. Grommets to be 7" from the centre line to the left or right and with enough room to clear the frame on the top. Corner stations to have grommets at the same depth as regular stations. Workstations not to be interrupted by doors. Dedicated space with duplex outlet and communication outlet to be provided for the printer.
 - c. The Admin desk to have a grommet, communication outlet (CAT6 Ethernet) and 2No. duplex outlets. The desk is located by the entrance or at the front of the room facing in; person's back must not be to the clients.
 - d. 1No. wall mounted Network Closet to be installed. Pulling of CAT6 Ethernet cables including all required in wall and ceiling raceways and installation of female end "keystone" communication port with the other male end "keystone" jack terminating at the Network Cabinet. -Specifications as follows:
 - i. Dimensions: 23.5"W x 22"D
 - ii. Rack Height: 13U - 15U
 - iii. Colour: Black
 - iv. Load Capacity: 200 lbs

- v. Construction:
 - 1. Sturdy and rugged welded frame construction
 - 2. Reinforced lockable door
 - 3. Two-section, swing-out design allows access to the front and rear of equipment
 - 4. Includes adjustable depth equipment mounting rails
 - 5. Removable and reversible door and side panel
 - 6. Cable pass-through knockouts
 - vi. Two (2) extractor fans (included)
 - vii. Include PDU strip mounted internally in the Network Cabinet
 - viii. Fits all standard 19" rack mount devices up to 20" mountable depth
 - ix. Warranty: Minimum one (1) year repair or replacement
 - e. Installation of four (4) duplex electrical wall outlets, one (1) behind the Network Cabinet for use with networking equipment and three (3) below the cabinet. Installation of one (1) 4 port communication outlet beneath the Network Cabinet.
 - f. Provision of one (1) duplex and one (1) communication outlet for the tv (both 7' from the floor) and pulling of one (1) HDMI cable from television mount location through floor to Admin desk. Location at the front of the room.
 - g. Installation of one communication outlet to ceiling height, centre of room for installation of an Access Point.
 - h. Installation of a keypad access.
 - i. Painting of interior walls (2 colours, one (1) accent wall). Accent wall: Sherwin Williams Rookwood Sash Green; Remaining Walls: Sherwin Williams Silverpointe. Paint colours to be reconfirmed by the Client.
11. Audio Visual / Training Room:
- a. Installation of duplex outlets on all walls. Installation of an additional duplex outlet and communication outlet at the front of the room for the Admin desk.
 - b. Provision of one (1) duplex and one (1) communication outlet for the tv (both 7' from the floor) and pulling of one (1) HDMI cable from television mount location through floor to Admin desk. Location at the front of the room.
 - c. Installation of one (1) communication outlet to ceiling height, centre of room for installation of an Access Point.

- d. Installation of a keypad access.
 - e. Painting of interior walls (2 colours, one (1) accent wall). Accent wall: Sherwin Williams Rookwood Sash Green; Remaining Walls: Sherwin Williams Silverpointe. Paint colours to be reconfirmed by the Client
 - f. Civil works as required for conduits and raceways from the private pole.
12. Administration Office for two persons, duplex outlet installed on each wall. Ensure Receptionist has a tinted fixed pane window installed for viewing of the Lobby Area. Installation of one (1) communication outlet to ceiling height in lobby area on the ground floor (exact location to be confirmed) for installation of an Access Point.
 13. Offices #1, #2 and #3 to have a duplex outlet installed on each wall. Office #2 to have a door access to the Corridor. Installation of one (1) communication outlet to ceiling height in Office #2 (exact location to be confirmed) for installation of an Access Point.
 14. Male and Female Washrooms to be located on each floor with provisions for the differently abled. All Washrooms and Change Rooms/ Dressing Rooms to have extractor fans that operate on a timed basis. Washroom to be equipped with commercial grade accessories including soap dispensers, paper towel holders, toilet paper holders and hand dryers.
 15. Storage area to hold a minimum of 200 chairs and 10 tables.
 16. Laundry room with provisions for washers and dryers with expel air.
 17. Janitorial room with an appropriate Janitorial sink.
 18. Electrical/ Service Room with vented metal door.
 19. A Security System with upgradable Wi-Fi capabilities. Ensure no blind spots. Cameras to be located externally, covering all access points to the Site, in the carpark and within corridors and the lobby areas. Cameras to be digital, 4MP and higher. Keypad access to be on UPS (minimum 1 hour). Keypad access to be provided in the Computer lab, Training Room, Administrative Office, Receptionist Office and Control Room. An additional request to exit button for keypad access to be installed at a lower level at the location of the Receptionist desk. Monitors and DVR to be located in the Administrative Office with drops to be provided at the Security booth for the installation of an additional monitor in the Security booth.
 20. Fire Detection (addressable system) and Fire Suppression System. Fire Hose Reel to be installed in a cabinet. Teak framing to be provided for cabinet installed in the Auditorium.

21. HVAC system – Perform all remedial works as necessary or replace with new, to ensure functionality. Service HVAC units, inclusive of condensers & evaporators. Supply and install exhaust fans for all washrooms. External AC condensers installed at ground floor level to be secured with operable burglar proofing. No cassette ac units.
22. Upgrade of Electrical System
23. Upgrade of Plumbing System. Sewerage refurbishment works.
24. Recommissioning of existing elevator - to include replacement of non-functioning parts, cleaning and inspection.
25. 100% back up power (Standby Generator) with fuel capacity for a minimum of eight (8) hours inclusive of ATS. Generator to be located away from the front of the facility.
26. Signage (commercial grade internal rooms and external signage with UV protection). External signs to be installed on three (3) sides of the building. Schedule and material to be approved by the Client. See specifications on page 27.
27. LED Lighting fixtures with a minimum 2 year warranty.
28. Emergency wall mounted lights to be installed.
29. External lighting to be energy efficient with low maintenance requirement.
30. Integrated communication system.
31. Tank Farm upgrade (secured with an aesthetically pleasing finish). Re-construction of the covered housing for pumps and heater.
32. Roadwork Refurbishment Works - The existing parking arrangement to include 2 spots that are ADA compliant and 1 loading/ unloading bay (or as required for statutory approval). Remove existing asphalt surface, repair base course where applicable and repave. Supply and installation of wheel stops. Two (2) WiFi drops on the parking lot side of the building.
33. Termite treatment and pest control treatment for the entire compound.
34. Upgrade landscaped areas (planters, boundary landscaping etc.).
35. External Waste Disposal Area integrated in the fencing, to be accessible both internally and externally of the premises.
36. A clearly defined and controlled perimeter fencing. Medium security fencing to replace chain link fencing on southern side (colour to be confirmed by the Engineer). Construct a perimeter fence made of block wall, at least 1m high with metal grilles above for security and aesthetics. Existing palisade fencing to the front of the facility to be repaired where

necessary, walls to be pressure washed, primed and painted and ironmongery upgraded to match ironmongery on the western wall. The existing wrought iron on the boundary walls to be removed and replaced with new palisade ironmongery. Pedestrian access and vehicular access to be located in the vicinity of the guard booth. Upgrade existing entrance gates to match fencing ironmongery.

37. All other Architectural and Structural works as required to upgrade the facility and as noted in the Schematic Designs, to include, but not be limited to the following:
- a. Roofing upgrade works inclusive of upgrade of soffit.
 - b. Replacement of Doors, inclusive of door enclosures and Windows.
 - c. Replacement of Cabinetry and joinery works.
 - d. Refurbishment of existing handrails.
 - e. Refurbishment of external ramp and steps
 - f. Refurbishment and/ or replacement of ceiling.
 - g. Cleaning of existing tilework and replacement of tiles as required.
 - h. Removal of curtain rods and install acrylic shower enclosures to showers.
 - i. Upgrade/ replacement of mirrors.
 - j. Seal penetrations in walls where applicable.
 - k. Removal and disposal of canopies, replace with new.

DESIGN REQUIREMENTS

Preparation and submission of Designs and Drawings (in accordance with the “Design-Build Proposal /Approach”) shall include the following: -

1. Designs and drawings shall be completed to a level of detail, adequacy and completeness which will be acceptable for submission to the Town & Country Planning Division (TCPD) to meet the requirements for Final Approval.
2. Technical Specifications (Materials and Workmanship, Codes)
3. Listing, Description and Layout of proposed basic furniture, fixtures and equipment.
4. Cut sheets for all plumbing, electrical, HVAC, IT, equipment, fittings and fixtures and any special architectural features. Confirmation of local agent and spares readily available.
5. Architectural and Engineering Designs and Drawings (plans, elevations, sections and details) shall include as required but not be limited to the following:
 - f) Site Plan –
 - Site plan of the project showing location of applicable buildings, drives, and major mechanical equipment, parking and landscape elements.
 - Clear delineation of the project limit lines
 - Preliminary spot elevations
 - Primary spot elevations
 - Existing utilities
 - Proposed utilities
 - Site drainage
 - Site sections as needed to explain overall relationships
 - A coordinated drawing of the infrastructural elements
 - Box drains located within the premises to be covered
 - g) Garbage Collection and Disposal systems

- h) External Perimeter Fencing (medium security fencing)
- i) Security Booth (main entrance location)
- j) Building Plans
 - Plans of all floors showing proposed structural system and structural elements, vertical shafts, interior partitions, floor elevations
 - Key dimensions, bay sizes and overall dimensions
 - General notes indicating major extent of materials and any special conditions or equipment
 - Overhead items noted
 - Building sections keyed
 - Key Project limit lines noted if not otherwise clear
 - Independent access to male and female public washroom
 - Preliminary finish schedule
 - Area summary
- k) Roof Plan
 - Major roof-mounted MEP equipment and openings
 - Roof Framing, Structural and Finishing Details
- l) Building Sections
 - Major vertical heights
 - Ceiling heights
 - Typical wall sections keyed
- m) Building Elevations
 - All elevations with extent of glazing, façade and finishes detailed.
 - Minor elevations if they contain significant items (loading docks, bridges, etc.)
 - All materials called out in notes
 - Floor lines indicated
 - Overall dimensions
 - Set-backs and overhangs indicated
 - Relationship to existing and finished grade clearly shown

n) Structural

- Comprehensive evaluation, analysis and design report of the proposed structural building systems and elements.
- Structural system description of any applicable alterations
- One line drawing of any applicable floor and roof framing plans
- Typical member sizes noted
- Structural Details of all connections and special conditions (large spans, cantilevers, etc.)

o) MEP

- Comprehensive evaluation, analysis and design reports, inclusive of calculations, of the proposed MEP systems
- External MEP equipment must not detract from the front facade of the building
- Preliminary system selection
- Energy sources identified, entrances noted on architectural drawings
- Equipment requirements included in architectural drawings
- Utility corridors and risers spaces sized and indicated on architectural drawings
- All service infrastructure to be recessed and concealed
- Special features noted on electrical drawings
- One-line system schematics over architectural plans
- Mechanical - Air Conditioning System, Ventilation
- Electrical
- Main Infrastructure – Power and Telecommunications
 - I. Supply & Distribution System
 - II. Lighting – Internal and External systems. Photometric plots for external lights.
 - III. Power Systems
 - IV. Telecommunication System - telephone, internet and television service.

- V. Information Technology Systems
 - VI. Fire Alarm System
 - VII. Security System
 - Plumbing
 - I. Potable Water System Potable Water Booster Pump
 - II. Water Storage
 - III. Pipework
 - IV. Hot water System
 - V. Sanitary Waste and Vent System
 - VI. Sanitary Fixtures
6. All designs shall be prepared in accordance and in compliance with the guidelines, regulations and statutory requirements of all Governmental Statutory and Regulatory Agencies, which include:
- a) Town & Country Planning Division (TCPD)
 - b) Water and Sewerage Authority (WASA)
 - c) Trinidad and Tobago Electricity Commission (T&TEC)
 - d) Port of Spain City Corporation
 - e) Local Health Authorities
 - f) Ministry of Works and Transport (MOWT - Designs Branch, Highways and Drainage Division)
 - g) Division, Traffic Management Branch and other applicable Divisions)
 - h) Regional Corporations
 - i) Trinidad and Tobago Fire Services
 - j) Environmental Management Authority (EMA)
 - k) Telecommunications Services of Trinidad & Tobago (TSTT)
 - l) Cable Company
7. The Proponent shall assume full responsibility for the professional quality, completeness, accuracy and co-ordination of all design documents and its

conformance with all applicable laws, rules, regulations and orders governing said work.

8. All design documents (including drawings, plans, schedules, equipment manuals etc.) shall describe with specificity all elements, details, components, materials, and other information necessary for the complete construction of the Works and the delivery of the Works fully functional and operational for its intended purposes, including compliance/satisfaction of all testing, permitting, qualifications, certifications, validations, and obtaining regulatory certification and approvals by all applicable regulatory authorities required to render the Project and all its components operational and functionally and legally usable for their intended purpose.
9. The Proponent shall perform all Design Services described in, contemplated by, inferable from, or necessary or desirable to achieve the objectives specifically stated in the Scope of Works and in the Employer's requirements and the Contract, including all Design Services necessary for the Project to be properly constructed by the Contractor and used by the Employer in accordance with all applicable guidelines, requirements and standards.
10. All design and construction documents shall be prepared using the English (metric) system, unless otherwise specified in the Contract.
11. Design services shall be performed by licensed design professionals. The standard of care for architectural and engineering services performed shall be the highest degree of care and skill used by design professionals practicing under the same time and locality conditions.
12. As-built drawings for architectural, Civil/Structural Engineering, Mechanical, Electrical Engineering and Plumbing.
13. The proposed codes and standards to be used in the designs include the following:

ARCHITECTURAL DESIGNS

PLANNING	<ul style="list-style-type: none"> • Town and Country Planning Regulations • Regional Corporation Regulations
BUILDINGS/ STRUCTURES	<ul style="list-style-type: none"> • International Building Code (IBC) 2015. • Caribbean Uniform Building Code (CUBIC) • AWPA U1 – User Specification for Treated Wood: 2012 • American Society of Civil Engineers code ASCE-7-05 • International Building Code (IBC) for earthquake loading using equivalent static analysis and compared to CUBIC. A peak ground acceleration of 0.4g shall be used. • American National Standards Institute (ANSI) • American Concrete Institute ACI 318 • American Institute of Steel Construction (AISC manuals) • ASHRAE Standard 189.1
LIFE SAFETY	<ul style="list-style-type: none"> • NFPA 101-2015 – Life Safety Code • NFPA 1-2015 – Fire Code
UNIVERSAL ACCESSIBILITY	<ul style="list-style-type: none"> • Accessible and Usable Buildings and Facilities ANSI A177.1:2014
SUSTAINABILITY	<ul style="list-style-type: none"> • LEED v4 Guidelines
LOCAL REGULATIONS	<ul style="list-style-type: none"> • GORTT Office Outfitting Policy • The Occupational Safety and Health Act 1, 2004 as amended 2006

STRUCTURAL ENGINEERING DESIGNS

VERTICAL LOADS	<ul style="list-style-type: none"> • American Society of Civil Engineers (ASCE): ASCE 7-05 Minimum Design Loads for Buildings and Other Structure
EARTHQUAKE LOADS	<ul style="list-style-type: none"> • ASCE 7-05 and International Building Code (IBC) 2009 - (Refer to Seismic Research Unit website http://www.uwiseismic.com/Maps.aspx for Hazard Maps of Trinidad and Tobago -2475 year Return Period)
WIND LOADS	<ul style="list-style-type: none"> • ASCE 7-05 (Trinidad 117mph, Tobago 130mph – 3 sec. Gust for Trinidad and Tobago)

- REINFORCED CONCRETE
 - American Concrete Institute (ACI): ACI 318-08 or latest Building Code Requirements for Structural Concrete
- STRUCTURAL STEEL
 - American Institute of Steel Construction (AISC): Manual of Steel Construction (Load & Resistance Factor Design), Specification for Structural Steel Buildings (AISC 360-10),
 - AISC 341 – 10 including Supplement No. 1 dated 2006 (Seismic Provisions for Structural Steel Buildings
 - AISC 358 - 10 including Supplement No. 1 dated 2009 (Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications
- STRUCTURAL MASONRY
 - ACI 530-05 / ASCE 5-05 / TMS 402-02
- STEEL REINFORCEMENT
 - ASTM A615 GR 60 – $F_y = 60$ ksi, $F_u = 75$ ksi
- STRUCTURAL STEEL MATERIAL:
 - ASTM A992 – $F_y = 50$ ksi (Wide Flange and Hot Rolled Sections)
 - ASTM A36 – $F_y = 36$ ksi (Plates)
- OTHER STANDARDS
 - ASTM – American Society for Testing and Materials
- IMPORTANT NOTE:
 - The structural designs should comply to the Ministry of Works and Infrastructure latest Structural Design Guidelines for Trinidad & Tobago
 - All structural drawings should be stamped and signed with a registered Civil / Structural Engineer’s Board of Engineers’ stamp of T&T.
 - All designs must be accompanied by structural design calculations which must include the following:
 - Design Data Sheet
 - Design Methodology Sheet with assumptions made in the modelling of the structure.
 - Drawing of the complete mathematical model used in the structural (manual or computer) analysis.
 - Clear input and output data.
 - An electronic copy of the computer structural model.
- LOCAL REGULATIONS
 - Trinidad and Tobago Standard - Recommendations for the Design of Building – TTS 16 90 400 (1978)
 - National Building Code of Trinidad & Tobago
 - BAPE WIND CODE (1981)
 - Wind Speed Maps for the Caribbean for Application with the Wind Load Provisions of ASCE 7 shall be used to determine reference velocities as defined in ASCE 7.

MECHANICAL AND ELECTRICAL ENGINEERING DESIGNS

- | | |
|------------|--|
| ELECTRICAL | <ul style="list-style-type: none"> • ANSI C37.13 – 2015 Standard For Low-Voltage AC Power Circuit Breakers Used In Enclosures • ANSI C37.14 - 2015 Standard for DC (3200 V and below) Power Circuit Breakers Used in Enclosures • ANSI C57.12.00 – 2010 Standard For General Requirements For Liquid-Immersed Distribution, Power, And Regulating Transformers • ANSI C57.12.01 – 2015 Standard For General Requirements For Dry-Type Distribution And Power Transformers • ANSI C63.12 – 2015 Standard Recommended Practice For Electromagnetic Compatibility Limits And Test Levels • ANSI C80.1 - 2015 Electrical Rigid Steel Conduit • ANSI C80.3 - 2015 Electrical Metallic Tubing - Steel (EMT-S) • ANSI C80.6 - 2018 Electrical Intermediate Metal Conduit |
| HVAC | <ul style="list-style-type: none"> • ASHRAE Handbook—HVAC Applications, 2019 • ASHRAE Handbook—HVAC Systems and Equipment, 2020 • ASHRAE 55 – 2017 Thermal Environmental Conditions for Human Occupancy • ASHRAE 62.1 - 2019 Ventilation for Acceptable Indoor Air Quality • ASHRAE 90.1 - 2019 Energy Standard for Buildings except Low-Rise Residential Buildings • ASHRAE Standard 90.4 - 2019 Energy Standard for Data Centers • ASHRAE Standard 170 - 2021 Ventilation of Health Care Facilities • ASHRAE Standard 185.1 - 2020 Method of Testing UV-C Lights for Use in Air-Handling Units or Air Ducts to Inactivate Airborne Microorganisms • ASHRAE Standard 202-2018 Commissioning Process for Buildings and Systems • ASHRAE 2020 Smart Grid Application Guide: Integrating Facilities With The Electric Grid • ASME A17.1 / CSA B44 – 2019 Safety Code for Elevators and Escalators |

- PLUMBING
AND
MECHANICAL
- ASME B31 – Standards of Pressure Piping
 - ASME B31.3 – 2020 Process Piping
 - ASME B31.8 - 2018 Gas Transmission and Distribution Piping Systems
 - ASME B31.9 – 20120 Building Services Piping
 - ASME B31.12 - 2019 Standard on Hydrogen Piping and Pipelines
 - Health Technical Memorandum 01-01 Management and Decontamination of Surgical Instruments (medical devices) used in Acute Care
 - Health Technical Memorandum 02-01 Medical Gas Pipeline Systems
 - Health Technical Memorandum 03-01 Specialized Ventilation for Healthcare Premises
 - Health Technical Memorandum 04-01 Safe Water in Healthcare Premises
 - Health Technical Memorandum 08-02 Lifts
 - ICC IFC 2021 International Fire Code
 - ICC IPC 2021 International Plumbing Code
 - ICC IMC 2021 International Mechanical Code
 - ICC IFGC 2021 International Fuel Gas Code
 - ICC IECC 2021 International Energy Conservation Code
 - ICC IPSDC 2021 International Private Sewerage Disposal Code
 - ICC ISPSC 2021 International Swimming Pool and Spa Code
 - ASME B16 – Standards of Pipes and Fittings
 - ICEA Class H Flexible Cables
 - IEEE 730 Software QA Plans
 - IEEE 830 Recommended Practice for Software Requirements Specifications
 - NFPA 10 – 2018 Standards on Portable Fire Extinguishers
 - NFPA 13 – 2019 Standard for the Installation of Sprinkler System
 - NFPA 14 - 2019 Standard for the Installation of Standpipes and Hose Systems
 - NFPA 15 – 2022 Standard water spray fixed systems for fire protection
 - NFPA 17 – 2021 Standard for Dry Chemical Extinguishing Systems
 - NFPA 17A – 2021 Standard for Wet Chemical Extinguishing Systems
 - NFPA 20 – 2019 Standard for the Installation of Stationary Pumps for Fire Protection
 - NFPA 22 – 2018 Standard for Water Tanks for Private Fire Protection

- NFPA 24 – 2022 Standard for the Installation of Private Fire Service Mains and Their Appurtenances
 - NFPA 45 – 2019 Standard on Fire Protection for Laboratories Using Chemicals
- LIFE SAFETY
- NFPA 54 – 2021 National Fuel Gas Code
 - NFPA 58 – 2020 Liquefied Petroleum Gas Code
 - NFPA 59 – 2021 Utility LP-Gas Plant Code
 - NFPA 59A – 2019 Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)
 - NFPA 70 – 2020 National Electric Code
 - NFPA 72 – 2019 National Fire Alarm and Signalling Code
 - NFPA 75 – 2020 Standard for the Fire Protection of Information Technology Equipment
 - NFPA 88A – 2019 Standard for Parking Structures
 - NFPA 90A – 2021 Standard for the Installation of Air-Conditioning and Ventilating Systems
 - NFPA 91 – 2020 Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids
 - NFPA 92 – 2021 Standard for Smoke Control Systems
 - NFPA 99 – 2021 Health Care Facilities Code
 - NFPA 101 - 2021 Life Safety Code
 - NFPA 110 – 2022 Standard for Emergency and Standby Power Systems
 - NFPA 111 – 2022 Standard on Stored Electrical Energy Emergency and Standby Power Systems
 - NFPA 418 – 2021 Standard for Heliports
 - NFPA 780 – 2020 Standard for the Installation of Lightning Protection Systems
 - NFPA 820 – 2020 Standard for Fire Protection in Wastewater Treatment and Collection Facilities
 - NFPA 900 – 2019 Building Energy Code
- LOCAL REGULATIONS
- Requirements of the OSH Authority in accordance with the OSH Act 2004 with amendments of 2006
 - Requirements of the EMA of Trinidad and Tobago & Water Pollution Rules 2019
 - Requirements of the Trinidad and Tobago Fire Service (TTFS), Ministry of National Security of Trinidad and Tobago
 - Requirements of the Electrical Inspectorate Division, Ministry of Public Utilities of Trinidad and Tobago

- Requirements of the Public Health Department in accordance with the Public Health Ordinance Act
- SMACNA HVAC Duct Construction Standards
- The National Plumbing Code of Trinidad and Tobago
- Trinidad & Tobago Electricity Commission Wiring for Light & Power 8th Edition
- Trinidad & Tobago Electrical Wiring Code Part 1 - Low Voltage Installations (TTS 171: Part 1: 2015)
- Trinidad & Tobago Electrical Wiring Code Part 2 - High Voltage Installations (TTS 171: Part 2: 2002)
- Trinidad & Tobago Electrical Wiring Code Part 3 – Renewable Energy Systems and Interconnection Requirements (TTS 171: Part 3: 2011)
- Workplace Design – Lighting of Indoor work places – Specification (TTS 611-2008)
- Water and Sewerage Authority Guidelines for Design and Construction of Water and Wastewater Systems in Trinidad and Tobago

TESTING

Testing will be carried out in accordance with the tests/inspections described in the Quality Control Plan and the Technical Specifications (Materials and Workmanship). The Proponent shall always ensure that materials and equipment are examined and tested for compliance with the specifications and quality control is then performed at the recommended frequency. Materials must be tested for compliance with stipulated specifications both at source and once it is delivered to site.

The Proponent shall prepare and submit a description of all the relevant tests and time periods for the testing of Materials and Works. These include but are not limited to steel reinforcement bar, reinforced concrete, masonry, structural steel, welding.

Workmanship Compliance Checks will include:

- a) checking, inspecting, examining and measuring;
- b) trials and demonstrations;

- c) time testing carried out by manufacturers and suppliers in compliance with a specified standard or specification; and
- d) testing of equipment (air conditioning units, transformers, generators etc.)

All materials used or supplied shall be accompanied by valid and approved material certificates, tests and inspection reports. The minimum extent of examination and testing to be carried out and the acceptance levels/codes shall be specified by suppliers in the purchase order and/or subcontract documents.

An inspection schedule/plan shall be developed by the Proponent for procured equipment and materials. The Proponent's Construction Inspectors and Construction Supervisors shall carry out inspection surveillance activities. These include but may not be limited to; witnessing tests, verifying documentation and inspections/examinations. From these activities, reports shall be developed recording progress, findings, non-conformance and resolutions.

Materials, fitting and fixtures shall be inspected by the Proponent, upon receipt from the suppliers, for compliance with the technical requirements and regulations, including availability of required documentation and markings. If materials and/or documents do not comply, then they shall be clearly identified and if possible, segregated until further action is determined. Material deliveries shall be checked against shipping documents (dispatch note, freight note, and delivery receipt) for type and quantity, and for obvious transport damage, and to ensure that markings correspond to the order specification.

A Material Receiving Notice (MRN) shall be completed if the checks are satisfactory. Material that has been checked and accepted shall be stored according to type and class of material so as to effectively prevent damage and/or error of use. Sub-Consultants and Sub-Contractors shall be required to assign qualified/experienced inspection personnel to carry out all required examinations and tests in accordance with an agreed quality plan (inspection and test plan). These activities shall be carried out

in accordance with the agreed procedures and guides and result in the appropriate reports. The Proponent's Construction Inspector and Construction Supervisor shall monitor the quality control activities of its Sub-Consultants and Sub-Contractors and carry out his own examination of material, equipment and documentation to the necessary degree to determine the state of acceptance.

The Proponent shall ensure that the Employer and/or inspection authorities are given sufficient notice to witness the final inspection and tests, if required (egg. Pressure testing of water lines, testing of elevators, generators, sewer lines). The Client shall retain the design rights and other intellectual property rights and copyright of all documents prepared by the Proponent in the course of the Proponent's engagement.

SPECIFICATIONS

Finishes

1. All interior and exterior walls are fair faced and painted, while all interior floors to be as specified in the schematic design package. In the absence of the specification in the concept/schematic, all floors should be porcelain tiles with special provisions for the appropriate rubber flooring to the gym. Colour palette selections and finishes selections to be provided for the Client's approval. A minimum of three (3) sample options for each type of tile to be presented to the Client for approval. All paint systems shall provide a minimum of 5 years warranty.
2. Apron slabs to have an aesthetically pleasing yet slip resistant finish eg. Grano,
3. Carpentry and Joinery/Kitchen Cupboard: 100% Full Teak wood and solid surface countertops. Colour samples to be presented to the Client for approval.
4. The floor to floor ceiling height should be a minimum of 10'-0" (also above the stage), since a large percentage of the ground floor areas are designed for group activities. The utility and toilet areas are 8'-0" high on both floors with moisture resistant finish of either 2' x 2' acoustical ceiling tiles or gypsum. However, the assembly hall must be designed to offer the highest possible closed board ceiling at a minimum of 12ft. Configuration of the ceiling must offer some acoustic control and temperature modulation. In this phase of the project the hall will be air conditioned, therefore all electric systems must cater for this installation. Ceilings in all areas must have heat barriers and insulation of R30. A Minimum eave of 3'-0" is required with natural cross ventilation in case of loss of power.
5. Windows: All windows shall be metal framed with integrated burglar proofing. All window specifications to be submitted for approval.
6. Doors are metal framed with tempered glass vision panels in all the administrative areas, kitchen and servery, control room and Auditorium. Doors as per the Schematic Designs. All door specifications to be submitted for

approval. Where alternate external doors are proposed, provisions must include for the installation of sliding burglar proofing.

7. All plumbing fixtures to be Armitage or equal Ceramic wall tiles to 6ft height.
Vanities: metal or teak wood framing with Solid Surface Countertops
8. Toilet Partitions: Banyan series or other equally approved patent commercial partitioning that ensures water tightness and installed as per manufacturer's instructions.
9. Perimeter Fencing: Medium security, to be approved by the Client. Front of facility to have a wall and wrought iron/ palisade wall that enhances the front of the facility.
10. Main External sign letters to be routed 3/4inch, PVC, painted and UV coated, inclusive of the coat of arms. A mockup of the proposed internal and external signage to be provided for approval.
11. Washroom Accessories to be commercial grade, stainless steel fixtures including soap dispensers, paper towel holders, toilet paper holders and hand dryers.

Sound and Stage lighting:

PA system with 2 Zone common areas paging with Opti voice capabilities Audio System Design

- The Public Address (PA) system shall be designed for sound reinforcement during assemblies and speeches and Performances.

Basic components of system

- Loudspeakers
- Subwoofer
- Digital mixer
- Audio snake
- Wireless microphones
- Wireless paging microphone
- Mixer power amplifier

- Flush mount ceiling speakers
- Portable speaker

Standard equipment list for Auditorium.

List of standard Auditorium System equipment

Item No.	Description	Quantity
1	Flexible array Loudspeaker	2
2	Dual 10" Powered Subwoofer	1
3	Digital Stereo 8 channel Mixer	1
4	Audio Snake	1
5	Wireless Microphones	2

List of standard PA System Equipment

1	Flush mount ceiling speakers with removable or rotatable badges		Quantity varies depending on size and number of rooms
2	Portable Speaker with rechargeable battery	1	
3	Mixer Power Amplifier	1	
	Wireless Paging Microphones	1	

Component Performance Specification

Loudspeakers shall satisfy the following minimum performance specifications: -

- The Loudspeaker shall be a 1000-watt self-powered two-way, ported loudspeaker system utilizing Eight (8) mid/high-range drivers.
- The Loudspeakers shall have a 12-inch LF high performance subwoofer. The enclosure shall be made of High impact composite materials with M8 threaded insert points.
- The Loudspeaker shall have an integrated 2-channel mixer with independent level controls.

- d. The Loudspeaker shall allow for control over its vertical coverage pattern by manual louvered adjustment with automatic changes to its internal EQ to maintain optimum tonal balance.
- e. The Loudspeaker shall be designed for wall mount installation or suspended up to 20 ft high.
- f. The Loudspeaker shall have a Nominal Dispersion of 100° H x 40° V with variable adjustments for the vertical axis.
- g. The Loudspeaker input shall have a nominal rated impedance of 10 k ohms (10 kΩ)
- h. The Loudspeaker shall have an Input Impedance of 2.2 kΩ (MIC), 10 kΩ (Line)
- i. The Loudspeaker input connections will allow for direct connection XLR /1/4" XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-) 1/4" TS/TRS, (2) RCA
- j. Exposed cosmetic surfaces of the Loudspeaker should be Black and the acoustically transparent grille component should be formed of powder-coated perforated steel.
- k. Each Loudspeaker shall have a bandwidth of 43 Hz - 20 kHz and a maximum continuous acoustic output of 132dB SPL.
- l. The Loudspeaker shall have an internal dynamic limiter with distortion at rated power being 0.1% Max (30 Hz - 15 kHz)
- m. Dimension shall not exceed 664.66 mm x 334.3 mm x 372.5 mm (26.1" x 13.1" x 14.6")
- n. Warranty shall be 5 years.

Subwoofer shall satisfy the following minimum performance specifications: -

- a. The Subwoofer shall be a 1000-watt self-powered compact format system utilizing two ten (10") high excursion LF drivers. The enclosure should be made of High impact composite materials with high impact composite end caps.
- b. The Subwoofer should be designed for installation in specialist localities including but not limited to House of Worships, Resorts and Hospitality venue.
- c. The Subwoofer shall have a Polarity switch to adjust polarity of subwoofer for easy correction of low-frequency overlap between the main loudspeaker and subwoofer.
- d. The Subwoofer shall possess line output EQ that sets the Subwoofer's output to a high-pass filter or full
- e. Range, which allows for easy crossover selection when used with a main loudspeaker.
- f. The subwoofer shall have a Dynamic Limiter.
- g. The Subwoofer shall have a Nominal Dispersion being Omni-directional.
- h. The Subwoofer input shall have a Cross over frequency within the range 40 – 100 Hz.

- i. The Subwoofer input connections will allow for direct connection XLR /1/4" XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-) 1/4" TS/TRS,
- j. Exposed cosmetic surfaces of the Subwoofer should be Black and the acoustically transparent grille component should be formed of powder-coated perforated steel.
- k. Each Subwoofer shall have a bandwidth of 38 Hz – 250 Hz and a maximum continuous acoustic output of 130dB SPL,
- l. The Subwoofer should have a dynamic limiter with distortion at rated power being 0.1% Max (30 Hz - 15 kHz)
- m. Warranty should be 5 years.

Audio snake

- a. The number of input connections should be at least 12.
- b. The number of output connections should be at least 4.
- c. The connections should be XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-)
- d. The cable should be of suitable length to position the casing of the head at the back of the stage and the tail in the control room.
- e. The head enclosure should be made of metal.
- f. The connections should have numbered wires for identification at the tail end.
- g. Warranty should be 5 years.

Wireless microphones

- h. Working Range should be 91 m (300 ft) Line of Sight
- i. Audio Frequency Response 50 to 15,000 Hz
- j. Total Harmonic Distortion of Ref. ± 33 kHz deviation with 1 kHz tone 0.5%, typical
- k. Dynamic Range of 100 dB, A-weighted, typical
- l. Audio Input Level should be max of -16 dBV, min (0 dB) +10 dBV
- m. Input Impedance 1 M Ω
- n. RF Transmitter Output 10 mW, typical
- o. Power Requirements must be 2 LR6 AA batteries, 1.5 V, alkaline
- p. Battery Life should be up to 14 hours (alkaline)
- q. Receiver
- r. XLR connector 200 Ω
- s. 6.35 mm (1/4") connector 50 Ω
- t. XLR connector -27 dBV (into 100 k Ω load)
- u. 6.35 mm (1/4") connector -13 dBV (into 100 k Ω load)
- v. RF Sensitivity
- w. 105 dBm for 12 dB SINAD, typical
- x. Power Requirements 12–15 V DC @ 235 mA, supplied by external power supply (tip positive)

y. Warranty should be 1 years.

Mixer Power Amplifier for Opti voice paging shall satisfy the following minimum performance specifications: -

- a. The mixer/amplifier should employ Class-D amplification together with a digital signal processing architecture running at 48 kHz / 24 bit.
- b. The mixer/amplifier should incorporate a switch-mode power supply allowing normal operation from AC outlets ranging from 100 – 240 V ($\pm 10\%$) at 50/60 Hz. The amplifier should have an IEC 320-C14 electrical power inlet and should be equipped with a removable power supply cord. A power switch should be located on the front panel.
- c. The product should include protection from shorted loads and general overheating.
- d. The mixer/amplifier's physical size should be 1 RU in height by 1 RU in width and be capable of rack mounting.
- e. The product should have venting with a single fan, continuous left-to-right airflow. Each output channel should have output trim controls.
- f. The mixer/amplifier should have two output channels with a frequency response of 55 Hz to 20 kHz (+0/-3 dB) and drive 70/100 V distributed audio systems.
- g. The mixer/amplifier should have THD+N at rated power less than or equal to 0.3%. Output connections should be made via 2-pin touch-proof Euroblock connectors.
- h. The mixer/amplifier should meet or exceed the following performance specifications: channel separation (crosstalk) less than or equal to -60 dB below rated power at 1 kHz and dynamic range of 88 dB.
- i. The mixer/amplifier should incorporate 3 line-level inputs (two RCA stereo, one 3.5 mm stereo) and one microphone input for paging applications. Two of the line level inputs should be selectable via a switch on the front panel while the third input should override line input channels upon connection.
- j. The nominal input sensitivity should be 0 dBV for line level inputs and -40 dBV for microphone inputs.
- k. The microphone input should be mounted on the rear, support dynamic microphones and select telephone systems with PTT switching.
- l. The paging microphone input should have automatic ducking capabilities activated via a selector switch on the rear panel.
- m. The microphone input should bypass master volume control via a selector switch on the rear panel.
- n. All inputs should have individual input gain controls with the exception of the 3.5 mm priority input connector on the front panel.
- o. The mixer/amplifier should have an auxiliary line-output via two RCA connectors. The front panel should also have user-accessible treble, bass and master volume controls.

- p. Warranty should be 5 years.

Flush mount ceiling speakers shall satisfy the following minimum performance specifications: -

- a. The full-range loudspeaker shall contain a single full-range 2.25-inch transducer, low frequency range down to 83 Hz, and sensitivity of 86 dB SPL / 1 W @ 1 m
- b. The full-range Loudspeaker shall meet the following performance specifications: On-axis system frequency response should be 83 Hz to 19 kHz (-10 dB) with the use of recommended active equalization.
- c. The Loudspeaker sensitivity should be 86dB SPL in half-space environment with 1 W input at 1 meter.
- d. The long-term power handling rating should be 20 W (AES test methodology using IEC system noise, 2-hour duration). Maximum continuous output shall be 99 dB SPL and the maximum peak output should be 105 dB SPL, both in half-space environment.
- e. The nominal coverage pattern should be 160° conical at 1-4 kHz.
- f. The Loudspeaker shall be constructed of an engineered-plastics front baffle with an integrated steel formed enclosure. The Loudspeaker shall consist of PC-PBT plastic materials that are resilient to cooking oil exposure. The Loudspeaker should be plenum rated for use in air handling spaces and in compliance with the following safety standards; UL1480 for Fire Alarm and Signaling Systems, UL2043.
- g. The transducers shall be located behind a perforated steel grille with a powder-coated finish.
- h. The Loudspeaker shall contain standard mounting arms.
- i. The Loudspeaker shall be available in black or white.
- j. The Loudspeaker shall fit a modern aesthetic with the option to remove logos.
- k. Input connectors shall be a Euro block pin connector with loop-through, located on the front baffle.
- l. The Loudspeaker shall have a nominal rated impedance of 16 ohms and should be wired in parallel with a line voltage matching (stepdown) transformer with a level selector appropriate for output taps of 1, 2, 4, 8, 16 Watts and Bypass (16 ohms).
- m. The Loudspeaker input connections shall allow for direct connection to 70-volt, 100-volt or low-impedance amplifiers. Loudspeaker back can dimension shall be 127 x 125 mm (5.0 x 4.9 in) and net weight should be 1.63 kg (3.6 lbs) with grille. Outward front baffle dimensions should be 182 mm (7.2 in).
- n. Warranty should be 5 years.

Portable speaker/ Monitor shall satisfy the following minimum performance specifications: -

- o.** The Portable speaker shall be suitable for use in commercial setting including Houses of worship, Schools and Universities, Resorts and Hospitality venues or Live music performances
- p.** The Portable speaker shall be a multiple driver, full-range portable loudspeaker system with internally supplied power amplification and active equalization for multiple operating modes. The transducer complement shall consist of high-excursion full range drivers, With a dedicated low frequency driver.
- q.** The Portable speaker shall have a Rechargeable lithium-ion battery allows performance of up to 8 hours.
- r.** The Portable speaker shall have an Onboard 3-channel mixer which offers reverb, and EQ controls on two channels, with a dedicated channel for either wired (3.5 mm) or wireless music sources via Wireless Bluetooth® streaming.
- s.** The Portable speaker shall allow for multiple placement orientations with Auto eq to maintain tonal consistency.
- t.** The Portable speaker shall be compatible with standard 35 mm pole mounts.
- u.** The nominal horizontal beam width of the portable speaker shall be 140°, and the vertical coverage shall be 40°.
- v.** The Power Amplification for transducers shall be supplied by the integrated power supply providing 130 W continuous pink noise, band-limited from 65 Hz to 14 kHz (-3 dB).
- w.** The input connectors of the Portable speaker shall consist of one XLR with equalization for a dynamic handheld microphone, one ¼" TRS, stereo RCA, and one 1/8" TRS receptacle. The output connectors of the portable speaker shall consist of one ¼" balanced TRS
- x.** Warranty should be 5 years.

Digital Mixer shall satisfy the following minimum performance specifications: -

- a.** Digital stereo 8 Channel mixer containing eight high-quality audio preamps with
- b.** XLR-combo jacks for microphones or instruments, and switchable phantom power
- c.** Aux inputs for additional sources minimum four
- d.** USB-A and -B for USB drive playback or PC/Mac interfacing
- e.** Balanced ¼" TRS and XLR stereo outputs
- f.** Independent headphone output
- g.** The Digital Mixer shall offer Updated, studio-quality effects with advanced digital audio processing. Effects include compressor, limiter, de-esser, noise gate, chorus, flanger, phaser, tremolo, delay, and reverb

- h.** The Digital Mixer shall have on built in on board tonal presets for different instruments or equipment such as Shure/Sennheiser mics, Acoustic/Electric Guitars, Saxophone, DJ controllers and the likes of the industry.
- i.** The Mixer shall have sound processing for natural-sounding vocals and instruments
- j.** The Digital mixer shall have EQ focusing the sound presets for effective adjustments on the fly
- k.** The digital mixer shall offer Independent EQ, dynamics and effects per individual channel, Dedicated reverb for Aux sends, and a global shared reverb for use across all channels
- l.** The digital Mixer shall offer Master output EQ to compensate for venue acoustics
- m.** The Digital Mixer should allow for Full end-to-end tonal optimization when used Loudspeakers and Subwoofers with cross over range between 40 – 100 Hz.
- n.** The digital mixer shall have Seamless Live Control with Tactile controls and indicators designed for live on-stage use by musicians and DJs
- o.** The Digital Mixer shall offer an uncluttered user interface
- p.** The digital Mixer shall be able to create and store Built-in tap tempo delay, chromatic tuner, and recallable scenes.
- q.** The digital mixer shall allow for low light operations with LED display and illuminated controls are easy to read.



USER REQUIREMENTS FOR THE LA ROMAINE COMMUNITY CENTRE

Modified Design-Build Services using the FIDIC Yellow Book:
Conditions of Contract for Plant and Design Build

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BACKGROUND

UDeCOTT, on behalf of the Ministry of Sport and Community Development, is desirous of completing the Design-Build Services for the La Romaine Community Centre. In this regard, UDeCOTT wishes to retain the services of a qualified, experienced and competent Design Build Contractor to perform design and works in accordance with the Scope and Specifications. The preferred proponent is expected to provide full designs, construction documents and specifications for all statutory approvals and construction. The format of implementation will be a Design Build Contract.

Sites will be revaluated and the main access to the site and parking will be determined by UDeCOTT and the Client Ministry. The facilities will comprise of a main assembly hall and a combination of outreach activity spaces will be all located within a two-storey facility. As a guide and in instances where the available land area is less than 1,859 m², it is recommended that a two-storey structure be constructed.

DESIGN-BUILD CONTRACTOR RESPONSIBILITIES

1. Preparation of site surveys to determine the exact conditions of the Project Site and any other investigative surveys or assessments that may need to be completed as part of its proposal.
2. Preparation and submission of Designs and Drawings (Architectural, Civil/Structural Engineering, Mechanical, Electrical Engineering and Plumbing and Fabrication). Designs and drawings shall be completed to a level of detail, adequacy and completeness.
3. Statutory Approvals (Fire, Electrical, WASA etc.)
4. Project Programme & Works Scheduling
5. Project Insurances
6. Project Delivery
7. Contract Management
8. Subcontractor Coordination and verification of works.
9. Temporary hoarding of the site including gateway for vehicular and pedestrian access and maintenance of access throughout the duration of the project. The hoarding shall be maintained in a secure condition throughout the duration of the project.
10. Temporary Utilities as required for the project site (water, electricity). The site shall be adequately lit to ensure visibility.
11. Health Safety, Security and Environmental Management during the works inclusive of Covid-19 management protocols.
12. Site Waste Management and disposal.
13. Attend fortnightly meetings with the Client/ Engineer.
14. Furnishing all labour, materials, tools, equipment, and services necessary for the successful completion of the construction of the project as stated in the RFP and the BOQ, and in accordance with the approved drawings, specifications and defined requirements.
15. Product Specifications

16. Preparation and submission of as built drawings, equipment guarantees/warranties, equipment manuals, test certificates. Warranties to be provided on all equipment, with a minimum warranty of 1 year, unless otherwise stated.
17. Ensure all design are reviewed by UDeCOTT and the End User.
18. Ensure a copy of all project drawings are issued to UDeCOTT. On-site drawings to identify any changes made on-site.
19. Ensure all product data/specifications are submitted to UDeCOTT for review
20. Where applicable, ensure that methodologies associated with Notice to Correct are submitted for UDeCOTT non-objection.
21. Testing (for example Concrete Testing, compaction testing etc.) is to be completed by an independent testing agency.
22. Familiarization of the Site surroundings/Environs so as to ensure Tendered sum includes for all reasonable associated security risks. A temporary guard booth must be constructed at the entrance gates to house security personnel. The guard booth shall be equipped with chairs, desk, lighting and power, a cellphone with credit maintained by either the Contractor or the Security Provider for emergency calls. Emergency Contacts shall be listed at the Guard Booth. The Site security personnel shall be in place for 24 hours and adequately resourced and trained for emergency situations. The security personnel shall have a log book to maintain logs of all persons and vehicles accessing the site. The Contractor shall retain a scanned copy of workers identification cards on site.
23. The Contractor shall provide a CCTV surveillance system for the site throughout the duration of the project. The system shall monitor the site, all access points to the site, the road way bounding the site and any other vulnerable areas. Faces and license plates of vehicles shall be easily recognizable. The system shall have Wifi capabilities and provide remote monitoring capabilities to be shared with UDeCOTT site staff.
24. Provide site office accommodation for the Employer and Engineer for the duration of the Project. UDeCOTT's site office shall be positioned away from the entrance gate and away from the site boundary located closest to the road way

to minimize risks. All UDeCOTT personnel shall be allowed to park on site. The provisions of the site office facilities will be provided at no cost to the Employer and must comply with the Laws. The site building shall be as follows:

- a) 1 site office, 12' x 16' minimum with air conditioning used by the Engineer and Employer;
- b) Access to 1 toilet room for the exclusive use by the Engineer and the Employer;
- c) The site office, equipment and furnishings shall be maintained by the Contractor in a clean and orderly condition, which includes washing of the floors, bathrooms and trash removal at least twice per week;
- d) The site offices and toilet room for the Engineer shall be equipped with keyed locks and the Contractor shall furnish a sets of keys to the Engineer;
- e) The site offices for the Engineer shall be furnished with the following furniture, fittings and equipment for the whole duration of the Works:
 - 2 (two) desks and 2 (two) deluxe chairs with swivel base on casters and adjustable arms, 2 (two) visitors chairs
 - 1 (one) white board, wall mounted, 36" x 48"
 - 1 (one) multifunction copier machine (copy, print, scan and fax) RICOH Aficio MP1600L or equivalent. The equipment is to be maintained for the duration of the project (supply of inks, cartridges and paper at the Contractor's cost)
 - 1 (one) mini-refrigerator 4 cubic feet capacity 33"H x 18"W x 20"D
 - 1 (one) water cooler to receive 18 litres bottled water (supply of paper cups and bottled water at the Contractor's cost)
 - Independent high-speed internet access.
 - All furniture, fittings and equipment shall be in good shape and commercial grade. All temporary structures, facilities and arrangements shall be removed by the Contractor at the completion of the Works.
 - One Tablet with the following minimum specification:
 - Operating System: Android 10.0 or above
 - Screen Size: 10 or above
 - Touchscreen: Yes
 - Pen/stylus : Yes
 - Processor: Qualcomm SDM865 Plus
 - Processor Speed: Octa Core (1x3.09GHz + 3x2.4GHz + 4x1.8GHz)
 - RAM: 8GB (RAM)
 - Internal Memory: 512GB
 - Micro SD Slot: Yes
 - Cameras: Rear: 10MP or above, Front: 8MP or above
 - External Memory: 8,000mAh or Higher
 - Network: 5G or Wi-Fi (802.11 a/b/g/n/ac/ax 2.4G + 5GHz)
 - Bluetooth: Yes
 - Speakers: yes

NOTE: The Tablet remains the property of UDeCOTT, following the completion of the project.

DESIGNS

Concept

The concept approach to the design of the facility is to place the more frequently used outreach programs in one zone or module while allowing the hall to remain as an independent module. This gives all the community members greater access to the more critical services offered by the proposed programs. Part of the design intent is to allow equal access to all areas of the facility while maximizing flexibility, and controlling maintenance and operating costs. In order to bring an awareness of the environmental issues and conservation practices, the centre by its design should demonstrate energy conservation in its approach to the use of natural lighting. The large overhangs and buffer zones between the main volumes will significantly reduce the cost of cooling.

Given that the construction cost represents a significant investment in the community, proposed materials, finishes and equipment should be chosen with the view that maintenance and long-term operation of the facility is the responsibility of the community itself. Therefore, easy replacement and ongoing upgrade of specific speciality rooms must be looked at carefully. It is intended that the facility be used as a change agent for the positive upgrade of skill sets across a wide generational range. In order to maximise the social interaction between the widest range of users, generous public porches and breakout zones form an integral part of a "Community bonding experience".

Flexibility of use is an important part of the design of the facility; all areas are intended to change and adapt to the needs of the community. Therefore the offices can become consultation areas by changing the furniture configuration. All lobbies and covered porches can be used for informal exhibitions and casual events. The entire facility must be designed as a modern resource centre with access to Wi-Fi.

By locating the audio-visual areas adjacent to the computer lab and administration offices, security issues will be better served since these represent the higher risk areas.

Since retraining will eventually become a normal part of our times, this centre will likely be the first intervention space to that the community seeks. In the event of any national emergency. The centre is also expected to play a major role in relief efforts, to this end, all local, regional and international building codes must be adhered to.

AMENITIES

The community centre's design should include the following (and as shown on the Conceptual Design included in the Tender Document):

1. Demolition of the existing structure and reconstruction of a new 2-storey structure. Disposal within a 5 mile radius of the site.
2. Construction of a Security Booth. Security booth to be ventilated and include an appropriately sized washroom facility, inclusive of the installation of an exhaust fan.
3. Provision of a Community Gym, with access isolated from the Community Centre's main entrance, inclusive of Male and Female Change rooms with 1 toilet, sink and shower each. Installation of gym rubber flooring mat with border and duplex outlets to facilitate equipment outfitting for a minimum of 10 persons.
4. A Teaching Kitchen with allowances for two stoves (one electric and one gas) and space that can accommodate a minimum of 10 persons at one time. Additionally, supply and installation of 2x100 pounds gas cylinders and system for the gas stove. Gas lines to be concealed. Supply and install Industrial type Range Hoods for both stoves with ducted extractor system. Supply and install 2 No. deep single basin stainless steel kitchen sinks, specifications to be approved. Overhead and under counter cabinetry to be installed and comprised of 100% hardwood. Cabinetry to fit small gas tank for gas stove (if applicable). Solid surface countertop and tiled backsplash. An external access to the kitchen to be provided.
5. Servery area linked to the teaching kitchen with provision of a solid surface counter and one row of shelving below. Above counter outlets. Square hood roller shutter window to be installed.
6. Provision of a Community column free Multi-Purpose Hall (200-300) theatre style seating capacity. The hall should include a stage with electrical outlets and fixed walls to hide

backstage view. Backstage and fixed walls on stage to have an accent colour. Teak stage flooring with a minimum stage depth of 10 feet and minimum height of 24". Teak floor moulding to be installed in the Auditorium. Male and Female Back stage change rooms (inclusive of toilet, shower sink and countertop, mirror and wooden bench). Teak handrails to be installed for steps in the stage area. There shall be an alternative access to the back stage changing rooms. Backstage flooring should be at the same elevation as the stage. Wheel chair ramp to stage located to the side of stage or concealed (where applicable). Ceiling lighting in Auditorium to also include down lighters along the sides and centre of the Auditorium, to provide a level of light in pathways while the main lights are off during performances. Installation of two (2) communication outlets ceiling height, for the installation of Access Points. Locations to be approved by the Client to ensure full coverage at Auditorium level.

7. Control Room with operable window in direct line of sight to the stage. Flooring of room to be elevated above the Auditorium flooring level. Provision of desk and shelving for the storage of the sound system equipment and mixer board etc. installed.
8. Provisions for Sound and Stage Lighting systems and a Public Address System throughout the facility. (see specification on page 28)
9. A Computer Room with minimum 10 stations and 1 No. Administration desk, to include the following:
 - a. Installation of Work Stations and Admin Desk. Layout and materials to be approved by the Client. Workstations work surface to be made from solid surface. Minimum size of work stations 30" (w) and desktops 29" high and 24" deep. All workstations to have a privacy screen partitions constructed of same material and no higher than 12".
 - b. Each Workstation to have a grommet, communication outlet (CAT6 Ethernet) and duplex outlets. Grommets to be 7" from the centre line to the left or right and with enough room to clear the frame on the top. Corner stations to have grommets at the same depth as regular stations. Workstations not to be interrupted by doors. Dedicated space with duplex outlet and communication outlet to be provided for the printer.

- c. The Admin desk to have a grommet, communication outlet (CAT6 Ethernet) and 2No. duplex outlets. The desk will be located by the entrance or at the front of the room facing in; person's back must not be to the clients.
- d. 1No. wall mounted Network Closet to be installed. Pulling of CAT 6 Ethernet cables including all required in wall and ceiling raceways and installation of female end "keystone" communication port with the other male end "keystone" jack terminating at the Network Cabinet. Specifications as follows:
 - i. Dimensions: 23.5"W x 22"D
 - ii. Rack Height: 13U - 15U
 - iii. Colour: Black
 - iv. Load Capacity: 200 lbs
 - v. Construction:
 - 1. Sturdy and rugged welded frame construction
 - 2. Reinforced lockable door
 - 3. Two-section, swing-out design allows access to the front and rear of equipment
 - 4. Includes adjustable depth equipment mounting rails
 - 5. Removable and reversible door and side panel
 - 6. Cable pass-through knockouts
 - vi. Two (2) extractor fans (included)
 - vii. Include PDU strip mounted internally in the Network Cabinet
 - viii. Fits all standard 19" rack mount devices up to 20" mountable depth
 - ix. Warranty: Minimum one (1) year repair or replacement
- e. Installation of four (4) duplex electrical wall outlets, one (1) behind the Network Cabinet for use with networking equipment and three (3) below the cabinet. Installation of one (1) 4 port communication outlet beneath the Network Cabinet.
- f. Provision of one (1) duplex and one (1) communication outlet for the tv (both 7feet from the floor) and pulling of one (1) HDMI cable from television mount location through floor to Admin desk. Location at the front of the room.
- g. Installation of one communication outlet to ceiling height, centre of room for installation of an Access Point.

- h. Installation of a keypad access.
 - i. Painting of interior walls (2 colours, one (1) accent wall). Accent wall: Sherwin Williams Rookwood Sash Green; Remaining Walls: Sherwin Williams Silverpointe. Paint colours to be reconfirmed by the Client.
10. Training Room/ Audio Visual Room:
- a. Installation of duplex outlets on all walls. Installation of an additional duplex outlet and communication outlet at the front of the room for the Admin desk.
 - b. Provision of one (1) duplex and one (1) communication outlet for the tv (both 7 feet from the floor) and pulling of one (1) HDMI cable from television mount location through floor to Admin desk. Location at the front of the room.
 - c. Installation of one (1) communication outlet to ceiling height, centre of room for installation of an Access Point.
 - d. Installation of a keypad access.
 - e. Painting of interior walls (2 colours, one (1) accent wall). Accent wall: Sherwin Williams Rookwood Sash Green; Remaining Walls: Sherwin Williams Silverpointe. Paint colours to be reconfirmed by the Client
 - f. Civil works as required for conduits and raceways from the private pole.
11. Administration Office for two persons, duplex outlets on all walls. Office to be located at the front of the facility, in close proximity to the lobby area. Installation of one (1) communication outlet to ceiling height in lobby area on the ground floor for installation of an Access Point.
12. Male and Female Washrooms to be located on each floor with provisions for the differently abled. All Washrooms and Change Rooms/ Dressing Rooms to have extractor fans that operate on a timed basis. Washroom to be equipped with commercial grade accessories including soap dispensers, paper towel holders, toilet paper holders and hand dryers.
13. Storage area to hold a minimum of 200 chairs and 10 tables.
14. Laundry room with provisions for washers and dryers with expel air.
15. Janitorial room with an appropriate Janitorial sink.
16. Electrical/ Service Room with vented metal door.
17. Provision of a Security System with upgradable Wi-Fi capabilities. Ensure no blind spots. Cameras to be located externally, covering all access points to the Site, in the carpark

and within corridors and the lobby areas. Cameras to be digital, 4MP and higher. Keypad access to be on UPS (minimum 1 hour). Keypad access to be provided in the Computer lab, Training Room, Administrative Office, Control Room and one (1) other area as confirmed by the Client. An additional request to exit button for keypad access to be installed at a lower level at the location of the Manager's desk in the Administration Room. Monitors and DVR to be located in the Administrative Office with drops to be provided at the Security booth for the installation of an additional monitor in the Security booth.

18. Fire Detection (addressable system) and Fire Suppression System.
19. HVAC system, inclusive of exhaust fans for all washrooms. External AC condensers installed at ground floor level to be secured with operable burglar proofing. Fire access ladder to be installed for condensers installed at roof level. No cassette ac units.
20. Provision of an ADA 8 passenger lifts/elevators for all members of the public.
21. Provisions for all physically challenged members of the Community.
22. 100% back up power (Standby Generator) with fuel capacity for a minimum of eight (8) hours inclusive of ATS. Generator to be located away from the front of the facility.
23. Signage (commercial grade internal rooms and external signage with UV protection). Schedule and material to be approved by the Client. See Finishes specifications below.
24. Fixed tinted glass panels anodised or powder coated aluminium frames with impact resistant glass in the upper level of the Auditorium to increase natural lighting.
25. Decorative stone exterior porcelain wall tile feature to be installed at the front of the building.
26. LED Lighting fixtures with a minimum 2 year warranty.
27. Emergency wall mounted lights to be installed.
28. External lighting to be energy efficient with low maintenance requirement.
29. Integrated communication system.
30. Tank Farm (secured with medium security fencing (same colour as perimeter fencing) and roller gate) to be located away from the front of the facility. Covered housing for pumps and heater.
31. Site Drainage. Box drains (larger than 450mm x 450mm) and located within the premises to be covered with provisions for maintenance of the drains.

32. External Waste Disposal Area integrated in the fencing, to be accessible both internally and externally of the premises.
33. A clearly defined and controlled perimeter fencing (medium security fencing with colour to be confirmed by the Engineer). Palisade fencing to the front of the facility. Pedestrian access and vehicular access to be located in the vicinity of the guard booth.
34. A well-lit Parking arrangement for a minimum of 15 vehicles, inclusive of 2 spots that are ADA compliant and 1 loading/ unloading bay (or as required for statutory approval). Supply and installation of wheel stops. Drainage, lighting, driveway access and gateway to be provided for off-site parking shown on the Conceptual Design. Pedestrian entrances to be provided between the basketball court and parking areas. Two (2) WiFi drops to be installed on the parking lot side of the building.
35. BOQ External Works Item to also include the pressure washing of the basketball court and driveway and the upgrade of the basketball poles and hoops. Provisions for relocation and repair/ upgrade of bleachers to the opposite side of the court and repositioning of the basketball court (white lines removed and repainted).
36. Integrated landscaping inclusive of a decorative feature/ planters at the front of the facility. Zoysia turf grass to be installed for grassed areas.

DESIGN REQUIREMENTS

Preparation and submission of Designs and Drawings (in accordance with the “Design-Build Proposal /Approach”) shall include the following:-

1. Designs and drawings shall be completed to a level of detail, adequacy and completeness which will be acceptable for submission to the Town & Country Planning Division (TCPD) to meet the requirements for Final Approval.
2. Preparation and submission of the geotechnical investigative report.
3. Technical Specifications (Materials and Workmanship, Codes)
4. Listing, Description and Layout of proposed basic furniture, fixtures and equipment.
5. Cut sheets for all plumbing, electrical, IT, fittings and fixtures and any special architectural features
6. Architectural and Engineering Designs and Drawings (plans, elevations, sections and details) shall include as required but not be limited to the following:
 - f) Site Plan –
 - Site plan of the project showing location of applicable buildings, drives, and major mechanical equipment, parking and landscape elements.
 - Clear delineation of the project limit lines
 - Preliminary spot elevations
 - Primary spot elevations
 - Existing utilities
 - Proposed utilities
 - Site drainage
 - Site sections as needed to explain overall relationships
 - A coordinated drawing of the infrastructural elements
 - Box drains located within the premises to be covered
 - g) Garbage Collection and Disposal systems

- h) External Perimeter Fencing (high security fencing)
- i) Security Booth (main entrance location)
- j) Building Plans
 - Plans of all floors showing proposed structural system and structural elements, vertical shafts, interior partitions, floor elevations
 - Key dimensions, bay sizes and overall dimensions
 - General notes indicating major extent of materials and any special conditions or equipment
 - Overhead items noted
 - Building sections keyed
 - Key Project limit lines noted if not otherwise clear
 - Independent access to male and female public washroom
 - Preliminary finish schedule
 - Area summary
- k) Roof Plan
 - Major roof-mounted MEP equipment and openings
 - Roof Framing, Structural and Finishing Details
- l) Building Sections
 - Major vertical heights
 - Ceiling heights
 - Typical wall sections keyed
- m) Building Elevations
 - All elevations with extent of glazing, façade and finishes detailed.
 - Minor elevations if they contain significant items (loading docks, bridges, etc.)
 - All materials called out in notes
 - Floor lines indicated
 - Overall dimensions
 - Set-backs and overhangs indicated
 - Relationship to existing and finished grade clearly shown

n) Structural

- Comprehensive evaluation, analysis and design report of the proposed structural building systems and elements.
- Structural system description of any applicable alterations
- One line drawing of any applicable floor and roof framing plans
- Typical member sizes noted
- Structural Details of all connections and special conditions (large spans, cantilevers, etc.)
- The QA/QC requirements for Structural Steel for implementation (inclusive of the submission of Mill Certificates, Welder Certification, Weld Test Reports, Torque Wrench Calibration Certification and Bolt Torque Test Report).

o) MEP

- Comprehensive evaluation, analysis and design reports of the proposed MEP systems
- Preliminary system selection
- Energy sources identified, entrances noted on architectural drawings
- Equipment requirements included in architectural drawings
- External MEP equipment must not detract from the front facade of the building
- Utility corridors and risers spaces sized and indicated on architectural drawings
- Special features noted on electrical drawings
- One line system schematics over architectural plans
- Mechanical - Air Conditioning System, Ventilation
- Electrical
- Main Infrastructure – Power and Telecommunications
 - I. Supply & Distribution System
 - II. Lighting – Internal and External systems

- III. Power Systems
 - IV. Telecommunication System - telephone, internet and television service.
 - V. Information Technology Systems
 - VI. Fire Alarm System
 - VII. Security System
 - Plumbing
 - I. Potable Water System Potable Water Booster Pump
 - II. Water Storage
 - III. Pipework
 - IV. Hot water System
 - V. Sanitary Waste and Vent System
 - VI. Sanitary Fixtures
7. All designs shall be prepared in accordance and in compliance with the guidelines, regulations and statutory requirements of all Governmental Statutory and Regulatory Agencies, which include:
- a) Town & Country Planning Division (TCPD)
 - b) Water and Sewerage Authority (WASA)
 - c) Trinidad and Tobago Electricity Commission (T&TEC)
 - d) Port of Spain City Corporation
 - e) Local Health Authorities
 - f) Ministry of Works and Transport (MOWT - Designs Branch, Highways and Drainage Division)
 - g) Division, Traffic Management Branch and other applicable Divisions)
 - h) Regional Corporations
 - i) Trinidad and Tobago Fire Services
 - j) Environmental Management Authority (EMA)
 - k) Telecommunications Services of Trinidad & Tobago (TSTT)
 - l) Cable Company

8. The Proponent shall assume full responsibility for the professional quality, completeness, accuracy and co-ordination of all design documents and its conformance with all applicable laws, rules, regulations and orders governing said work.
9. All design documents (including drawings, plans, schedules, equipment manuals etc.) shall describe with specificity all elements, details, components, materials, and other information necessary for the complete construction of the Works and the delivery of the Works fully functional and operational for its intended purposes, including compliance/satisfaction of all testing, permitting, qualifications, certifications, validations, and obtaining regulatory certification and approvals by all applicable regulatory authorities required to render the Project and all its components operational and functionally and legally usable for their intended purpose.
10. The Proponent shall perform all Design Services described in, contemplated by, inferable from, or necessary or desirable to achieve the objectives specifically stated in the Scope of Works and in the Employer's requirements and the Contract, including all Design Services necessary for the Project to be properly constructed by the Contractor and used by the Employer in accordance with all applicable guidelines, requirements and standards.
11. All design and construction documents shall be prepared using the English (metric) system, unless otherwise specified in the Contract.
12. Design services shall be performed by licensed design professionals. The standard of care for architectural and engineering services performed shall be the highest degree of care and skill used by design professionals practicing under the same time and locality conditions
13. As-built drawings for architectural, Civil/Structural Engineering, Mechanical, Electrical Engineering and Plumbing
14. The proposed codes and standards to be used in the designs include the following:

ARCHITECTURAL DESIGNS

PLANNING	<ul style="list-style-type: none"> • Town and Country Planning Regulations • Regional Corporation Regulations
BUILDINGS/ STRUCTURES	<ul style="list-style-type: none"> • International Building Code (IBC) 2015. • Caribbean Uniform Building Code (CUBIC) • AWPA U1 – User Specification for Treated Wood: 2012 • American Society of Civil Engineers code ASCE-7-05 • International Building Code (IBC) for earthquake loading using equivalent static analysis and compared to CUBIC. A peak ground acceleration of 0.4g shall be used. • American National Standards Institute (ANSI) • American Concrete Institute ACI 318 • American Institute of Steel Construction (AISC manuals) • ASHRAE Standard 189.1
LIFE SAFETY	<ul style="list-style-type: none"> • NFPA 101-2015 – Life Safety Code • NFPA 1-2015 – Fire Code
UNIVERSAL ACCESSIBILITY	<ul style="list-style-type: none"> • Accessible and Usable Buildings and Facilities ANSI A177.1:2014
SUSTAINABILITY	<ul style="list-style-type: none"> • LEED v4 Guidelines
LOCAL REGULATIONS	<ul style="list-style-type: none"> • GORTT Office Outfitting Policy • The Occupational Safety and Health Act 1, 2004 as amended 2006

STRUCTURAL ENGINEERING DESIGNS

VERTICAL LOADS	<ul style="list-style-type: none"> • American Society of Civil Engineers (ASCE): ASCE 7-05 Minimum Design Loads for Buildings and Other Structure
EARTHQUAKE LOADS	<ul style="list-style-type: none"> • ASCE 7-05 and International Building Code (IBC) 2009 - (Refer to Seismic Research Unit website http://www.uwiseismic.com/Maps.aspx for Hazard Maps of Trinidad and Tobago -2475 year Return Period)
WIND LOADS	<ul style="list-style-type: none"> • ASCE 7-05 (Trinidad 117mph, Tobago 130mph – 3 sec. Gust for Trinidad and Tobago)

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|-------------------------------|--|
| REINFORCED
CONCRETE | <ul style="list-style-type: none"> • American Concrete Institute (ACI): ACI 318-08 or latest Building Code Requirements for Structural Concrete |
| STRUCTURAL
STEEL | <ul style="list-style-type: none"> • American Institute of Steel Construction (AISC): Manual of Steel Construction (Load & Resistance Factor Design), Specification for Structural Steel Buildings (AISC 360-10), • AISC 341 – 10 including Supplement No. 1 dated 2006 (Seismic Provisions for Structural Steel Buildings • AISC 358 - 10 including Supplement No. 1 dated 2009 (Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications |
| STRUCTURAL
MASONRY | <ul style="list-style-type: none"> • ACI 530-05 / ASCE 5-05 / TMS 402-02 |
| STEEL
REINFORCEMENT | <ul style="list-style-type: none"> • ASTM A615 GR 60 – $F_y = 60$ ksi, $F_u = 75$ ksi |
| STRUCTURAL
STEEL MATERIAL: | <ul style="list-style-type: none"> • ASTM A992 – $F_y = 50$ ksi (Wide Flange and Hot Rolled Sections) • ASTM A36 – $F_y = 36$ ksi (Plates) |
| OTHER
STANDARDS | <ul style="list-style-type: none"> • ASTM – American Society for Testing and Materials |
| IMPORTANT
NOTE: | <ul style="list-style-type: none"> • The structural designs should comply to the Ministry of Works and Infrastructure latest Structural Design Guidelines for Trinidad & Tobago • <u>All structural drawings should be stamped and signed with a registered Civil / Structural Engineer's Board of Engineers' stamp of T&T.</u> • All designs must be accompanied by structural design calculations which must include the following: <ul style="list-style-type: none"> ○ Design Data Sheet ○ Design Methodology Sheet with assumptions made in the modelling of the structure. ○ Drawing of the complete mathematical model used in the structural (manual or computer) analysis. ○ Clear input and output data. ○ An electronic copy of the computer structural model. |
| LOCAL
REGULATIONS | <ul style="list-style-type: none"> • Trinidad and Tobago Standard - Recommendations for the Design of Building – TTS 16 90 400 (1978) • National Building Code of Trinidad & Tobago • BAPE WIND CODE (1981) • Wind Speed Maps for the Caribbean for Application with the Wind Load Provisions of ASCE 7 shall be used to determine reference velocities as defined in ASCE 7. |

MECHANICAL AND ELECTRICAL ENGINEERING DESIGNS

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|------------|--|
| ELECTRICAL | <ul style="list-style-type: none"> • ANSI C37.13 – 2015 Standard For Low-Voltage AC Power Circuit Breakers Used In Enclosures • ANSI C37.14 - 2015 Standard for DC (3200 V and below) Power Circuit Breakers Used in Enclosures • ANSI C57.12.00 – 2010 Standard For General Requirements For Liquid-Immersed Distribution, Power, And Regulating Transformers • ANSI C57.12.01 – 2015 Standard For General Requirements For Dry-Type Distribution And Power Transformers • ANSI C63.12 – 2015 Standard Recommended Practice For Electromagnetic Compatibility Limits And Test Levels • ANSI C80.1 - 2015 Electrical Rigid Steel Conduit • ANSI C80.3 - 2015 Electrical Metallic Tubing - Steel (EMT-S) • ANSI C80.6 - 2018 Electrical Intermediate Metal Conduit |
| HVAC | <ul style="list-style-type: none"> • ASHRAE Handbook—HVAC Applications, 2019 • ASHRAE Handbook—HVAC Systems and Equipment, 2020 • ASHRAE 55 – 2017 Thermal Environmental Conditions for Human Occupancy • ASHRAE 62.1 - 2019 Ventilation for Acceptable Indoor Air Quality • ASHRAE 90.1 - 2019 Energy Standard for Buildings except Low-Rise Residential Buildings • ASHRAE Standard 90.4 - 2019 Energy Standard for Data Centers • ASHRAE Standard 170 - 2021 Ventilation of Health Care Facilities • ASHRAE Standard 185.1 - 2020 Method of Testing UV-C Lights for Use in Air-Handling Units or Air Ducts to Inactivate Airborne Microorganisms • ASHRAE Standard 202-2018 Commissioning Process for Buildings and Systems • ASHRAE 2020 Smart Grid Application Guide: Integrating Facilities With The Electric Grid • ASME A17.1 / CSA B44 – 2019 Safety Code for Elevators and Escalators |

PLUMBING

- ASME B31 – Standards of Pressure Piping
- ASME B31.3 – 2020 Process Piping
- ASME B31.8 - 2018 Gas Transmission and Distribution Piping Systems
- ASME B31.9 – 20120 Building Services Piping
- ASME B31.12 - 2019 Standard on Hydrogen Piping and Pipelines
- Health Technical Memorandum 01-01 Management and Decontamination of Surgical Instruments (medical devices) used in Acute Care
- Health Technical Memorandum 02-01 Medical Gas Pipeline Systems
- Health Technical Memorandum 03-01 Specialized Ventilation for Healthcare Premises
- Health Technical Memorandum 04-01 Safe Water in Healthcare Premises
- Health Technical Memorandum 08-02 Lifts
- ICC IFC 2021 International Fire Code
- ICC IPC 2021 International Plumbing Code
- ICC IMC 2021 International Mechanical Code
- ICC IFGC 2021 International Fuel Gas Code
- ICC IECC 2021 International Energy Conservation Code
- ICC IPSDC 2021 International Private Sewerage Disposal Code
- ICC ISPSC 2021 International Swimming Pool and Spa Code
- ASME B16 – Standards of Pipes and Fittings
- ICEA Class H Flexible Cables
- IEEE 730 Software QA Plans
- IEEE 830 Recommended Practice for Software Requirements Specifications
- NFPA 10 – 2018 Standards on Portable Fire Extinguishers
- NFPA 13 – 2019 Standard for the Installation of Sprinkler System
- NFPA 14 - 2019 Standard for the Installation of Standpipes and Hose Systems
- NFPA 15 – 2022 Standard water spray fixed systems for fire protection
- NFPA 17 – 2021 Standard for Dry Chemical Extinguishing Systems
- NFPA 17A – 2021 Standard for Wet Chemical Extinguishing Systems
- NFPA 20 – 2019 Standard for the Installation of Stationary Pumps for Fire Protection
- NFPA 22 – 2018 Standard for Water Tanks for Private Fire Protection

- NFPA 24 – 2022 Standard for the Installation of Private Fire Service Mains and Their Appurtenances
 - NFPA 45 – 2019 Standard on Fire Protection for Laboratories Using Chemicals
- LIFE SAFETY
- NFPA 54 – 2021 National Fuel Gas Code
 - NFPA 58 – 2020 Liquefied Petroleum Gas Code
 - NFPA 59 – 2021 Utility LP-Gas Plant Code
 - NFPA 59A – 2019 Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)
 - NFPA 70 – 2020 National Electric Code
 - NFPA 72 – 2019 National Fire Alarm and Signalling Code
 - NFPA 75 – 2020 Standard for the Fire Protection of Information Technology Equipment
 - NFPA 88A – 2019 Standard for Parking Structures
 - NFPA 90A – 2021 Standard for the Installation of Air-Conditioning and Ventilating Systems
 - NFPA 91 – 2020 Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids
 - NFPA 92 – 2021 Standard for Smoke Control Systems
 - NFPA 99 – 2021 Health Care Facilities Code
 - NFPA 101 - 2021 Life Safety Code
 - NFPA 110 – 2022 Standard for Emergency and Standby Power Systems
 - NFPA 111 – 2022 Standard on Stored Electrical Energy Emergency and Standby Power Systems
 - NFPA 418 – 2021 Standard for Heliports
 - NFPA 780 – 2020 Standard for the Installation of Lightning Protection Systems
 - NFPA 820 – 2020 Standard for Fire Protection in Wastewater Treatment and Collection Facilities
 - NFPA 900 – 2019 Building Energy Code
- LOCAL REGULATIONS
- Requirements of the OSH Authority in accordance with the OSH Act 2004 with amendments of 2006
 - Requirements of the EMA of Trinidad and Tobago & Water Pollution Rules 2019
 - Requirements of the Trinidad and Tobago Fire Service (TTFS), Ministry of National Security of Trinidad and Tobago
 - Requirements of the Electrical Inspectorate Division, Ministry of Public Utilities of Trinidad and Tobago

- Requirements of the Public Health Department in accordance with the Public Health Ordinance Act
- SMACNA HVAC Duct Construction Standards
- The National Plumbing Code of Trinidad and Tobago
- Trinidad & Tobago Electricity Commission Wiring for Light & Power 8th Edition
- Trinidad & Tobago Electrical Wiring Code Part 1 - Low Voltage Installations (TTS 171: Part 1: 2015)
- Trinidad & Tobago Electrical Wiring Code Part 2 - High Voltage Installations (TTS 171: Part 2: 2002)
- Trinidad & Tobago Electrical Wiring Code Part 3 – Renewable Energy Systems and Interconnection Requirements (TTS 171: Part 3: 2011)
- Workplace Design – Lighting of Indoor work places – Specification (TTS 611-2008)
- Water and Sewerage Authority Guidelines for Design and Construction of Water and Wastewater Systems in Trinidad and Tobago

TESTING

Testing will be carried out in accordance with the tests/inspections described in the Quality Control Plan and the Technical Specifications (Materials and Workmanship). The Proponent shall always ensure that materials and equipment are examined and tested for compliance with the specifications and quality control is then performed at the recommended frequency. Materials must be tested for compliance with stipulated specifications both at source and once it is delivered to site.

The Proponent shall prepare and submit a description of all the relevant tests and time periods for the testing of Materials and Works. These include but are not limited to steel reinforcement bar, reinforced concrete, masonry, structural steel, welding.

Workmanship Compliance Checks will include:

- a) checking, inspecting, examining and measuring;
- b) trials and demonstrations;

- c) fine testing carried out by manufacturers and suppliers in compliance with a specified standard or specification; and
- d) testing of equipment (air conditioning units, transformers, generators etc.)

All materials used or supplied shall be accompanied by valid and approved material certificates, tests and inspection reports. The minimum extent of examination and testing to be carried out and the acceptance levels/codes shall be specified by suppliers in the purchase order and/or subcontract documents.

An inspection schedule/plan shall be developed by the Proponent for procured equipment and materials. The Proponent's Construction Inspectors and Construction Supervisors shall carry out inspection surveillance activities. These include but may not be limited to; witnessing tests, verifying documentation and inspections/examinations. From these activities, reports shall be developed recording progress, findings, non-conformance and resolutions.

Materials, fitting and fixtures shall be inspected by the Proponent, upon receipt from the suppliers, for compliance with the technical requirements and regulations, including availability of required documentation and markings. If materials and/or documents do not comply, then they shall be clearly identified and if possible, segregated until further action is determined. Material deliveries shall be checked against shipping documents (dispatch note, freight note, and delivery receipt) for type and quantity, and for obvious transport damage, and to ensure that markings correspond to the order specification.

A Material Receiving Notice (MRN) shall be completed if the checks are satisfactory. Material that has been checked and accepted shall be stored according to type and class of material so as to effectively prevent damage and/or error of use. Sub-Consultants and Sub-Contractors shall be required to assign qualified/experienced inspection personnel to carry out all required examinations and tests in accordance with an agreed quality plan (inspection and test plan). These activities shall be carried out

in accordance with the agreed procedures and guides and result in the appropriate reports. The Proponent's Construction Inspector and Construction Supervisor shall monitor the quality control activities of its Sub-Consultants and Sub-Contractors and carry out his own examination of material, equipment and documentation to the necessary degree to determine the state of acceptance.

The Proponent shall ensure that the Employer and/or inspection authorities are given sufficient notice to witness the final inspection and tests, if required (egg. Pressure testing of water lines, testing of elevators, generators, sewer lines). The Client shall retain the design rights and other intellectual property rights and copyright of all documents prepared by the Proponent in the course of the Proponent's engagement.

SPECIFICATIONS

FINISHES

1. All interior and exterior walls are fair faced and painted, while all interior floors to be as specified in the conceptual design package. In the absence of the specification in the concept, all floors should be porcelain tiles with special provisions for the appropriate rubber flooring to the gym. Colour palette selections and finishes selections to be provided for the Client approval. A minimum of three (3) sample options for each type of tile to be presented to the Client for approval. Floor tile skirting to be provided throughout the Centre. All paint systems shall provide a minimum of 5 years warranty.
2. Apron slabs along the building footprint to have an aesthetically pleasing yet slip resistant finish eg. Grano or external tile. Apron walkways further from the building footprint to have a broom finish.
3. Carpentry and Joinery/Kitchen Cupboard: 100% full Teak wood with solid surface countertops. Colour samples to be presented to the Client for approval.
4. The floor to floor ceiling height should be a minimum of 10'-0" (also above the stage), since a large percentage of the ground floor areas are designed for group activities. The utility and toilet areas are 8'-0" high on both floors with moisture resistant finish of either 2' x 2' acoustical ceiling tiles or gypsum. However, the assembly hall must be designed to offer the highest possible closed board ceiling at a minimum of 13ft. Configuration of the ceiling must offer some acoustic control and temperature modulation. In this phase of the project the hall will be air conditioned, therefore all electric systems must cater for this installation. Ceilings in all areas must have heat barriers and insulation of R30. A Minimum eave of 3'-0" is required with natural cross ventilation in case of loss of power.
5. Windows: All windows shall be metal framed with integrated burglar proofing and tinted glass. Alternatively, burglar proofing to be installed internally of all

- windows. P.V.C fabric blinds to be provided for reception and office areas.
6. Doors are painted steel flush doors with fire rated glass vision panels. Insulated at all exterior doors. Commercial grade door closures to be installed. All door specifications to be submitted for approval. Where alternate external doors are proposed, provisions must include for the installation of sliding burglar proofing.
 7. Grillwork to protect any glass front features to be provided.
 8. All entrance and exit doors should be keyed both sides.
 9. All plumbing fixtures to be Armitage or equal and all bathrooms floor tiles to be tiled with porcelain tiles. Wall tiles to 6ft height with tile strips installed to corners.
 10. Vanities: metal or teak wood framing with Solid Surface Countertops
 11. Toilet Partitions: Banyan series or other equally approved patent commercial partitioning that ensures water tightness and installed as per manufacturer's instructions.
 12. Roof Sheeting – charcoal grey.
 13. Perimeter Fencing: Medium or High security, to be approved by the Client. Front of facility to have a wall and wrought iron/ palisade wall that enhances the front of the facility.
 14. Main External sign letters to be routed 3/4inch, PVC, painted and UV coated, inclusive of the coat of arms. A mockup of the proposed signage to be provided for approval.
 15. Washroom Accessories to be commercial grade, stainless steel fixtures (Banyan series or equivalent) including soap dispensers, paper towel holders, toilet paper holders and hand dryers.

SOUND AND STAGE LIGHTING

PA system with 2 Zone common areas paging with Opti voice capabilities Audio System Design

- The Public Address (PA) system shall be designed for sound reinforcement during assemblies, speeches, and Performances.

Basic components of system

- Loudspeakers
- Subwoofer
- Digital mixer
- Audio snake
- Wireless microphones
- Wireless paging microphone
- Mixer power amplifier
- Flush mount ceiling speakers
- Portable speaker

Standard equipment list for Auditorium.

List of standard Auditorium System equipment

Item No.	Description	Quantity
1	Flexible array Loudspeaker	2
2	Dual 10" Powered Subwoofer	1
3	Digital Stereo 8 channel Mixer	1
4	Audio Snake	1
5	Wireless Microphones	2

List of standard PA System Equipment

1	Flush mount ceiling speakers with removable or rotatable badges		Quantity varies depending on size and number of rooms
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2	Portable Speaker with rechargeable battery	1	
3	Mixer Power Amplifier	1	
	Wireless Paging Microphones	1	

Component Performance Specification

Loudspeakers shall satisfy the following minimum performance specifications: -

- a. The Loudspeaker shall be a 1000-watt self-powered two-way, ported loudspeaker system utilizing Eight (8) mid/high-range drivers.
- b. The Loudspeakers shall have a 12-inch LF high performance subwoofer. The enclosure shall be made of High impact composite materials with M8 threaded insert points.
- c. The Loudspeaker shall have an integrated 2-channel mixer with independent level controls.
- d. The Loudspeaker shall allow for control over its vertical coverage pattern by manual louvered adjustment with automatic changes to its internal EQ to maintain optimum tonal balance.
- e. The Loudspeaker shall be designed for wall mount installation or suspended up to 20 ft high.
- f. The Loudspeaker shall have a Nominal Dispersion of 100° H x 40° V with variable adjustments for the vertical axis.
- g. The Loudspeaker input shall have a nominal rated impedance of 10 k ohms (10 kΩ)
- h. The Loudspeaker shall have an Input Impedance of 2.2 kΩ (MIC), 10 kΩ (Line)
- i. The Loudspeaker input connections will allow for direct connection XLR /1/4" XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-) 1/4" TS/TRS, (2) RCA
- j. Exposed cosmetic surfaces of the Loudspeaker should be Black and the acoustically transparent grille component should be formed of powder-coated perforated steel.
- k. Each Loudspeaker shall have a bandwidth of 43 Hz - 20 kHz and a maximum continuous acoustic output of 132dB SPL.
- l. The Loudspeaker shall have an internal dynamic limiter with distortion at rated power being 0.1% Max (30 Hz - 15 kHz)
- m. Dimension shall not exceed 664.66 mm x 334.3 mm x 372.5 mm (26.1" x 13.1" x 14.6")
- n. Warranty shall be 5 years.

Subwoofer shall satisfy the following minimum performance specifications: -

- a. The Subwoofer shall be a 1000-watt self-powered compact format system utilizing two ten (10") high excursion LF drivers. The enclosure should be made of High impact composite materials with high impact composite end caps.
- b. The Subwoofer should be designed for installation in specialist localities including but not limited to House of Worships, Resorts and Hospitality venue.
- c. The Subwoofer shall have a Polarity switch to adjust polarity of subwoofer for easy correction of low-frequency overlap between the main loudspeaker and subwoofer.
- d. The Subwoofer shall possess line output EQ that sets the Subwoofer's output to a high-pass filter or full
- e. Range, which allows for easy crossover selection when used with a main loudspeaker.
- f. The subwoofer shall have a Dynamic Limiter.
- g. The Subwoofer shall have a Nominal Dispersion being Omni-directional.
- h. The Subwoofer input shall have a Cross over frequency within the range 40 – 100 Hz.
- i. The Subwoofer input connections will allow for direct connection XLR /1/4" XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-) 1/4" TS/TRS,
- j. Exposed cosmetic surfaces of the Subwoofer should be Black and the acoustically transparent grille component should be formed of powder-coated perforated steel.
- k. Each Subwoofer shall have a bandwidth of 38 Hz – 250 Hz and a maximum continuous acoustic output of 130dB SPL,
- l. The Subwoofer should have a dynamic limiter with distortion at rated power being 0.1% Max (30 Hz - 15 kHz)
- m. Warranty should be 5 years.

Audio snake

- a. The number of input connections should be at least 12.
- b. The number of output connections should be at least 4.
- c. The connections should be XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-)
- d. The cable should be of suitable length to position the casing of the head at the back of the stage and the tail in the control room.
- e. The head enclosure should be made of metal.
- f. The connections should have numbered wires for identification at the tail end.
- g. Warranty should be 5 years.

Wireless microphones

- h. Working Range should be 91 m (300 ft) Line of Sight
- i. Audio Frequency Response 50 to 15,000 Hz
- j. Total Harmonic Distortion of Ref. ± 33 kHz deviation with 1 kHz tone 0.5%, typical
- k. Dynamic Range of 100 dB, A-weighted, typical
- l. Audio Input Level should be max of -16 dBV, min (0 dB) +10 dBV
- m. Input Impedance 1 M Ω
- n. RF Transmitter Output 10 mW, typical
- o. Power Requirements must be 2 LR6 AA batteries, 1.5 V, alkaline
- p. Battery Life should be up to 14 hours (alkaline)
- q. Receiver
- r. XLR connector 200 Ω
- s. 6.35 mm (1/4") connector 50 Ω
- t. XLR connector -27 dBV (into 100 k Ω load)
- u. 6.35 mm (1/4") connector -13 dBV (into 100 k Ω load)
- v. RF Sensitivity
- w. 105 dBm for 12 dB SINAD, typical
- x. Power Requirements 12–15 V DC @ 235 mA, supplied by external power supply (tip positive)
- y. Warranty should be 1 years.

Mixer Power Amplifier for Opti voice paging shall satisfy the following minimum performance specifications: -

- a. The mixer/amplifier should employ Class-D amplification together with a digital signal processing architecture running at 48 kHz / 24 bit.
- b. The mixer/amplifier should incorporate a switch-mode power supply allowing normal operation from AC outlets ranging from 100 – 240 V ($\pm 10\%$) at 50/60 Hz. The amplifier should have an IEC 320-C14 electrical power inlet and should be equipped with a removable power supply cord. A power switch should be located on the front panel.
- c. The product should include protection from shorted loads and general overheating.
- d. The mixer/amplifier's physical size should be 1 RU in height by 1 RU in width and be capable of rack mounting.
- e. The product should have venting with a single fan, continuous left-to-right airflow. Each output channel should have output trim controls.
- f. The mixer/amplifier should have two output channels with a frequency response of 55 Hz to 20 kHz (+0/-3 dB) and drive 70/100 V distributed audio systems.
- g. The mixer/amplifier should have THD+N at rated power less than or equal to 0.3%. Output connections should be made via 2-pin touch-proof Euroblock connectors.

- h. The mixer/amplifier should meet or exceed the following performance specifications: channel separation (crosstalk) less than or equal to -60 dB below rated power at 1 kHz and dynamic range of 88 dB.
- i. The mixer/amplifier should incorporate 3 line-level inputs (two RCA stereo, one 3.5 mm stereo) and one microphone input for paging applications. Two of the line level inputs should be selectable via a switch on the front panel while the third input should override line input channels upon connection.
- j. The nominal input sensitivity should be 0 dBV for line level inputs and -40 dBV for microphone inputs.
- k. The microphone input should be mounted on the rear, support dynamic microphones and select telephone systems with PTT switching.
- l. The paging microphone input should have automatic ducking capabilities activated via a selector switch on the rear panel.
- m. The microphone input should bypass master volume control via a selector switch on the rear panel.
- n. All inputs should have individual input gain controls with the exception of the 3.5 mm priority input connector on the front panel.
- o. The mixer/amplifier should have an auxiliary line-output via two RCA connectors. The front panel should also have user-accessible treble, bass and master volume controls.
- p. Warranty should be 5 years.

Flush mount ceiling speakers shall satisfy the following minimum performance specifications: -

- a. The full-range loudspeaker shall contain a single full-range 2.25-inch transducer, low frequency range down to 83 Hz, and sensitivity of 86 dB SPL / 1 W @ 1 m
- b. The full-range Loudspeaker shall meet the following performance specifications: On-axis system frequency response should be 83 Hz to 19 kHz (-10 dB) with the use of recommended active equalization.
- c. The Loudspeaker sensitivity should be 86dB SPL in half-space environment with 1 W input at 1 meter.
- d. The long-term power handling rating should be 20 W (AES test methodology using IEC system noise, 2-hour duration). Maximum continuous output shall be 99 dB SPL and the maximum peak output should be 105 dB SPL, both in half-space environment.
- e. The nominal coverage pattern should be 160° conical at 1-4 kHz.
- f. The Loudspeaker shall be constructed of an engineered-plastics front baffle with an integrated steel formed enclosure. The Loudspeaker shall consist of PC-PBT plastic materials that are resilient to cooking oil exposure. The Loudspeaker should be plenum rated for use in air handling spaces and in

compliance with the following safety standards; UL1480 for Fire Alarm and Signaling Systems, UL2043.

- g. The transducers shall be located behind a perforated steel grille with a powder-coated finish.
- h. The Loudspeaker shall contain standard mounting arms.
- i. The Loudspeaker shall be available in black or white.
- j. The Loudspeaker shall fit a modern aesthetic with the option to remove logos.
- k. Input connectors shall be a Euro block pin connector with loop-through, located on the front baffle.
- l. The Loudspeaker shall have a nominal rated impedance of 16 ohms and should be wired in parallel with a line voltage matching (stepdown) transformer with a level selector appropriate for output taps of 1, 2, 4, 8, 16 Watts and Bypass (16 ohms).
- m. The Loudspeaker input connections shall allow for direct connection to 70-volt, 100-volt or low-impedance amplifiers. Loudspeaker back can dimension shall be 127 x 125 mm (5.0 x 4.9 in) and net weight should be 1.63 kg (3.6 lbs) with grille. Outward front baffle dimensions should be 182 mm (7.2 in).
- n. Warranty should be 5 years.

Portable speaker/ Monitor shall satisfy the following minimum performance specifications: -

- o. The Portable speaker shall be suitable for use in commercial setting including Houses of worship, Schools and Universities, Resorts and Hospitality venues or Live music performances
- p. The Portable speaker shall be a multiple driver, full-range portable loudspeaker system with internally supplied power amplification and active equalization for multiple operating modes. The transducer complement shall consist of high-excursion full range drivers, With a dedicated low frequency driver.
- q. The Portable speaker shall have a Rechargeable lithium-ion battery allows performance of up to 8 hours.
- r. The Portable speaker shall have an Onboard 3-channel mixer which offers reverb, and EQ controls on two channels, with a dedicated channel for either wired (3.5 mm) or wireless music sources via Wireless Bluetooth® streaming.
- s. The Portable speaker shall allow for multiple placement orientations with Auto eq to maintain tonal consistency.
- t. The Portable speaker shall be compatible with standard 35 mm pole mounts.
- u. The nominal horizontal beam width of the portable speaker shall be 140°, and the vertical coverage shall be 40°.

- v. The Power Amplification for transducers shall be supplied by the integrated power supply providing 130 W continuous pink noise, band-limited from 65 Hz to 14 kHz (-3 dB).
- w. The input connectors of the Portable speaker shall consist of one XLR with equalization for a
- x. dynamic handheld microphone, one 1/4" TRS, stereo RCA, and one 1/8" TRS receptacle. The output connectors of the portable speaker shall consist of one 1/4" balanced TRS
- y. Warranty should be 5 years.

Digital Mixer shall satisfy the following minimum performance

specifications: -

- a. Digital stereo 8 Channel mixer containing eight high-quality audio preamps with
- b. XLR-combo jacks for microphones or instruments, and switchable phantom power
- c. Aux inputs for additional sources minimum four
- d. USB-A and -B for USB drive playback or PC/Mac interfacing
- e. Balanced 1/4" TRS and XLR stereo outputs
- f. Independent headphone output
- g. The Digital Mixer shall offer Updated, studio-quality effects with advanced digital
- h. audio processing. Effects include compressor, limiter, de-esser, noise gate,
- i. chorus, flanger, phaser, tremolo, delay, and reverb
- j. The Digital Mixer shall have on built in on board tonal presets for different instruments or equipment such as Shure/Sennheiser mics, Acoustic/Electric Guitars, Saxophone, DJ controllers and the likes of the industry.
- k. The Mixer shall have sound processing for natural-sounding vocals and instruments
- l. The Digital mixer shall have EQ focusing the sound presets for effective adjustments on the fly
- m. The digital mixer shall offer Independent EQ, dynamics and effects per individual channel, Dedicated reverb for Aux sends, and a global shared reverb for use across all channels
- n. The digital Mixer shall offer Master output EQ to compensate for venue acoustics
- o. The Digital Mixer should allow for Full end-to-end tonal optimization when used Loudspeakers and Subwoofers with cross over range between 40 – 100 Hz.
- p. The digital mixer shall have Seamless Live Control with Tactile controls and indicators designed for live on-stage
- q. use by musicians and DJs
- r. The Digital Mixer shall offer an uncluttered user interface

- s. The digital Mixer shall be able to create and store Built-in tap tempo delay, chromatic tuner, and recallable scenes.
- t. The digital mixer shall allow for low light operations with LED display and illuminated controls are easy to read.



USER REQUIREMENTS FOR THE DAMARIE HILL COMMUNITY CENTRE

Modified Design-Build Services using the FIDIC Yellow Book:
Conditions of Contract for Plant and Design Build

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BACKGROUND

UDeCOTT, on behalf of the Ministry of Sport and Community Development, is desirous of completing the Design-Build Services for the Damarie Hill Community Centre. In this regard, UDeCOTT wishes to retain the services of a qualified, experienced and competent Design Build Contractor to perform design and works in accordance with the Scope and Specifications. The preferred proponent is expected to provide full designs, construction documents and specifications for all statutory approvals and construction. The format of implementation will be a Design Build Contract.

Sites will be revaluated and the main access to the site and parking will be determined by UDeCOTT and the Client Ministry. The facilities will comprise of a main assembly hall and a combination of outreach activity spaces will be all located within a two-storey facility. Additionally, local steelpan group "Hill Toppers Steelpan Academy" currently occupy the site and is an integral part of the Damarie Hill community. As such the proposed facilities shall also comprise a Pan Theatre for the group so that the community's culture of pan can continue to be disseminated.

DESIGN-BUILD CONTRACTOR RESPONSIBILITIES

1. Preparation of site surveys to determine the exact conditions of the Project Site and any other investigative surveys or assessments that may need to be completed as part of its proposal.
2. Development of Client provided Conceptual Drawings, preparation and submission of Designs and Drawings (Architectural, Civil/Structural Engineering, Mechanical, Electrical Engineering and Plumbing and Fabrication). Designs and drawings shall be completed to a level of detail, adequacy and completeness. The designer shall ensure the final design meets all statutory and employer's requirements.
3. Statutory Approvals (Fire, Electrical, WASA etc.)
4. Project Programme & Works Scheduling
5. Project Insurances
6. Project Delivery
7. Contract Management
8. Subcontractor Coordination and verification of works.
9. Temporary hoarding of the site including gateway for vehicular and pedestrian access and maintenance of access throughout the duration of the project
10. Temporary Utilities as required for the project site (water, electricity).
11. Health Safety, Security and Environmental Management during the works inclusive of Covid-19 management protocols.
12. Site Waste Management and disposal.
13. Furnishing all labour, materials, tools, equipment, and services necessary for the successful completion of the construction of the project as stated in the RFP and the BOQ, and in accordance with the approved drawings, specifications and defined requirements.
14. Product Specifications

15. Preparation and submission of as built drawings, equipment guarantees/warranties, equipment manuals, test certificates.
16. Ensure all design are reviewed by UDeCOTT and the End User.
17. Ensure a copy of all project drawings are issued to UDeCOTT. On-site drawings to identify any changes made on-site.
18. Ensure all product data/specifications are submitted to UDeCOTT for review
19. Where applicable, ensure that methodologies associated with Notice to Correct are submitted for UDeCOTT non-objection.
20. Familiarization of the Site surroundings/Environs so as to ensure Tendered sum includes for all reasonable associated security risks.
21. Testing (for example Concrete Testing) is to be completed by an independent testing agency.
22. Implementation of a QA/QC System to ensure delivery of quality products in accordance with product specifications and design requirements.
23. Provision of site security which meet the following requirements:
 - Construction of a temporary guard booth at the entrance gate to house security personnel. The booth shall be equipped with chairs, desks, lighting and power, a cellphone with credit managed by either the Contractor or a Security Provider for emergency calls. Log emergency contacts at the booth.
 - Ensure the security guard personnel is uniformed and adequately trained to respond in adequately in emergency situations and incidents
 - Security guard shall log all persons and vehicles entering and exiting the site daily in a log book secured at the guard booth
 - Retain scanned copies of identification cards for all workers on the site
 - Provide a CCTV surveillance system for the site throughout the duration of the project. The system will not be accepted as permanent works in the main building upon completion. The system shall monitor the site, all access points to the site, the road way bounding the site and any other vulnerable areas. Faces and license plates of vehicles shall be easily recognizable. The system

shall have Wifi capabilities and provide remote monitoring capabilities to be shared with UDeCOTT site staff.

24. Provide site office accommodation for the Employer and Engineer for the duration of the Project. The Contractor may locate the site offices on the Site at the Contractor's discretion. The provisions of the site office facilities will be provided at no cost to the Employer and must comply with the Laws.

The site building shall be as follows:

- a) 1 site office, 12' x 16' minimum with air conditioning used by the Engineer and Employer;
- b) Access to 1 toilet room for the exclusive use by the Engineer and the Employer;
- c) The site office, equipment and furnishings shall be maintained by the Contractor in a clean and orderly condition, which includes washing of the floors, bathrooms and trash removal at least twice per week;
- d) The site offices and toilet room for the Engineer shall be equipped with keyed locks and the Contractor shall furnish a sets of keys to the Engineer;
- e) The site offices for the Engineer shall be furnished with the following furniture, fittings and equipment for the whole duration of the Works:
 - 2 (two) desks and 2 (two) deluxe chairs with swivel base on casters and adjustable arms, 2 (two) visitors chairs
 - 1 (one) white board, wall mounted, 36" x 48"
 - 1 (one) multifunction copier machine (copy, print, scan and fax) RICOH Aficio MP1600L or equivalent. The equipment is to be maintained for the duration of the project (supply of inks, cartridges and paper at the Contractor's cost)
 - 1 (one) mini-refrigerator 4 cubic feet capacity 33"H x 18"W x 20"D
 - 1 (one) water cooler to receive 18 litres bottled water (supply of paper cups and bottled water at the Contractor's cost)
 - 1 (one) 1 litre kettle
 - Independent high-speed internet access.
 - All furniture, fittings and equipment shall be in good shape and commercial grade. All temporary structures, facilities and arrangements shall be removed by the Contractor at the completion of the Works.

- One Tablet with the following minimum specification:
 - Operating System: Android 10.0 or above
 - Screen Size: 10 or above
 - Touchscreen: Yes
 - Pen/stylus : Yes
 - Processor: Qualcomm SDM865 Plus
 - Processor Speed: Octa Core (1x3.09GHz + 3x2.4GHz + 4x1.8GHz)
 - RAM: 8GB (RAM)
 - Internal Memory: 512GB
 - Micro SD Slot: Yes
 - Cameras: Rear: 10MP or above, Front: 8MP or above
 - External Memory: 8,000mAh or Higher
 - Network: 5G or Wi-Fi (802.11 a/b/g/n/ac/ax 2.4G + 5GHz)
 - Bluetooth: Yes
 - Speakers: yes

NOTE: The Tablet remains the property of UDeCOTT, following the completion of the project.

DESIGNS

CONCEPT

The concept approach to the design of the facility is to place the more frequently used outreach programs in one zone or module while allowing the hall to remain as an independent module. This gives all the community members greater access to the more critical services offered by the proposed programs. Part of the design intent is to allow equal access to all areas of the facility while maximizing flexibility, and controlling maintenance and operating costs. The proposed Pan Theatre shall be separated from the main community centre given that they are a separate organisation to the Village Council, and to allow pan arranging activities to take place without the noise disturbing the operation of the centre.

In order to bring an awareness of the environmental issues and conservation practices, the centre by its design should demonstrate energy conservation in its approach to the use of natural lighting. The large overhangs and buffer zones between the main volumes will significantly reduce the cost of cooling.

Given that the construction cost represents a significant investment in the community, proposed materials, finishes and equipment should be chosen with the view that maintenance and long-term operation of the facility is the responsibility of the community itself. Therefore, easy replacement and ongoing upgrade of specific speciality rooms must be looked at carefully. It is intended that the facility be used as a change agent for the positive upgrade of skill sets across a wide generational range. In order to maximise the social interaction between the widest range of users, generous public porches and breakout zones form an integral part of a "Community bonding experience".

Flexibility of use is an important part of the design of the facility; all areas are intended to change and adapt to the needs of the community. Therefore the offices can become consultation areas by changing the furniture configuration. All lobbies and covered porches can be used for informal exhibitions and casual events. The entire facility must be designed as a modern resource centre with access to Wi-Fi.

By locating the audio-visual areas adjacent to the computer lab and administration offices, security issues will be better served since these represent the higher risk areas.

Since retraining will eventually become a normal part of our times, this centre will likely be the first intervention space to that the community seeks. In the event of any national emergency. The centre is also expected to play a major role in relief efforts, to this end, all local, regional and international building codes must be adhered to.

AMENITIES

The community centre's design should include the following facilities (and as shown on the Conceptual Design included in the Tender Document):

1. Construction of a Security Booth. Security booth to be ventilated and include an appropriately sized washroom facility, inclusive of the installation of an exhaust fan.
2. Provision of a Community Gym, with access isolated from the Community Centre's main entrance, inclusive of Male and Female Change rooms with 1 toilet, sink and shower each. Installation of gym rubber flooring mat with border and duplex outlets to facilitate equipment outfitting for a minimum of 10 persons.
3. A Teaching Kitchen with allowances for two stoves (one electric and one gas) and space that can accommodate a minimum of 10 persons at one time. Additionally, supply and installation of 2x100 pounds gas cylinders and system for the gas stove. Gas lines to be concealed. Supply and install Industrial type Range Hoods with ducted extractor system. Supply and install 2 No. deep single basin stainless steel kitchen sinks, specifications to be approved. Overhead and under counter cabinetry to be installed and comprised of 100% hardwood. Solid surface countertop and tiled backsplash. An external access to the kitchen to be provided.
4. Servery area linked to the teaching kitchen with provision of a solid surface counter and one row of shelving below. Above counter outlets. Square hood roller shutter door to be installed.
5. Provision of a Community column free Multi-Purpose Hall (300no.) theatre style seating capacity). The hall should include a stage with electrical outlets and fixed walls to hide

backstage view. Teak stage flooring with a minimum stage depth of 13 feet and minimum height of 24". Male and Female Back stage change rooms (inclusive of toilet, shower sink and countertop, mirror and wooden bench). There shall be an alternative access to the back stage changing rooms. Backstage flooring should be at the same elevation as the stage. Wheel chair ramp to stage located to the side of stage or concealed. Installation of two (2) communication outlets ceiling height, for the installation of Access Points. Locations to be approved by the Client to ensure full coverage at Auditorium level.

6. Control Room with operable window in direct line of sight to the stage. Flooring of room to be elevated above the Auditorium flooring level. Provision of desk and shelving for the storage of the sound system equipment and mixer board etc. installed.
7. Provisions for Sound and Stage Lighting systems in the Auditorium and a Public Address System throughout the facility. (see specification on page 29)
8. A Computer Room (Cyber Café) with minimum 8 stations and 1 No. Administration desk, to include the following:
 - a. Installation of Work Stations and Admin Desk. Materials to be approved by the Client. Workstations work surface to be made from solid surface. Minimum size of work stations 30" (w) and desktops 29" high and 24" deep. All workstations to have a privacy screen partitions constructed of same material and no higher than 12".
 - b. Each Workstation to have a grommet, communication outlet (CAT6 Ethernet) and duplex outlets. Grommets to be 7" from the centre line to the left or right and with enough room to clear the frame on the top. Corner stations to have grommets at the same depth as regular stations. Workstations not to be interrupted by doors. Dedicated space with duplex outlet and communication outlet to be provided for the printer.
 - c. The Admin desk to have a grommet, communication outlet (CAT6 Ethernet) and 2No. duplex outlets. The desk will be located by the entrance or at the front of the room facing in; person's back must not be to the clients.
 - d. 1No. wall mounted Network Closet to be installed. Pulling of CAT 6 Ethernet cables including all required in wall and ceiling raceways and installation of female end "keystone" communication port with the other male end "keystone" jack terminating at the Network Cabinet. Specifications as follows:

- i. Dimensions: 23.5"W x 22"D
 - ii. Rack Height: 13U - 15U
 - iii. Colour: Black
 - iv. Load Capacity: 200 lbs
 - v. Construction:
 - 1. Sturdy and rugged welded frame construction
 - 2. Reinforced lockable door
 - 3. Two-section, swing-out design allows access to the front and rear of equipment
 - 4. Includes adjustable depth equipment mounting rails
 - 5. Removable and reversible door and side panel
 - 6. Cable pass-through knockouts
 - vi. Two (2) extractor fans (included)
 - vii. Include PDU strip mounted internally in the Network Cabinet
 - viii. Fits all standard 19" rack mount devices up to 20" mountable depth
 - 1. Warranty: Minimum one (1) year repair or replacement
 - e. Installation of four (4) duplex electrical wall outlets, one (1) behind the Network Cabinet for use with networking equipment and three (3) below the cabinet. Installation of one (1) 4 port communication outlet beneath the Network Cabinet.
 - f. Provision of one (1) duplex and one (1) communication outlet for the tv (both 7' from the floor) and pulling of one (1) HDMI cable from television mount location through floor to Admin desk. Location at the front of the room.
 - g. Installation of one communication outlet to ceiling height, centre of room for installation of an Access Point.
 - h. Installation of a key card access.
 - i. Painting of interior walls (2 colours, one (1) accent wall). Accent wall: Sherwin Williams Rookwood Sash Green; Remaining Walls: Sherwin Williams Silverpointe. Paint colours to be reconfirmed by the Client.
9. Training Room/ Audio Visual Room/ Classroom:
- a. Installation of duplex outlets on all walls. Installation of an additional duplex outlet and communication outlet at the front of the room for the Admin desk.

- b. Provision of one (1) duplex and one (1) communication outlet for the tv (both 7' from the floor) and pulling of one (1) HDMI cable from television mount location through floor to Admin desk. Location at the front of the room.
 - c. Installation of one (1) communication outlet to ceiling height, centre of room for installation of an Access Point.
 - d. Painting of interior walls (2 colours, one (1) accent wall). Accent wall: Sherwin Williams Rookwood Sash Green; Remaining Walls: Sherwin Williams Silverpointe. Paint colours to be reconfirmed by the Client
 - e. Civil works as required for conduits and raceways from the private entry pole.
10. Administration Office for two persons. Office to be located at the front of the facility, in close proximity to the lobby area.
 11. Reception Area/ Main Lobby/ Vestibule for gathering/ greeting persons. Area to be air conditioned. Installation of one (1) communication outlet to ceiling height in lobby area on the ground floor for installation of an Access Point.
 12. Male and Female Washrooms to be located on each floor with provisions for the differently abled. All Washrooms and Change Rooms/ Dressing Rooms to have extractor fans that operate on a timer switch. Washroom to be equipped with commercial grade accessories including soap dispensers, paper towel holders, toilet paper holders and hand dryers.
 13. Storage area to hold a minimum of 200 chairs and 10 tables.
 14. Laundry room with provisions for washers and dryers with expel air.
 15. Janitorial room with an appropriate Janitorial sink.
 16. Electrical/ Service Room.
 17. WiFi Patio. This covered, open air, external space will have bolted down benches and tables for a minimum of 10 persons. The Patio shall be equipped with duplex outlets built-in to the patio tables, adequate lighting, and two (2) access points (Keystone ports) for provision of WiFi to the Patio.
 18. Provision of a Security System with upgradable Wi-Fi capabilities.
CCTV System - Ensure no blind spots. Cameras to be located externally, covering all access points to the Site, in the carpark and within corridors. Cameras to be digital, 4MP and higher. System to have storage capacity for 1 month period minimum. System to be accessible remotely. Video storage device (DVR/ NVR) to be located in the Admin Office.

Monitor to be placed in the Administrator's Office and another in the Guard Booth. System to be placed on a UPS with minimum 1 hour back up power. Ensure a 1 year warranty.

Access Control – Key card access with electromagnetic locking system to be on UPS (minimum 1 hour). Key card access to be provided for the Computer lab, Administrative Office, Control Room and one (1) other area as confirmed by the Client. Key Card panel to be located externally and a request to exit button installed internally at the Manager's desk in the Administration Room, Cyber Café and Control Room. Ensure a 1 year warranty.

19. Fire Detection (addressable system) and Fire Suppression System. Ensure a 1 year warranty.
20. HVAC system, inclusive of exhaust fans for all washrooms, industrial type range hood with ducted vent system, and air conditioning. External AC condensers installed at ground floor level to be secured with operable burglar proofing. Fire access ladder to be installed for condensers installed at roof level. No cassette type ac units. Ensure a 1 year warranty.
21. Provision of an ADA 8 passenger lifts/elevators for all members of the public. Ensure warranty is provided.
22. Provisions for all physically challenged members of the Community.
23. 100% back up power (Standby Generator) with fuel capacity for a minimum of eight (8) hours inclusive of ATS. Generator to be located away from the front of the facility. Ensure warranty is provided.
24. Signage (commercial grade internal rooms and external signage with UV protection). Schedule and material to be approved by the Client. See specifications on page 26.
25. LED Lighting fixtures with a minimum 2 year warranty.
26. Emergency wall mounted lights to be installed. Ensure 1 year warranty.
27. External lighting to be energy efficient with low maintenance requirement. Ensure 1 year warranty.
28. Lightning protection and grounding.
29. Integrated communication system (keystone ports in Cyber Café, Training Room, Access Points for WiFi, Network Cabinet located in the Cyber Café)
30. Plumbing system (Hot and Cold potable water, waste water, sewerage and fire). Ensure 1 year warranty on all equipment.

31. Tank Farm (secured with medium security fencing (same colour as perimeter fencing) and roller gate) to be located away from the front of the facility. Covered housing for pumps and heater.
32. Site Drainage. Box drains (larger than 450mm x 450mm) and catchpits located within the premises to be covered with provisions for maintenance of the drains.
33. A clearly defined and controlled perimeter fencing (medium security fencing with colour to be confirmed by the Engineer). Palisade fencing to the front of the facility. Pedestrian access and vehicular access to be located in the vicinity of the guard booth.
34. External Waste Disposal Area integrated in the fencing, to be accessible both internally and externally of the premises.
35. A well-lit Parking arrangement for a minimum of 23 vehicles, inclusive of 2 spots that are ADA compliant and 1 loading/ unloading bay (or as required for statutory approval). Supply and installation of wheel stops. Two (2) WiFi drops on the parking lot side of the building.
36. Integrated landscaping inclusive of a decorative feature at the front of the facility.
37. **Pan Theatre:**
 - Pan Hall which is an open space with an elevated ceiling. Ensure adequate ventilation, natural lighting, air conditioning, lighting, Public Address System, Sound System, fire detection and suppression, emergency lighting, power, CCTV system and WiFi Access Point in ceiling.
 - Open Pan Yard with adequate lighting and WiFi Access point
 - Office
 - Storage (large enough to store pans)
 - Kitchenette with provisions for one (1) gas stove supply and installation of 2x100 pounds gas cylinders and system for the gas stove. Gas lines to be concealed. Provisions for Refrigerator and above counter outlets. Kitchen cabinetry made of hardwood, solid surface countertops and tiled backsplash. One (1) deep single basin sink.
 - Washrooms with two (2) stalls each; one (1) of which is differently able accessible, sink and showers.
 - Services to match the provisions for the Community Centre.

DESIGN REQUIREMENTS

Preparation and submission of Designs and Drawings (in accordance with the “Design-Build Proposal /Approach”) shall include the following:-

1. Development of Client provided Conceptual Drawings, ensuring that the design complies with all statutory and employer's requirements.
2. Designs and drawings shall be completed to a level of detail, adequacy and completeness which will be acceptable for submission to the Town & Country Planning Division (TCPD) to meet the requirements for Final Approval.
3. Preparation and submission of the geotechnical investigative report.
4. Technical Specifications (Materials and Workmanship, Codes)
5. Listing, Description and Layout of proposed basic furniture, fixtures and equipment.
6. Cut sheets for all plumbing, electrical, IT, fittings and fixtures and any special architectural features
7. Architectural and Engineering Designs and Drawings (plans, elevations, sections and details) shall include as required but not be limited to the following:
 - a) Site Plan –
 - Site plan of the project showing location of applicable buildings, drives, and major mechanical equipment, parking and landscape elements.
 - Clear delineation of the project limit lines
 - Preliminary spot elevations
 - Primary spot elevations
 - Existing utilities
 - Proposed utilities
 - Site drainage
 - Site sections as needed to explain overall relationships
 - A coordinated drawing of the infrastructural elements

- Box drains located within the premises to be covered
- b) Garbage Collection and Disposal systems
- c) External Perimeter Fencing (high security fencing)
- d) Security Booth (main entrance location)
- e) Building Plans
- Plans of all floors showing proposed structural system and structural elements, vertical shafts, interior partitions, floor elevations
 - Key dimensions, bay sizes and overall dimensions
 - General notes indicating major extent of materials and any special conditions or equipment
 - Overhead items noted
 - Building sections keyed
 - Key Project limit lines noted if not otherwise clear
 - Independent access to male and female public washroom
 - Preliminary finish schedule
 - Area summary
- f) Roof Plan
- Major roof-mounted MEP equipment and openings
 - Roof Framing, Structural and Finishing Details
- g) Building Sections
- Major vertical heights
 - Ceiling heights
 - Typical wall sections keyed
- h) Building Elevations
- All elevations with extent of glazing, façade and finishes detailed.
 - Minor elevations if they contain significant items (loading docks, bridges, etc.)
 - All materials called out in notes
 - Floor lines indicated
 - Overall dimensions

- Set-backs and overhangs indicated
- Relationship to existing and finished grade clearly shown

i) Structural

- Comprehensive evaluation, analysis and design report of the proposed structural building systems and elements.
- Structural system description of any applicable alterations
- One line drawing of any applicable floor and roof framing plans
- Typical member sizes noted
- Structural Details of all connections and special conditions (large spans, cantilevers, etc.)

j) MEP

- Comprehensive evaluation, analysis and design reports of the proposed MEP systems
- Preliminary system selection
- Energy sources identified, entrances noted on architectural drawings
- Equipment requirements included in architectural drawings
- External MEP equipment must not detract from the front facade of the building
- Utility corridors and risers spaces sized and indicated on architectural drawings
- Special features noted on electrical drawings
- One line system schematics over architectural plans
- Mechanical - Air Conditioning System, Ventilation
- Electrical
- Main Infrastructure – Power and Telecommunications
 - I. Supply & Distribution System
 - II. Lighting – Internal and External systems
 - III. Power Systems
 - IV. Telecommunication System - telephone, internet and television service.

- V. Information Technology Systems
 - VI. Fire Alarm System
 - VII. Security System
 - Plumbing
 - I. Potable Water System Potable Water Booster Pump
 - II. Water Storage
 - III. Pipework
 - IV. Hot water System
 - V. Sanitary Waste and Vent System
 - VI. Sanitary Fixtures
8. All designs shall be prepared in accordance and in compliance with the guidelines, regulations and statutory requirements of all Governmental Statutory and Regulatory Agencies, which include:
- a) Town & Country Planning Division (TCPD)
 - b) Water and Sewerage Authority (WASA)
 - c) Trinidad and Tobago Electricity Commission (T&TEC)
 - d) Port of Spain City Corporation
 - e) Local Health Authorities
 - f) Ministry of Works and Transport (MOWT - Designs Branch, Highways and Drainage Division)
 - g) Division, Traffic Management Branch and other applicable Divisions)
 - h) Regional Corporations
 - i) Trinidad and Tobago Fire Services
 - j) Environmental Management Authority (EMA)
 - k) Telecommunications Services of Trinidad & Tobago (TSTT)
 - l) Cable Company
9. The Proponent shall assume full responsibility for the professional quality, completeness, accuracy and co-ordination of all design documents and its

conformance with all applicable laws, rules, regulations and orders governing said work.

10. All design documents (including drawings, plans, schedules, equipment manuals etc.) shall describe with specificity all elements, details, components, materials, and other information necessary for the complete construction of the Works and the delivery of the Works fully functional and operational for its intended purposes, including compliance/satisfaction of all testing, permitting, qualifications, certifications, validations, and obtaining regulatory certification and approvals by all applicable regulatory authorities required to render the Project and all its components operational and functionally and legally usable for their intended purpose.
11. The Proponent shall perform all Design Services described in, contemplated by, inferable from, or necessary or desirable to achieve the objectives specifically stated in the Scope of Works and in the Employer's requirements and the Contract, including all Design Services necessary for the Project to be properly constructed by the Contractor and used by the Employer in accordance with all applicable guidelines, requirements and standards.
12. All design and construction documents shall be prepared using the English (metric) system, unless otherwise specified in the Contract.
13. Design services shall be performed by licensed design professionals. The standard of care for architectural and engineering services performed shall be the highest degree of care and skill used by design professionals practicing under the same time and locality conditions
14. As-built drawings for architectural, Civil/Structural Engineering, Mechanical, Electrical Engineering and Plumbing
15. The proposed codes and standards to be used in the designs include the following:

ARCHITECTURAL DESIGNS

- | | |
|----------------------------|--|
| PLANNING | <ul style="list-style-type: none"> • Town and Country Planning Regulations • Regional Corporation Regulations |
| BUILDINGS/
STRUCTURES | <ul style="list-style-type: none"> • International Building Code (IBC) 2015. • Caribbean Uniform Building Code (CUBIC) • AWPA U1 – User Specification for Treated Wood: 2012 • American Society of Civil Engineers code ASCE-7-05 • International Building Code (IBC) for earthquake loading using equivalent static analysis and compared to CUBIC. A peak ground acceleration of 0.4g shall be used. • American National Standards Institute (ANSI) • American Concrete Institute ACI 318 • American Institute of Steel Construction (AISC manuals) • ASHRAE Standard 189.1 |
| LIFE SAFETY | <ul style="list-style-type: none"> • NFPA 101-2015 – Life Safety Code • NFPA 1-2015 – Fire Code |
| UNIVERSAL
ACCESSIBILITY | <ul style="list-style-type: none"> • Accessible and Usable Buildings and Facilities ANSI A177.1:2014 |
| SUSTAINABILITY | <ul style="list-style-type: none"> • LEED v4 Guidelines |
| LOCAL
REGULATIONS | <ul style="list-style-type: none"> • GORTT Office Outfitting Policy • The Occupational Safety and Health Act 1, 2004 as amended 2006 |

STRUCTURAL ENGINEERING DESIGNS

- | | |
|---------------------|---|
| VERTICAL
LOADS | <ul style="list-style-type: none"> • American Society of Civil Engineers (ASCE): ASCE 7-05 Minimum Design Loads for Buildings and Other Structure |
| EARTHQUAKE
LOADS | <ul style="list-style-type: none"> • ASCE 7-05 and International Building Code (IBC) 2009 - (Refer to Seismic Research Unit website http://www.uwiseismic.com/Maps.aspx for Hazard Maps of Trinidad and Tobago -2475 year Return Period) |
| WIND LOADS | <ul style="list-style-type: none"> • ASCE 7-05 (Trinidad 117mph, Tobago 130mph – 3 sec. Gust for Trinidad and Tobago) |

- | | |
|-------------------------------|---|
| REINFORCED
CONCRETE | <ul style="list-style-type: none"> • American Concrete Institute (ACI): ACI 318-08 or latest Building Code Requirements for Structural Concrete |
| STRUCTURAL
STEEL | <ul style="list-style-type: none"> • American Institute of Steel Construction (AISC): Manual of Steel Construction (Load & Resistance Factor Design), Specification for Structural Steel Buildings (AISC 360-10), • AISC 341 – 10 including Supplement No. 1 dated 2006 (Seismic Provisions for Structural Steel Buildings) • AISC 358 - 10 including Supplement No. 1 dated 2009 (Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications) • ACI 530-05 / ASCE 5-05 / TMS 402-02 |
| STRUCTURAL
MASONRY | |
| STEEL
REINFORCEMENT | <ul style="list-style-type: none"> • ASTM A615 GR 60 – $F_y = 60$ ksi, $F_u = 75$ ksi |
| STRUCTURAL
STEEL MATERIAL: | <ul style="list-style-type: none"> • ASTM A992 – $F_y = 50$ ksi (Wide Flange and Hot Rolled Sections) • ASTM A36 – $F_y = 36$ ksi (Plates) |
| OTHER
STANDARDS | <ul style="list-style-type: none"> • ASTM – American Society for Testing and Materials |
| IMPORTANT
NOTE: | <ul style="list-style-type: none"> • The structural designs should comply to the Ministry of Works and Infrastructure latest Structural Design Guidelines for Trinidad & Tobago • All structural drawings should be stamped and signed with a registered Civil / Structural Engineer's Board of Engineers' stamp of T&T. • All designs must be accompanied by structural design calculations which must include the following: <ul style="list-style-type: none"> ○ Design Data Sheet ○ Design Methodology Sheet with assumptions made in the modelling of the structure. ○ Drawing of the complete mathematical model used in the structural (manual or computer) analysis. ○ Clear input and output data. ○ An electronic copy of the computer structural model. |
| LOCAL
REGULATIONS | <ul style="list-style-type: none"> • Trinidad and Tobago Standard - Recommendations for the Design of Building – TTS 16 90 400 (1978) • National Building Code of Trinidad & Tobago • BAPE WIND CODE (1981) |

- Wind Speed Maps for the Caribbean for Application with the Wind Load Provisions of ASCE 7 shall be used to determine reference velocities as defined in ASCE 7.

MECHANICAL AND ELECTRICAL ENGINEERING DESIGNS

- | | |
|------------|---|
| ELECTRICAL | <ul style="list-style-type: none"> • ANSI C37.13 – 2015 Standard For Low-Voltage AC Power Circuit Breakers Used In Enclosures • ANSI C37.14 - 2015 Standard for DC (3200 V and below) Power Circuit Breakers Used in Enclosures • ANSI C57.12.00 – 2010 Standard For General Requirements For Liquid-Immersed Distribution, Power, And Regulating Transformers • ANSI C57.12.01 – 2015 Standard For General Requirements For Dry-Type Distribution And Power Transformers • ANSI C63.12 – 2015 Standard Recommended Practice For Electromagnetic Compatibility Limits And Test Levels • ANSI C80.1 - 2015 Electrical Rigid Steel Conduit • ANSI C80.3 - 2015 Electrical Metallic Tubing - Steel (EMT-S) • ANSI C80.6 - 2018 Electrical Intermediate Metal Conduit |
| HVAC | <ul style="list-style-type: none"> • ASHRAE Handbook—HVAC Applications, 2019 • ASHRAE Handbook—HVAC Systems and Equipment, 2020 • ASHRAE 55 – 2017 Thermal Environmental Conditions for Human Occupancy • ASHRAE 62.1 - 2019 Ventilation for Acceptable Indoor Air Quality • ASHRAE 90.1 - 2019 Energy Standard for Buildings except Low-Rise Residential Buildings • ASHRAE Standard 90.4 - 2019 Energy Standard for Data Centers • ASHRAE Standard 170 - 2021 Ventilation of Health Care Facilities • ASHRAE Standard 185.1 - 2020 Method of Testing UV-C Lights for Use in Air-Handling Units or Air Ducts to Inactivate Airborne Microorganisms |

- ASHRAE Standard 202-2018 Commissioning Process for Buildings and Systems
- ASHRAE 2020 Smart Grid Application Guide: Integrating Facilities With The Electric Grid
- ASME A17.1 / CSA B44 – 2019 Safety Code for Elevators and Escalators

PLUMBING

- ASME B31 – Standards of Pressure Piping
- ASME B31.3 – 2020 Process Piping
- ASME B31.8 - 2018 Gas Transmission and Distribution Piping Systems
- ASME B31.9 – 20120 Building Services Piping
- ASME B31.12 - 2019 Standard on Hydrogen Piping and Pipelines
- Health Technical Memorandum 01-01 Management and Decontamination of Surgical Instruments (medical devices) used in Acute Care
- Health Technical Memorandum 02-01 Medical Gas Pipeline Systems
- Health Technical Memorandum 03-01 Specialized Ventilation for Healthcare Premises
- Health Technical Memorandum 04-01 Safe Water in Healthcare Premises
- Health Technical Memorandum 08-02 Lifts
- ICC IFC 2021 International Fire Code
- ICC IPC 2021 International Plumbing Code
- ICC IMC 2021 International Mechanical Code
- ICC IFGC 2021 International Fuel Gas Code
- ICC IECC 2021 International Energy Conservation Code
- ICC IPSDC 2021 International Private Sewerage Disposal Code
- ICC ISPSC 2021 International Swimming Pool and Spa Code
- ASME B16 – Standards of Pipes and Fittings
- ICEA Class H Flexible Cables
- IEEE 730 Software QA Plans
- IEEE 830 Recommended Practice for Software Requirements Specifications
- NFPA 10 – 2018 Standards on Portable Fire Extinguishers
- NFPA 13 – 2019 Standard for the Installation of Sprinkler System

- NFPA 14 - 2019 Standard for the Installation of Standpipes and Hose Systems
- NFPA 15 – 2022 Standard water spray fixed systems for fire protection
- NFPA 17 – 2021 Standard for Dry Chemical Extinguishing Systems
- NFPA 17A – 2021 Standard for Wet Chemical Extinguishing Systems
- NFPA 20 – 2019 Standard for the Installation of Stationary Pumps for Fire Protection
- NFPA 22 – 2018 Standard for Water Tanks for Private Fire Protection
- NFPA 24 – 2022 Standard for the Installation of Private Fire Service Mains and Their Appurtenances
- NFPA 45 – 2019 Standard on Fire Protection for Laboratories Using Chemicals

LIFE SAFETY

- NFPA 54 – 2021 National Fuel Gas Code
- NFPA 58 – 2020 Liquefied Petroleum Gas Code
- NFPA 59 – 2021 Utility LP-Gas Plant Code
- NFPA 59A – 2019 Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)
- NFPA 70 – 2020 National Electric Code
- NFPA 72 – 2019 National Fire Alarm and Signalling Code
- NFPA 75 – 2020 Standard for the Fire Protection of Information Technology Equipment
- NFPA 88A – 2019 Standard for Parking Structures
- NFPA 90A – 2021 Standard for the Installation of Air-Conditioning and Ventilating Systems
- NFPA 91 – 2020 Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids
- NFPA 92 – 2021 Standard for Smoke Control Systems
- NFPA 99 – 2021 Health Care Facilities Code
- NFPA 101 - 2021 Life Safety Code
- NFPA 110 – 2022 Standard for Emergency and Standby Power Systems
- NFPA 111 – 2022 Standard on Stored Electrical Energy Emergency and Standby Power Systems
- NFPA 418 – 2021 Standard for Heliports
- NFPA 780 – 2020 Standard for the Installation of Lightning Protection Systems

- NFPA 820 – 2020 Standard for Fire Protection in Wastewater Treatment and Collection Facilities
- NFPA 900 – 2019 Building Energy Code

LOCAL REGULATIONS

- Requirements of the OSH Authority in accordance with the OSH Act 2004 with amendments of 2006
- Requirements of the EMA of Trinidad and Tobago & Water Pollution Rules 2019
- Requirements of the Trinidad and Tobago Fire Service (TTFS), Ministry of National Security of Trinidad and Tobago
- Requirements of the Electrical Inspectorate Division, Ministry of Public Utilities of Trinidad and Tobago
- Requirements of the Public Health Department in accordance with the Public Health Ordinance Act
- SMACNA HVAC Duct Construction Standards
- The National Plumbing Code of Trinidad and Tobago
- Trinidad & Tobago Electricity Commission Wiring for Light & Power 8th Edition
- Trinidad & Tobago Electrical Wiring Code Part 1 - Low Voltage Installations (TTS 171: Part 1: 2015)
- Trinidad & Tobago Electrical Wiring Code Part 2 - High Voltage Installations (TTS 171: Part 2: 2002)
- Trinidad & Tobago Electrical Wiring Code Part 3 – Renewable Energy Systems and Interconnection Requirements (TTS 171: Part 3: 2011)
- Workplace Design – Lighting of Indoor work places – Specification (TTS 611-2008)
- Water and Sewerage Authority Guidelines for Design and Construction of Water and Wastewater Systems in Trinidad and Tobago

TESTING

Testing will be carried out in accordance with the tests/inspections described in the Quality Control Plan and the Technical Specifications (Materials and Workmanship). The Proponent shall always ensure that materials and equipment are examined and tested for compliance with the specifications and quality control is then performed at the recommended frequency. Materials must be tested for compliance with stipulated specifications both at source and once it is delivered to site.

The Proponent shall prepare and submit a description of all the relevant tests and time periods for the testing of Materials and Works. These include but are not limited to steel reinforcement bar, reinforced concrete, masonry, structural steel, welding.

Workmanship Compliance Checks will include:

- a) checking, inspecting, examining and measuring;
- b) trials and demonstrations;
- c) time testing carried out by manufacturers and suppliers in compliance with a specified standard or specification; and
- d) testing of equipment (air conditioning units, transformers, generators etc.)

All materials used or supplied shall be accompanied by valid and approved material certificates, tests and inspection reports. The minimum extent of examination and testing to be carried out and the acceptance levels/codes shall be specified by suppliers in the purchase order and/or subcontract documents.

An inspection schedule/plan shall be developed by the Proponent for procured equipment and materials. The Proponent's Construction Inspectors and Construction Supervisors shall carry out inspection surveillance activities. These include but may not be limited to; witnessing tests, verifying documentation and inspections/examinations. From these activities, reports shall be developed recording progress, findings, non-conformance and resolutions.

Materials, fitting and fixtures shall be inspected by the Proponent, upon receipt from the suppliers, for compliance with the technical requirements and regulations, including availability of required documentation and markings. If materials and/or documents do not comply, then they shall be clearly identified and if possible, segregated until further action is determined. Material deliveries shall be checked against shipping documents (dispatch note, freight note, and delivery receipt) for type and quantity, and for obvious transport damage, and to ensure that markings correspond to the order specification.

A Material Receiving Notice (MRN) shall be completed if the checks are satisfactory.

Material that has been checked and accepted shall be stored according to type and class of material so as to effectively prevent damage and/or error of use. Sub-Consultants and Sub-Contractors shall be required to assign qualified/experienced inspection personnel to carry out all required examinations and tests in accordance with an agreed quality plan (inspection and test plan). These activities shall be carried out in accordance with the agreed procedures and guides and result in the appropriate reports. The Proponent's Construction Inspector and Construction Supervisor shall monitor the quality control activities of its Sub-Consultants and Sub-Contractors and carry out his own examination of material, equipment and documentation to the necessary degree to determine the state of acceptance.

The Proponent shall ensure that the Employer and/or inspection authorities are given sufficient notice to witness the final inspection and tests, if required (egg. Pressure testing of water lines, testing of elevators, generators, sewer lines). The Client shall retain the design rights and other intellectual property rights and copyright of all documents prepared by the Proponent in the course of the Proponent's engagement.

SPECIFICATIONS

FINISHES

1. All interior and exterior walls are fair faced and painted, while all interior floors to be as specified in the conceptual design package. In the absence of the specification in the concept, all floors should be porcelain tiles with special provisions for the appropriate rubber flooring to the gym. Colour palette selections and finishes selections to be provided for the Client approval. A minimum of three (3) sample options for each type of tile to be presented to the Client for approval. All paint systems shall provide a minimum of 5 years warranty.
2. Apron slabs along the building footprint to have an aesthetically pleasing yet slip resistant finish eg. Grano or external tile. Apron walkways further from the building footprint to have a broom finish.
3. Carpentry and Joinery/Kitchen Cupboard: 100% full Teak wood with solid surface countertops. Colour samples to be presented to the Client for approval.
4. The floor to floor ceiling height should be a minimum of 10'-0" (also above the stage), since a large percentage of the ground floor areas are designed for group activities. The utility and toilet areas are 8'-0" high on both floors with moisture resistant finish of either 2' x 2' acoustical ceiling tiles or gypsum. However, the assembly hall must be designed to offer the highest possible closed board ceiling at a minimum of 12ft. Configuration of the ceiling must offer some acoustic control and temperature modulation. In this phase of the project the hall will be air conditioned, therefore all electric systems must cater for this installation. Ceilings in all areas must have heat barriers and insulation of R30. A Minimum eave of 3'-0" is required with natural cross ventilation in case of loss of power.
5. Windows: All windows shall be metal framed with integrated burglar proofing and tinted glass.
6. Doors are metal framed with tempered glass vision panels in all the

administrative areas, kitchen and servery, control room and Auditorium. All doors are metal solid core doors throughout the facility with commercial grade door closures. All door specifications to be submitted for approval. Where alternate external doors are proposed, provisions must include for the installation of sliding burglar proofing.

7. Grillwork to protect any glass front features to be provided.
8. All entrance and exit doors should be keyed both sides.
9. All plumbing fixtures to be Armitage or equal and all bathrooms floor tiles to be tiled with porcelain tiles. Ceramic wall tiles to 6ft height with tile strips installed to corners.
10. Vanities: metal or teak wood framing with Solid Surface Countertops
11. Toilet Partitions: Banyan series or other equally approved patent commercial partitioning that ensures water tightness and installed as per manufacturer's instructions.
12. Perimeter Fencing: Medium or High security, to be approved by the Client. Front of facility to have a wall and wrought iron/ palisade wall that enhances the front of the facility.
13. Main External sign letters to be routed 3/4inch, PVC, painted and UV coated, inclusive of the coat of arms. A mockup of the proposed signage to be provided for approval.
14. Washroom Accessories to be commercial grade, stainless steel fixtures (Banyan series or equivalent) including soap dispensers, paper towel holders, toilet paper holders and hand dryers.

SOUND AND STAGE LIGHTING

PA system with 2 Zone common areas paging with Opti voice capabilities Audio System Design

- The Public Address (PA) system shall be designed for sound reinforcement during assemblies, speeches, and Performances.

Basic components of system

- Loudspeakers
- Subwoofer
- Digital mixer
- Audio snake
- Wireless microphones
- Wireless paging microphone
- Mixer power amplifier
- Flush mount ceiling speakers
- Portable speaker

Standard equipment list for Auditorium.

List of standard Auditorium System equipment

Item No.	Description	Quantity
1	Flexible array Loudspeaker	2
2	Dual 10" Powered Subwoofer	1
3	Digital Stereo 8 channel Mixer	1
4	Audio Snake	1
5	Wireless Microphones	2

List of standard PA System Equipment

1	Flush mount ceiling speakers with removable or rotatable badges		Quantity varies depending on size and number of rooms
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2	Portable Speaker with rechargeable battery	1	
3	Mixer Power Amplifier	1	
	Wireless Paging Microphones	1	

Component Performance Specification

Loudspeakers shall satisfy the following minimum performance specifications: -

- a. The Loudspeaker shall be a 1000-watt self-powered two-way, ported loudspeaker system utilizing Eight (8) mid/high-range drivers.
- b. The Loudspeakers shall have a 12-inch LF high performance subwoofer. The enclosure shall be made of High impact composite materials with M8 threaded insert points.
- c. The Loudspeaker shall have an integrated 2-channel mixer with independent level controls.
- d. The Loudspeaker shall allow for control over its vertical coverage pattern by manual louvered adjustment with automatic changes to its internal EQ to maintain optimum tonal balance.
- e. The Loudspeaker shall be designed for wall mount installation or suspended up to 20 ft high.
- f. The Loudspeaker shall have a Nominal Dispersion of 100° H x 40° V with variable adjustments for the vertical axis.
- g. The Loudspeaker input shall have a nominal rated impedance of 10 k ohms (10 kΩ)
- h. The Loudspeaker shall have an Input Impedance of 2.2 kΩ (MIC), 10 kΩ (Line)
- i. The Loudspeaker input connections will allow for direct connection XLR /1/4" XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-) 1/4" TS/TRS, (2) RCA
- j. Exposed cosmetic surfaces of the Loudspeaker should be Black and the acoustically transparent grille component should be formed of powder-coated perforated steel.
- k. Each Loudspeaker shall have a bandwidth of 43 Hz - 20 kHz and a maximum continuous acoustic output of 132dB SPL.
- l. The Loudspeaker shall have an internal dynamic limiter with distortion at rated power being 0.1% Max (30 Hz - 15 kHz)
- m. Dimension shall not exceed 664.66 mm x 334.3 mm x 372.5 mm (26.1" x 13.1" x 14.6")
- n. Warranty shall be 5 years.

Subwoofer shall satisfy the following minimum performance specifications: -

- a. The Subwoofer shall be a 1000-watt self-powered compact format system utilizing two ten (10") high excursion LF drivers. The enclosure should be made of High impact composite materials with high impact composite end caps.
- b. The Subwoofer should be designed for installation in specialist localities including but not limited to House of Worships, Resorts and Hospitality venue.
- c. The Subwoofer shall have a Polarity switch to adjust polarity of subwoofer for easy correction of low-frequency overlap between the main loudspeaker and subwoofer.
- d. The Subwoofer shall possess line output EQ that sets the Subwoofer's output to a high-pass filter or full
- e. Range, which allows for easy crossover selection when used with a main loudspeaker.
- f. The subwoofer shall have a Dynamic Limiter.
- g. The Subwoofer shall have a Nominal Dispersion being Omni-directional.
- h. The Subwoofer input shall have a Cross over frequency within the range 40 – 100 Hz.
- i. The Subwoofer input connections will allow for direct connection XLR /1/4" XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-) 1/4" TS/TRS,
- j. Exposed cosmetic surfaces of the Subwoofer should be Black and the acoustically transparent grille component should be formed of powder-coated perforated steel.
- k. Each Subwoofer shall have a bandwidth of 38 Hz – 250 Hz and a maximum continuous acoustic output of 130dB SPL,
- l. The Subwoofer should have a dynamic limiter with distortion at rated power being 0.1% Max (30 Hz - 15 kHz)
- m. Warranty should be 5 years.

Audio snake

- a. The number of input connections should be at least 12.
- b. The number of output connections should be at least 4.
- c. The connections should be XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-)
- d. The cable should be of suitable length to position the casing of the head at the back of the stage and the tail in the control room.
- e. The head enclosure should be made of metal.
- f. The connections should have numbered wires for identification at the tail end.
- g. Warranty should be 5 years.

Wireless microphones

- h. Working Range should be 91 m (300 ft) Line of Sight
- i. Audio Frequency Response 50 to 15,000 Hz
- j. Total Harmonic Distortion of Ref. ± 33 kHz deviation with 1 kHz tone 0.5%, typical
- k. Dynamic Range of 100 dB, A-weighted, typical
- l. Audio Input Level should be max of -16 dBV, min (0 dB) +10 dBV
- m. Input Impedance 1 M Ω
- n. RF Transmitter Output 10 mW, typical
- o. Power Requirements must be 2 LR6 AA batteries, 1.5 V, alkaline
- p. Battery Life should be up to 14 hours (alkaline)
- q. Receiver
- r. XLR connector 200 Ω
- s. 6.35 mm (1/4") connector 50 Ω
- t. XLR connector -27 dBV (into 100 k Ω load)
- u. 6.35 mm (1/4") connector -13 dBV (into 100 k Ω load)
- v. RF Sensitivity
- w. 105 dBm for 12 dB SINAD, typical
- x. Power Requirements 12–15 V DC @ 235 mA, supplied by external power supply (tip positive)
- y. Warranty should be 1 years.

Mixer Power Amplifier for Opti voice paging shall satisfy the following minimum performance specifications: -

- a. The mixer/amplifier should employ Class-D amplification together with a digital signal processing architecture running at 48 kHz / 24 bit.
- b. The mixer/amplifier should incorporate a switch-mode power supply allowing normal operation from AC outlets ranging from 100 – 240 V ($\pm 10\%$) at 50/60 Hz. The amplifier should have an IEC 320-C14 electrical power inlet and should be equipped with a removable power supply cord. A power switch should be located on the front panel.
- c. The product should include protection from shorted loads and general overheating.
- d. The mixer/amplifier's physical size should be 1 RU in height by 1 RU in width and be capable of rack mounting.
- e. The product should have venting with a single fan, continuous left-to-right airflow. Each output channel should have output trim controls.
- f. The mixer/amplifier should have two output channels with a frequency response of 55 Hz to 20 kHz (+0/-3 dB) and drive 70/100 V distributed audio systems.
- g. The mixer/amplifier should have THD+N at rated power less than or equal to 0.3%. Output connections should be made via 2-pin touch-proof Euroblock connectors.

- h. The mixer/amplifier should meet or exceed the following performance specifications: channel separation (crosstalk) less than or equal to -60 dB below rated power at 1 kHz and dynamic range of 88 dB.
- i. The mixer/amplifier should incorporate 3 line-level inputs (two RCA stereo, one 3.5 mm stereo) and one microphone input for paging applications. Two of the line level inputs should be selectable via a switch on the front panel while the third input should override line input channels upon connection.
- j. The nominal input sensitivity should be 0 dBV for line level inputs and -40 dBV for microphone inputs.
- k. The microphone input should be mounted on the rear, support dynamic microphones and select telephone systems with PTT switching.
- l. The paging microphone input should have automatic ducking capabilities activated via a selector switch on the rear panel.
- m. The microphone input should bypass master volume control via a selector switch on the rear panel.
- n. All inputs should have individual input gain controls with the exception of the 3.5 mm priority input connector on the front panel.
- o. The mixer/amplifier should have an auxiliary line-output via two RCA connectors. The front panel should also have user-accessible treble, bass and master volume controls.
- p. Warranty should be 5 years.

Flush mount ceiling speakers shall satisfy the following minimum performance specifications: -

- a. The full-range loudspeaker shall contain a single full-range 2.25-inch transducer, low frequency range down to 83 Hz, and sensitivity of 86 dB SPL / 1 W @ 1 m
- b. The full-range Loudspeaker shall meet the following performance specifications: On-axis system frequency response should be 83 Hz to 19 kHz (-10 dB) with the use of recommended active equalization.
- c. The Loudspeaker sensitivity should be 86dB SPL in half-space environment with 1 W input at 1 meter.
- d. The long-term power handling rating should be 20 W (AES test methodology using IEC system noise, 2-hour duration). Maximum continuous output shall be 99 dB SPL and the maximum peak output should be 105 dB SPL, both in half-space environment.
- e. The nominal coverage pattern should be 160° conical at 1-4 kHz.
- f. The Loudspeaker shall be constructed of an engineered-plastics front baffle with an integrated steel formed enclosure. The Loudspeaker shall consist of PC-PBT plastic materials that are resilient to cooking oil exposure. The Loudspeaker should be plenum rated for use in air handling spaces and in

compliance with the following safety standards; UL1480 for Fire Alarm and Signaling Systems, UL2043.

- g. The transducers shall be located behind a perforated steel grille with a powder-coated finish.
- h. The Loudspeaker shall contain standard mounting arms.
- i. The Loudspeaker shall be available in black or white.
- j. The Loudspeaker shall fit a modern aesthetic with the option to remove logos.
- k. Input connectors shall be a Euro block pin connector with loop-through, located on the front baffle.
- l. The Loudspeaker shall have a nominal rated impedance of 16 ohms and should be wired in parallel with a line voltage matching (stepdown) transformer with a level selector appropriate for output taps of 1, 2, 4, 8, 16 Watts and Bypass (16 ohms).
- m. The Loudspeaker input connections shall allow for direct connection to 70-volt, 100-volt or low-impedance amplifiers. Loudspeaker back can dimension shall be 127 x 125 mm (5.0 x 4.9 in) and net weight should be 1.63 kg (3.6 lbs) with grille. Outward front baffle dimensions should be 182 mm (7.2 in).
- n. Warranty should be 5 years.

Portable speaker/ Monitor shall satisfy the following minimum performance specifications: -

- o. The Portable speaker shall be suitable for use in commercial setting including Houses of worship, Schools and Universities, Resorts and Hospitality venues or Live music performances
- p. The Portable speaker shall be a multiple driver, full-range portable loudspeaker system with internally supplied power amplification and active equalization for multiple operating modes. The transducer complement shall consist of high-excursion full range drivers, With a dedicated low frequency driver.
- q. The Portable speaker shall have a Rechargeable lithium-ion battery allows performance of up to 8 hours.
- r. The Portable speaker shall have an Onboard 3-channel mixer which offers reverb, and EQ controls on two channels, with a dedicated channel for either wired (3.5 mm) or wireless music sources via Wireless Bluetooth® streaming.
- s. The Portable speaker shall allow for multiple placement orientations with Auto eq to maintain tonal consistency.
- t. The Portable speaker shall be compatible with standard 35 mm pole mounts.
- u. The nominal horizontal beam width of the portable speaker shall be 140°, and the vertical coverage shall be 40°.

- v. The Power Amplification for transducers shall be supplied by the integrated power supply providing 130 W continuous pink noise, band-limited from 65 Hz to 14 kHz (-3 dB).
- w. The input connectors of the Portable speaker shall consist of one XLR with equalization for a
- x. dynamic handheld microphone, one 1/4" TRS, stereo RCA, and one 1/8" TRS receptacle. The output connectors of the portable speaker shall consist of one 1/4" balanced TRS
- y. Warranty should be 5 years.

Digital Mixer shall satisfy the following minimum performance

specifications: -

- a. Digital stereo 8 Channel mixer containing eight high-quality audio preamps with
- b. XLR-combo jacks for microphones or instruments, and switchable phantom power
- c. Aux inputs for additional sources minimum four
- d. USB-A and -B for USB drive playback or PC/Mac interfacing
- e. Balanced 1/4" TRS and XLR stereo outputs
- f. Independent headphone output
- g. The Digital Mixer shall offer Updated, studio-quality effects with advanced digital
- h. audio processing. Effects include compressor, limiter, de-esser, noise gate,
- i. chorus, flanger, phaser, tremolo, delay, and reverb
- j. The Digital Mixer shall have on built in on board tonal presets for different instruments or equipment such as Shure/Sennheiser mics, Acoustic/Electric Guitars, Saxophone, DJ controllers and the likes of the industry.
- k. The Mixer shall have sound processing for natural-sounding vocals and instruments
- l. The Digital mixer shall have EQ focusing the sound presets for effective adjustments on the fly
- m. The digital mixer shall offer Independent EQ, dynamics and effects per individual channel, Dedicated reverb for Aux sends, and a global shared reverb for use across all channels
- n. The digital Mixer shall offer Master output EQ to compensate for venue acoustics
- o. The Digital Mixer should allow for Full end-to-end tonal optimization when used Loudspeakers and Subwoofers with cross over range between 40 – 100 Hz.
- p. The digital mixer shall have Seamless Live Control with Tactile controls and indicators designed for live on-stage
- q. use by musicians and DJs
- r. The Digital Mixer shall offer an uncluttered user interface

- s. The digital Mixer shall be able to create and store Built-in tap tempo delay, chromatic tuner, and recallable scenes.
- t. The digital mixer shall allow for low light operations with LED display and illuminated controls are easy to read.



USER REQUIREMENTS FOR THE LOWER EL DORADO COMMUNITY CENTRE

Modified Design-Build Services using the FIDIC Yellow Book:
Conditions of Contract for Plant and Design Build

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BACKGROUND

UDeCOTT, on behalf of the Ministry of Sport and Community Development, is desirous of completing the Design-Build Services for the Lower El Dorado Community Centre. In this regard, UDeCOTT wishes to retain the services of a qualified, experienced and competent Design Build Contractor to perform design and works in accordance with the Scope and Specifications. The preferred proponent is expected to provide full designs, construction documents and specifications for all statutory approvals and construction. The format of implementation will be a Design Build Contract.

Sites will be revaluated and the main access to the site and parking will be determined by UDeCOTT and the Client Ministry. The facilities will comprise of a main assembly hall and a combination of outreach activity spaces will be all located within a two-storey facility. Additionally, a local youth group currently jointly occupy the site with the Community Centre. As such the proposed facilities shall also comprise a space for the group.

DESIGN-BUILD CONTRACTOR RESPONSIBILITIES

1. Preparation of site surveys to determine the exact conditions of the Project Site and any other investigative surveys or assessments that may need to be completed as part of its proposal.
2. Development of Client provided Conceptual Drawings, preparation and submission of Designs and Drawings (Architectural, Civil/Structural Engineering, Mechanical, Electrical Engineering and Plumbing and Fabrication). Designs and drawings shall be completed to a level of detail, adequacy and completeness. The designer shall ensure the final design meets all statutory and employer's requirements
3. Statutory Approvals (Fire, Electrical, WASA etc.)
4. Project Programme & Works Scheduling
5. Project Insurances
6. Project Delivery
7. Contract Management
8. Subcontractor Coordination and verification of works.
9. Temporary hoarding of the site including gateway for vehicular and pedestrian access and maintenance of access throughout the duration of the project
10. Temporary Utilities as required for the project site (water, electricity). Ensure the site is well lit at all times for security purposes.
11. Health Safety, Security and Environmental Management during the works inclusive of Covid-19 management protocols.
12. Site Waste Management and disposal.
13. Furnishing all labour, materials, tools, equipment, and services necessary for the successful completion of the construction of the project as stated in the RFP and the BOQ, and in accordance with the approved drawings, specifications and defined requirements.
14. Product Specifications

15. Preparation and submission of as built drawings, equipment guarantees/warranties, equipment manuals, test certificates.
16. Ensure all design are reviewed by UDeCOTT and the End User.
17. Ensure a copy of all project drawings are issued to UDeCOTT. On-site drawings to identify any changes made on-site.
18. Ensure all product data/specifications are submitted to UDeCOTT for review
19. Where applicable, ensure that methodologies associated with Notice to Correct are submitted for UDeCOTT non-objection.
20. Familiarization of the Site surroundings/Environs so as to ensure Tendered sum includes for all reasonable associated security risks.
21. Testing (for example Concrete Testing) is to be completed by an independent testing agency.
22. Implementation of a QA/QC System to ensure delivery of quality products in accordance with product specifications and design requirements.
23. Provision of site security which meet the following requirements:
 - Construction of a temporary guard booth at the entrance gate to house security personnel. The booth shall be equipped with chairs, desks, lighting and power, a cellphone with credit managed by either the Contractor or a Security Provider for emergency calls. Log emergency contacts at the booth.
 - Ensure the security guard personnel is uniformed and adequately trained to respond in adequately in emergency situations and incidents
 - Security guard shall log all persons and vehicles entering and exiting the site daily in a log book secured at the guard booth
 - Retain scanned copies of identification cards for all workers on the site
 - Provide a CCTV surveillance system for the site throughout the duration of the project. The system will not be accepted as permanent works in the main building upon completion. The system shall monitor the site, all access points to the site, the road way bounding the site and any other vulnerable areas. Faces and license plates of vehicles shall be easily recognizable. The system

shall have Wifi capabilities and provide remote monitoring capabilities to be shared with UDeCOTT site staff.

24. Provide site office accommodation for the Employer and Engineer for the duration of the Project. The Contractor may locate the site offices on the Site at the Contractor's discretion. The provisions of the site office facilities will be provided at no cost to the Employer and must comply with the Laws.

The site building shall be as follows:

- a) 1 site office, 12' x 16' minimum with air conditioning used by the Engineer and Employer;
- b) Access to 1 toilet room for the exclusive use by the Engineer and the Employer;
- c) The site office, equipment and furnishings shall be maintained by the Contractor in a clean and orderly condition, which includes washing of the floors, bathrooms and trash removal at least twice per week;
- d) The site offices and toilet room for the Engineer shall be equipped with keyed locks and the Contractor shall furnish a sets of keys to the Engineer;
- e) The site offices for the Engineer shall be furnished with the following furniture, fittings and equipment for the whole duration of the Works:
 - 2 (two) desks and 2 (two) deluxe chairs with swivel base on casters and adjustable arms, 2 (two) visitors chairs
 - 1 (one) white board, wall mounted, 36" x 48"
 - 1 (one) multifunction copier machine (copy, print, scan and fax) RICOH Aficio MP1600L or equivalent. The equipment is to be maintained for the duration of the project (supply of inks, cartridges and paper at the Contractor's cost)
 - 1 (one) mini-refrigerator 4 cubic feet capacity 33"H x 18"W x 20"D
 - 1 (one) water cooler to receive 18 litres bottled water (supply of paper cups and bottled water at the Contractor's cost)
 - 1 (one) 1 litre kettle
 - Independent high-speed internet access.
 - All furniture, fittings and equipment shall be in good shape and commercial grade. All temporary structures, facilities and arrangements shall be removed by the Contractor at the completion of the Works.

- One Tablet with the following minimum specification:
 - Operating System: Android 10.0 or above
 - Screen Size: 10 or above
 - Touchscreen: Yes
 - Pen/stylus : Yes
 - Processor: Qualcomm SDM865 Plus
 - Processor Speed: Octa Core (1x3.09GHz + 3x2.4GHz + 4x1.8GHz)
 - RAM: 8GB (RAM)
 - Internal Memory: 512GB
 - Micro SD Slot: Yes
 - Cameras: Rear: 10MP or above, Front: 8MP or above
 - External Memory: 8,000mAh or Higher
 - Network: 5G or Wi-Fi (802.11 a/b/g/n/ac/ax 2.4G + 5GHz)
 - Bluetooth: Yes
 - Speakers: yes

NOTE: The Tablet remains the property of UDeCOTT, following the completion of the project.

DESIGNS

CONCEPT

The concept approach to the design of the facility is to place the more frequently used outreach programs in one zone or module while allowing the hall to remain as an independent module. This gives all the community members greater access to the more critical services offered by the proposed programs. Part of the design intent is to allow equal access to all areas of the facility while maximizing flexibility, and controlling maintenance and operating costs. The proposed space for the Youth Group shall be spatially arranged so that it can operate independently from the main community centre.

In order to bring an awareness of the environmental issues and conservation practices, the centre by its design should demonstrate energy conservation in its approach to the use of natural lighting. The large overhangs and buffer zones between the main volumes will significantly reduce the cost of cooling.

Given that the construction cost represents a significant investment in the community, proposed materials, finishes and equipment should be chosen with the view that maintenance and long-term operation of the facility is the responsibility of the community itself. Therefore, easy replacement and ongoing upgrade of specific speciality rooms must be looked at carefully. It is intended that the facility be used as a change agent for the positive upgrade of skill sets across a wide generational range. In order to maximise the social interaction between the widest range of users, generous public porches and breakout zones form an integral part of a "Community bonding experience".

Flexibility of use is an important part of the design of the facility; all areas are intended to change and adapt to the needs of the community. Therefore the offices can become consultation areas by changing the furniture configuration. All lobbies and covered porches can be used for informal exhibitions and casual events. The entire facility must be designed as a modern resource centre with access to Wi-Fi.

By locating the audio- visual areas adjacent to the computer lab and administration offices, security issues will be better served since these represent the higher risk areas.

Since retraining will eventually become a normal part of our times, this centre will likely be the first intervention space to that the community seeks. In the event of any national emergency. The centre is also expected to play a major role in relief efforts, to this end, all local, regional and international building codes must be adhered to.

AMENITIES

The community centre's design should include the following facilities (and as shown on the Conceptual Design included in the Tender Document):

1. Construction of a Security Booth. Security booth to be ventilated and include an appropriately sized washroom facility, inclusive of the installation of an exhaust fan.
2. Provision of a Community Gym, with access isolated from the Community Centre's main entrance, inclusive of Male and Female Change rooms with 1 toilet, sink and shower each. Installation of gym rubber flooring mat with border and duplex outlets to facilitate equipment outfitting for a minimum of 10 persons.
3. A Teaching Kitchen with allowances for two stoves (one electric and one gas) and space that can accommodate a minimum of 10 persons at one time. Additionally, supply and installation of 2x100 pounds gas cylinders and system for the gas stove. Gas lines to be concealed. Supply and install Industrial type Range Hoods with ducted extractor system. Supply and install 2 No. deep single basin stainless steel kitchen sinks, specifications to be approved. Overhead and under counter cabinetry to be installed and comprised of 100% hardwood. Solid surface countertop and tiled backsplash. An external access to the kitchen to be provided.
4. Servery area linked to the teaching kitchen with provision of a solid surface counter and one row of shelving below. Above counter outlets. Square hood roller shutter door to be installed.
5. Provision of a Community column free Multi-Purpose Hall (250-300 theatre style seating capacity). The hall should include a stage with electrical outlets and fixed walls to hide backstage view. Teak stage flooring with a minimum stage depth of 13 feet and minimum

height of 24". Male and Female Back stage change rooms (inclusive of toilet, shower sink and countertop, mirror and wooden bench). There shall be an alternative access to the back stage changing rooms. Backstage flooring should be at the same elevation as the stage. Wheel chair ramp to stage located to the side of stage or concealed. Installation of two (2) communication outlets ceiling height, for the installation of Access Points. Locations to be approved by the Client to ensure full coverage at Auditorium level.

6. Control Room with operable window in direct line of sight to the stage. Flooring of room to be elevated above the Auditorium flooring level. Provision of desk and shelving for the storage of the sound system equipment and mixer board etc. installed.
7. Provisions for Sound and Stage Lighting systems in the Auditorium and a Public Address System throughout the facility. (see specification on page 29)
8. A Computer Room (Cyber Café) with minimum 10 stations and 1No. Administration desk, to include the following:
 - a. Installation of Work Stations and Admin Desk. Materials to be approved by the Client. Workstations work surface to be made from solid surface. Minimum size of work stations 30" (w) and desktops 29" high and 24" deep. All workstations to have a privacy screen partitions constructed of same material and no higher than 12".
 - b. Each Workstation to have a grommet, communication outlet (CAT6 Ethernet) and duplex outlets. Grommets to be 7" from the centre line to the left or right and with enough room to clear the frame on the top. Corner stations to have grommets at the same depth as regular stations. Workstations not to be interrupted by doors. Dedicated space with duplex outlet and communication outlet to be provided for the printer.
 - c. The Admin desk to have a grommet, communication outlet (CAT6 Ethernet) and 2No. duplex outlets. The desk will be located by the entrance or at the front of the room facing in; person's back must not be to the clients.
 - d. 1No. wall mounted Network Closet to be installed. Pulling of CAT 6 Ethernet cables including all required in wall and ceiling raceways and installation of female end "keystone" communication port with the other male end "keystone" jack terminating at the Network Cabinet. Specifications as follows:
 - i. Dimensions: 23.5"W x 22"D

- ii. Rack Height: 13U - 15U
 - iii. Colour: Black
 - iv. Load Capacity: 200 lbs
 - v. Construction:
 - 1. Sturdy and rugged welded frame construction
 - 2. Reinforced lockable door
 - 3. Two-section, swing-out design allows access to the front and rear of equipment
 - 4. Includes adjustable depth equipment mounting rails
 - 5. Removable and reversible door and side panel
 - 6. Cable pass-through knockouts
 - vi. Two (2) extractor fans (included)
 - vii. Include PDU strip mounted internally in the Network Cabinet
 - viii. Fits all standard 19" rack mount devices up to 20" mountable depth
 - 1. Warranty: Minimum one (1) year repair or replacement
 - e. Installation of four (4) duplex electrical wall outlets, one (1) behind the Network Cabinet for use with networking equipment and three (3) below the cabinet. Installation of one (1) 4 port communication outlet beneath the Network Cabinet.
 - f. Provision of one (1) duplex and one (1) communication outlet for the tv (both 7' from the floor) and pulling of one (1) HDMI cable from television mount location through floor to Admin desk. Location at the front of the room.
 - g. Installation of one communication outlet to ceiling height, centre of room for installation of an Access Point.
 - h. Installation of a key card access.
 - i. Painting of interior walls (2 colours, one (1) accent wall). Accent wall: Sherwin Williams Rookwood Sash Green; Remaining Walls: Sherwin Williams Silverpointe. Paint colours to be reconfirmed by the Client.
9. Training Room/ Audio Visual Room/ Classroom:
- a. Installation of duplex outlets on all walls. Installation of an additional duplex outlet and communication outlet at the front of the room for the Admin desk.

- b. Provision of one (1) duplex and one (1) communication outlet for the tv (both 7' from the floor) and pulling of one (1) HDMI cable from television mount location through floor to Admin desk. Location at the front of the room.
 - c. Installation of one (1) communication outlet to ceiling height, centre of room for installation of an Access Point.
 - d. Painting of interior walls (2 colours, one (1) accent wall). Accent wall: Sherwin Williams Rookwood Sash Green; Remaining Walls: Sherwin Williams Silverpointe. Paint colours to be reconfirmed by the Client
 - e. Civil works as required for conduits and raceways from the private entry pole.
10. Administration Office for two persons. Office to be located at the front of the facility, in close proximity to the lobby area.
 11. Receptionist Area/ Main Lobby/ Vestibule for gathering/ greeting persons. Area to be air conditioned. Installation of one (1) communication outlet to ceiling height in lobby area on the ground floor for installation of an Access Point.
 12. Male and Female Washrooms to be located on each floor with provisions for the differently abled. All Washrooms and Change Rooms/ Dressing Rooms to have extractor fans that operate on a timer switch. Washroom to be equipped with commercial grade accessories including soap dispensers, paper towel holders, toilet paper holders and hand dryers.
 13. Pan/ Music Hall. Open floor area with two (2) integrated toilets with showers, storage and external practice area for the Youth Group. Practice Area to be covered with high level roofing with adequate lighting. Pan/ Music Hall area to have external access door and separate access gate for loading/ unloading of equipment.
 14. Storage area to hold a minimum of 200 chairs and 10 tables.
 15. Laundry room with provisions for washers and dryers with expel air.
 16. Janitorial room with an appropriate Janitorial sink.
 17. WiFi Patio. This covered, open air, external space will have bolted down benches and tables for a minimum of 10 persons. The Patio shall be equipped with duplex outlets built-in to the patio tables, adequate lighting, and two (2) access points (Keystone ports) for provision of WiFi to the Patio.
 18. Electrical/ Service Room.
 19. Provision of a Security System with upgradable Wi-Fi capabilities.

CCTV System - Ensure no blind spots. Cameras to be located externally, covering all access points to the Site, in the carpark and within corridors. Cameras to be digital, 4MP and higher. System to have storage capacity for 1 month period minimum. System to be accessible remotely. Video storage device (DVR/ NVR) to be located in the Admin Office. Monitor to be placed in the Administrator's Office and another in the Guard Booth. System to be placed on a UPS with minimum 1 hour back up power. Ensure a 1 year warranty.

Access Control – Key card access with electromagnetic locking system to be on UPS (minimum 1 hour). Key card access to be provided for the Computer lab, Administrative Office, Control Room and one (1) other area as confirmed by the Client. Key Card panel to be located externally and a request to exit button installed internally at the Manager's desk in the Administration Room, Cyber Café and Control Room. Ensure a 1 year warranty.

20. Fire Detection (addressable system) and Fire Suppression System. Ensure a 1 year warranty.
21. HVAC system, inclusive of exhaust fans for all washrooms, industrial type range hood with ducted vent system, and air conditioning. External AC condensers installed at ground floor level to be secured with operable burglar proofing. Fire access ladder to be installed for condensers installed at roof level. No cassette type ac units. Ensure a 1 year warranty.
22. Provision of an ADA 8 passenger lifts/elevators for all members of the public. Ensure warranty is provided.
23. Provisions for all physically challenged members of the Community.
24. 100% back up power (Standby Generator) with fuel capacity for a minimum of eight (8) hours inclusive of ATS. Generator to be located away from the front of the facility. Ensure warranty is provided.
25. Signage (commercial grade internal rooms and external signage with UV protection). Schedule and material to be approved by the Client. See specifications on page 26.
26. LED Lighting fixtures with a minimum 2 year warranty.
27. Emergency wall mounted lights to be installed. Ensure 1 year warranty.
28. External lighting to be energy efficient with low maintenance requirement. Ensure 1 year warranty.
29. Lightning protection and grounding.
30. Integrated communication system (keystone ports in Cyber Café, Training Room, Access Points for WiFi, Network Cabinet located in the Cyber Café)

31. Plumbing system (Hot and Cold potable water, waste water, sewerage and fire). Ensure 1 year warranty on all equipment.
32. Tank Farm (secured with medium security fencing (same colour as perimeter fencing) and roller gate) to be located away from the front of the facility. Covered housing for pumps and heater.
33. Site Drainage. Box drains (larger than 450mm x 450mm) and catchpits located within the premises to be covered with provisions for maintenance of the drains.
34. A clearly defined and controlled perimeter fencing (medium security fencing with colour to be confirmed by the Engineer). Palisade fencing to the front of the facility. Pedestrian access and vehicular access to be located in the vicinity of the guard booth.
35. External Waste Disposal Area integrated in the fencing, to be accessible both internally and externally of the premises.
36. A well-lit Parking arrangement for a minimum of 23 vehicles, inclusive of 2 spots that are ADA compliant and 1 loading/ unloading bay (or as required for statutory approval). Drainage, structural stability, lighting and driveway access to be provided for off-site parking shown on the Conceptual Design. The structure of the offsite field parking is to be reinforced to sustain vehicles, however the surface to remain grassed. Supply and installation of wheel stops. Two (2) WiFi drops on the parking lot side of the building.
37. Integrated landscaping inclusive of a decorative feature at the front of the facility.

DESIGN REQUIREMENTS

Preparation and submission of Designs and Drawings (in accordance with the “Design-Build Proposal /Approach”) shall include the following:-

1. Designs and drawings shall be completed to a level of detail, adequacy and completeness which will be acceptable for submission to the Town & Country Planning Division (TCPD) to meet the requirements for Final Approval.
2. Preparation and submission of the geotechnical investigative report.
3. Technical Specifications (Materials and Workmanship, Codes)
4. Listing, Description and Layout of proposed basic furniture, fixtures and equipment.
5. Cut sheets for all plumbing, electrical, IT, fittings and fixtures and any special architectural features
6. Architectural and Engineering Designs and Drawings (plans, elevations, sections and details) shall include as required but not be limited to the following:
 - a) Site Plan –
 - Site plan of the project showing location of applicable buildings, drives, and major mechanical equipment, parking and landscape elements.
 - Clear delineation of the project limit lines
 - Preliminary spot elevations
 - Primary spot elevations
 - Existing utilities
 - Proposed utilities
 - Site drainage
 - Site sections as needed to explain overall relationships
 - A coordinated drawing of the infrastructural elements
 - Box drains located within the premises to be covered
 - b) Garbage Collection and Disposal systems

- c) External Perimeter Fencing (high security fencing)
- d) Security Booth (main entrance location)
- e) Building Plans
 - Plans of all floors showing proposed structural system and structural elements, vertical shafts, interior partitions, floor elevations
 - Key dimensions, bay sizes and overall dimensions
 - General notes indicating major extent of materials and any special conditions or equipment
 - Overhead items noted
 - Building sections keyed
 - Key Project limit lines noted if not otherwise clear
 - Independent access to male and female public washroom
 - Preliminary finish schedule
 - Area summary
- f) Roof Plan
 - Major roof-mounted MEP equipment and openings
 - Roof Framing, Structural and Finishing Details
- g) Building Sections
 - Major vertical heights
 - Ceiling heights
 - Typical wall sections keyed
- h) Building Elevations
 - All elevations with extent of glazing, façade and finishes detailed.
 - Minor elevations if they contain significant items (loading docks, bridges, etc.)
 - All materials called out in notes
 - Floor lines indicated
 - Overall dimensions
 - Set-backs and overhangs indicated
 - Relationship to existing and finished grade clearly shown

i) Structural

- Comprehensive evaluation, analysis and design report of the proposed structural building systems and elements.
- Structural system description of any applicable alterations
- One line drawing of any applicable floor and roof framing plans
- Typical member sizes noted
- Structural Details of all connections and special conditions (large spans, cantilevers, etc.)

j) MEP

- Comprehensive evaluation, analysis and design reports of the proposed MEP systems
- Preliminary system selection
- Energy sources identified, entrances noted on architectural drawings
- Equipment requirements included in architectural drawings
- External MEP equipment must not detract from the front facade of the building
- Utility corridors and risers spaces sized and indicated on architectural drawings
- Special features noted on electrical drawings
- One line system schematics over architectural plans
- Mechanical - Air Conditioning System, Ventilation
- Electrical
- Main Infrastructure – Power and Telecommunications
 - I. Supply & Distribution System
 - II. Lighting – Internal and External systems
 - III. Power Systems
 - IV. Telecommunication System - telephone, internet and television service.
 - V. Information Technology Systems
 - VI. Fire Alarm System

- VII. Security System
 - Plumbing
 - I. Potable Water System Potable Water Booster Pump
 - II. Water Storage
 - III. Pipework
 - IV. Hot water System
 - V. Sanitary Waste and Vent System
 - VI. Sanitary Fixtures

7. All designs shall be prepared in accordance and in compliance with the guidelines, regulations and statutory requirements of all Governmental Statutory and Regulatory Agencies, which include:
 - a) Town & Country Planning Division (TCPD)
 - b) Water and Sewerage Authority (WASA)
 - c) Trinidad and Tobago Electricity Commission (T&TEC)
 - d) Port of Spain City Corporation
 - e) Local Health Authorities
 - f) Ministry of Works and Transport (MOWT - Designs Branch, Highways and Drainage Division)
 - g) Division, Traffic Management Branch and other applicable Divisions)
 - h) Regional Corporations
 - i) Trinidad and Tobago Fire Services
 - j) Environmental Management Authority (EMA)
 - k) Telecommunications Services of Trinidad & Tobago (TSTT)
 - l) Cable Company

8. The Proponent shall assume full responsibility for the professional quality, completeness, accuracy and co-ordination of all design documents and its conformance with all applicable laws, rules, regulations and orders governing said work.

9. All design documents (including drawings, plans, schedules, equipment manuals etc.) shall describe with specificity all elements, details, components, materials, and other information necessary for the complete construction of the Works and the delivery of the Works fully functional and operational for its intended purposes, including compliance/satisfaction of all testing, permitting, qualifications, certifications, validations, and obtaining regulatory certification and approvals by all applicable regulatory authorities required to render the Project and all its components operational and functionally and legally usable for their intended purpose.
10. The Proponent shall perform all Design Services described in, contemplated by, inferable from, or necessary or desirable to achieve the objectives specifically stated in the Scope of Works and in the Employer's requirements and the Contract, including all Design Services necessary for the Project to be properly constructed by the Contractor and used by the Employer in accordance with all applicable guidelines, requirements and standards.
11. All design and construction documents shall be prepared using the English (metric) system, unless otherwise specified in the Contract.
12. Design services shall be performed by licensed design professionals. The standard of care for architectural and engineering services performed shall be the highest degree of care and skill used by design professionals practicing under the same time and locality conditions
13. As-built drawings for architectural, Civil/Structural Engineering, Mechanical, Electrical Engineering and Plumbing
14. The proposed codes and standards to be used in the designs include the following:

ARCHITECTURAL DESIGNS

- | | |
|----------------------------|--|
| PLANNING | <ul style="list-style-type: none"> • Town and Country Planning Regulations • Regional Corporation Regulations |
| BUILDINGS/
STRUCTURES | <ul style="list-style-type: none"> • International Building Code (IBC) 2015. • Caribbean Uniform Building Code (CUBIC) • AWPA U1 – User Specification for Treated Wood: 2012 • American Society of Civil Engineers code ASCE-7-05 • International Building Code (IBC) for earthquake loading using equivalent static analysis and compared to CUBIC. A peak ground acceleration of 0.4g shall be used. • American National Standards Institute (ANSI) • American Concrete Institute ACI 318 • American Institute of Steel Construction (AISC manuals) • ASHRAE Standard 189.1 |
| LIFE SAFETY | <ul style="list-style-type: none"> • NFPA 101-2015 – Life Safety Code • NFPA 1-2015 – Fire Code |
| UNIVERSAL
ACCESSIBILITY | <ul style="list-style-type: none"> • Accessible and Usable Buildings and Facilities ANSI A177.1:2014 |
| SUSTAINABILITY | <ul style="list-style-type: none"> • LEED v4 Guidelines |
| LOCAL
REGULATIONS | <ul style="list-style-type: none"> • GORTT Office Outfitting Policy • The Occupational Safety and Health Act 1, 2004 as amended 2006 |

STRUCTURAL ENGINEERING DESIGNS

- | | |
|------------------------|---|
| VERTICAL
LOADS | <ul style="list-style-type: none"> • American Society of Civil Engineers (ASCE): ASCE 7-05 Minimum Design Loads for Buildings and Other Structure |
| EARTHQUAKE
LOADS | <ul style="list-style-type: none"> • ASCE 7-05 and International Building Code (IBC) 2009 - (Refer to Seismic Research Unit website http://www.uwiseismic.com/Maps.aspx for Hazard Maps of Trinidad and Tobago -2475 year Return Period) |
| WIND LOADS | <ul style="list-style-type: none"> • ASCE 7-05 (Trinidad 117mph, Tobago 130mph – 3 sec. Gust for Trinidad and Tobago) |
| REINFORCED
CONCRETE | <ul style="list-style-type: none"> • American Concrete Institute (ACI): ACI 318-08 or latest Building Code Requirements for Structural Concrete |

- STRUCTURAL STEEL
- American Institute of Steel Construction (AISC): Manual of Steel Construction (Load & Resistance Factor Design), Specification for Structural Steel Buildings (AISC 360-10),
 - AISC 341 – 10 including Supplement No. 1 dated 2006 (Seismic Provisions for Structural Steel Buildings)
 - AISC 358 - 10 including Supplement No. 1 dated 2009 (Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications)
 - ACI 530-05 / ASCE 5-05 / TMS 402-02
- STRUCTURAL MASONRY
- STEEL REINFORCEMENT
- ASTM A615 GR 60 – $F_y = 60$ ksi, $F_u = 75$ ksi
- STRUCTURAL STEEL MATERIAL:
- ASTM A992 – $F_y = 50$ ksi (Wide Flange and Hot Rolled Sections)
 - ASTM A36 – $F_y = 36$ ksi (Plates)
- OTHER STANDARDS
- ASTM – American Society for Testing and Materials
- IMPORTANT NOTE:
- **The structural designs should comply to the Ministry of Works and Infrastructure latest Structural Design Guidelines for Trinidad & Tobago**
 - **All structural drawings should be stamped and signed with a registered Civil / Structural Engineer's Board of Engineers' stamp of T&T.**
 - All designs must be accompanied by structural design calculations which must include the following:
 - Design Data Sheet
 - Design Methodology Sheet with assumptions made in the modelling of the structure.
 - Drawing of the complete mathematical model used in the structural (manual or computer) analysis.
 - Clear input and output data.
 - An electronic copy of the computer structural model.
- LOCAL REGULATIONS
- Trinidad and Tobago Standard - Recommendations for the Design of Building – TTS 16 90 400 (1978)
 - National Building Code of Trinidad & Tobago
 - BAPE WIND CODE (1981)
 - Wind Speed Maps for the Caribbean for Application with the Wind Load Provisions of ASCE 7 shall be used to determine reference velocities as defined in ASCE 7.

MECHANICAL AND ELECTRICAL ENGINEERING DESIGNS

- ELECTRICAL
- ANSI C37.13 – 2015 Standard For Low-Voltage AC Power Circuit Breakers Used In Enclosures
 - ANSI C37.14 - 2015 Standard for DC (3200 V and below) Power Circuit Breakers Used in Enclosures
 - ANSI C57.12.00 – 2010 Standard For General Requirements For Liquid-Immersed Distribution, Power, And Regulating Transformers
 - ANSI C57.12.01 – 2015 Standard For General Requirements For Dry-Type Distribution And Power Transformers
 - ANSI C63.12 – 2015 Standard Recommended Practice For Electromagnetic Compatibility Limits And Test Levels
 - ANSI C80.1 - 2015 Electrical Rigid Steel Conduit
 - ANSI C80.3 - 2015 Electrical Metallic Tubing - Steel (EMT-S)
 - ANSI C80.6 - 2018 Electrical Intermediate Metal Conduit
- HVAC
- ASHRAE Handbook—HVAC Applications, 2019
 - ASHRAE Handbook—HVAC Systems and Equipment, 2020
 - ASHRAE 55 – 2017 Thermal Environmental Conditions for Human Occupancy
 - ASHRAE 62.1 - 2019 Ventilation for Acceptable Indoor Air Quality
 - ASHRAE 90.1 - 2019 Energy Standard for Buildings except Low-Rise Residential Buildings
 - ASHRAE Standard 90.4 - 2019 Energy Standard for Data Centers
 - ASHRAE Standard 170 - 2021 Ventilation of Health Care Facilities
 - ASHRAE Standard 185.1 - 2020 Method of Testing UV-C Lights for Use in Air-Handling Units or Air Ducts to Inactivate Airborne Microorganisms
 - ASHRAE Standard 202-2018 Commissioning Process for Buildings and Systems
 - ASHRAE 2020 Smart Grid Application Guide: Integrating Facilities With The Electric Grid

- ASME A17.1 / CSA B44 – 2019 Safety Code for Elevators and Escalators

PLUMBING

- ASME B31 – Standards of Pressure Piping
- ASME B31.3 – 2020 Process Piping
- ASME B31.8 - 2018 Gas Transmission and Distribution Piping Systems
- ASME B31.9 – 20120 Building Services Piping
- ASME B31.12 - 2019 Standard on Hydrogen Piping and Pipelines
- Health Technical Memorandum 01-01 Management and Decontamination of Surgical Instruments (medical devices) used in Acute Care
- Health Technical Memorandum 02-01 Medical Gas Pipeline Systems
- Health Technical Memorandum 03-01 Specialized Ventilation for Healthcare Premises
- Health Technical Memorandum 04-01 Safe Water in Healthcare Premises
- Health Technical Memorandum 08-02 Lifts
- ICC IFC 2021 International Fire Code
- ICC IPC 2021 International Plumbing Code
- ICC IMC 2021 International Mechanical Code
- ICC IFGC 2021 International Fuel Gas Code
- ICC IECC 2021 International Energy Conservation Code
- ICC IPSDC 2021 International Private Sewerage Disposal Code
- ICC ISPSC 2021 International Swimming Pool and Spa Code
- ASME B16 – Standards of Pipes and Fittings
- ICEA Class H Flexible Cables
- IEEE 730 Software QA Plans
- IEEE 830 Recommended Practice for Software Requirements Specifications
- NFPA 10 – 2018 Standards on Portable Fire Extinguishers
- NFPA 13 – 2019 Standard for the Installation of Sprinkler System
- NFPA 14 - 2019 Standard for the Installation of Standpipes and Hose Systems
- NFPA 15 – 2022 Standard water spray fixed systems for fire protection

- NFPA 17 – 2021 Standard for Dry Chemical Extinguishing Systems
- NFPA 17A – 2021 Standard for Wet Chemical Extinguishing Systems
- NFPA 20 – 2019 Standard for the Installation of Stationary Pumps for Fire Protection
- NFPA 22 – 2018 Standard for Water Tanks for Private Fire Protection
- NFPA 24 – 2022 Standard for the Installation of Private Fire Service Mains and Their Appurtenances
- NFPA 45 – 2019 Standard on Fire Protection for Laboratories Using Chemicals

LIFE SAFETY

- NFPA 54 – 2021 National Fuel Gas Code
- NFPA 58 – 2020 Liquefied Petroleum Gas Code
- NFPA 59 – 2021 Utility LP-Gas Plant Code
- NFPA 59A – 2019 Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)
- NFPA 70 – 2020 National Electric Code
- NFPA 72 – 2019 National Fire Alarm and Signalling Code
- NFPA 75 – 2020 Standard for the Fire Protection of Information Technology Equipment
- NFPA 88A – 2019 Standard for Parking Structures
- NFPA 90A – 2021 Standard for the Installation of Air-Conditioning and Ventilating Systems
- NFPA 91 – 2020 Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids
- NFPA 92 – 2021 Standard for Smoke Control Systems
- NFPA 99 – 2021 Health Care Facilities Code
- NFPA 101 - 2021 Life Safety Code
- NFPA 110 – 2022 Standard for Emergency and Standby Power Systems
- NFPA 111 – 2022 Standard on Stored Electrical Energy Emergency and Standby Power Systems
- NFPA 418 – 2021 Standard for Heliports
- NFPA 780 – 2020 Standard for the Installation of Lightning Protection Systems
- NFPA 820 – 2020 Standard for Fire Protection in Wastewater Treatment and Collection Facilities
- NFPA 900 – 2019 Building Energy Code

LOCAL REGULATIONS

- Requirements of the OSH Authority in accordance with the OSH Act 2004 with amendments of 2006
- Requirements of the EMA of Trinidad and Tobago & Water Pollution Rules 2019
- Requirements of the Trinidad and Tobago Fire Service (TTFS), Ministry of National Security of Trinidad and Tobago
- Requirements of the Electrical Inspectorate Division, Ministry of Public Utilities of Trinidad and Tobago
- Requirements of the Public Health Department in accordance with the Public Health Ordinance Act
- SMACNA HVAC Duct Construction Standards
- The National Plumbing Code of Trinidad and Tobago
- Trinidad & Tobago Electricity Commission Wiring for Light & Power 8th Edition
- Trinidad & Tobago Electrical Wiring Code Part 1 - Low Voltage Installations (TTS 171: Part 1: 2015)
- Trinidad & Tobago Electrical Wiring Code Part 2 - High Voltage Installations (TTS 171: Part 2: 2002)
- Trinidad & Tobago Electrical Wiring Code Part 3 – Renewable Energy Systems and Interconnection Requirements (TTS 171: Part 3: 2011)
- Workplace Design – Lighting of Indoor work places – Specification (TTS 611-2008)
- Water and Sewerage Authority Guidelines for Design and Construction of Water and Wastewater Systems in Trinidad and Tobago

TESTING

Testing will be carried out in accordance with the tests/inspections described in the Quality Control Plan and the Technical Specifications (Materials and Workmanship). The Proponent shall always ensure that materials and equipment are examined and tested for compliance with the specifications and quality control is then performed at the recommended frequency. Materials must be tested for compliance with stipulated specifications both at source and once it is delivered to site.

The Proponent shall prepare and submit a description of all the relevant tests and time

periods for the testing of Materials and Works. These include but are not limited to steel reinforcement bar, reinforced concrete, masonry, structural steel, welding.

Workmanship Compliance Checks will include:

- a) checking, inspecting, examining and measuring;
- b) trials and demonstrations;
- c) fine testing carried out by manufacturers and suppliers in compliance with a specified standard or specification; and
- d) testing of equipment (air conditioning units, transformers, generators etc.)

All materials used or supplied shall be accompanied by valid and approved material certificates, tests and inspection reports. The minimum extent of examination and testing to be carried out and the acceptance levels/codes shall be specified by suppliers in the purchase order and/or subcontract documents.

An inspection schedule/plan shall be developed by the Proponent for procured equipment and materials. The Proponent's Construction Inspectors and Construction Supervisors shall carry out inspection surveillance activities. These include but may not be limited to; witnessing tests, verifying documentation and inspections/examinations. From these activities, reports shall be developed recording progress, findings, non-conformance and resolutions.

Materials, fitting and fixtures shall be inspected by the Proponent, upon receipt from the suppliers, for compliance with the technical requirements and regulations, including availability of required documentation and markings. If materials and/or documents do not comply, then they shall be clearly identified and if possible, segregated until further action is determined. Material deliveries shall be checked against shipping documents (dispatch note, freight note, and delivery receipt) for type and quantity, and for obvious transport damage, and to ensure that markings correspond to the order specification.

A Material Receiving Notice (MRN) shall be completed if the checks are satisfactory. Material that has been checked and accepted shall be stored according to type and

class of material so as to effectively prevent damage and/or error of use. Sub-Consultants and Sub-Contractors shall be required to assign qualified/experienced inspection personnel to carry out all required examinations and tests in accordance with an agreed quality plan (inspection and test plan). These activities shall be carried out in accordance with the agreed procedures and guides and result in the appropriate reports. The Proponent's Construction Inspector and Construction Supervisor shall monitor the quality control activities of its Sub-Consultants and Sub-Contractors and carry out his own examination of material, equipment and documentation to the necessary degree to determine the state of acceptance.

The Proponent shall ensure that the Employer and/or inspection authorities are given sufficient notice to witness the final inspection and tests, if required (egg. Pressure testing of water lines, testing of elevators, generators, sewer lines). The Client shall retain the design rights and other intellectual property rights and copyright of all documents prepared by the Proponent in the course of the Proponent's engagement.

SPECIFICATIONS

FINISHES

1. All interior and exterior walls are fair faced and painted, while all interior floors to be as specified in the conceptual design package. In the absence of the specification in the concept, all floors should be porcelain tiles with special provisions for the appropriate rubber flooring to the gym. Colour palette selections and finishes selections to be provided for the Client approval. A minimum of three (3) sample options for each type of tile to be presented to the Client for approval. All paint systems shall provide a minimum of 5 years warranty.
2. Apron slabs along the building footprint to have an aesthetically pleasing yet slip resistant finish eg. Grano or external tile. Apron walkways further from the building footprint to have a broom finish.
3. Carpentry and Joinery/Kitchen Cupboard: 100% full Teak wood with solid surface countertops. Colour samples to be presented to the Client for approval.
4. The floor to floor ceiling height should be a minimum of 10'-0" (also above the stage), since a large percentage of the ground floor areas are designed for group activities. The utility and toilet areas are 8'-0" high on both floors with moisture resistant finish of either 2' x 2' acoustical ceiling tiles or gypsum. However, the assembly hall must be designed to offer the highest possible closed board ceiling at a minimum of 12ft. Configuration of the ceiling must offer some acoustic control and temperature modulation. In this phase of the project the hall will be air conditioned, therefore all electric systems must cater for this installation. Ceilings in all areas must have heat barriers and insulation of R30. A Minimum eave of 3'-0" is required with natural cross ventilation in case of loss of power.
5. Windows: All windows shall be metal framed with integrated burglar proofing and tinted glass.
6. Doors are metal framed with tempered glass vision panels in all the

administrative areas, kitchen and servery, control room and Auditorium. All doors are metal solid core doors throughout the facility with commercial grade door closures. All door specifications to be submitted for approval. Where alternate external doors are proposed, provisions must include for the installation of sliding burglar proofing.

7. Grillwork to protect any glass front features to be provided.
8. All entrance and exit doors should be keyed both sides.
9. All plumbing fixtures to be Armitage or equal and all bathrooms floor tiles to be tiled with porcelain tiles. Ceramic wall tiles to 6ft height with tile strips installed to corners.
10. Vanities: metal or teak wood framing with Solid Surface Countertops
11. Toilet Partitions: Banyan series or other equally approved patent commercial partitioning that ensures water tightness and installed as per manufacturer's instructions.
12. Perimeter Fencing: Medium or High security, to be approved by the Client. Front of facility to have a wall and wrought iron/ palisade wall that enhances the front of the facility.
13. Main External sign letters to be routed 3/4inch, PVC, painted and UV coated, inclusive of the coat of arms. A mockup of the proposed signage to be provided for approval.
14. Washroom Accessories to be commercial grade, stainless steel fixtures (Banyan series or equivalent) including soap dispensers, paper towel holders, toilet paper holders and hand dryers.

SOUND AND STAGE LIGHTING

PA system with 2 Zone common areas paging with Opti voice capabilities Audio System Design

- The Public Address (PA) system shall be designed for sound reinforcement during assemblies, speeches, and Performances.

Basic components of system

- Loudspeakers
- Subwoofer
- Digital mixer
- Audio snake
- Wireless microphones
- Wireless paging microphone
- Mixer power amplifier
- Flush mount ceiling speakers
- Portable speaker

Standard equipment list for Auditorium.

List of standard Auditorium System equipment

Item No.	Description	Quantity
1	Flexible array Loudspeaker	2
2	Dual 10" Powered Subwoofer	1
3	Digital Stereo 8 channel Mixer	1
4	Audio Snake	1
5	Wireless Microphones	2

List of standard PA System Equipment

1	Flush mount ceiling speakers with removable or rotatable badges		Quantity varies depending on size and number of rooms
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2	Portable Speaker with rechargeable battery	1	
3	Mixer Power Amplifier	1	
	Wireless Paging Microphones	1	

Component Performance Specification

Loudspeakers shall satisfy the following minimum performance specifications: -

- a. The Loudspeaker shall be a 1000-watt self-powered two-way, ported loudspeaker system utilizing Eight (8) mid/high-range drivers.
- b. The Loudspeakers shall have a 12-inch LF high performance subwoofer. The enclosure shall be made of High impact composite materials with M8 threaded insert points.
- c. The Loudspeaker shall have an integrated 2-channel mixer with independent level controls.
- d. The Loudspeaker shall allow for control over its vertical coverage pattern by manual louvered adjustment with automatic changes to its internal EQ to maintain optimum tonal balance.
- e. The Loudspeaker shall be designed for wall mount installation or suspended up to 20 ft high.
- f. The Loudspeaker shall have a Nominal Dispersion of 100° H x 40° V with variable adjustments for the vertical axis.
- g. The Loudspeaker input shall have a nominal rated impedance of 10 k ohms (10 kΩ)
- h. The Loudspeaker shall have an Input Impedance of 2.2 kΩ (MIC), 10 kΩ (Line)
- i. The Loudspeaker input connections will allow for direct connection XLR /1/4" XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-) 1/4" TS/TRS, (2) RCA
- j. Exposed cosmetic surfaces of the Loudspeaker should be Black and the acoustically transparent grille component should be formed of powder-coated perforated steel.
- k. Each Loudspeaker shall have a bandwidth of 43 Hz - 20 kHz and a maximum continuous acoustic output of 132dB SPL.
- l. The Loudspeaker shall have an internal dynamic limiter with distortion at rated power being 0.1% Max (30 Hz - 15 kHz)
- m. Dimension shall not exceed 664.66 mm x 334.3 mm x 372.5 mm (26.1" x 13.1" x 14.6")
- n. Warranty shall be 5 years.

Subwoofer shall satisfy the following minimum performance specifications: -

- a. The Subwoofer shall be a 1000-watt self-powered compact format system utilizing two ten (10") high excursion LF drivers. The enclosure should be made of High impact composite materials with high impact composite end caps.
- b. The Subwoofer should be designed for installation in specialist localities including but not limited to House of Worships, Resorts and Hospitality venue.
- c. The Subwoofer shall have a Polarity switch to adjust polarity of subwoofer for easy correction of low-frequency overlap between the main loudspeaker and subwoofer.
- d. The Subwoofer shall possess line output EQ that sets the Subwoofer's output to a high-pass filter or full
- e. Range, which allows for easy crossover selection when used with a main loudspeaker.
- f. The subwoofer shall have a Dynamic Limiter.
- g. The Subwoofer shall have a Nominal Dispersion being Omni-directional.
- h. The Subwoofer input shall have a Cross over frequency within the range 40 – 100 Hz.
- i. The Subwoofer input connections will allow for direct connection XLR /1/4" XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-) 1/4" TS/TRS,
- j. Exposed cosmetic surfaces of the Subwoofer should be Black and the acoustically transparent grille component should be formed of powder-coated perforated steel.
- k. Each Subwoofer shall have a bandwidth of 38 Hz – 250 Hz and a maximum continuous acoustic output of 130dB SPL,
- l. The Subwoofer should have a dynamic limiter with distortion at rated power being 0.1% Max (30 Hz - 15 kHz)
- m. Warranty should be 5 years.

Audio snake

- a. The number of input connections should be at least 12.
- b. The number of output connections should be at least 4.
- c. The connections should be XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-)
- d. The cable should be of suitable length to position the casing of the head at the back of the stage and the tail in the control room.
- e. The head enclosure should be made of metal.
- f. The connections should have numbered wires for identification at the tail end.
- g. Warranty should be 5 years.

Wireless microphones

- h. Working Range should be 91 m (300 ft) Line of Sight
- i. Audio Frequency Response 50 to 15,000 Hz
- j. Total Harmonic Distortion of Ref. ± 33 kHz deviation with 1 kHz tone 0.5%, typical
- k. Dynamic Range of 100 dB, A-weighted, typical
- l. Audio Input Level should be max of -16 dBV, min (0 dB) +10 dBV
- m. Input Impedance 1 M Ω
- n. RF Transmitter Output 10 mW, typical
- o. Power Requirements must be 2 LR6 AA batteries, 1.5 V, alkaline
- p. Battery Life should be up to 14 hours (alkaline)
- q. Receiver
- r. XLR connector 200 Ω
- s. 6.35 mm (1/4") connector 50 Ω
- t. XLR connector -27 dBV (into 100 k Ω load)
- u. 6.35 mm (1/4") connector -13 dBV (into 100 k Ω load)
- v. RF Sensitivity
- w. 105 dBm for 12 dB SINAD, typical
- x. Power Requirements 12–15 V DC @ 235 mA, supplied by external power supply (tip positive)
- y. Warranty should be 1 years.

Mixer Power Amplifier for Opti voice paging shall satisfy the following minimum performance specifications: -

- a. The mixer/amplifier should employ Class-D amplification together with a digital signal processing architecture running at 48 kHz / 24 bit.
- b. The mixer/amplifier should incorporate a switch-mode power supply allowing normal operation from AC outlets ranging from 100 – 240 V ($\pm 10\%$) at 50/60 Hz. The amplifier should have an IEC 320-C14 electrical power inlet and should be equipped with a removable power supply cord. A power switch should be located on the front panel.
- c. The product should include protection from shorted loads and general overheating.
- d. The mixer/amplifier's physical size should be 1 RU in height by 1 RU in width and be capable of rack mounting.
- e. The product should have venting with a single fan, continuous left-to-right airflow. Each output channel should have output trim controls.
- f. The mixer/amplifier should have two output channels with a frequency response of 55 Hz to 20 kHz (+0/-3 dB) and drive 70/100 V distributed audio systems.
- g. The mixer/amplifier should have THD+N at rated power less than or equal to 0.3%. Output connections should be made via 2-pin touch-proof Euroblock connectors.

- h. The mixer/amplifier should meet or exceed the following performance specifications: channel separation (crosstalk) less than or equal to -60 dB below rated power at 1 kHz and dynamic range of 88 dB.
- i. The mixer/amplifier should incorporate 3 line-level inputs (two RCA stereo, one 3.5 mm stereo) and one microphone input for paging applications. Two of the line level inputs should be selectable via a switch on the front panel while the third input should override line input channels upon connection.
- j. The nominal input sensitivity should be 0 dBV for line level inputs and -40 dBV for microphone inputs.
- k. The microphone input should be mounted on the rear, support dynamic microphones and select telephone systems with PTT switching.
- l. The paging microphone input should have automatic ducking capabilities activated via a selector switch on the rear panel.
- m. The microphone input should bypass master volume control via a selector switch on the rear panel.
- n. All inputs should have individual input gain controls with the exception of the 3.5 mm priority input connector on the front panel.
- o. The mixer/amplifier should have an auxiliary line-output via two RCA connectors. The front panel should also have user-accessible treble, bass and master volume controls.
- p. Warranty should be 5 years.

Flush mount ceiling speakers shall satisfy the following minimum performance specifications: -

- a. The full-range loudspeaker shall contain a single full-range 2.25-inch transducer, low frequency range down to 83 Hz, and sensitivity of 86 dB SPL / 1 W @ 1 m
- b. The full-range Loudspeaker shall meet the following performance specifications: On-axis system frequency response should be 83 Hz to 19 kHz (-10 dB) with the use of recommended active equalization.
- c. The Loudspeaker sensitivity should be 86dB SPL in half-space environment with 1 W input at 1 meter.
- d. The long-term power handling rating should be 20 W (AES test methodology using IEC system noise, 2-hour duration). Maximum continuous output shall be 99 dB SPL and the maximum peak output should be 105 dB SPL, both in half-space environment.
- e. The nominal coverage pattern should be 160° conical at 1-4 kHz.
- f. The Loudspeaker shall be constructed of an engineered-plastics front baffle with an integrated steel formed enclosure. The Loudspeaker shall consist of PC-PBT plastic materials that are resilient to cooking oil exposure. The Loudspeaker should be plenum rated for use in air handling spaces and in

compliance with the following safety standards; UL1480 for Fire Alarm and Signaling Systems, UL2043.

- g. The transducers shall be located behind a perforated steel grille with a powder-coated finish.
- h. The Loudspeaker shall contain standard mounting arms.
- i. The Loudspeaker shall be available in black or white.
- j. The Loudspeaker shall fit a modern aesthetic with the option to remove logos.
- k. Input connectors shall be a Euro block pin connector with loop-through, located on the front baffle.
- l. The Loudspeaker shall have a nominal rated impedance of 16 ohms and should be wired in parallel with a line voltage matching (stepdown) transformer with a level selector appropriate for output taps of 1, 2, 4, 8, 16 Watts and Bypass (16 ohms).
- m. The Loudspeaker input connections shall allow for direct connection to 70-volt, 100-volt or low-impedance amplifiers. Loudspeaker back can dimension shall be 127 x 125 mm (5.0 x 4.9 in) and net weight should be 1.63 kg (3.6 lbs) with grille. Outward front baffle dimensions should be 182 mm (7.2 in).
- n. Warranty should be 5 years.

Portable speaker/ Monitor shall satisfy the following minimum performance specifications: -

- o. The Portable speaker shall be suitable for use in commercial setting including Houses of worship, Schools and Universities, Resorts and Hospitality venues or Live music performances
- p. The Portable speaker shall be a multiple driver, full-range portable loudspeaker system with internally supplied power amplification and active equalization for multiple operating modes. The transducer complement shall consist of high-excursion full range drivers, With a dedicated low frequency driver.
- q. The Portable speaker shall have a Rechargeable lithium-ion battery allows performance of up to 8 hours.
- r. The Portable speaker shall have an Onboard 3-channel mixer which offers reverb, and EQ controls on two channels, with a dedicated channel for either wired (3.5 mm) or wireless music sources via Wireless Bluetooth® streaming.
- s. The Portable speaker shall allow for multiple placement orientations with Auto eq to maintain tonal consistency.
- t. The Portable speaker shall be compatible with standard 35 mm pole mounts.
- u. The nominal horizontal beam width of the portable speaker shall be 140°, and the vertical coverage shall be 40°.

- v. The Power Amplification for transducers shall be supplied by the integrated power supply providing 130 W continuous pink noise, band-limited from 65 Hz to 14 kHz (-3 dB).
- w. The input connectors of the Portable speaker shall consist of one XLR with equalization for a
- x. dynamic handheld microphone, one 1/4" TRS, stereo RCA, and one 1/8" TRS receptacle. The output connectors of the portable speaker shall consist of one 1/4" balanced TRS
- y. Warranty should be 5 years.

Digital Mixer shall satisfy the following minimum performance

specifications: -

- a. Digital stereo 8 Channel mixer containing eight high-quality audio preamps with
- b. XLR-combo jacks for microphones or instruments, and switchable phantom power
- c. Aux inputs for additional sources minimum four
- d. USB-A and -B for USB drive playback or PC/Mac interfacing
- e. Balanced 1/4" TRS and XLR stereo outputs
- f. Independent headphone output
- g. The Digital Mixer shall offer Updated, studio-quality effects with advanced digital
- h. audio processing. Effects include compressor, limiter, de-esser, noise gate,
- i. chorus, flanger, phaser, tremolo, delay, and reverb
- j. The Digital Mixer shall have on built in on board tonal presets for different instruments or equipment such as Shure/Sennheiser mics, Acoustic/Electric Guitars, Saxophone, DJ controllers and the likes of the industry.
- k. The Mixer shall have sound processing for natural-sounding vocals and instruments
- l. The Digital mixer shall have EQ focusing the sound presets for effective adjustments on the fly
- m. The digital mixer shall offer Independent EQ, dynamics and effects per individual channel, Dedicated reverb for Aux sends, and a global shared reverb for use across all channels
- n. The digital Mixer shall offer Master output EQ to compensate for venue acoustics
- o. The Digital Mixer should allow for Full end-to-end tonal optimization when used Loudspeakers and Subwoofers with cross over range between 40 – 100 Hz.
- p. The digital mixer shall have Seamless Live Control with Tactile controls and indicators designed for live on-stage
- q. use by musicians and DJs
- r. The Digital Mixer shall offer an uncluttered user interface

- s. The digital Mixer shall be able to create and store Built-in tap tempo delay, chromatic tuner, and recallable scenes.
- t. The digital mixer shall allow for low light operations with LED display and illuminated controls are easy to read.



USER REQUIREMENTS FOR THE GUAPO COMMUNITY CENTRE

Modified Design Build Services using the FIDIC Yellow Book:
Conditions of Contract for Plant and Design Build

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BACKGROUND

UDeCOTT, on behalf of the Ministry of Sport and Community Development, is desirous of completing the Design-Build Services for the Guapo Community Centre. In this regard, UDeCOTT wishes to retain the services of a qualified, experienced and competent Design Build Contractor to perform design and works in accordance with the Scope and Specifications. The preferred proponent is expected to provide full designs, construction documents and specifications for all statutory approvals and construction. The format of implementation will be a Design Build Contract.

Sites will be reevaluated and the main access to the site and parking will be determined by UDeCOTT and the Client Ministry. The facilities will comprise of a main assembly hall and a combination of outreach activity spaces will be all located within the two-storey facility.

DESIGN-BUILD CONTRACTOR RESPONSIBILITIES

1. Preparation of site surveys to determine the exact conditions of the Project Site and any other investigative surveys or assessments that may need to be completed as part of its proposal.
2. Preparation and submission of Designs and Drawings (Architectural, Civil/Structural Engineering, Mechanical, Electrical Engineering and Plumbing and Fabrication). Designs and drawings shall be completed to a level of detail, adequacy and completeness.
3. Statutory Approvals (Fire, Electrical, WASA etc.)
4. Project Programme & Works Scheduling
5. Project Insurances
6. Project Delivery
7. Contract Management
8. Subcontractor Coordination and verification of works.
9. Temporary hoarding of the site including gateway for vehicular and pedestrian access and maintenance of access throughout the duration of the project. The hoarding shall be maintained in a secure condition throughout the duration of the project.
10. Temporary Utilities as required for the project site (water, electricity). The site shall be adequately lit to ensure visibility
11. Health Safety, Security and Environmental Management during the works inclusive of Covid-19 management protocols.
12. Site Waste Management and disposal.
13. Furnishing all labour, materials, tools, equipment, and services necessary for the successful completion of the construction of the project as stated in the RFP and the BOQ, and in accordance with the approved drawings, specifications and defined requirements.
14. Product Specifications
15. Preparation and submission of as built drawings, equipment guarantees/warranties, equipment manuals, test certificates. Warranties to be provided on all equipment, with a minimum warranty of 1 year, unless otherwise stated.
16. Ensure all design are reviewed by UDeCOTT and the End User.

17. Ensure a copy of all project drawings are issued to UDeCOTT. On-site drawings to identify any changes made on-site.
18. Ensure all product data/specifications are submitted to UDeCOTT for review
19. Where applicable, ensure that methodologies associated with Notice to Correct are submitted for UDeCOTT non-objection.
20. Testing (for example Concrete Testing) is to be completed by an independent testing agency.
21. Familiarization of the Site surroundings/Environs so as to ensure Tendered sum includes for all reasonable associated security risks. The Site security personnel shall be in place for 24 hours and adequately resourced and trained for emergency situations. The security personnel shall have a log book to maintain logs of all persons and vehicles accessing the site. The Contractor shall retain a scanned copy of workers identification cards on site.
22. The Contractor shall provide a CCTV surveillance system for the site throughout the duration of the project. The system shall monitor the site, all access points to the site, the road way bounding the site and any other vulnerable areas. Faces and license plates of vehicles shall be easily recognizable. The system shall have Wifi capabilities and provide remote monitoring capabilities to be shared with UDeCOTT site staff.
23. Provide site office accommodation for the Employer and Engineer for the duration of the Project. UDeCOTT site office should be positioned away from the entrance gate and away from the site boundary located closest to the road way to minimize risks. All UDeCOTT personnel shall be allowed to park on site. The provisions of the site office facilities will be provided at no cost to the Employer and must comply with the Laws.

The site building shall be as follows:

- a) 1 site office, 12' x 16' minimum with air conditioning used by the Engineer and Employer;
- b) Access to 1 toilet room for the exclusive use by the Engineer and the Employer;
- c) The site office, equipment and furnishings shall be maintained by the Contractor in a clean and orderly condition, which includes washing of the floors, bathrooms and trash removal at least twice per week;
- d) The site offices and toilet room for the Engineer shall be equipped with keyed locks and the Contractor shall furnish a sets of keys to the Engineer;
- e) The site offices for the Engineer shall be furnished with the following furniture, fittings and equipment for the whole duration of the Works:

- 2 (two) desks and 2 (two) deluxe chairs with swivel base on casters and adjustable arms, 2 (two) visitors chairs, 1 (one) white board, wall mounted, 36" x 48"
- 1 (one) multifunction copier machine (copy, print, scan and fax) RICOH Aficio MP1600L or equivalent. The equipment is to be maintained for the duration of the project (supply of inks, cartridges and paper at the Contractor's cost)
- 1 (one) mini-refrigerator 4 cubic feet capacity 33"H x 18"W x 20"D
- 1 (one) water cooler to receive 18 litres bottled water (supply of paper cups and bottled water at the Contractor's cost)
- Independent high-speed internet access.
- All furniture, fittings and equipment shall be in good shape and commercial grade. All temporary structures, facilities and arrangements shall be removed by the Contractor at the completion of the Works.

DESIGNS

Concept

The concept approach to the design of the facility is to place the more frequently used outreach programs in one zone or module while allowing the hall to remain as an independent module. This gives all the community members greater access to the more critical services offered by the proposed programs. Part of the design intent is to allow equal access to all areas of the facility while maximizing flexibility, and controlling maintenance and operating costs. In order to bring an awareness of the environmental issues and conservation practices, the centre by its design should demonstrate energy conservation in its approach to the use of natural lighting.

Given that the construction cost represents a significant investment in the community, proposed materials, finishes and equipment should be chosen with the view that maintenance and long term operation of the facility is the responsibility of the community itself. Therefore, easy replacement and ongoing upgrade of specific speciality rooms must be looked at carefully. It is intended that the facility be used as a change agent for the positive upgrade of skill sets across a wide generational range. In order to maximise the social interaction between the widest range of users, generous public porches and breakout zones form an integral part of a "Community bonding experience".

Flexibility of use is an important part of the design of the facility; all areas are intended to change and adapt to the needs of the community. Therefore the offices can become consultation areas by changing the furniture configuration. All lobbies and covered porches can be used for informal exhibitions and casual events. The entire facility must be designed as a modern resource centre with access to Wi-Fi.

In the event of any national emergency. The centre is also expected to play a major role in relief efforts, to this end, all local, regional and international building codes must be adhered to.

AMENITIES

The community centre's design and refurbishment works should include the following (and as shown on the Conceptual Design included in the Tender Document):

1. Construction of a Security Booth. Security booth to be ventilated and include an appropriately sized washroom facility, inclusive of the installation of an exhaust fan.
2. Community Gym with access isolated from the Community Centre's main entrance, inclusive of Male and Female Change rooms with 1 toilet, sink and shower each and a Storage Area. Change rooms to be equipped with commercial grade accessories including mirrors, soap dispensers, paper towel holders, toilet paper holders and hand dryers. Installation of gym rubber flooring mat with border and duplex outlets to facilitate being outfitted with equipment for minimum 10 persons.
3. A Teaching Kitchen with allowances for two stoves (one electric and one gas) and space that can accommodate minimum 8 persons at one time. Industrial type Range Hoods with ducted extractor system to be supplied and installed for both stoves. 2 No. deep double basin stainless steel kitchen sinks to be installed, specifications to be approved. Overhead and under counter cabinetry to be installed and comprised of 100% hardwood. Cabinetry to fit gas tank for gas stove. Solid surface countertop and tiled backsplash. An external access to the kitchen to be provided.
4. Servery area linked to the teaching kitchen with provision of a solid surface counter and one row of shelving below. Above counter outlets. Square hood roller shutter window to be installed.

5. Multi-Purpose Hall (200-300) theatre style seating capacity. Stage with electrical outlets and fixed walls to hide backstage view. Backstage wall and fixed walls on stage to have an accent colour. Upgrade Teak stage flooring, ensure teak handrail at steps. Male and Female Back stage change rooms (inclusive of toilet, shower, sink and countertop, counter and wooden bench). Change rooms to be equipped with commercial grade accessories including soap dispensers, paper towel holders, toilet paper holders hand dryers and clothes racks. There shall be an alternative access to the back stage changing rooms. Backstage flooring should be at the same elevation as the stage. Wheel chair ramp to stage located to the side of stage or concealed (where applicable). Installation of two (2) communication outlets ceiling height, for the installation of Access Points. Locations upon approval to ensure full coverage at Auditorium level.
6. Control Room with operable window in direct line of sight to the stage. Provision of desk and shelving for the storage of the sound system equipment and mixer board installed.
7. Provisions for Sound and Stage Lighting systems and a Public Address System throughout the facility. (see specification on page 28)
8. A Computer Room with minimum 10 stations and 1No. Administration desk:
 - a. Installation of Work Stations. Layout and materials to be approved by the Client. Workstations work surface to be made from solid surface. Minimum size of work stations 30" (w) and desktops 29" high and 24" deep. All workstations to have a privacy screen partitions constructed of same material and no higher than 12".
 - b. Each Workstation to have a grommet, communication outlet (CAT6 Ethernet) and duplex outlets. Grommets to be 7" from the centre line to the left or right and with enough room to clear the frame on the top. Corner stations to have grommets at the same depth as regular stations. Workstations not to be interrupted by doors. Dedicated space with duplex outlet and communication outlet to be provided for the printer.
 - c. The Admin desk to have a grommet, communication outlet (CAT6 Ethernet) and 2No. duplex outlets. The desk is located by the entrance or at the front of the room facing in; person's back must not be to the clients.
 - d. 1No. wall mounted Network Closet to be installed. Pulling of CAT6 Ethernet cables including all required in wall and ceiling raceways and installation of female end

“keystone” communication port with the other male end “keystone” jack terminating at the Network Cabinet. Specifications as follows:

- i. Dimensions: 23.5"W x 22"D
 - ii. Rack Height: 13U - 15U
 - iii. Colour: Black
 - iv. Load Capacity: 200 lbs
 - v. Construction:
 1. Sturdy and rugged welded frame construction
 2. Reinforced lockable door
 3. Two-section, swing-out design allows access to the front and rear of equipment
 4. Includes adjustable depth equipment mounting rails
 5. Removable and reversible door and side panel
 6. Cable pass-through knockouts
 - vi. Two (2) extractor fans (included)
 - vii. Include PDU strip mounted internally in the Network Cabinet
 - viii. Fits all standard 19" rack mount devices up to 20" mountable depth
 - ix. Warranty: Minimum one (1) year repair or replacement
- e. Installation of four (4) duplex electrical wall outlets, one (1) behind the Network Cabinet for use with networking equipment and three (3) below the cabinet. Installation of one (1) 4 port communication outlet beneath the Network Cabinet.
- f. Provision of one (1) duplex and one (1) communication outlet for the tv (both 7' from the floor) and pulling of one (1) HDMI cable from television mount location through floor to Admin desk. Location at the front of the room.
- g. Installation of one communication outlet to ceiling height, centre of room for installation of an Access Point.
- h. Installation of a keypad access.
- i. Painting of interior walls (2 colours, one (1) accent wall). Accent wall: Sherwin Williams Rookwood Sash Green; Remaining Walls: Sherwin Williams Silverpointe. Paint colours to be reconfirmed by the Client.
9. Audio Visual / Training Room:

- a. Installation of duplex outlets on all walls. Installation of an additional duplex outlet and communication outlet at the front of the room for the Admin desk.
 - b. Provision of one (1) duplex and one (1) communication outlet for the tv (both 7' from the floor) and pulling of one (1) HDMI cable from television mount location through floor to Admin desk. Location at the front of the room.
 - c. Installation of one (1) communication outlet to ceiling height, centre of room for installation of an Access Point.
 - d. Installation of a keypad access.
 - e. Painting of interior walls (2 colours, one (1) accent wall). Accent wall: Sherwin Williams Rookwood Sash Green; Remaining Walls: Sherwin Williams Silverpointe. Paint colours to be reconfirmed by the Client
 - f. Civil works as required for conduits and raceways from the private pole.
10. Administration Office for two persons, duplex outlet installed on each wall. Ensure Receptionist has a tinted fixed pane window installed for viewing of the Lobby Area. Installation of one (1) communication outlet to ceiling height in lobby area on the ground floor (exact location to be confirmed) for installation of an Access Point.
 11. Offices #1, #2 and #3 to have a duplex outlet installed on each wall. Office #2 to have a door access to the Corridor. Installation of one (1) communication outlet to ceiling height in Office #2 (exact location to be confirmed) for installation of an Access Point.
 12. Male and Female Washrooms to be located on each floor with provisions for the differently abled. All Washrooms and Change Rooms/ Dressing Rooms to have extractor fans that operate on a timed basis. Washroom to be equipped with commercial grade accessories including soap dispensers, paper towel holders, toilet paper holders and hand dryers.
 13. Storage area to hold a minimum of 200 chairs and 10 tables.
 14. Laundry room with provisions for washers and dryers with expel air.
 15. Janitorial room with an appropriate Janitorial sink.
 16. Electrical/ Service Room with vented metal door.
 17. A Security System with upgradable Wi-Fi capabilities. Ensure no blind spots. Cameras to be located externally, covering all access points to the Site, in the carpark and within corridors and the lobby areas. Cameras to be digital, 4MP and higher. Keypad access to be on UPS (minimum 1 hour). Keypad access to be provided in the Computer lab, Training Room,

Administrative Office, Receptionist Office and Control Room. An additional request to exit button for keypad access to be installed at a lower level at the location of the Receptionist desk. Monitors and DVR to be located in the Administrative Office with drops to be provided at the Security booth for the installation of an additional monitor in the Security booth.

18. Fire Detection (addressable system) and Fire Suppression System. Fire Hose Reel to be installed in a cabinet. Teak framing to be provided for cabinet installed in the Auditorium.
19. HVAC system – Perform all remedial works as necessary or replace with new, to ensure functionality. Service HVAC units, inclusive of condensers & evaporators. Supply and install exhaust fans for all washrooms. External AC condensers installed at ground floor level to be secured with operable burglar proofing. No cassette ac units.
20. Upgrade of Electrical System
21. Upgrade of Plumbing System. Sewerage refurbishment works.
22. Recommissioning of existing elevator - to include replacement of non-functioning parts, cleaning and inspection.
23. 100% back up power (Standby Generator) with fuel capacity for a minimum of eight (8) hours inclusive of ATS. Generator to be located away from the front of the facility.
24. Signage (commercial grade internal rooms and external signage with UV protection). External signs to be installed on three (3) sides of the building. Schedule and material to be approved by the Client. See specifications on page 27.
25. LED Lighting fixtures with a minimum 2 year warranty.
26. Emergency wall mounted lights to be installed.
27. External lighting to be energy efficient with low maintenance requirement.
28. Integrated communication system.
29. Tank Farm upgrade (secured with an aesthetically pleasing finish). Re-construction of the covered housing for pumps and heater.
30. Roadwork Refurbishment Works - The existing parking arrangement to include 2 spots that are ADA compliant and 1 loading/ unloading bay (or as required for statutory approval). Remove existing asphalt surface, repair base course where applicable and repave. Supply and installation of wheel stops. Two (2) WiFi drops on the parking lot side of the building.
31. Termite treatment and pest control treatment for the entire compound.

32. Upgrade landscaped areas (planters, boundary landscaping etc.).
33. External Waste Disposal Area integrated in the fencing, to be accessible both internally and externally of the premises.
34. A clearly defined and controlled perimeter fencing. Medium security fencing to replace chain link fencing on southern side (colour to be confirmed by the Engineer). Construct a perimeter fence made of block wall, at least 1m high with metal grilles above for security and aesthetics. Existing palisade fencing to the front of the facility to be repaired where necessary, walls to be pressure washed, primed and painted and ironmongery upgraded to match ironmongery on the western wall. The existing wrought iron on the boundary walls to be removed and replaced with new palisade ironmongery. Pedestrian access and vehicular access to be located in the vicinity of the guard booth. Upgrade existing entrance gates to match fencing ironmongery.
35. Drainage Refurbishment Works:
 - a. Culvert Replacement and Upstream Drain Enlargement:
 - i. Replace the existing 900 mm diameter RCCP culvert at Savannah Road with an in-situ or precast concrete box culvert, sized at a minimum of 2.0 m x 2.0 m to increase the capacity and reduce bottleneck of the storm water runoff upstream.
 - ii. Take video of the flooding and the existing culvert in the event of heavy rain to provide additional justifications to MOWT of the needed enlargement/reconstruction.
 - iii. Verify the latest cadastral plan to determine the river reserve boundaries.
 - iv. Pricing to include all Preliminaries (surveying, HSE measures, isolation of utilities, backfilling and roadworks)
 - b. Clearing of existing drains/ water channels
 - i. The main public drain (~1.2 m x 1.2 m) currently passes through the Guapo Community Centre parking area. To be cleaned, cleared and repaired where necessary.
 - ii. Enlarge the concrete rubble drain upstream (approximately 1.2 m x 1 m) to the maximum allowable size within the river reserve. This enlarged section can act as a storage or detention pond.
 - iii. Clearing of other existing drains/ water channels within the vicinity of the site.



36. All other Architectural and Structural works as required to upgrade the facility and as noted in the Conceptual Designs, to include, but not be limited to the following:
- a. Roofing upgrade works inclusive of upgrade of soffit.
 - b. Replacement of Doors, inclusive of door enclosures and Windows.
 - c. Replacement of Cabinetry and joinery works.
 - d. Refurbishment of existing handrails.
 - e. Refurbishment of external ramp and steps
 - f. Refurbishment and/ or replacement of ceiling.
 - g. Cleaning of existing tilework and replacement of tiles as required.
 - h. Removal of curtain rods and install acrylic shower enclosures to showers.
 - i. Upgrade/ replacement of mirrors.
 - j. Seal penetrations in walls where applicable.
 - k. Removal and disposal of canopies, replace with new.

DESIGN REQUIREMENTS

Preparation and submission of Designs and Drawings (in accordance with the “Design-Build Proposal /Approach”) shall include the following: -

1. Designs and drawings shall be completed to a level of detail, adequacy and completeness which will be acceptable for submission to the Town & Country Planning Division (TCPD) to meet the requirements for Final Approval.
2. Technical Specifications (Materials and Workmanship, Codes)
3. Listing, Description and Layout of proposed basic furniture, fixtures and equipment.
4. Cut sheets for all plumbing, electrical, HVAC, IT, equipment, fittings and fixtures and any special architectural features. Confirmation of local agent and spares readily available.
5. Architectural and Engineering Designs and Drawings (plans, elevations, sections and details) shall include as required but not be limited to the following:
 - f) Site Plan –
 - Site plan of the project showing location of applicable buildings, drives, and major mechanical equipment, parking and landscape elements.
 - Clear delineation of the project limit lines
 - Preliminary spot elevations
 - Primary spot elevations
 - Existing utilities
 - Proposed utilities
 - Site drainage
 - Site sections as needed to explain overall relationships
 - A coordinated drawing of the infrastructural elements
 - Box drains located within the premises to be covered
 - g) Garbage Collection and Disposal systems

- h) External Perimeter Fencing (medium security fencing)
- i) Security Booth (main entrance location)
- j) Building Plans
 - Plans of all floors showing proposed structural system and structural elements, vertical shafts, interior partitions, floor elevations
 - Key dimensions, bay sizes and overall dimensions
 - General notes indicating major extent of materials and any special conditions or equipment
 - Overhead items noted
 - Building sections keyed
 - Key Project limit lines noted if not otherwise clear
 - Independent access to male and female public washroom
 - Preliminary finish schedule
 - Area summary
- k) Roof Plan
 - Major roof-mounted MEP equipment and openings
 - Roof Framing, Structural and Finishing Details
- l) Building Sections
 - Major vertical heights
 - Ceiling heights
 - Typical wall sections keyed
- m) Building Elevations
 - All elevations with extent of glazing, façade and finishes detailed.
 - Minor elevations if they contain significant items (loading docks, bridges, etc.)
 - All materials called out in notes
 - Floor lines indicated
 - Overall dimensions
 - Set-backs and overhangs indicated
 - Relationship to existing and finished grade clearly shown

n) Structural

- Comprehensive evaluation, analysis and design report of the proposed structural building systems and elements.
- Structural system description of any applicable alterations
- One line drawing of any applicable floor and roof framing plans
- Typical member sizes noted
- Structural Details of all connections and special conditions (large spans, cantilevers, etc.)

o) MEP

- Comprehensive evaluation, analysis and design reports, inclusive of calculations, of the proposed MEP systems
- External MEP equipment must not detract from the front facade of the building
- Preliminary system selection
- Energy sources identified, entrances noted on architectural drawings
- Equipment requirements included in architectural drawings
- Utility corridors and risers spaces sized and indicated on architectural drawings
- All service infrastructure to be recessed and concealed
- Special features noted on electrical drawings
- One-line system schematics over architectural plans
- Mechanical - Air Conditioning System, Ventilation
- Electrical
- Main Infrastructure – Power and Telecommunications
 - I. Supply & Distribution System
 - II. Lighting – Internal and External systems. Photometric plots for external lights.
 - III. Power Systems
 - IV. Telecommunication System - telephone, internet and television service.

- V. Information Technology Systems
 - VI. Fire Alarm System
 - VII. Security System
 - Plumbing
 - I. Potable Water System Potable Water Booster Pump
 - II. Water Storage
 - III. Pipework
 - IV. Hot water System
 - V. Sanitary Waste and Vent System
 - VI. Sanitary Fixtures
6. All designs shall be prepared in accordance and in compliance with the guidelines, regulations and statutory requirements of all Governmental Statutory and Regulatory Agencies, which include:
- a) Town & Country Planning Division (TCPD)
 - b) Water and Sewerage Authority (WASA)
 - c) Trinidad and Tobago Electricity Commission (T&TEC)
 - d) Port of Spain City Corporation
 - e) Local Health Authorities
 - f) Ministry of Works and Transport (MOWT - Designs Branch, Highways and Drainage Division)
 - g) Division, Traffic Management Branch and other applicable Divisions)
 - h) Regional Corporations
 - i) Trinidad and Tobago Fire Services
 - j) Environmental Management Authority (EMA)
 - k) Telecommunications Services of Trinidad & Tobago (TSTT)
 - l) Cable Company
7. The Proponent shall assume full responsibility for the professional quality, completeness, accuracy and co-ordination of all design documents and its

conformance with all applicable laws, rules, regulations and orders governing said work.

8. All design documents (including drawings, plans, schedules, equipment manuals etc.) shall describe with specificity all elements, details, components, materials, and other information necessary for the complete construction of the Works and the delivery of the Works fully functional and operational for its intended purposes, including compliance/satisfaction of all testing, permitting, qualifications, certifications, validations, and obtaining regulatory certification and approvals by all applicable regulatory authorities required to render the Project and all its components operational and functionally and legally usable for their intended purpose.
9. The Proponent shall perform all Design Services described in, contemplated by, inferable from, or necessary or desirable to achieve the objectives specifically stated in the Scope of Works and in the Employer's requirements and the Contract, including all Design Services necessary for the Project to be properly constructed by the Contractor and used by the Employer in accordance with all applicable guidelines, requirements and standards.
10. All design and construction documents shall be prepared using the English (metric) system, unless otherwise specified in the Contract.
11. Design services shall be performed by licensed design professionals. The standard of care for architectural and engineering services performed shall be the highest degree of care and skill used by design professionals practicing under the same time and locality conditions.
12. As-built drawings for architectural, Civil/Structural Engineering, Mechanical, Electrical Engineering and Plumbing.
13. The proposed codes and standards to be used in the designs include the following:

ARCHITECTURAL DESIGNS

PLANNING	<ul style="list-style-type: none"> • Town and Country Planning Regulations • Regional Corporation Regulations
BUILDINGS/ STRUCTURES	<ul style="list-style-type: none"> • International Building Code (IBC) 2015. • Caribbean Uniform Building Code (CUBIC) • AWPA U1 – User Specification for Treated Wood: 2012 • American Society of Civil Engineers code ASCE-7-05 • International Building Code (IBC) for earthquake loading using equivalent static analysis and compared to CUBIC. A peak ground acceleration of 0.4g shall be used. • American National Standards Institute (ANSI) • American Concrete Institute ACI 318 • American Institute of Steel Construction (AISC manuals) • ASHRAE Standard 189.1
LIFE SAFETY	<ul style="list-style-type: none"> • NFPA 101-2015 – Life Safety Code • NFPA 1-2015 – Fire Code
UNIVERSAL ACCESSIBILITY	<ul style="list-style-type: none"> • Accessible and Usable Buildings and Facilities ANSI A177.1:2014
SUSTAINABILITY	<ul style="list-style-type: none"> • LEED v4 Guidelines
LOCAL REGULATIONS	<ul style="list-style-type: none"> • GORTT Office Outfitting Policy • The Occupational Safety and Health Act 1, 2004 as amended 2006

STRUCTURAL ENGINEERING DESIGNS

VERTICAL LOADS	<ul style="list-style-type: none"> • American Society of Civil Engineers (ASCE): ASCE 7-05 Minimum Design Loads for Buildings and Other Structure
EARTHQUAKE LOADS	<ul style="list-style-type: none"> • ASCE 7-05 and International Building Code (IBC) 2009 - (Refer to Seismic Research Unit website http://www.uwiseismic.com/Maps.aspx for Hazard Maps of Trinidad and Tobago -2475 year Return Period)
WIND LOADS	<ul style="list-style-type: none"> • ASCE 7-05 (Trinidad 117mph, Tobago 130mph – 3 sec. Gust for Trinidad and Tobago)

- | | |
|-------------------------------|---|
| REINFORCED
CONCRETE | <ul style="list-style-type: none"> • American Concrete Institute (ACI): ACI 318-08 or latest Building Code Requirements for Structural Concrete |
| STRUCTURAL
STEEL | <ul style="list-style-type: none"> • American Institute of Steel Construction (AISC): Manual of Steel Construction (Load & Resistance Factor Design), Specification for Structural Steel Buildings (AISC 360-10), • AISC 341 – 10 including Supplement No. 1 dated 2006 (Seismic Provisions for Structural Steel Buildings • AISC 358 - 10 including Supplement No. 1 dated 2009 (Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications |
| STRUCTURAL
MASONRY | <ul style="list-style-type: none"> • ACI 530-05 / ASCE 5-05 / TMS 402-02 |
| STEEL
REINFORCEMENT | <ul style="list-style-type: none"> • ASTM A615 GR 60 – $F_y = 60$ ksi, $F_u = 75$ ksi |
| STRUCTURAL
STEEL MATERIAL: | <ul style="list-style-type: none"> • ASTM A992 – $F_y = 50$ ksi (Wide Flange and Hot Rolled Sections) • ASTM A36 – $F_y = 36$ ksi (Plates) |
| OTHER
STANDARDS | <ul style="list-style-type: none"> • ASTM – American Society for Testing and Materials |
| IMPORTANT
NOTE: | <ul style="list-style-type: none"> • The structural designs should comply to the Ministry of Works and Infrastructure latest Structural Design Guidelines for Trinidad & Tobago • All structural drawings should be stamped and signed with a registered Civil / Structural Engineer’s Board of Engineers’ stamp of T&T. • All designs must be accompanied by structural design calculations which must include the following: <ul style="list-style-type: none"> ○ Design Data Sheet ○ Design Methodology Sheet with assumptions made in the modelling of the structure. ○ Drawing of the complete mathematical model used in the structural (manual or computer) analysis. ○ Clear input and output data. ○ An electronic copy of the computer structural model. |
| LOCAL
REGULATIONS | <ul style="list-style-type: none"> • Trinidad and Tobago Standard - Recommendations for the Design of Building – TTS 16 90 400 (1978) • National Building Code of Trinidad & Tobago • BAPE WIND CODE (1981) • Wind Speed Maps for the Caribbean for Application with the Wind Load Provisions of ASCE 7 shall be used to determine reference velocities as defined in ASCE 7. |

MECHANICAL AND ELECTRICAL ENGINEERING DESIGNS

- | | |
|------------|--|
| ELECTRICAL | <ul style="list-style-type: none"> • ANSI C37.13 – 2015 Standard For Low-Voltage AC Power Circuit Breakers Used In Enclosures • ANSI C37.14 - 2015 Standard for DC (3200 V and below) Power Circuit Breakers Used in Enclosures • ANSI C57.12.00 – 2010 Standard For General Requirements For Liquid-Immersed Distribution, Power, And Regulating Transformers • ANSI C57.12.01 – 2015 Standard For General Requirements For Dry-Type Distribution And Power Transformers • ANSI C63.12 – 2015 Standard Recommended Practice For Electromagnetic Compatibility Limits And Test Levels • ANSI C80.1 - 2015 Electrical Rigid Steel Conduit • ANSI C80.3 - 2015 Electrical Metallic Tubing - Steel (EMT-S) • ANSI C80.6 - 2018 Electrical Intermediate Metal Conduit |
| HVAC | <ul style="list-style-type: none"> • ASHRAE Handbook—HVAC Applications, 2019 • ASHRAE Handbook—HVAC Systems and Equipment, 2020 • ASHRAE 55 – 2017 Thermal Environmental Conditions for Human Occupancy • ASHRAE 62.1 - 2019 Ventilation for Acceptable Indoor Air Quality • ASHRAE 90.1 - 2019 Energy Standard for Buildings except Low-Rise Residential Buildings • ASHRAE Standard 90.4 - 2019 Energy Standard for Data Centers • ASHRAE Standard 170 - 2021 Ventilation of Health Care Facilities • ASHRAE Standard 185.1 - 2020 Method of Testing UV-C Lights for Use in Air-Handling Units or Air Ducts to Inactivate Airborne Microorganisms • ASHRAE Standard 202-2018 Commissioning Process for Buildings and Systems • ASHRAE 2020 Smart Grid Application Guide: Integrating Facilities With The Electric Grid • ASME A17.1 / CSA B44 – 2019 Safety Code for Elevators and Escalators |

- PLUMBING
AND
MECHANICAL
- ASME B31 – Standards of Pressure Piping
 - ASME B31.3 – 2020 Process Piping
 - ASME B31.8 - 2018 Gas Transmission and Distribution Piping Systems
 - ASME B31.9 – 20120 Building Services Piping
 - ASME B31.12 - 2019 Standard on Hydrogen Piping and Pipelines
 - Health Technical Memorandum 01-01 Management and Decontamination of Surgical Instruments (medical devices) used in Acute Care
 - Health Technical Memorandum 02-01 Medical Gas Pipeline Systems
 - Health Technical Memorandum 03-01 Specialized Ventilation for Healthcare Premises
 - Health Technical Memorandum 04-01 Safe Water in Healthcare Premises
 - Health Technical Memorandum 08-02 Lifts
 - ICC IFC 2021 International Fire Code
 - ICC IPC 2021 International Plumbing Code
 - ICC IMC 2021 International Mechanical Code
 - ICC IFGC 2021 International Fuel Gas Code
 - ICC IECC 2021 International Energy Conservation Code
 - ICC IPSDC 2021 International Private Sewerage Disposal Code
 - ICC ISPSC 2021 International Swimming Pool and Spa Code
 - ASME B16 – Standards of Pipes and Fittings
 - ICEA Class H Flexible Cables
 - IEEE 730 Software QA Plans
 - IEEE 830 Recommended Practice for Software Requirements Specifications
 - NFPA 10 – 2018 Standards on Portable Fire Extinguishers
 - NFPA 13 – 2019 Standard for the Installation of Sprinkler System
 - NFPA 14 - 2019 Standard for the Installation of Standpipes and Hose Systems
 - NFPA 15 – 2022 Standard water spray fixed systems for fire protection
 - NFPA 17 – 2021 Standard for Dry Chemical Extinguishing Systems
 - NFPA 17A – 2021 Standard for Wet Chemical Extinguishing Systems
 - NFPA 20 – 2019 Standard for the Installation of Stationary Pumps for Fire Protection
 - NFPA 22 – 2018 Standard for Water Tanks for Private Fire Protection

- NFPA 24 – 2022 Standard for the Installation of Private Fire Service Mains and Their Appurtenances
 - NFPA 45 – 2019 Standard on Fire Protection for Laboratories Using Chemicals
- LIFE SAFETY
- NFPA 54 – 2021 National Fuel Gas Code
 - NFPA 58 – 2020 Liquefied Petroleum Gas Code
 - NFPA 59 – 2021 Utility LP-Gas Plant Code
 - NFPA 59A – 2019 Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)
 - NFPA 70 – 2020 National Electric Code
 - NFPA 72 – 2019 National Fire Alarm and Signalling Code
 - NFPA 75 – 2020 Standard for the Fire Protection of Information Technology Equipment
 - NFPA 88A – 2019 Standard for Parking Structures
 - NFPA 90A – 2021 Standard for the Installation of Air-Conditioning and Ventilating Systems
 - NFPA 91 – 2020 Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids
 - NFPA 92 – 2021 Standard for Smoke Control Systems
 - NFPA 99 – 2021 Health Care Facilities Code
 - NFPA 101 - 2021 Life Safety Code
 - NFPA 110 – 2022 Standard for Emergency and Standby Power Systems
 - NFPA 111 – 2022 Standard on Stored Electrical Energy Emergency and Standby Power Systems
 - NFPA 418 – 2021 Standard for Heliports
 - NFPA 780 – 2020 Standard for the Installation of Lightning Protection Systems
 - NFPA 820 – 2020 Standard for Fire Protection in Wastewater Treatment and Collection Facilities
 - NFPA 900 – 2019 Building Energy Code
- LOCAL REGULATIONS
- Requirements of the OSH Authority in accordance with the OSH Act 2004 with amendments of 2006
 - Requirements of the EMA of Trinidad and Tobago & Water Pollution Rules 2019
 - Requirements of the Trinidad and Tobago Fire Service (TTFS), Ministry of National Security of Trinidad and Tobago
 - Requirements of the Electrical Inspectorate Division, Ministry of Public Utilities of Trinidad and Tobago

- Requirements of the Public Health Department in accordance with the Public Health Ordinance Act
- SMACNA HVAC Duct Construction Standards
- The National Plumbing Code of Trinidad and Tobago
- Trinidad & Tobago Electricity Commission Wiring for Light & Power 8th Edition
- Trinidad & Tobago Electrical Wiring Code Part 1 - Low Voltage Installations (TTS 171: Part 1: 2015)
- Trinidad & Tobago Electrical Wiring Code Part 2 - High Voltage Installations (TTS 171: Part 2: 2002)
- Trinidad & Tobago Electrical Wiring Code Part 3 – Renewable Energy Systems and Interconnection Requirements (TTS 171: Part 3: 2011)
- Workplace Design – Lighting of Indoor work places – Specification (TTS 611-2008)
- Water and Sewerage Authority Guidelines for Design and Construction of Water and Wastewater Systems in Trinidad and Tobago

TESTING

Testing will be carried out in accordance with the tests/inspections described in the Quality Control Plan and the Technical Specifications (Materials and Workmanship). The Proponent shall always ensure that materials and equipment are examined and tested for compliance with the specifications and quality control is then performed at the recommended frequency. Materials must be tested for compliance with stipulated specifications both at source and once it is delivered to site.

The Proponent shall prepare and submit a description of all the relevant tests and time periods for the testing of Materials and Works. These include but are not limited to steel reinforcement bar, reinforced concrete, masonry, structural steel, welding.

Workmanship Compliance Checks will include:

- a) checking, inspecting, examining and measuring;
- b) trials and demonstrations;

- c) fine testing carried out by manufacturers and suppliers in compliance with a specified standard or specification; and
- d) testing of equipment (air conditioning units, transformers, generators etc.)

All materials used or supplied shall be accompanied by valid and approved material certificates, tests and inspection reports. The minimum extent of examination and testing to be carried out and the acceptance levels/codes shall be specified by suppliers in the purchase order and/or subcontract documents.

An inspection schedule/plan shall be developed by the Proponent for procured equipment and materials. The Proponent's Construction Inspectors and Construction Supervisors shall carry out inspection surveillance activities. These include but may not be limited to; witnessing tests, verifying documentation and inspections/examinations. From these activities, reports shall be developed recording progress, findings, non-conformance and resolutions.

Materials, fitting and fixtures shall be inspected by the Proponent, upon receipt from the suppliers, for compliance with the technical requirements and regulations, including availability of required documentation and markings. If materials and/or documents do not comply, then they shall be clearly identified and if possible, segregated until further action is determined. Material deliveries shall be checked against shipping documents (dispatch note, freight note, and delivery receipt) for type and quantity, and for obvious transport damage, and to ensure that markings correspond to the order specification.

A Material Receiving Notice (MRN) shall be completed if the checks are satisfactory. Material that has been checked and accepted shall be stored according to type and class of material so as to effectively prevent damage and/or error of use. Sub-Consultants and Sub-Contractors shall be required to assign qualified/experienced inspection personnel to carry out all required examinations and tests in accordance with an agreed quality plan (inspection and test plan). These activities shall be carried out

in accordance with the agreed procedures and guides and result in the appropriate reports. The Proponent's Construction Inspector and Construction Supervisor shall monitor the quality control activities of its Sub-Consultants and Sub-Contractors and carry out his own examination of material, equipment and documentation to the necessary degree to determine the state of acceptance.

The Proponent shall ensure that the Employer and/or inspection authorities are given sufficient notice to witness the final inspection and tests, if required (egg. Pressure testing of water lines, testing of elevators, generators, sewer lines). The Client shall retain the design rights and other intellectual property rights and copyright of all documents prepared by the Proponent in the course of the Proponent's engagement.

SPECIFICATIONS

Finishes

1. All interior and exterior walls are fair faced and painted, while all interior floors to be as specified in the conceptual design package. In the absence of the specification in the concept, all floors should be porcelain tiles with special provisions for the appropriate rubber flooring to the gym. Colour palette selections and finishes selections to be provided for the Client approval. A minimum of three (3) sample options for each type of tile to be presented to the Client for approval. All paint systems shall provide a minimum of 5 years warranty.
2. Apron slabs to have an aesthetically pleasing yet slip resistant finish eg. Grano,
3. Carpentry and Joinery/Kitchen Cupboard: 100% Full Teak wood and solid surface countertops. Colour samples to be presented to the Client for approval.
4. The floor to floor ceiling height should be a minimum of 10'-0" (also above the stage), since a large percentage of the ground floor areas are designed for group activities. The utility and toilet areas are 8'-0" high on both floors with moisture resistant finish of either 2' x 2' acoustical ceiling tiles or gypsum. However, the assembly hall must be designed to offer the highest possible closed board ceiling at a minimum of 12ft. Configuration of the ceiling must offer some acoustic control and temperature modulation. In this phase of the project the hall will be air conditioned, therefore all electric systems must cater for this installation. Ceilings in all areas must have heat barriers and insulation of R30. A Minimum eave of 3'-0" is required with natural cross ventilation in case of loss of power.
5. Windows: All windows shall be metal framed with integrated burglar proofing. All window specifications to be submitted for approval.
6. Doors are metal framed with tempered glass vision panels in all the administrative areas, kitchen and servery, control room and Auditorium. Doors as per the Conceptual Designs. All door specifications to be submitted for

approval. Where alternate external doors are proposed, provisions must include for the installation of sliding burglar proofing.

7. All plumbing fixtures to be Armitage or equal Ceramic wall tiles to 6ft height.
Vanities: metal or teak wood framing with Solid Surface Countertops
8. Toilet Partitions: Banyan series or other equally approved patent commercial partitioning that ensures water tightness and installed as per manufacturer's instructions.
9. Perimeter Fencing: Medium security, to be approved by the Client. Front of facility to have a wall and wrought iron/ palisade wall that enhances the front of the facility.
10. Main External sign letters to be routed 3/4inch, PVC, painted and UV coated, inclusive of the coat of arms. A mockup of the proposed internal and external signage to be provided for approval.
11. Washroom Accessories to be commercial grade, stainless steel fixtures including soap dispensers, paper towel holders, toilet paper holders and hand dryers.

Sound and Stage lighting:

PA system with 2 Zone common areas paging with Opti voice capabilities Audio System Design

- The Public Address (PA) system shall be designed for sound reinforcement during assemblies and speeches and Performances.

Basic components of system

- Loudspeakers
- Subwoofer
- Digital mixer
- Audio snake
- Wireless microphones
- Wireless paging microphone
- Mixer power amplifier

- Flush mount ceiling speakers
- Portable speaker

Standard equipment list for Auditorium.

List of standard Auditorium System equipment

Item No.	Description	Quantity
1	Flexible array Loudspeaker	2
2	Dual 10" Powered Subwoofer	1
3	Digital Stereo 8 channel Mixer	1
4	Audio Snake	1
5	Wireless Microphones	2

List of standard PA System Equipment

1	Flush mount ceiling speakers with removable or rotatable badges		Quantity varies depending on size and number of rooms
2	Portable Speaker with rechargeable battery	1	
3	Mixer Power Amplifier	1	
	Wireless Paging Microphones	1	

Component Performance Specification

Loudspeakers shall satisfy the following minimum performance specifications: -

- The Loudspeaker shall be a 1000-watt self-powered two-way, ported loudspeaker system utilizing Eight (8) mid/high-range drivers.
- The Loudspeakers shall have a 12-inch LF high performance subwoofer. The enclosure shall be made of High impact composite materials with M8 threaded insert points.
- The Loudspeaker shall have an integrated 2-channel mixer with independent level controls.

- d. The Loudspeaker shall allow for control over its vertical coverage pattern by manual louvered adjustment with automatic changes to its internal EQ to maintain optimum tonal balance.
- e. The Loudspeaker shall be designed for wall mount installation or suspended up to 20 ft high.
- f. The Loudspeaker shall have a Nominal Dispersion of 100° H x 40° V with variable adjustments for the vertical axis.
- g. The Loudspeaker input shall have a nominal rated impedance of 10 k ohms (10 kΩ)
- h. The Loudspeaker shall have an Input Impedance of 2.2 kΩ (MIC), 10 kΩ (Line)
- i. The Loudspeaker input connections will allow for direct connection XLR /1/4" XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-) 1/4" TS/TRS, (2) RCA
- j. Exposed cosmetic surfaces of the Loudspeaker should be Black and the acoustically transparent grille component should be formed of powder-coated perforated steel.
- k. Each Loudspeaker shall have a bandwidth of 43 Hz - 20 kHz and a maximum continuous acoustic output of 132dB SPL.
- l. The Loudspeaker shall have an internal dynamic limiter with distortion at rated power being 0.1% Max (30 Hz - 15 kHz)
- m. Dimension shall not exceed 664.66 mm x 334.3 mm x 372.5 mm (26.1" x 13.1" x 14.6")
- n. Warranty shall be 5 years.

Subwoofer shall satisfy the following minimum performance specifications: -

- a. The Subwoofer shall be a 1000-watt self-powered compact format system utilizing two ten (10") high excursion LF drivers. The enclosure should be made of High impact composite materials with high impact composite end caps.
- b. The Subwoofer should be designed for installation in specialist localities including but not limited to House of Worships, Resorts and Hospitality venue.
- c. The Subwoofer shall have a Polarity switch to adjust polarity of subwoofer for easy correction of low-frequency overlap between the main loudspeaker and subwoofer.
- d. The Subwoofer shall possess line output EQ that sets the Subwoofer's output to a high-pass filter or full
- e. Range, which allows for easy crossover selection when used with a main loudspeaker.
- f. The subwoofer shall have a Dynamic Limiter.
- g. The Subwoofer shall have a Nominal Dispersion being Omni-directional.
- h. The Subwoofer input shall have a Cross over frequency within the range 40 – 100 Hz.

- i. The Subwoofer input connections will allow for direct connection XLR /1/4" XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-) 1/4" TS/TRS,
- j. Exposed cosmetic surfaces of the Subwoofer should be Black and the acoustically transparent grille component should be formed of powder-coated perforated steel.
- k. Each Subwoofer shall have a bandwidth of 38 Hz – 250 Hz and a maximum continuous acoustic output of 130dB SPL,
- l. The Subwoofer should have a dynamic limiter with distortion at rated power being 0.1% Max (30 Hz - 15 kHz)
- m. Warranty should be 5 years.

Audio snake

- a. The number of input connections should be at least 12.
- b. The number of output connections should be at least 4.
- c. The connections should be XLR: Pin 1 (GND), Pin 2 (+), Pin 3 (-)
- d. The cable should be of suitable length to position the casing of the head at the back of the stage and the tail in the control room.
- e. The head enclosure should be made of metal.
- f. The connections should have numbered wires for identification at the tail end.
- g. Warranty should be 5 years.

Wireless microphones

- h. Working Range should be 91 m (300 ft) Line of Sight
- i. Audio Frequency Response 50 to 15,000 Hz
- j. Total Harmonic Distortion of Ref. ± 33 kHz deviation with 1 kHz tone 0.5%, typical
- k. Dynamic Range of 100 dB, A-weighted, typical
- l. Audio Input Level should be max of -16 dBV, min (0 dB) +10 dBV
- m. Input Impedance 1 M Ω
- n. RF Transmitter Output 10 mW, typical
- o. Power Requirements must be 2 LR6 AA batteries, 1.5 V, alkaline
- p. Battery Life should be up to 14 hours (alkaline)
- q. Receiver
- r. XLR connector 200 Ω
- s. 6.35 mm (1/4") connector 50 Ω
- t. XLR connector -27 dBV (into 100 k Ω load)
- u. 6.35 mm (1/4") connector -13 dBV (into 100 k Ω load)
- v. RF Sensitivity
- w. 105 dBm for 12 dB SINAD, typical
- x. Power Requirements 12–15 V DC @ 235 mA, supplied by external power supply (tip positive)

y. Warranty should be 1 years.

Mixer Power Amplifier for Opti voice paging shall satisfy the following minimum performance specifications: -

- a. The mixer/amplifier should employ Class-D amplification together with a digital signal processing architecture running at 48 kHz / 24 bit.
- b. The mixer/amplifier should incorporate a switch-mode power supply allowing normal operation from AC outlets ranging from 100 – 240 V ($\pm 10\%$) at 50/60 Hz. The amplifier should have an IEC 320-C14 electrical power inlet and should be equipped with a removable power supply cord. A power switch should be located on the front panel.
- c. The product should include protection from shorted loads and general overheating.
- d. The mixer/amplifier's physical size should be 1 RU in height by 1 RU in width and be capable of rack mounting.
- e. The product should have venting with a single fan, continuous left-to-right airflow. Each output channel should have output trim controls.
- f. The mixer/amplifier should have two output channels with a frequency response of 55 Hz to 20 kHz ($+0/-3$ dB) and drive 70/100 V distributed audio systems.
- g. The mixer/amplifier should have THD+N at rated power less than or equal to 0.3%. Output connections should be made via 2-pin touch-proof Euroblock connectors.
- h. The mixer/amplifier should meet or exceed the following performance specifications: channel separation (crosstalk) less than or equal to -60 dB below rated power at 1 kHz and dynamic range of 88 dB.
- i. The mixer/amplifier should incorporate 3 line-level inputs (two RCA stereo, one 3.5 mm stereo) and one microphone input for paging applications. Two of the line level inputs should be selectable via a switch on the front panel while the third input should override line input channels upon connection.
- j. The nominal input sensitivity should be 0 dBV for line level inputs and -40 dBV for microphone inputs.
- k. The microphone input should be mounted on the rear, support dynamic microphones and select telephone systems with PTT switching.
- l. The paging microphone input should have automatic ducking capabilities activated via a selector switch on the rear panel.
- m. The microphone input should bypass master volume control via a selector switch on the rear panel.
- n. All inputs should have individual input gain controls with the exception of the 3.5 mm priority input connector on the front panel.
- o. The mixer/amplifier should have an auxiliary line-output via two RCA connectors. The front panel should also have user-accessible treble, bass and master volume controls.

- p. Warranty should be 5 years.

Flush mount ceiling speakers shall satisfy the following minimum performance specifications: -

- a. The full-range loudspeaker shall contain a single full-range 2.25-inch transducer, low frequency range down to 83 Hz, and sensitivity of 86 dB SPL / 1 W @ 1 m
- b. The full-range Loudspeaker shall meet the following performance specifications: On-axis system frequency response should be 83 Hz to 19 kHz (-10 dB) with the use of recommended active equalization.
- c. The Loudspeaker sensitivity should be 86dB SPL in half-space environment with 1 W input at 1 meter.
- d. The long-term power handling rating should be 20 W (AES test methodology using IEC system noise, 2-hour duration). Maximum continuous output shall be 99 dB SPL and the maximum peak output should be 105 dB SPL, both in half-space environment.
- e. The nominal coverage pattern should be 160° conical at 1-4 kHz.
- f. The Loudspeaker shall be constructed of an engineered-plastics front baffle with an integrated steel formed enclosure. The Loudspeaker shall consist of PC-PBT plastic materials that are resilient to cooking oil exposure. The Loudspeaker should be plenum rated for use in air handling spaces and in compliance with the following safety standards; UL1480 for Fire Alarm and Signaling Systems, UL2043.
- g. The transducers shall be located behind a perforated steel grille with a powder-coated finish.
- h. The Loudspeaker shall contain standard mounting arms.
- i. The Loudspeaker shall be available in black or white.
- j. The Loudspeaker shall fit a modern aesthetic with the option to remove logos.
- k. Input connectors shall be a Euro block pin connector with loop-through, located on the front baffle.
- l. The Loudspeaker shall have a nominal rated impedance of 16 ohms and should be wired in parallel with a line voltage matching (stepdown) transformer with a level selector appropriate for output taps of 1, 2, 4, 8, 16 Watts and Bypass (16 ohms).
- m. The Loudspeaker input connections shall allow for direct connection to 70-volt, 100-volt or low-impedance amplifiers. Loudspeaker back can dimension shall be 127 x 125 mm (5.0 x 4.9 in) and net weight should be 1.63 kg (3.6 lbs) with grille. Outward front baffle dimensions should be 182 mm (7.2 in).
- n. Warranty should be 5 years.

Portable speaker/ Monitor shall satisfy the following minimum performance specifications: -

- o.** The Portable speaker shall be suitable for use in commercial setting including Houses of worship, Schools and Universities, Resorts and Hospitality venues or Live music performances
- p.** The Portable speaker shall be a multiple driver, full-range portable loudspeaker system with internally supplied power amplification and active equalization for multiple operating modes. The transducer complement shall consist of high-excursion full range drivers, With a dedicated low frequency driver.
- q.** The Portable speaker shall have a Rechargeable lithium-ion battery allows performance of up to 8 hours.
- r.** The Portable speaker shall have an Onboard 3-channel mixer which offers reverb, and EQ controls on two channels, with a dedicated channel for either wired (3.5 mm) or wireless music sources via Wireless Bluetooth® streaming.
- s.** The Portable speaker shall allow for multiple placement orientations with Auto eq to maintain tonal consistency.
- t.** The Portable speaker shall be compatible with standard 35 mm pole mounts.
- u.** The nominal horizontal beam width of the portable speaker shall be 140°, and the vertical coverage shall be 40°.
- v.** The Power Amplification for transducers shall be supplied by the integrated power supply providing 130 W continuous pink noise, band-limited from 65 Hz to 14 kHz (-3 dB).
- w.** The input connectors of the Portable speaker shall consist of one XLR with equalization for a dynamic handheld microphone, one ¼" TRS, stereo RCA, and one 1/8" TRS receptacle. The output connectors of the portable speaker shall consist of one ¼" balanced TRS
- x.** Warranty should be 5 years.

Digital Mixer shall satisfy the following minimum performance specifications: -

- a.** Digital stereo 8 Channel mixer containing eight high-quality audio preamps with
- b.** XLR-combo jacks for microphones or instruments, and switchable phantom power
- c.** Aux inputs for additional sources minimum four
- d.** USB-A and -B for USB drive playback or PC/Mac interfacing
- e.** Balanced ¼" TRS and XLR stereo outputs
- f.** Independent headphone output
- g.** The Digital Mixer shall offer Updated, studio-quality effects with advanced digital audio processing. Effects include compressor, limiter, de-esser, noise gate, chorus, flanger, phaser, tremolo, delay, and reverb

- h.** The Digital Mixer shall have on built in on board tonal presets for different instruments or equipment such as Shure/Sennheiser mics, Acoustic/Electric Guitars, Saxophone, DJ controllers and the likes of the industry.
- i.** The Mixer shall have sound processing for natural-sounding vocals and instruments
- j.** The Digital mixer shall have EQ focusing the sound presets for effective adjustments on the fly
- k.** The digital mixer shall offer Independent EQ, dynamics and effects per individual channel, Dedicated reverb for Aux sends, and a global shared reverb for use across all channels
- l.** The digital Mixer shall offer Master output EQ to compensate for venue acoustics
- m.** The Digital Mixer should allow for Full end-to-end tonal optimization when used Loudspeakers and Subwoofers with cross over range between 40 – 100 Hz.
- n.** The digital mixer shall have Seamless Live Control with Tactile controls and indicators designed for live on-stage use by musicians and DJs
- o.** The Digital Mixer shall offer an uncluttered user interface
- p.** The digital Mixer shall be able to create and store Built-in tap tempo delay, chromatic tuner, and recallable scenes.
- q.** The digital mixer shall allow for low light operations with LED display and illuminated controls are easy to read.