

## THE URBAN DEVELOPMENT CORPORATION OF TRINIDAD AND TOBAGO LIMITED (UDeCOTT)

#### REQUEST FOR PROPOSALS

### PROVISION OF DESIGN-BUILD SERVICES FOR THE CONSTRUCTION OF AN ASSESSMENT CENTRE AND TEMPORARY HOUSING FACILITY FOR SOCIALLY DISPLACED PERSONS

The Urban Development Corporation of Trinidad and Tobago Limited (UDeCOTT) invites suitably qualified and experienced entities to submit proposals for the **PROVISION OF DESIGN-BUILD SERVICES FOR THE CONSTRUCTION OF AN ASSESSMENT CENTRE AND TEMPORARY HOUSING FACILITY FOR SOCIALLY DISPLACED PERSONS**.

#### **INSTRUCTIONS FOR PURCHASE OF RFP PACKAGE**

- The RFP package may be purchased from Friday December 16, 2022, by making a non-refundable deposit of \$7,500.00 VAT Inclusive, to UDeCOTT's Operating Account #852948 at any branch of First Citizens Bank Limited, by Cash or Manager's Cheque.
- II. AFTER payment has been deposited into UDeCOTT's account, the RFP package may then be collected at UDeCOTT's Head Office (with proof of payment), First Floor, 38-40 Sackville Street, Port of Spain, 100622, or provided electronically upon request, from Friday December 16, 2022 (excluding weekends and public holidays), between the hours of 9:00 a.m. to 4:00 p.m. (AST), with proof of payment (stamped deposit receipt from the bank).

#### **INFORMATION SESSION AND SITE VISIT**

An **Online Information Session** will be held **via Microsoft Teams** on **Wednesday December 21, 2022 at 9:00 a.m.** This will be followed by a <u>Site Visit</u> at **2:00 p.m.** 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 <u>tendersecretary@udecott.com</u>.

#### **SUBMISSION**

Proponents are advised that submissions <u>must</u> 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 February 10, 2023 at 2:00pm (AST).

Additional information may be requested through email forwarded to the attention of **The Secretary, Tenders Committee** at <u>tendersecretary@udecott.com</u>.

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

SECRETARY, TENDERS COMMITTEE

#### FREQUENTLY ASKED QUESTIONS (FAQs)

#### <u>Provision of Design-Build Services for the Construction of an Assessment Centre and Temporary Housing</u> <u>Facility for Socially Displaced Persons</u>

#### 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 to undertake the Project.

# I am interested in this project. Can I view the RFP before purchasing to confirm the requirements prior to purchasing?

The RFP will be available for viewing at UDeCOTT's Head Office, First Floor, 38-40 Sackville Street, Port of Spain, 100622, from Friday December 16, 2022 (excluding weekends and public holidays), between the hours of 9:00 a.m. to 4:00 p.m. (AST).

#### What is the Location of the site?

The Project Site is located at South Quay, Port of Spain.

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

Attendance to the site visit and online information session is <u>not</u> 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 Works, Proponents must be able to demonstrate the following:

- Incorporation or otherwise registered to do business in Trinidad and Tobago as evidenced by the Certificate of Incorporation or Registration (as applicable);
- Submission of Statutory Clearance/Compliance Certificates, (for companies incorporated/registered in Trinidad and Tobago) valid as at the tender submission deadline, namely;
  - o VAT Clearance Certificate
  - o BIR Clearance Certificate
  - NIS Certificate of Compliance
- Submission of Annual Return 2021 (2022 if applicable) (for companies incorporated/registered in Trinidad and Tobago)
- Bid Bond valued at Five Hundred Thousand Dollars (\$500,000.00)

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

Yes, a Bid Bond valued at Five Hundred Thousand Dollars (\$500,000.00), 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.



# **EMPLOYER'S REQUIREMENTS**

# PROVISION OF DESIGN-BUILD SERVICES FOR THE CONSTRUCTION OF AN ASSESSMENT CENTRE AND TEMPORARY HOUSING FACILITY FOR SOCIALLY DISPLACED PERSONS

DECEMBER 07, 2022

Revision\_oo



## **TABLE OF CONTENTS**

Ι.	OBJECTIVE	2
II.	THE SITE	3
111.	BASE SCOPE OF WORKS	4
IV.	GENERAL NOTES:	4
V.	STATUTORY REQUIREMENTS AND DESIGN CODES & STANDARDS	6
VI.	PRINCIPLE DESIGN-BUILD CONTRACTOR RESPONSIBILITIES	10
VII	DESIGN REQUIREMENTS	10
VII	. HEALTH, SAFETY, SECURITY AND ENVIROMENT REQUIREMENTS	13
IX.	MD-B SERVICES STAGES AND DURATION	14
1	APPENDIX 1 - DESIGN BRIEF MSDFS ASSESSMENT CENTRE FOR SOCIALLY DISPLACED	20
1	APPENDIX 2 - MSDFS PRECEDENCE STUDY PRESENTATION	21
1	APPENDIX 3 - REVISED CONCEPTUAL FLOOR PLAN AS AT 17 OCT 2022	22
/	APPENDIX 4 – PERFROMANCE SPECIFICATIONS – ASSESSMENT CENTRE	23



#### I. OBJECTIVE

The emergence of socially displaced persons in Trinidad and Tobago has increased significantly over the years. As at March 2021, there were 283 socially displaced persons in Port of Spain alone. The previous Centre for Socially Displaced Persons at Riverside Car Park was not appropriate for provision of the required services and this resulted in protracted timeframes for access to the services and loss of interest in same by the targeted users and therefore they returned to street dwelling. The new Assessment Centre for the Socially Displaced will serve as a viable alternative to street dwelling which begins with an assessment of an individual's problems and challenges and develops a plan of care for the individual and will:

- i. Allow for the assessment and subsequent referral to treatment and rehabilitation centres / programmes;
- ii. Support the process for mandatory rehabilitation via a Court Order process that the Ministry proposes in the draft Amendments to Act No. 59 of 2000;
- iii. Provide temporary accommodation for street dwellers; and
- iv. Attract the homeless population by the quality and consistent service offerings.

The purpose of this Employer's Requirements is to provide a detailed description of the user to guide Proponents in the preparation of their responses to the Request for Proposal (RFP) for the provision of Design-Build Services for the Construction of an Assessment Centre and temporary Housing Facility for Socially Displaced Persons (herein referred to as "Project").

This Employer's Requirements shall be read in conjunction with the following appendices and shall be used as a guide by the Proponents in developing their proposals:

- Appendix A1 Design Brief MSDFS Assessment Centre for Socially Displaced
- Appendix A2 MSDFS Precedence Study Presentation
- Appendix C Revised Conceptual Floor Plans as at 17 Oct 2022

The Project shall be completed within <u>twenty-four (24) months</u> upon issuance of Commencement Letter, with a 12-month Defect Notification Period upon successful issuance of Taking-Over Certificate to the Contractor.



### II. THE SITE

The site is situated along South Quay, Port of Spain as shown below:





#### III. BASE SCOPE OF WORKS

The new Assessment Centre will consist of a 5-storey building to serve approximately 200 socially displaced persons, 25 staff and accommodation for 6-week minimum assessment periods such as dormitories, administration offices, counsel/meeting rooms, dining hall and other associated facilities. The building features an assessment centre to conduct physical and mental assessments and an activity centre to offer a variety of services, programmes and skills. It will offer user compatibility and flexibility with day-user facilities, overnight shelter facilities, wings which can be adjusted based on the daily capacity or needs and a layout which allows for operational flexibility. The external areas will include parking, hard court, courtyard, green space, partially covered drying yard, guard booth and a kitchen garden.

#### IV. GENERAL NOTES:

- a) The Contract Price is deemed to include for the design, construction, equipping, testing, commissioning, training, provision of "as built" drawings and records and operational and maintenance manuals.
- b) The Modified Design-Build ("MD-B") Contractor shall conduct all the necessary investigations, studies and analyses, calculations, and prepare conceptual and final designs for the successful delivery of the Project. These will then serve as the groundwork for the subsequent construction stages.
- c) Duration of each service/works is in calendar days, inclusive of Saturdays, Sundays and public holidays.
- d) Units of system shall be in metric only, unless otherwise directed by the Client.
- e) All sketches, drawings, calculations, materials lists, bills of quantities, methodology, reports, and project schedules shall be submitted in both hard copy and digital format (electronic copy) via CD-ROM or any portable storage device e.g. USB flash drive.

Submittals	Hard Copy	Electronic Copy	
Sketches and	<ul> <li>Sketches &amp; Drawings: minimum</li> </ul>	<ul> <li>AutoCAD 2010 (or</li> </ul>	
Drawings	acceptable sheet size is 11" x 17" (3 copies)	higher version)	
	<ul> <li>For-Construction Drawings: acceptable</li> </ul>	and PDF	
	sheet size is in A1 only (3 copies).		
Project Schedules	<ul> <li>minimum acceptable sheet size is 11" x 17"</li> </ul>	<ul> <li>MS Project 2010</li> </ul>	
		(or above) and	
		PDF	



Submittals	Hard Copy	Electronic Copy
Reports, analysis, charts	<ul> <li>minimum acceptable sheet size is 8.5" x 11" or as appropriate (colour printed on one side only)</li> </ul>	<ul> <li>MS Word or/and MS Excel and PDF</li> </ul>
Photography	<ul> <li>Should be included in the report or as appropriate (colour printed on one side only)</li> </ul>	<ul> <li>JPEG and PDF</li> </ul>
Presentation	<ul> <li>As appropriate (print on one side only)</li> </ul>	<ul> <li>MS PowerPoint and PDF</li> </ul>

- f) The Design-Build Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Design-Build Contractor shall remove the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the Government. Unsightly materials and debris, garbage, and equipment should be removed as required; while materials should be scheduled for delivery only as required for immediate use.
- g) Logistics: Staging / storage areas are to be advised by the project manager. The Design-Build Contractor shall provide all equipment needed for material transportation, equipment and labor to execute the project.
- h) Coordination: The Design-Build Contractor is also required to coordinate with other appointed UDeCOTT and Client appointed contractors for implementation of the works
- i) Removals: Any Items that effect the work space that need to be removed either temporarily and reinstated at a later date shall be accounted for by the Design-Build Contractor and identified prior to commencement of any work
- j) Waste Management: The Design-Build Contractor is required to keep the work site free from the accumulation of construction waste during construction and shall be responsible for the disposal of such waste off site. Upon completion of the project, the Contractor must remove all debris and trash from the site out of the compound.
- k) Final Preparation for Handover: Prior to Handover, the contractor is to ensure that the site is ready for occupation by the CLIENT. In this regard the contractor is required to ensure that the site is thoroughly cleaned and is responsible to:
  - Deep clean all soft surfaces left in place during construction



- Clean all hard surfaces (floors, walls, cabinets, shelves etc.) of all dust and particulate matter
- Remove and dispose of all packaging, stickers and labels on supplied products
- Clean all lavatories and washrooms

#### V. STATUTORY REQUIREMENTS AND DESIGN CODES & STANDARDS

- a) All design drawings, calculations and workmanship shall be delivered in accordance with, and in compliance with the Appendices of this Employer's Requirements, and the guidelines, regulations and statutory requirements of all Governmental Statutory and Regulatory Agencies, which include but not limited to:
  - a) Town & Country Planning Division (TCPD)
  - b) Ministry of Works and Transport (MOWT) e.g. Designs Branch, Highways Division, Traffic Management Branch, Drainage Division, and other applicable Divisions
  - c) Water and Sewerage Authority (WASA)
  - d) Trinidad and Tobago Electricity Commission (T&TEC)
  - e) Port of Spain City Corporation
  - f) Local Health Authorities
  - g) Occupational Safety and Health Authority (OSHA)
  - h) Regional Corporations
  - i) Trinidad and Tobago Fire Services Authority
  - j) Environmental Management Authority (EMA)
  - k) Telecommunications Services of Trinidad & Tobago (TSTT)
  - l) Ministry of Energy (MoE)
  - m) Trinidad and Tobago Bureau of Standards
- b) The codes and standards to be used in the designs are listed below at a minimum. The MD-B Contractor may propose other codes and standards as long as same is acceptable to the guidelines, regulations and statutory requirements of all Governmental Statutory and Regulatory Agencies of Trinidad and Tobago.

#### Architectural Designs

- a) Uniform Building Code (UBC) 1997
- b) National Fire Protection Association (NFPA)
- c) Uniform Fire Code (UFC) 2000 Uniform DO 58 Structural Fire Code
- d) Underwriter's Laboratories Inc. (UL)
- e) National Electrical Manufacturer Association (NEMA)
- f) Americans with Disabilities Act Accessibility Guidelines (ADAAG) Barrier Free Plumbing Fixtures



- a) American National Standards Institute (ANSI)
- b) International Building Code (IBC) Latest Edition

#### Structural Engineering Designs

Local Codes and Standards as per Ministry of Works and Transport (Design Engineering Branch)

- a) Vertical Loads: ASCE 7 - 05
- b) Earthquake Loads

IBC 2009

ASCE 7-05

Refer to Seismic Research Unit website <u>http://www.uwiseismic.com/Maps.aspx</u> for Hazard Maps of Trinidad and Tobago

c) Wind Loads

ASCE 7 - 05

(Trinidad 117mph, Tobago 130mph – 3 sec. Gust for Trinidad and Tobago)

d) Reinforced Concrete Designs ACI 318-05 for IBC 2006

# e) Structural Steel

AISC 341 – 05 including Supplement No. 1 dated 2006 AISC 360 – 05 AISC 358 - 05 including Supplement No. 1 dated 2009

f) Structural Masonry ACI 530-05 ASCE 5-05 TMS 402-02

#### g) General Requirements for Seismic Structural Design:

- 1. Every structure and every portion thereof shall, as minimum, be designed, detailed and constructed to resist the effects of seismic ground motions. Additionally all detailing must be in accordance with the material standards referred to in the Code used for the particular force resisting systems.
- 2. Where code prescribed wind design produces greater effects, seismic design detailing requirements and limitations pre- scribed in the approved codes IBC 2009 shall be followed.



- 3. A continuous load path, with adequate strength and stiffness shall be provided which will transfer all forces from the place of application to the resisting elements.
- 4. Where calculations include the results from a computer program, the following information must be submitted:
  - i. A labelled drawing of the complete structural model used to represent the structure in the computer-generated analysis;
  - ii. At the discretion of the building official, a presentation/demonstration of the use of the program for the design shall be required;
  - iii. Input Data shall be provided via a printout from the structural program used;
  - iv. Where the structural design is generated via the computer software/programme, hand calculations or detailed spreadsheets for each typical Primary structural element must be provided, as required by the building official.

International Codes (Latest Edition)

- h) International Building Code (IBC)
- i) American Society of Civil Engineers ASCE 7-95 Minimum Design Loads for Buildings and other structures Live Loads and Wind Loads
- j) BS 8110:Part 2, Structural Use of Concrete
- k) Uniform Building Code (UBC)
- I) 2000 Uniform Structural Fire Code (UFC)

#### North America Codes

- m) ACI American Concrete Institute
- n) ACI American Concrete Institute publications to be utilized in the design of concrete and masonry structural elements in accordance with the requirements of IBC 2006 and ASCE 7:
- o) 318-05: Building Code Requirements for Structural Concrete and Commentary
- p) 530-05: Building Code Requirements for Masonry Structures and Commentary
- q) AISC American Institute of Steel Construction publications to be utilized in the design of structural steel structural elements in accordance with the requirements of IBC 2006 and ASCE 7:
- r) 303-05: Code of Standard Practice for Steel Buildings and Bridges
- s) 325-05: Steel Construction Manual Thirteenth Edition
- t) 327-05: Seismic Design Manual
- u) AISI American Iron and Steel Institute
- v) ANSI American National Standards Institute
- w) ASTM American Society for Testing and Materials
- x) ASCE American Society of Civil Engineers



### Mechanical Engineering Designs

Standards of Pressure Piping		
Standards of Pipes and Fittings		
American Society of Heating, Refrigerating and Air-		
Conditioning Engineers, Inc.		
Thermal Environmental Conditions for Human Occupancy		
Energy Standard for Buildings except Low-Rise Residential Buildings		
Ventilation for Acceptable Indoor Air Quality		
2007 Supplement to the International Codes		
2006 International Fire Code		
2006 International Plumbing Code		
2006 International Mechanical Code		
2006 International Fuel Gas Code		
2006 International Ennery Conservation Code		
2006 International Wildland-Urban Interface Code		
2006 International Existing Building Code		
2006 International Private Sewerage Disposal Code		
Standards on Portable Fire Extinguishers		
Standard for the Installation of Sprinkler System		
Standard water spray fixed systems for fire protection		
Standard for the Installation of Standpipes and Hose Systems		
Water Storage Tank Systems		

## Electrical Engineering Designs

IBC	International Building Code
TTBS	Trinidad and Tobago Bureau of Standards
TTS-171	Trinidad and Tobago Electrical Wiring Code
ANSI C34.2	Substation Transformers and Rectifier Units
ANSI C37.13	Low Voltage AC Breakers
ANSI C37.14	Low Voltage DC Breakers
ANSI C37.16	Low Voltage Breakers and AC Protectors
ANSI C57.12.01	Transformer - General Requirements for Dry Type Distribution
ANSI C63.12	Electromagnetic Compatibility
ANSI C7.14	Stranding of Conductors
ANSI C80.3	Electrical Metallic Tubing, Zinc-Coated
ICEA Class H	Flexible Cables
IEEE 730	Software QA Plans
IEEE 830	Recommended Practice for Software Requirements Specifications
NEC	2008 National Electrical Code
NFPA 70	National Electric Code



NFPA 72National Fire Alarm CodeNFPA 780Standard for the Installation of Lightning Protection SystemsUL 96ALightning ProtectionIEEE Std 1100Powering and Grounding Electronic Equipment

#### VI. PRINCIPLE DESIGN-BUILD CONTRACTOR RESPONSIBILITIES

- Design Development
- Product Specifications
- Statutory Approvals relevant to works (e.g. Fire Approval, Electrical, WASA etc.)
- Project Programme & Works Scheduling
- Project Insurances
- Contractor Accreditation
- Project Delivery
- Contract Management
- Subcontractor Coordination and verification of works
- Health Safety, Security and Environmental Management during the works
- Construction Phase HSSE Plan and Risk Assessment
- HSSE Set Up & Welfare
- Personal protective equipment (safety glasses, vests, boots, vests
- Job Safety Analysis, Site Safety Induction, Tool box talks
- First Aider and First Aid Kit
- Fire Warden
- Certification of equipment and equipment users (where applicable)
- Safety and Evacuation Signage
- Site Security
- Site Evacuation Plan
- Site Waste Management and disposal
- General labour
- Site Cleaning
- Practical Completion/Final Account Applications
- Operations Manuals (O&M) Contractor Accreditation

#### VII. DESIGN REQUIREMENTS

a. Design Generally

A conceptual design for the Provision of Design-Build Services for the Construction of an Assessment Centre and temporary Housing Facility for Socially Displaced Persons, has been provided to guide the Contractor in preparing the enhanced Conceptual and Final Design. The



Conceptual Design & Employer's Requirements must be reviewed by the Contractor for compliance with the codes and applicable standards in executing the project.

The Contract Price is deemed to include for the design, construction, equipping, testing, commissioning, training, provision of "as built" drawings and records and operational and maintenance manuals.

#### b. Design Development

Design development will be carried in accordance with the Contractor's Programme. This stage will include architectural and services designs, updated outline specifications and equipment schedules.

- Detail Design During the detail design phase technical design(s) and specifications, sufficient to co-ordinate components and elements of the project and information for statutory standards and construction safety will be prepared.
- Pre-Construction The Contractor shall prepare detailed information for construction purposes and submission to statutory authorities and agencies.
- Construction Following submission and approval of the insurances, the site shall be handed over to the Contractor and construction work will commence.
- Post Taking Over The Contractor shall rectify any defects notified during this period and shall ensure that the Ministry of Health Administration Building functions in accordance with the approved designs and specifications.

The Contractor shall provide "as built" drawings of the Interior Design, fixed furniture layouts and their services components and systems for:

- Architecture (Interior Design, furniture and equipment)
- Structural Works
- Electrical (High and Low Voltage)
- Fire Detection & Suppression System
- Security System
- Mechanical (Air Conditioning , Ventilation, Elevator)
- Plumbing (Potable & Waste water)

The Contractor shall compile and provide three (3) copies of all operational manuals, manufacturer's instructions, maintenance manuals and the like to the Employer.

The Contractor shall provide training to Maintenance Staff and others as required by the Employer and described by these Employer's Requirements.



- c. Design Management
  - Design Milestones

The Contractor shall manage design in such a way to ensure that all information is provided in time to allow for the construction process to proceed in accordance with the agreed programme. The Contractor shall demonstrate to the Engineer that this effective management is put in place and maintained throughout the entire contract period.

To this end, the Contractor shall identify Design Milestones when critical stages of the design process have to be achieved. Generally, the attaining of such milestones should be identified as having been reviewed by the Engineer and a "no objection" certificate (see Design Reviews paragraph below) having been issued.

Design Submissions

The Contractor will make design Submissions to the Engineer in accordance with the Approved Submittal Procedures.

Material Submissions

The Design-Build Contractor shall prepare and submit Engineering technical specifications and Product data of all materials to be used in the project. This shall list the materials in sufficient detail that approval for the materials and equipment can be granted without further elaboration; if needed a sample should be provided.

Design Reviews

The Engineer shall receive for review the design calculations, drawings, diagrams, manufacturers' details and instructions, temporary works designs and the like and will review these Contractor's Documents in accordance with the Contract, Employer's Requirements and Appendices.

d. Design Parameters and Contractor's Responsibility for Basic Design Data The designs are to be determined by internationally acceptable design methods. All Data to be provided in Metric Format with all dimensional data provided in the SI system of metric units.

The Contractor shall verify all data provided by the Employer and shall produce designs which are based on that data.

- Functional Requirements shall be in accordance with this Employer's Requirements and the Appendices.
- Security Requirements The Contractor will provide security requirements as set out in these Employer's Requirements and their Appendices.



- Safety Requirements The Trinidad & Tobago Fire Services shall approve all designs. Fire
  resistance of structural components and separating walls shall be in accordance with the
  International Building Code.
- Fire Detection within structures shall be automatic and shall comply with the International Building Code.
- Earthquake Resistance 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.
- Aesthetic Design The Interior Design shall conform to best practice and overall design shall aesthetically enhance the interior spaces generally.
- Environmentally Sensitive Design The Contractor shall provide designs, specifications, and construction that minimize adverse effects on the exterior environment; enhance the quality of the environment; and minimize the consumption of energy, water, construction materials, and other resources. Further, the Contractor shall take into account the impact of construction activities on the environment and existing infrastructure. This shall include the control of noise, vibration and dust during construction.
- Service Life The planned service life of the Interior Design shall be 50 years. The planned service life of all mechanical, electrical and electronic equipment shall be 15 years. The planned service lives shall take into account the maintenance requirements of the relevant materials and equipment.
- Design Standards shall be in accordance with the Employer's Requirements and Appendices.
- Noise & Vibration All mechanical, electrical and electronic equipment shall be of low noise. All equipment should be mounted and installed to avoid the transmission of noise and vibration to adjacent rooms or buildings.

#### VIII. HEALTH, SAFETY, SECURITY AND ENVIROMENT REQUIREMENTS

- All Works must conform with Local OSH regulations and best practices
- Job Safety Analysis (JSA) meetings must be conducted for each element of work and sufficiently



- documented during the life of the project
- Designated Design-Build Contractor Supervision must be provided during work hours
- Designated UDeCOTT Supervision must be facilitated during work hours
- Appropriate PPE must be worn by all site personnel at all times
- All site personnel must be identifiable with reflective vests and contractor issued ID badges
- Construction waste must be accumulated and disposed of appropriately
- Lobby areas for contractor assigned lifts must be isolated from staff/public
- All staff/public spaces which the Design-Build Contractor uses during afterhours must be cleaned
- and restored for use before 5am the following work day
- Safety signage must be placed at all public interfaces notifying staff/public of ongoing works
- Elevator to be used by Design-Build Contractor must be left on priority control to prevent
- staff/public access and this control is to be managed by the contractor

#### IX. MD-B SERVICES STAGES AND DURATION

SERVICE STAGE	DESCRIPTION OF SERVICES	DURATION
STAGE 1	Mobilization and Site Evaluation	<ul> <li>1 month (maximum duration)</li> <li>To commence on the date as stated in the Commencement Letter.</li> </ul>
STAGE 2	Final Drawings and Other Design Documents	<ul> <li>4 months (maximum duration)</li> <li>To commence on the date as stated in the Commencement Letter.</li> </ul>
STAGE 3	Execution Stage (Construction)	<ul> <li>19 months Construction works (Main Building, External Works and any other ancillary works)</li> <li>To commence on completion of Stage 2 or whenever practicable (whichever is earlier), and will end upon confirmation of Practical Completion by UDeCOTT.</li> </ul>



SERVICE STAGE	DESCRIPTION OF SERVICES	DURATION
STAGE 4	Project Close Out and Post-Construction	<ul> <li>1 month Project Closeout i.e. Snagging, Testing and Commissioning;</li> <li>To commence on completion of Stage 3</li> <li>12 months DNP and will start upon issuance of Taking Over Certificate, and will end upon issuance of the Performance Certificate to the Contractor and successful financial close-out</li> </ul>

#### STAGE 1: MOBILIZATION AND SITE EVALUATION

Provide evaluation of the Site and its existing facility as it relates to the development and completion of final design documents.

#### Stage 1 Goals:

1. Site Evaluation as needed in the preparation of design drawings.

#### Stage 1 Designated Services:

- Geotechnical investigation
  - o Obtainment of relevant soil data as required in structural calculations.
  - o Reconnaissance site survey e.g.
- Environmental Studies and Reports
  - Determination of need or requirements for environmental monitoring, assessment and/or impact statements.
- Risk Assessment Report
  - Risk Identification and Assessment, detailing the probabilities and severities of all identified risks;
  - o Risk Management Impact and Control Action;
  - o Recommendation and way forward.

#### Stage 1 Deliverables:

- Mobilization Report inclusive of Staging/Mobilization layout and Traffic Management;
- Work Programme up to level 5
- Project Specific HSSE Plan



- Project Specific QA/QC Plan with Inspection Forms
- Cash Flow projections
- Manpower and Equipment Resource List
- Comprehensive Geotechnical Report;
- Environmental Reports;
- Risk Assessment Report;
- Photographs.

#### STAGE 2: FINAL DRAWINGS AND OTHER DESIGN DOCUMENTS

Prepare, complete and submit conceptual and final design documents.

#### Stage 2 Goals:

- a) Production of coordinated design drawings and calculations.
- b) Complete all required documentations necessary for execution.
- c) Submission and obtainment of all required statutory approvals.

#### Stage 2 Designated Services:

- 1. Final Design Drawings
  - a) Architectural inclusive of FF+E (lay-outs with FF+E, elevations, sections, 3D rendering, perspective, schedules, stairs, details, etc.);
  - b) Structural (Substructure and Superstructure) inclusive of Roofing System/Rainwater Goods;
  - c) Life Safety/Fire Detection and Suppression;
  - d) Mechanical;
  - e) HVAC;
  - f) Electrical;
  - g) Plumbing;
  - h) Civil Works / Site Development / External Works/Landscaping/Illumination;
  - i) Schedules e.g. FF+E, Cabinetries and Shelving, Doors, Windows, Ironmongeries, Finishes, Paint Colour, etc.
- Design Documentation Design Calculations, Technical Specifications, Methodology, Data Sheets, Brochures, Procurement Schedule, list of materials to be procured (locally and imported), complete FF+E Listing.
- 3. Presentation Services include presenting design development drawings as required.

#### Stage 2 Deliverables:



- 1. Submission of conceptual and final design documents (3 copies and e-copy) which includes, but should not be limited to design drawings, design calculations, Design Criteria and Technical Specification / Recommendations / Guidelines to the:
  - Architectural (schematics, plans, lay-outs with FF+E, elevations, sections, 3D rendering, perspective, schedules, stairs, details, etc.);
  - Structural (Substructure and Superstructure) inclusive of Roofing System/Rainwater Goods;
  - Life Safety/Fire Detection and Suppression;
  - Mechanical;
  - HVAC;
  - Electrical;
  - Plumbing;
  - Civil Works / Site Development / External Works/Landscaping/Illumination;
  - Schedules e.g. FF+E, Cabinetries and Shelving, Doors, Windows, Ironmongeries, Finishes, Paint Colour, etc.
- Submission of Design Calculations, Technical Specifications, Methodology, Procurement Schedule, list of materials to be procured (locally and imported), complete FF+E Listing.
- 3. Submission of Material for Approvals attaching the relevant Data Sheets, Brochures, drawings, etc.
- 4. Submission of methodology to each work activities.
- 5. Submission and obtainment of all Statutory Approvals (whenever if required and in compliance to law). If not available at the moment, the acknowledgement receipt from the Statutory Authorities (as an evidence of application) is acceptable.

#### STAGE 3: EXECUTION STAGE (CONSTRUCTION)

UDeCOTT will provide Contract Administration of the project, while the MD-B Contractor will execute the works in conformance with the approved drawings and specifications, within stipulated time and budget.

The MD-B Contractor shall also provide the necessary technical support, supervision by qualified professionals, and inspection with UDeCOTT as required prior to next phase of each activity, to ensure project is quality wise workmanship, within time and not exceeding the budget.



During weekly progress meetings, the MD-B Contractor shall provide a two (2) week lookahead schedule. This schedule shall show the work accomplished during the prior week, and work activities to be accomplished for the following two (2) weeks. If there are activities not completed within the two (2) week look-ahead schedule, the MD-B Contractor shall undertake all means possible to complete those line item tasks within the time-frame required by the Engineer, without any additional cost or time extension.

The Contractor shall institute a quality assurance and control system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Engineer shall be entitled to audit any aspect of the system and make alterations to the quality inspection documents and make recommendations of checklist documents prior to inspections to improve the efficiency of these checks of finishes.

Monthly progress reports shall be prepared by the MD-B Contractor and submitted to the Engineer in three (3) hard copies and one (1) electronic copy in a format approved and accepted by the Engineer. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within five (5) days after the last day of the period to which it relates.

#### STAGE 4: PROJECT CLOSE OUT AND POST CONSTRUCTION

Provide administration and spearhead closing out of the project. Further, provide professional representation of continuation basis for the project until end of Defects Notification Period.

#### Stage 4 Designated Services and Deliverables:

- 1. Participate and provide report to all testing and fine tuning of all Contractor Supplied plant and equipment;
- 2. Conduct testing & commissioning to all Contractor-Supplied plant and equipment;
- 3. Conduct snag listing exercise and rectify identified snags;
- 4. Conduct final inspections;
- 5. Submission of keys with appropriate housing and tags;
- 6. Submit As-built drawings;
- 7. Submit Operation & Maintenance manuals;
- 8. Submit Facility Maintenance Management plan;
- 9. Submission of Warranties/Guarantees;
- 10. Submission of Training Modules and conduct of Training;
- 11. Submission of final approval certificates from statutory authorities;



- 12. Prepare and submit final taking over report;
- 13. Conduct fortnightly visits during Defects Notification Period (DNP);
- 14. Provide solution to defects arising during DNP without cost to the Client;
- 15. Prepare and submit detailed project close-out report.



# APPENDIX 1 - DESIGN BRIEF MSDFS ASSESSMENT CENTRE FOR SOCIALLY DISPLACED



Government of the Republic of Trinidad and Tobago Ministry of Social Development and Family Services

# DESIGN BRIEF FOR AN ASSESSMENT AND SOCIALLY DISPLACED CENTRE LOCATED AT THE OLD EAST END FOUNDRY



Page 0 of 12

Introduction	2
Background	2
Demographics	3
Design Guidelines	3
Reception:	4
Assessment Facilities:	4
Administration:	4
Common Areas:	5
Recreation, Fitness & Personal Development & Care:	5
Dormitories:	5
Staff Facilities:	5
Security /Maintenance/Utilities/Parking:	5
Additional consideration must be given to the following:	6
Justification	6
Requirements	6
Accommodation Schedule	7
Staffing Schedule	9
Technical Requirements	
MEP	
ICT Requirements	
HSE Consideration	
Security consideration	
Structural Design Consideration	
Environmental Design Consideration	

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# Table of Contents

#### Introduction

1.0

The problem of street dwelling is not endemic to Trinidad and Tobago, in fact, it is a problem which affects many developing and developed nations. In every society, it is established that this issue is most prevalent in urban areas, since these areas provide lucrative opportunities for begging for food and money as well as opportunities for informal employment (odd jobs). Any effort to address this phenomenon must recognise that the population is not homogenous and assistance must begin with a diagnostic (engage and assess) with the individual street dweller identify and provide interventions to treat and rehabilitate. Continuously monitor and evaluate the system of intervention for efficacy and relevance.

The Ministry of Social Development and Family Services (MSDFS) recognises the responsibility of the State and validates the need to have an appropriate and effective strategy to eradicate street dwelling nationally. In this regard, we acknowledge the collaborative role of the Ministry working with partners and key stakeholders in the delivery of an effective continuum of care. It is against this background that the Ministry of Social Development and Family Services proposes to establish a facility that would provide *assessment of the persons living on the streets of Port-of-Spain.* 

#### Background

At present, the Centre for Socially Displaced Persons located at the Riverside Carpark provides the opportunity for the street dwellers in POS to access temporary living accommodation as well as access to social services and support to access other medical and psychological psychiatric services. A significant limitation to the service delivery at this location is not only its inappropriate structure, but more critical the services that are required are not all available at CSDP. This in turn often results in protracted time frames for access to the services and the Street dweller's loss of interest/disillusionment.

Ultimately, the persons are likely to return to street dwelling.

There are significant social and economic costs to this phenomenon, and corrective measures need to be undertaken to provide a viable alternative to street dwelling in POS. Therefore, this alternative must provide a service that would:

- 1. Allow for the assessment and subsequent referral to treatment and rehabilitation centres/programmes.
- 2. Provide accommodation for street dwellers in POS.
- 3. Attract the homeless population by the quality and consistent service offerings.

### **Demographics**

The SDU has completed the headcount of persons living on the streets of Trinidad annually for the past 19 years. The data from these counts demonstrate that the concentration of the population is always in the POS region.

AREAS	MALE	FEMALE
Port of Spain	258	25
Woodbrook/St James	53	0
<u>Sub – Total</u>	311	25
TOTAL	33	6

Please see below for March 2021 street count data:

AREAS	MALE	FEMALE
Marabella	7	0
San Fernando	86	8
Sub-Total	93	8
TOTAL	1	01

### **Design Guidelines**

The design of the centre should be centred on serving the needs of users and staff, within an environment that maximises their agency and wellbeing. Additionally, assessment will involve a series of diagnostic interventions performed by psychiatry, medical, social work and psychology professionals. This process is expected to take six weeks at which time a care plan for each client will be completed and client referred to the appropriate treatment or rehabilitation path.

This project will construct a facility that is structurally appropriate for the following:

- 1. Provide temporary accommodation for CSDP existing clients, while the building is being constructed.
- 2. Provide suitable spaces to conduct assessments of clients by medical practitioners.
- 3. Provide suitable sleeping, living accommodation for clients (male/female) for the period of the assessment.
- 4. Provide suitable kitchen, dining, pantry and recreation facilities.

- 5. Provide suitable treatment (therapy) rooms.
- 6. Provide a decanting area.

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- 7. Provide adequate toilets/bathroom facilities on each floor.
- 8. Provide adequate conference, meeting rooms and administrative offices.
- 9. Provide adequate laundry facilities.

It is envisioned that the structure would house approximately one hundred and sixty (160) males and forty (40) females, and as such, the facility should:

- Be welcoming (home-like and not institutional);
- Provide full access;
- Empower participation of diverse users, including persons with disabilities;
- Serve specialised needs and be equitable;
- Support the needs of persons who have experienced trauma;
- Be accessible;
- Provide support for cultural and spiritual practices; and
- Build confidence and independence.

The design must include the following:

#### Reception:

- Reception/Entry;
- Waiting area;
- Intake rooms;
- Intake lounge (inclusive of toilets and bathroom); and
- Intake laundry.

#### Assessment Facilities:

- Activity room;
- Health/examination rooms (medical doctor/nurses);
- Counselling rooms;
- Case worker offices; and
- Doctor/Nurses offices.

#### Administration:

- Administrative support spaces
- File storage room

#### Common Areas:

- Commercial kitchen;
- Common dining area;
- Accessible Toilet/Bathroom facilities;
- Laundry facilities/washroom;
- Indoor storage;
- Client luggage storage and sorting area;
- Clothing storage & distribution room;
- Sick Bay/Temporary bed spaces; and
- Emergency rest rooms.

#### Recreation, Fitness & Personal Development & Care:

- · Recreational and fitness space;
- Art and craft room;
- Hair dressing and barbering room;
- Computer area/library room;
- Multi-purpose room;
- Outdoor amenity space-small goal football, basketball etc.
- Multi-functional worship space; and
- Storage (general).

#### Dormitories:

• Multi-bed dormitories (male and female).

#### Staff Facilities:

- Staff lunch room;
- Staff washrooms;
- Staff storage;
- Hand wash stations/hand sanitiser dispensers; and
- Janitorial room.

#### Security /Maintenance/Utilities/Parking:

- Mechanical/Electrical rooms;
- Receiving/Loading dock;
- Security booth/room;
- Garbage & Recycling Bins;
- Drop off and pick-up zone; and
- Adequate parking for staff & visitors (reserved parking for persons with disabilities).

#### Additional consideration must be given to the following:

- Facility must be accessible to persons with disabilities; and
- Sufficient space to physically distance will be important as a result of the COVID-19 pandemic.

#### **Justification**

**Putting People First: Nurturing our Greatest Asset** underscores that the well-being of the citizenry is a significant marker of our nations development. Street dwelling is indicative of individual and societal issues that have not been effectively addressed. Therefore, the MSDFS is compelled to ensure that there is a viable alternative to street dwelling, an alternative that begins with assessment of the individual's problems and challenges and the development of a plan of care for the individual.

#### Requirements

	BUILDING A	ND EQUIPMENT SECTION
1.	Location	South Quay Port of Spain
2.	Site Capacity	200 clients
3.	Infrastructure	<ul> <li>Site has easy access to Electrical, power, telephone, data communication and potable water</li> </ul>
4.	• Site Characteristics	Allowance for building configuration flexibility
5.	<ul> <li>Site Topography and Drainage</li> </ul>	<ul> <li>The topography of the land does not require extensive preparation works i.e. site backfilling and /or excavation</li> <li>Analysis of probable flooding of area will be required</li> </ul>
6.	<ul> <li>Accessibility</li> </ul>	<ul> <li>The location is ideally located and allows for ease of access to the clientele</li> <li>The location is also accessible to all segments of population using vehicles, public transport and pedestrians.</li> </ul>
7.	• Land Size	<ul> <li>0.3859 hectares</li> <li>Land survey will be required to verify the exact space and boundaries.</li> <li>The land will be able to accommodate building, and adequate parking</li> </ul>
8.	Allowance for     Site Amenities	<ul> <li>Site allows for outdoor activities, natural light and courtyard to facilitate recreational activities</li> </ul>
9.	<ul> <li>Allowance for Future Expansion</li> </ul>	• Site has the flexibility for expansion and related use $\checkmark$

# Accommodation Schedule

Location	Description	FFE Requirement	]
Entry Intake Space DIAGNOSTIC AND EVALUATION BOOMS	<ul> <li>This space must have a special entrance and would be used to prepare clients for intake.</li> </ul>	<ul> <li>Showers, sanitising area, dressing area.</li> </ul>	
Admission and     Intake Rooms	<ul> <li>This room shall be within easy access to main entrance with self-contained washroom facility, lounge area and clerical area for admission documentation.</li> </ul>	<ul> <li>Desk and Chair</li> <li>Computer</li> <li>Filing and Storage Cabinets</li> </ul>	7
<ul> <li>Medical Examination Room</li> </ul>	<ul> <li>These rooms are to facilitate examination of clients Must also include toilet and wash sinks and clerical area for medical records</li> </ul>	<ul> <li>Examination Bed</li> <li>Medicine Cupboard</li> <li>Desk, chair and Cabinet</li> </ul>	J-GROUND FLOURI
<ul> <li>Medical Observation Room</li> </ul>	<ul> <li>Room for ill clients in need of hospitalisation with washroom facilities</li> </ul>	Medical Beds	
<ul> <li>Seclusion/ Isolation Room</li> </ul>	• This room shall not contain any equipment, furniture or objects that may present the client an opportunity to harm themselves. Electrical installation shall be tamper proof. Windows shall be made of plexi-glass.		IST FLOOR
• Counselling Room	<ul> <li>Sound Proof Rooms with panic button system</li> </ul>	<ul> <li>Desk, chair, computer and sofa seating</li> </ul>	1ST FLOURS
MANAGEMENT AND ADMINISTRATION ROOMS			
<ul> <li>Manager Office</li> <li>Administrative Assistant Office</li> <li>Caregivers Lounge</li> </ul>	<ul> <li>Enclosed Office with Storage space</li> <li>Enclosed with small reception area and copy/fax area</li> <li>Enclosed area for approx. 10 persons for storage change area and rest area.</li> <li>Two males and females each</li> </ul>	<ul> <li>Desk, chair, filing cabinet, shelving Units</li> <li>Desk, Chair, visitor chair, copier, fax machine</li> <li>Personalised Storage cabinets, tables, chairs, and beds</li> </ul>	

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Ì	•	Toilet/Shower Facilities		<ul> <li>Fitted out with Sanitisation Dispensers</li> </ul>
	•	Staff Sick Bay	• This room shall be in close proximity to Caregivers room for workers who may	• Bed, face sink
	ſ.	Chaff Lunch	Accommodation for 25	• Dining Tables and Chairs
	•	Room	<ul> <li>Enclosed room with accommodation for approx.</li> <li>12 persons</li> </ul>	
	•	Maintenance/ Ancillary Staff Boom	<ul> <li>Enclosed lockable Room with High Security Door</li> </ul>	<ul> <li>Desk and Chair, Computer</li> </ul>
	•	Mechanical/ Electrical Rm	Enclosed lockable Room	MEP Infrastructure
	•	Janitorial Rm.	• Enclosed room for 25 persons	<ul> <li>Heavy Duty Shelving Unit</li> </ul>
	•	Conference Room		<ul> <li>Conference Table and Chairs</li> </ul>

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Location	Description	FFE Requirement	
CLIENTS ACCOMMODATION			
• Dormitories	<ul> <li>Dormitories to be separated MALE/FEMALE Each dormitory room shall have the capacity for 20 beds Dormitory shall be well ventilated</li> </ul>	<ul> <li>Toilets, showers and face sinks</li> <li>Changing area</li> <li>3x6 Beds </li> <li>Closet /Lockers</li> </ul>	
• Training Room	<ul> <li>Room to accommodate approx. 40 persons for developments programmes</li> </ul>	<ul> <li>Modular type Conference table and <sup>∨</sup> chairs</li> </ul>	
• Kitchen	<ul> <li>Large commercial type kitchen for food preparation and bulk storage</li> </ul>	<ul> <li>Commercial Stove, Freezers, Chillers √</li> </ul>	
Dining Roon	n.	$\checkmark$	

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-		1		Conseitu to accommedate	a R Conton Dining Tables
			·	approx. 40 persons	and chairs
	•	Laundry		distant and the second	
		Facility	•	Covered and secure area	<ul> <li>Industrial type washers</li> </ul>
					and dryers
		Recreation			• Concrete Wash Sinks V with Scrub Board
		Fitness &	٠	Partially covered space	• GYM Equipment
		Development			Outdoor tables and
		& Care			benches
			•	Enclosed Room re;	<ul> <li>Painting Supplies</li> </ul>
				Art and Craft	0 11
			•	Hairdressing and Barbering	Hairdressing & Barbering
				Enclosed Room	Equipment
				Computer/Library Enclosed	Electrical and ICT
				Room	Connectivity
					• Computer Hardware 🗸
					Desk and Chairs
			•	Outdoor Activities Area	Basketball Court
					Savannah area space
				Multi-purpose Hall	• Chairs & Table
				Covered area space	• Stage
		Parking	•	Kitchen Garden	• Grow Box Infrastructure
		Facility		Parking for 20 Vehicles	Asnhalted area snace
					dedicated Disabled
	•	Security			Parking
		Booth		Enclosed Office	Washroom Facilities
					Surveillance Display Unit

# **Staffing Schedule**

Location	Description	Requirement
<ul> <li>Manager</li> <li>Office</li> </ul>	Project Coordinator (x1)	Overall Management of Facility

<ul> <li>Mair Ancil Roor</li> </ul>	ntenance/ llary Staff m	Maintenance Officer (x1)	Janitorial and Basic repairs Daily operations
e Adm	ission and	Supervisors(x2)	Programming /Services
Intal	ke Rooms	Case Workers(x4)	
			Support for Reporting
• Dorn	nitories	Care Assistants (x6)	Compliance
• Adm	inistrative		Support Supervisors to
Assis	stant	Administrative (x1)	enforce regulations
e Dorr	nitories	Wardens (x4)	Plan and execute
bon	incorres		development activities
• Trair	ning Room	Activity Officer (x1)	Preparing meals
• Kitcł	nen	Kitchen Staff - Cook (x2) Kitchen Staff - Support (x2)	Kitchen support
a Mod	lical	Nurse (2)	Medical/Mental health
Exan	nination	Nurse (2)	support (sessional basis)
Rooi	m		Support Human Health
			Support Human Health
			(sessional basis)

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Location	Description	Requirement
DIAGNOSTIC AND EVALUATION ROOMS	<ul> <li>Fire Detection and Suppression System</li> <li>Air Conditioning</li> <li>CCTV Surveillance</li> </ul>	<ul> <li>In accordance to NEMA Standards</li> <li>Split Air Condition Units</li> <li>Indoor and outdoor 360 degree cameras</li> </ul>
MANAGEMENT AND ADMINISTRATION ROOMS	<ul> <li>Fire Detection and Suppression System</li> <li>Air Conditioning</li> <li>CCTV Surveillance</li> </ul>	<ul> <li>In accordance to NEMA Standards</li> <li>Split Air Condition Units</li> <li>Indoor and outdoor 360 degree cameras</li> </ul>
CLIENTS ACCOMMODATION	<ul> <li>Fire Detection and Suppression System</li> <li>CCTV Surveillance</li> </ul>	<ul> <li>In accordance to NEMA Standards</li> <li>Indoor and outdoor 360 degree cameras</li> </ul>

# **Technical Requirements**

MEP

### **ICT Requirements**

Location	Description	Requirement	
• Server Room	<ul> <li>Min. 4' x 6' secured room</li> <li>Access control keypad locking devise</li> <li>Independent A/C System</li> </ul>	<ul> <li>Server Racks</li> <li>CAT 6 Wiring</li> <li>Gas Type Fire Suppression</li> </ul>	
	Trays and conduit trucking	• CAT 6	

<ul> <li>Structured</li> </ul>	
Wiring	

#### **HSE Consideration**

5.2

- Access /egress with wheelchair from roadway to ramp onto building
- Pedestrian access
- Elevator and staircase access
- · Clear pathways to emergency exit
- Well-ventilated with Air Conditioning /HVAC system
- Fenced property with secured gates
- Proper drainage with quick outflow
- Fire detection /alarm and suppression system
- Non-skid floors
- Stand By-generator

#### Security consideration

- CCTV camera to be installed to monitor all access /egress points.
- Keypad access control for administrative areas.
- Perimeter fencing must be designed to prevent loitering.
- Metal detectors need to be installed at all client entrances.

#### **Structural Design Consideration**

Design must be done to consider the flash flooding prone area.

#### **Environmental Design Consideration**

- Energy Conservation
- Water Conservation
- Green Outdoor Paces to minimise carbon dioxide emission
- Indoor air quality monitoring


# APPENDIX 2 - MSDFS PRECEDENCE STUDY PRESENTATION





## The facility should be:

- welcoming (home-like and not institutional)
- provide full access
- empower participation of diverse users including persons with disabilities
- serve specialized needs and be equitable
- support the needs of persons who have experienced trauma
- accessible
- provide support for cultural and spiritual practices
- build confidence, independence



# **Recommended Spaces for the Centre**

Hilditch Architect Inc. and BC Housing, both Organizations in Canada, presented a list of rooms or spaces that are recommended in the design of a shelter such as:

- Reception/Entry
- Waiting Area
- Hand Wash Stations/Hand Sanitizer Dispensers
- Multi-bed dormitories
- (Male and Female)

- Isolation Rooms
- Intake Rooms
- Intake Lounge (inclusive of toilets and bathroom)
- Intake Laundry





















## **Recommended Spaces for the Centre** More examples of rooms or spaces that are recommended by Hilditch Architect Inc. and BC Housing in the design of a shelter include: Multi-functional Worship Garbage & Recycling Bins Space Drop off and pick-up Zone Janitorial Room Adequate Parking for Staff & Mechanical/Electrical Room Visitors (reserved parking for person with a disability) Receiving/Loading Dock Outdoor Recreational Space Security Booth/Room 14







# APPENDIX 3 - REVISED CONCEPTUAL FLOOR PLAN AS AT 17 OCT 2022



Government of the Republic of Trinidad and Tobago

**Ministry of Social Development and Family Services** 

A community project conceptualized for the

Ministry of Social Development and Family Services (MSDFS) for an:

# HOME FOR THE SOCIALLY DISPLACED & ASSESSMENT CENTRE Port of Spain

# An ARCHITECTURAL DESIGN CONCEPT

Prepared by the Housing Development Corporation (HDC)



designed by the HDC's Project Development & Oversight division (PDO)

	<b>CONCEPT LAYOUT - SUMMARY of PROPO</b>	DSED ACCOMMODAT	IONS			
DESIGN APPROACH:	OVERALL SITE:		LEVEL -1:			
APPROACHABLE & COMMUNITY ORIENTED - Main site access, for both pedestrians and vehicles from South Quay.	• TOTAL SITE AREA: <u>0.3859Ha f(%) ' , Z</u> )		PROPOSED SPACE			APPROX. AREA
<ul> <li>A Portal used at the front of the building (as a symbol of 'home') to welcome persons.</li> </ul>	= (0.95  acres)		OVERALL GROUND FLOOR:			%),+%a <sup>∵</sup> #%ž\$) <b>Z</b> h
- Layout allows for 'residents' and persons not using the overnight facilities, to access medical, laundry and social facilities.	<ul> <li>A 5-STOREY BUILDING : - approx. area: <u>) + +a '#*&amp; \$\$2</u>h - Building elevated approx. 5' to 6' above grade for flood mitigation</li> </ul>		<ul> <li>INTAKE LOUNGE (East Wing) Info of displays, circulation, Intake rooms, sho (hygiene suite)</li> </ul>	lesk /security owers, toilets,	desk, , laundry	‰a <sup>:</sup> #%z*)2h
<ul> <li>SECURITY &amp; SAFETY</li> <li>Emphasis is placed on visual connectivity with outdoor surroundings with multiple sight-lines to encourage positive user interactions, as well as natural surveillance of activities.</li> </ul>	• MAIN CAR PARK - approx. 20 vehicles, includes ADA parking, Security Booth		<ul> <li>ASSESSMENT CENTRE: health/ ex emergency exam/triage room, counse office(s); and doctor/nurses office(s); s</li> </ul>	amination roo lling rooms; ca staff bathroom	oms; ase worker 1	%+a <i>`#%ã</i> (*S27∆
<ul> <li>UNIVERSAL DESIGN</li> <li>To promote access for the differently-abled, by integrating appropriate items for parking, ramps, threshold treatments, washrooms, Lift, etc.</li> </ul>	• COVERED BAY - EMERGENCY VEHICLES - Covered parking for emergency vehicles maintaining privacy and mitigate disruption to facility users with an emergency arrival.		ACTIVITY CENTRE & 'DAY USER' lab; arts & crafts; fitness; library, stag dressing; multi-purpose; and worship bathmom facilities, backer mem. Min	computer 3 and hair 9 &	'*\$a∵#,+\$27a	
<ul> <li>COURTYARD DESIGN FEATURE</li> <li>To integrate a property feature that enhances aesthetics, healthier environment and provides a conducive ambience for a 'safe-haven'.</li> <li>Provides a flexible, multi-purposed space for recreation and for</li> </ul>	•DRYING YARD (partially covered)     - To service laundry facilities. To be inconspicuous and accessible.		COURTYARD: recreational space; a	nd entry circu	ulation	'\$,a∵#'\$, <b>2</b> h
<ul> <li>training events, and can be easily monitored at all floor levels.</li> <li>Allows for appealing circulation route for users thru'out the building.</li> <li>Allows for cross ventilation in surrounding rooms</li> </ul>	- kitchen and equipment deliveries		• OVER-NIGHT SHELTER LOBBY: staff post; lobby; M/F washrooms; services; server room.			%(-a∵#%t\$\$\$ <b>2</b> h
<ul> <li>ZONING OF FACILIFIES</li> <li>Ovemight facilities are zoned as private and are therefore at the upper levels. The privacy and security needs increases with each floor.</li> <li>Spaces are positioned and oriented to encourage regular use</li> </ul>	<ul> <li>LANDSCAPE FEATURES:</li> <li>Hard Court</li> <li>Green Space-1</li> <li>Kitchen/Urban Gardens (in close proximity to kitchen)</li> </ul>		• DIFFERENTLY-ABLED DORMITON accessible room with 5no. beds and facility. Outfit accordingly with safety access, changeroom for privacy, etc	RY: wheel cha attached bat bars, thresh	air throom old free	+%a *#+*, <b>Z</b> h
ECO-FRIENDLINESS:	CENTRAL COURTYARD:     - accommodates open recreational space     maximizes group design honofite, natural ventilation, lighting		• DINING HALL: to seat approx. 40nd in shifts)	o. persons (to	) be served	%\$&a `#%&\$\$ <b>Z</b> h
<ul> <li>visual benefits and reduced negative impact on the environment.</li> <li>To further help with improving natural drainage of the site.</li> <li>Passive design elements for climate control &amp; sustainability.</li> </ul>	- offers security by optimizing sight-lines throughout		• COMMERCIAL KITCHEN: kitchen e area; dry pantry storage; cold storag	equipment; pi e; servery	reparation	*\$a `#*)\$ <b>2</b> h
r assive design elements for elimate control & sustainability.			• LAUNDRY FACILITIES: commercial washers; access to drying yard (partially covered), counter tops			%+a * <b>#%, S2h</b>
			• LUGGAGE, CLOTHES & EQUIPMEN	NT STORAG	E ROOM	`(*a <sup>∵</sup> #(-\$ <b>2</b> h
			CIRCULATION 'CORES': 2no. TOTA Stairwell and 1no. Elevator. 3no. ran	AL Each has nps	1no.	,%a <sup>∶</sup> #+* <b>ℤ</b> ∩
THE DESIGNS AND INFORMATION HEREIN ARE THE PROPERTY OF THE HDC. THE REPRODUCTION IN WHOLE OR	PART IS PROHIBITED WITHOUT THE PRIOR CONSENT OF THE HDC'S -PDO DIVISION.		• GATHERING SPACE-1: durable, tar	nper proof fu	umishings	%(*a <sup>·</sup> #%)+) <b>ℤ</b> h
1100 No. Date Revision Note	Drawn No. Date Notes I	Drawn PROJECT TITLE A COMMUNITY PROJEC HOME FOR THE SOCIALLY	T for the MSDFS for a: DISPLACED & ASSESSMENT CENTRE	Designed: K.Mc.	Drawn: K.Mc.	Scale:     Revision       scaled to fit
THINDAD AND TURNOU HOUSING DEVELOPMENT CORPORATION AN AGENCIOF THE MINISTRY OF HOUSING	REVISED: 5 JULY 2022	DRAWING TITLE CONCEPT- NOTES	OF 2	Checked:	Date: 20 May 2022	Drawing No:

			SUMMARY of	PROPOSED ACCOMMODATIO	NS	
BUILDING LEVEL - 2: MALE DORMITO	DRY & HOLDING	BUILDING FLOOR LEVEL - 3: MAI	E DORMITORIES	BUILDING FLOOR LEVEL -4: <u>FEMALI</u>	E DORMITORIES	BUILDING FI
PROPOSED SPACE	APPROX. AREA	PROPOSED SPACE	APPROX. AREA	PROPOSED SPACE	APPROX. AREA	PROPOSED
• OVERALL FIRST FLOOR:	<u>%&amp;(a '#%(&amp;)'Z</u> n	• OVERALL SECOND FLOOR:	<u>%&amp;\$) a `#%&amp; +) Z</u> n	• OVERALL THIRD FLOOR:	<u>,++a *# ((\$</u> 21a	• OVERALL I
STAFF POST-2 & 3:washroom (in larger post- office; file storage, counter/desk, bathroom)	&+a <sup>+</sup> #&, <b>7</b> ∆	STAFF POST-4 & 5:washroom (in larger post); office; file storage, counter/desk	&ta *#&, <b>Z</b> a	STAFF POST-6 & 7:washroom (in larger post); office; file storage, counter/desk	&+a *#&, <b>%</b>	STAFF POST file storage,
MALE DORMITORIES: sleeping quarters for approx. 80 persons;;     Dormitoriag 1, 17	',\$a <sup>∵</sup> #(\$-\$22h	<ul> <li>MALE DORMITORIES: sleeping quarters for approx. 80 persons;</li> <li>Dormitories -18-36</li> </ul>	(()a <sup>·</sup> #(+S2∆	<ul> <li>FEMALE DORMITORIES: sleeping quarters for approx. 44 persons;</li> <li>Dormitories -37-47</li> </ul>	%+a <sup>*</sup> #%(+ <b>S2</b> h	FAMILY DO approx. min.     Rooms     Double
• MALE BATHROOMS 4no.: adjoining bathrooms to dorms; change areas affixed	%,a *#8%\$ <b>27</b> h	•MALE BATHROOMS 5no.: adjoining bathrooms to dorms; change areas & lockers, accessible showers	8&;a *#&()\$ <b>2</b> 5	•FEMALE BATHROOMS 3no.: adjoining bathrooms to dorms; change areas & lockers, accessible showers	&&a *#8()\$ <b>%</b> h	•• Double (     connecti     •• Ensuite     •• Laundry     •• Shared
to showers; lockers, accessible tollet & showers     TV ROOM/GENERAL GATHERING	"""%)a <sup>*</sup> #%++) <b>ℤ</b> h	• TV ROOM/GENERAL GATHERING (1no.): tv; living room furniture, games tables,chairs, etc.		• TV ROOM/GENERAL GATHERING (1no.): tv; living room fumiture, games tables,chairs, etc.		•• Shared I     •• STAFF FACI
(2no.): tv; living room furniture, games tables,chairs, etc.		•GENERAL GATHERING-2:	(&a `#()) <b>Z</b> h	•LAUNDRY	(Sa '#(') <b>Z</b> a	time. Admin.
•GENERAL GATHERING-2: outdoor/corridor	(&a <sup>∵</sup> #()) <b>Z</b> h	outdoor/corridor  •CIRCULATION 'CORES': 2no. TOTAL	''a∵#*\$%0	•GENERAL GATHERING-2: outdoor/corridor	(&a '#()) <b>%</b>	secure dept.
•CIRCULATION 'CORES': 2no. TOTAL Each has 2no. Stairwell and 2no. Elevator.	''a #*\$26a	•STORAGE ROOM (varied)	)'a '#+\$ <b>2</b> h	•CIRCULATION 'CORES': 2no. TOTAL Each has 1no. Stairwell and 1no. Elevator.	''a #*\$ <b>2</b> h	Facilities     •• Female 4     •• Lockers     •• Lunchro
•STORAGE ROOM (varied)	)%a ∵#(( <b>Z</b> h			• STORAGE ROOM (varied)	((a ' <b>#</b> +) <b>Z</b> h	•• Sick bay <u>Administrative</u> •• Offices 2
MONITORING & HOLDING CENTRE: 6no. isolation rooms; male & female bathrooms; exam room; offices	%)(a `#?⁄ð)' <b>Z</b> a					Reception     Reception     Meeting     File Store
						•TRAINING/M     • Rooms of between     •TOILETS (M     •CIRCULATION Stairwell and     •STORAGE F
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LOOR LEVEL -	5: <u>FAMILY I</u>	OORM, ADM	IIN. & GRO	OUP RM.			
D SPACE			APPRO	X. AREA			
FOURTH FLOOR			<u>,++a</u> ∶ŧ	<u>⊭((\$27</u> 1)			
Γ-8 & 9:washroom counter/desk	(in larger pos	st); office;	&a	<sup>-</sup> #&, <b>Z</b> h			
ORMITORIES: slev 1. 15 persons; -1 to 5 @ 215sq.ft occupancy and m ting rooms for larg bathrooms for ead	RMITORIES: sleeping quarters for 15 persons; 1 to 5 @ 215sq.ft. each occupancy and may have doors ng rooms for larger family oathrooms for each itchen iving & Dining						
kitchen Living & Dining							
CILITIES - minimur 1. dept. and staff fa 1tries while dept. sl taff facilities. (shou t. while maintaining r work hours).	%)a	₩&\$\$\$ <b>£</b> h					
e & Male toilets, sho s oom & kitchenette	ower and cha	angerooms					
y <u>e Rooms</u> 2no. ion Desk g Room prage & Storage							
MEETING/COUNS of varied sizes to n 6 to 18 persons	SEL (Group) accommodat	ROOMS e groups	(&a =	#& \$\$ <b>2</b> h			
MALE & FEMALE) ION 'CORES': 2no d 1no. Elevator.	. TOTAL Eac	h has 1no.	(-a	'#'S2£n '#*S2fn			
ROOM (varied ite	ms)		))a	·#_)75			
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	PROPOS	ED ACCOMM	ODATIONS	<u>S:</u>
	SITE AR	EA:		
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100.000	• Mointoin	ad 20m (664	) Divon Dor	
	• Maintain	(to be confirm	) River Res	serve
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# PROPOSED ACCOMMODATIONS:

SITE LAYOUT:

Site Area: 0.38086Ha (40,995 sq.ft)

#### SITE LAYOUT:

- Main Car Park (20 vehicles)
- Green Space-1/Savannah (External)
- Hard Court
- Drying Yard
- •Kitchen Garden
- Main Building (5-stories)
- Exterior Dining Area
- Covered Carport





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1										CONCELLI - DOIEDHAG - EEVEE I (GIOU

#### PROPOSED ACCOMMODATIONS:

#### LEVEL -1:

floor area approx.: 16,300ft

• Courtyard/Green Space-2

- •Intake Lounge
- •• Reception-1
- •• Intake Rooms (2no.)
- •• Hygiene Suite
- ••• Shower & Toilets
- ••• Storage
- ••• Laundry
- ••• Storage
- Assessment Centre
- •• Waiting Area
- Reception
- •• Exam rm. (2no.)
- •• Emergency Exam Room (1no.)
- •• Office
- •• Staff kitchenette & toilets
- •• Private counsel rooms (3no.)
- Overnight Shelter & Day User Facilities
- Reception
- Activity Centre
- •• Fitness Centre
- •• Computer Rm & Library
- •• Barbering & Hair dressing
- •• lockers
- •• Open space- worship / multi-purpose / stage / arts & crafts
- MSDFS on-site office
- Day User- Bathrooms & Laundry
- Commercial Kitchen & Dining hall (min. 40 persons)
- Overnight Shelter
- •• Differently-able Suite (5no. beds)
- •• Staff Post
- •• Lobby & Bathrooms
- •• Laundry Facilities & Drying yard
- •• Storage (luggage and Clothing)
- Equip storage (gurney, wheelchairs, etc.)
- Circulation, 2 Staircases, 2 Elevators
- •• Gathering space (covered)

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CONCEPT- BUILDING - LEVEL 2 (1st Fl

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#### PROPOSED ACCOMMODATIONS:

LEV	EL	-2	:

approx. floor area: <u>14,215ft</u>

#### **Dormitories-Male**

- 17no. rooms (68no. beds)
- Bathrooms (10no. showers w/changerooms, 16no. toilets , 10no. urinals incl.2 handicap)
- Gathering Space/TV Room- 2no.
- Gathering Space (open corridor)
- Staff Posts-2 & 3
- Circulation, 2 Staircases, 2 Elevators

#### Isolation & Monitoring Suite

- 6no. rooms (6no. beds)
- Offices- 2no.
- Bathrooms (1no. female , 1no. male)
- Observation Desk

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HOUSING DEVELOPMENT CORPORATION			REVISED: 5 JOLY 2022		CONCEPT- BUILDING - LEVEL 3 (2nd Floor)		20 May 2022	sd- <b>A-10</b>	3

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## **PROPOSED ACCOMMODATIONS:**

LEVEL -3:

approx. floor area: <u>12,975ft</u>

#### **Dormitories-Male**

- 19no. rooms (76no. beds)
- Bathrooms (12no. showers w/changerooms, 18no. toilets , 12no. urinals incl.3 handicap)
- Gathering Space/TV Room- 1no.
- Gathering Space (open corridor)
- Staff Posts-4 & 5
- Storage (luggage and Clothing) ٠
- Services Rooms •
- Circulation, 2 Staircases, 2 Elevators



N	
	-

### PROPOSED ACCOMMODATIONS:

|--|

approx. floor area: <u>9,440ft</u>

#### **Dormitories-Female**

- 10no. rooms (40no. beds)
- Bathrooms (11no. showers w/changerooms, 11no. toilets, incl.3 handicap)
- Gathering Space/TV Room
- Gathering Space (open corridor)
- Staff Posts-6 & 7
- Storage
- Laundry Facility & Drying Area
- Circulation, 2 Staircases, 2 Elevators

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Floor)		20 May 2022	sd- <b>A-104</b>	

roof below roof below roof below EAST WING WEST WING roof below <u>50'-6"</u> [15.4m] <u>31'-0"</u> [9.5m] RM.2 LAUNDRY RM.1 RM.3 training room/ group counsel -1 N roof below DORMITORY 45'-5" [13.8m] FAMILY 1881 1790 SQ.FT. 57'-1" [17.4m] 4no. families training room/ (shared living, group counsel -2 kitchen & laundry) RM.4 r----L\_\_\_\_ STAFF Y POST-8 ten to 210w Terew. 0 D RM.5 170 SOFT. STORAGE STAFF SERVICES POST-9 OV B Drecept ¢-¢ lunehrøom & training room/ lockers  $\mathfrak{P}$  female storage file stor counsel -3 M/F- TOILETS staff 47'-3" [14.4m] ONLY RM -14 Q office-2 lockers admin. open 120 storage p male -p staff office-1 conference room storage sickbay meeting rm. D ਹਿ 30'-0" [9.1m] 22'-6" [6.9m] 16'-6" [5.0m] <u>36'-0"</u> [11.0m] THE DESIGNS AND INFORMATION HEREIN ARE THE PROPERTY OF THE HDC. THE REPRODUCTION IN WHOLE OR IN PART IS PROHIBITED WITHOUT THE PRIOR CONSENT OF THE HDC's -PDO DIVISION. Drawn PROJECT TITLE Revision Note No. Date Drawn No. Date Notes A COMMUNITY PROJECT for the MSDFS for a: HOME FOR THE SOCIALLY DISPLACED & ASSE FOR INFORMATION: DRAWING TITLE **REVISED:** 5 JULY 2022 HOUSING DEVELOPMENT CORPORATION CONCEPT- BUILDING - LEVEL 5 (4th

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### PROPOSED ACCOMMODATIONS:

<u>LEVEL -</u> approx. flo	<u>5:</u> or area: <u>9,4</u>	<u>40ft</u>	
Dormitories-Family (Ensuites)			
• 5no. 1	rooms w/ ensu	uite (min. s	leeps 17
perso	ns)		
• Share	ed Gathering	Space/TV I	Room
• Share	ed Kitchen		
• Stora	ge		
• Launo	dry Facility & I	Drying Area	a
• Circu	ılation, 2 Staiı	rcases, 2 E	levators
<u>Staff Faci</u>	lities		
• Office	es (2no)		
<ul> <li>Sickb</li> </ul>	ay		
Reception			
Lunchroom			
Lockers			
Male & female Bathrooms & Change			
rooms			
Meeting, ● 4no.	F <u>raining &amp; Gro</u> Rooms	oup Counse	el rooms
• Stora	ge		
• Male	- & female Toil	ets	
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Drawing No:

sd-**A-105** 

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(		
		DORMITORIES FAMILIES, ADMINIS & COUNSEL/ ME
		DORMITORIES- 1 to
		DORMITORIES-18
		DORMITORIES-1 & ISOLATION
RECEPTION	COURTYARD	DINING HALL
	BUILDING SECTION	
<ul> <li>THE BUILDING IS DIVIDED TO PROVIDE SECURITY, FLEXIBILITY AND CO.</li> <li>1. LEVEL 1- Common areas for shelter and medical &amp; activity centre for in</li> <li>2. LEVEL 2- Male Dormitories &amp; Psych. Evaluation and Isolation Centre</li> <li>3. LEVEL 3- Male Dormitories</li> <li>4. LEVEL 4- Female Dormitories</li> <li>5. LEVEL 5- Family Dormitories (Mother &amp; Children), Administration Office</li> </ul>	MFORT BASED ON THE USERS NEEDS; ake visitors and Shelter Occupants & Meeting/ Counsel Rooms	
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# APPENDIX 4 – PERFROMANCE SPECIFICATIONS – ASSESSMENT CENTRE





# PERFORMANCE SPECIFICATIONS FOR THE ASSESSMENT CENTRE FOR THE SOCIALLY DISPLACED

ARCHITECTURAL UNIT, THE URBAN DEVELOPMENT CORPORATION OF TRINIDAD & TOBAGO (UDECOTT)



# Table of Contents

SECTION 501 – IN SITU CONCRETE (GENERAL)	2
SECTION 601 – BLOCK WALLING	6
SECTION 701 – STRUCTURAL STEEL FRAMING	10
SECTION 809 – METAL PROFILED / FLAT SHEET CLADDING / COVERING	12
SECTION 905 – WATERPROOFING (LIQUID APPLIED WATERPROOF ROOF COATINGS)	15
SECTION 1001 – PLASTERBOARD DRY LININGS, PARTITIONS & CEILINGS	19
SECTION 1008 – DEMOUNTABLE SUSPENDED CEILINGS	22
SECTION 1101 – WINDOWS, ROOFLIGHTS, SCREENS & LOUVERS	24
SECTION 1102 – DOORS / SHUTTERS / HATCHES	26
SECTION 1104 –STAIRS/ RAMPS/ HANDRAIL & GUARD RAILS	29
SECTION 1205 – PLASTERED, RENDERED, ROUGHCAST COATING	33
SECTION 1209 – STONE, CONCRETE, QUARRY, CERAMIC & MOSAIC TILING	35
SECTION 1212 – RUBBER / PLASTIC / CORK / LINOLEUM / CARPET TILING / SHEETING	37
SECTION 1215 – PAINTING / CLEAR FINISHING	40
SECTION 1304 –SANITARY APPLIANCES & FITTINGS	42
SECTION 1310 – EXTERNAL SIGNAGE	45
SECTION 1405 – UNFRAMED ISOLATED TRIMS/ SKIRTINGS/ SUNDRY ITEMS	48
SECTION 1405 – DOOR & WINDOW IRONMONGERY	50
SECTION 1506 – EXTERNAL WORKS – INTERLOCKING BRICKS/ BLOCKS, ROADS & PAVING	54
SECTION 1511 –EXTERNAL WORKS - FENCING	56
SECTION 2200 – PURPOSE MADE JOINERY & CARPENTRY	58



# SECTION 501 - IN SITU CONCRETE (GENERAL)

#### **1.0 GENERAL**

#### **1.01 DESCRIPTION**

In- situ Concrete refers to concrete work which is carried out on the construction site itself, often in the finished position, as opposed to in an off- site location (as with pre- fabrication or preassembly techniques). Concrete shall be composed of the following: Portland cement, coarse aggregates such as crushed stone, fine aggregates such as sand, and water.

#### 1.02 SCOPE

Work to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install. All poured-in-place concrete, together with all miscellaneous and appurtenant items, as shown on the architectural and structural plans specific to the project. The work shall include, but not be limited to supplying and placing reinforcing steel; and supplying, placing, vibrating, heating and curing concrete.

#### **1.03 PRODUCTS**

In situ concrete shall include a combination of the following products / elements:

- 1. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
  - a. Portland Cement shall be fresh stock of an approved standard brand meeting the requirements of ASTM C 150, Standard Specification for Portland Cement.
  - b. Fly Ash shall have a high fineness and low carbon content and shall exceed the requirements of ASTM C 618, Class 7 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
- 2. Concrete Aggregates:
  - a. Unless otherwise specified all aggregate shall be normal weight aggregate in accordance with ASTM C 33, Standard Specification for Concrete Aggregates.
  - b. Aggregate for concrete shall consist of clean crushed stone or gravel having hard, strong, uncoated particles free from injurious amounts of soft, thin, elongated or laminated pieces, alkali, organic or other deleterious matter.
  - c. Maximum aggregate size shall be ¾-inch. The maximum permissible percentage of elongated particles shall not exceed 5 percent by weight.
  - d. Provide aggregates from a single source.
  - a. Concrete batched away from the job and delivered in mixer or agitator trucks shall conform to requirements of ASTM C94, Standard Specification for ready-mixed concrete.
- 3. Fine Aggregate:
  - a. Shall consist of sand, stone screening, or other inert materials with similar characteristics having clean, strong, durable, uncoated grains and free from lumps, soft or flaky particles, clay, shale, alkali, organic matter or other deleterious substances with reactivity to alkali in cement.
- 4. Water:
  - a. Shall be potable water in accordance with ASTM C94, Standard Specification for ready-mixed



concrete.

- 5. Flexible PVC water stops:
  - a. Provide PVC water stops in all construction joints in concrete walls and in concrete beams and slabs. PVC water stops shall also be provided between concrete beams and slabs at all expansion joints to form a continuous diaphragm. Install in longest lengths practicable.
  - b. Support and protect exposed water stops during progress of the Work.
  - c. Field fabricate joints in water stops according to manufacturer's written instructions.
- 6. Vapour Retarders:
  - a. Sheet Vapour Barrier shall be minimum 10 mil polyethylene film that complies with ASTM C171, Standard Specification for Sheet Materials for Curing Concrete, and meets or exceeds test for water retention, ASTM C 156(20), Standard Test Method for Water Loss [from a Mortar Specimen] Through Liquid Membrane-Forming Curing Compounds for Concrete.
  - b. Place, protect, and repair sheet vapour retarder according to ASTM E1643, Standard Practice For Selection, Design, Installation, And Inspection Of Water Vapour Retarders Used In Contact With Earth Or Granular Fill Under Concrete Slabs, and manufacturer's written instructions.
- 7. Crushed Stone Fill:
  - a. Crushed Stone Fill shall be uniform 1-inch stone, no fines, in conformance to ASTM C33, Standard Specification for Concrete Aggregates.
- 8. Formwork:
  - a. Shall be designed in accordance with ACI 347, Recommended Practice for Concrete Formwork, (latest edition) unless otherwise noted.

#### 2.00 APPLICATION

Cast- in- Place concrete construction may apply to the following building elements:

- 1. Exterior Concrete.
- 2. Footing and Piers.
- 3. Slabs on Grade.
- 4. Columns.
- 5. Slabs above ground floor.
- 6. Concrete Beams.

#### **3.00 PREFERENCES**

#### 3.01 DESIGN

- 1. Class and Finish of supported slabs on grade shall be Class 2 as per ACI 302.1R.
- 2. Recommended strength and maximum slump at point of placement for concrete floors shall be as according to Table 6.1 as per ACI 302.1R.

#### 3.02 SUBMITTALS

- Contractors shall submit for approval:
- 1. Materials listing and certification indicating that products adhere to standard specifications.



- 2. Installation methodology.
- 3. Drawings detailing the work to be done. Such drawings shall be furnished by a licensed Engineer. Examples of such include.
  - a. Foundation Plan fully dimensioned, foundation schedule and details, wall sections, mechanical pad details, and related miscellaneous details. All details, plans and sections shall show reinforcing. 2. Pier Details and Pier Schedule.
  - b. Necessary Floor Plans fully dimensioned plans with all depressions, rises, reinforcing steel, to include placement and accessories.
  - c. Miscellaneous Items All other reinforced concrete items shall be drawn at such scale as to give full dimensions, details and reinforcing with accessories as required.

#### 3.03 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his representative.
- 3. The Contractor shall submit a schedule of his activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

#### 3.04 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement.

#### **4.00 REFERENCED STANDARDS**

- 1. ACI 318 Building Code Requirement for Reinforced Concrete.
- 2. ACI 301 Specifications for Structural Concrete for Buildings.
- 3. ACI 305 Recommended Practice for Hot Weather Concreting.
- 4. ACI 347 Recommended Practice for Concrete Formwork.
- 5. ACI 302 Guide to Concrete Floor and Slab Construction.
- 6. ASTM C150 Standard Specification for Portland Cement.
- 7. ASTM C618, Class 7 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
- 8. ASTM C33 Standard Specification for Concrete Aggregates.
- 9. ASTM C171 Standard Specification for Sheet Materials for Curing Concrete.
- 10. ASTM C156-20 Standard Test Method for Water Loss [from a Mortar Specimen] Through Liquid Membrane-Forming Curing Compounds for Concrete.
- 11. ASTM E1643-18a Standard Practice For Selection, Design, Installation, And Inspection Of Water Vapour Retarders Used In Contact With Earth Or Granular Fill Under Concrete Slabs.
- 12. ASTM A1064 Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.



#### 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers.
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage.

#### 6.00 WARRANTIES, GUARANTEES AND MAINTENANCE

1. Cast in Place concrete works shall have a warranty for a period of one year against faulty workmanship including: installation defects, cracking and settling. The warranty excludes discoloration or efflorescence of concrete based materials, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.



# **SECTION 601 – BLOCK WALLING**

#### **1.0 GENERAL**

#### **1.01 DESCRIPTION**

Block Walling shall incorporate the construction process of a wall composed of Concrete Masonry Units and other elements that comprise the wall. Walls are to be constructed in such a manner so as to provide fire resistance and security to the spaces enclosed therein.

#### 1.02 SCOPE

Block Walling as pertaining to the project shall include all labour, equipment, plant and materials necessary to furnish and install:

- 1. Interior walls:
  - a. Non-load bearing
  - b. Load bearing
- 2. Exterior walls:
  - a. Non-load bearing
  - b. Load bearing

#### **1.03 PRODUCTS**

Block Walling may include a combination of the following products/ elements:

- 1. Concrete masonry units
  - a. Hollow concrete masonry units shall be in accordance with ASTM C90 Standard Specification for Loadbearing Concrete Masonry Units
  - b. The manufacturer shall certify that the masonry units meet all requirements of specified standards as specified hereinafter.
- 2. Vent blocks
  - a. Vent blocks shall be supplied by a manufacturer and approved by the Engineer.
- 3. Mortar and grout
  - a. Mortar shall be strictly in accordance with ASTM C270 Standard Specification for Mortar for Unit Masonry and shall be used for laying masonry units.
  - b. Grout shall be used for filling the cores of masonry units in the manner specified hereinafter or as directed by the Engineer.
- 4. Joint reinforcement
  - a. Joint reinforcement to comply with: ACI 530.1/ ASCE 6-02/ TMS 602-02 Specification for Masonry Structures.
- 5. Vertical reinforcement
  - a. All vertical reinforcing steel shall be plain bars conforming to ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
- 6. Horizontal reinforcement
  - a. Unless otherwise specified, horizontal reinforcement shall be provided at every third course in masonry walls



- b. Reinforcement shall consist of an approved welded wire mesh cut to match the thickness of the wall with at least two wires in longitudinal direction or brick force.
- c. Lateral ties between two bars shall be at maximum 400mm centres.
- d. The mesh shall be laid continuously in mortar bed with laps not less than 300mm.
- e. Specifically fabricated L- and T-junctions shall be provided at wall intersections.

#### 7. Lintels

- a. Install lintels over openings
- b. Bearing: to comply with engineers calculations
- 8. Control and expansion joints (define)
  - a. All electrical instrumentation, piping and other embedded items or conduits, etc., shall not be installed until the mortar and grout have attained their specified strength, unless these are installed simultaneously with the construction of the wall.
  - b. Vertical conduits shall be placed in unoccupied cells and horizontal conduits shall be placed approximately at the centre of a block height.
  - c. Cutting of walls shall be done in a manner that will prevent damage or weakening to the wall that may affect its structural stability and appearance.
  - d. Damage to or cutting of vertical reinforcing steel shall not be permitted.
  - e. All cut areas in walls shall be repaired with mortar and finished flush with the face of the wall.
  - f. Where the wall is to be finished fair-faced, conduits shall be installed simultaneously with the construction of the wall.
- 9. Wall anchorage
  - a. A Masonry walls shall be anchored to all floors, roofs, columns, walls, etc. which provide lateral support for the walls as directed by the Engineer.
  - b. Masonry walls that meet or intersect shall be bonded or anchored to each other by interlocking of masonry units from each wall. The intersection points of walls shall be reinforced as specified by the Engineer.
- 10. Fair Faced Block work
  - a. Where block walls are required to be finished fair-faced, masonry unit shall be consistent in colour and texture.
  - b. Masonry units shall be free form chips, cracks and other defects. All units with such defects shall be rejected. Making good with mortar shall not be permitted.
  - c. All horizontal and vertical joints shall be uniform in depth, thickness, colour and properly aligned.
  - d. All cuts in masonry units shall be sawed. Rough cutting made good with mortar shall not be permitted.
  - e. After installation, all units shall be free from mortar on exposed surfaces.
  - f. All surfaces of exposed block work shall be rubbed so as to expose a smooth surface.



#### 2.00 APPLICATION

- 1. Interior wall partitions.
  - a. Partitions providing vertical separation between adjacent spaces on the interior of the building.
- 2. Exterior walls.
  - a. Partitions providing vertical separation between exterior and interior space and which exclude: uninvited people, animals, insects; weather.
- 3. Where block walling elements also function as elements defined within another element group, they must meet the requirements of both groups.

#### **3.00 PREFERENCES**

#### 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology

#### 3.02 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his representative.
- 3. The Contractor shall submit a schedule of his activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

#### 3.03 SAFETY, SECURITY, OPERATIONS

2. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

#### 4.00 REFERENCED STANDARDS

- 1. ASTM C90 Standard Specification for Loadbearing Concrete Masonry Units
- 2. ASTM C270 Standard Specification for Mortar for Unit Masonry and shall be used for laying masonry units.
- 3. ACI 530.1/ ASCE 6-02/ TMS 602-02- Specification for Masonry Structures.
- 4. ASTM A615– Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- 5. IBC 2018 CHAPTER 2100 Masonry

#### **5.00 DURABILITY**

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage
- 3. Joint sealers in exterior walls: Lifespan expectancy equal to that specified for primary weather barriers.

#### 6.00 WARRANTIES, GUARANTEES AND MAINTENANCE



1. Block wall shall have a warranty for a period of one year against faulty workmanship including: installation defects, breakage and settling. The warranty excludes discoloration or efflorescence of concrete based materials, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.



# **SECTION 701 – STRUCTURAL STEEL FRAMING**

#### **1.0 GENERAL**

#### **1.01 DESCRIPTION**

Structural steel framing incorporates internal and external vertical and horizontal elements that are formed by a system of structural beams and columns.

#### 1.02 SCOPE

Structural steel framing incorporates work to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install. The work shall include, but not be limited to instillation of steel members; beams, columns and necessary connections.

#### **1.03 PRODUCTS**

Structural steel framing shall include a combination of the following products / elements:

- 1. Steel columns and beams:
  - a. Steel pipes to comply with: ASTM A53 Standard Specification for pipe, steel, black and hotdipped, zinc – coated, welded and seamless.
  - b. Steel hollow structural section to comply with: ASTM A500 Standard Specification for cold formed welded and seamless carbon steel structural tubing in rounds and shapes.
- 2. Steel connections:
  - a. Steel structural wide flange shapes to comply with: ASTM A992 Standard Specification for structural steel shapes.
  - b. Steel bolts to comply with: ASTM A307 Standard Specification for carbon steel bolts, studs and threaded rod 60 000 PSI tensile strength.
  - c. Steel nuts to comply with: ASTM A563 Standard Specification for carbon and alloy steel nuts.
  - d. Steel plates to comply with: ASTM A36 Standard Specifications for carbon structural steel.

#### 2.00 APPLICATION

Structural steel framing may apply to the following building elements:

- 1. Exterior structural framing:
  - a. Metal roof framing.
- 2. Internal structural framing:
  - a. Internal load bearing walls.
  - b. Elevator systems.
  - c. Stair cases.

#### **3.00 PREFERENCES**

#### 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology.
- 3. Drawings detailing the work to be done. Such drawings shall be furnished by a licensed Engineer.



#### 3.02 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

#### 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement.

#### 4.00 REFERENCED STANDARDS

- 1. ASTM A53 Standard Specification for pipe, steel, black and hot-dipped, zinc coated, welded and seamless.
- 2. ASTM A500 Standard Specification for cold formed welded and seamless carbon steel structural tubing in rounds and shapes.
- 3. ASTM A992 Standard Specification for structural steel shapes.
- 4. ASTM A307 Standard Specification for carbon steel bolts, studs and threaded rod 60 000 PSI tensile strength.
- 5. ASTM A563 Standard Specification for carbon and alloy steel nuts.
- 6. ASTM A36 Standard Specifications for carbon structural steel.

#### 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers.
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage.

#### 6.00 WARRANTIES, GUARANTEES AND MAINTENANCE

1. Structural steel framing shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.



## SECTION 809 – METAL PROFILED / FLAT SHEET CLADDING / COVERING

#### **1.0 GENERAL**

#### **1.01 DESCRIPTION**

Metal Profiled/ flat sheet cladding shall refer to metal panels into which profiles are induced by feeding them through banks of forming rollers. Typically used profiles are trapezoidal, sinusoidal or half round profiles. Cladding panels can be manufactured from prefinished steel or aluminium / aluminium alloys in a vast array of colours; providing a wide choice of aesthetic finish. These cladding sheets are then affixed to the steel structure of a building with concealed, non-penetrating fasteners.

#### 1.02 SCOPE

Work to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install all metal roof sheets and soffit panels (where specified), including accessories. For metal flashings, see related SECTION 822- Aluminium strip/ sheet coverings/ flashings.

#### **1.03 PRODUCTS**

Metal Profiled / flat sheet cladding / covering shall include a combination of the following products / elements

- 1. Galvalume Sheets (Standing Seam): tension levelled flat panels with continuously interlocked standing seam; 24ga and 26ga galvalume conforming to ASTM-791, 80 KSI where a coating of aluminium / zinc alloy bonded to the steel base by a continuous hot dipping process.
- 2. Material: 0.032 inch (0.8 mm) aluminium, ASTM B 209 3105-H14 alloy onto 0.5mm.
- 3. Flashings: all exposed flashings shall be formed in same gauge, finish, colour and texture matching the panels.
- 4. Sealant: shall be elastomeric.

#### 2.00 APPLICATION

Galvalume (Aluzinc) roof sheets (standing seam) shall be used in all metal roof applications as specified or required in this project.

#### **3.00 PREFERENCES**

#### 3.01 DESIGN REQUIREMENTS

- 1. General: Factory fabricated panels; panels fabricated on site using portable roll former are prohibited.
- 2. Performance Requirements: Provide sheet metal roofing that has been manufactured, fabricated and installed to achieve the following performance without defects, damage, failure or infiltration of water:
  - a. Minimum 26GA. Steel sheets to be used.
  - b. Wind Uplift: Provide UL 580 Class 90 rated assembly.
  - c. ASTM-E-1646-95 and ASTM-E-331 water penetration tested ASTM-E-1680-95 and ASTM-E-283 air infiltration tested.



- d. ASTM-E-1592-98 and ASTM-E-330 uplift tested (24 ga. steel).
- e. ASTM-E-84 Class A fire rating on coating and substrate.

#### 3.02 SUBMITTALS

Contractor shall submit the following:

- 1. Product Data: Manufacturer's data sheets on each product to be used, including:
  - a. Preparation instructions and recommendations.
  - b. Storage and handling requirements and recommendations.
  - c. Installation methods.
- 2. Shop Drawings: of all necessary roofing components, including profiles, anchorage, accessories, finishes, colours and textures.
- 3. Warranty Documentation: Submit 2 executed copies of both the manufacturer and applicator warranties for the periods stipulated, starting from the date of the substantial completion. Each warranty must be signed by an authorized representative of the issuing company.
- 4. Verification Samples: For each finish product specified, samples are to be provided, preferably 6 inches (150mm) square, representing actual product, colour, and patterns.
- 5. Operation and Maintenance Data: Include methods for maintaining installed products and precautions relating to cleaning materials and methods that might be detrimental to finishes and performance.
- 6. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

#### 3.03 QUALITY ASSURANCE

- 1. Installer Qualifications: Installer with documented experienced in performing work of this section who has specialized in the installation of work similar to that required for this project.
- 2. Material Storage: Store materials protected from exposure to harmful conditions. Store material in dry, above ground location:
  - a. Stack pre-finished material to prevent twisting, bending, abrasion, scratching and denting. Elevate one end of each skid to allow for moisture to run off.
  - b. Prevent contact with material that may cause corrosion, discoloration or staining.
- 3. Protection of completed works: Protect installed products until completion of project.

#### 3.04 SAFETY, SECURITY, OPERATIONS

- 1. HSE Documentation: Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement.
- 2. Pre-Installation Meeting: Conduct pre-installation meeting to acquaint installers of roofing and related work with project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.

#### 4.00 REFERENCED STANDARDS

- 1. UL 580 Safety Testing for Uplift Resistance of Roof Assemblies.
- 2. ASTME-1646-95 Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.


- 3. ASTM-E-331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
- 4. ASTM-E-1680-95 Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems.
- 5. ASTM-E-283 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- 6. ASTM-E-1592-98 Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
- 7. ASTM E-330 Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- 8. ASTM-E-84 Standard Test Method for Surface Burning Characteristics of Building Materials.
- 9. ASTM A792 / A792M Standard Specification for Steel Sheet, 55 percent Aluminium-Zinc Alloy-Coated by the Hot-Dip Process.

# 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers.
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage.

- 1. Manufacturer's Warranty: Provide manufacturer's standard warranty document executed by authorized company official covering finish, including colour, fade, chalking and film integrity.
- 2. Warranty Period: minimum 20 years commencing on Date of Substantial Completion.



# SECTION 905 – WATERPROOFING (LIQUID APPLIED WATERPROOF ROOF COATINGS)

# **1.0 GENERAL**

### **1.01 DESCRIPTION**

Liquid-applied membranes are applied on site in a liquid form which is allowed to set and form into a water impermeable membrane. They can be Bituminous-based or polymeric-based, monolithic and fully-bonded, and suitable for application over many substrates, e.g. including asphalt, bitumen and concrete.

### 1.02 SCOPE

- 1. Work to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install all liquid applied membranes to the roof slab.
- 2. Works may include:
  - a. Provision of reinforced, liquid applied waterproofing membrane system including membrane, penetration flashings, base flashings, and expansion joints.
  - b. Substrate preparation, cleaning, levelling and patching.
  - c. Insulation and base/ply sheet installation.
  - d. Temporary waterproofing and priming.
  - e. Waterproofing membrane installation.
  - f. Flashing installation and expansion joint installation.
  - g. Protective surfacing.
  - h. Alkalinity protection.
  - i. Preparation for overburden installation.

### 1.03 PRODUCTS

Liquid applied waterproofing coating shall include a combination of the following products / elements:

- 1. Waterproofing Membrane:
  - a. Cold Fluid-Applied Waterproofing- Single component, [reinforced,] high solids. ASTM C 836/C 836M, Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course
- 2. Accessory Materials:
  - a. Installation instructions, recommended to produce complete waterproofing system meeting performance requirements, and compatible with waterproofing material and adjacent materials.
- 3. Primer:
  - a. Liquid primer meeting VOC limitations and recommended for substrate by waterproofing manufacturer.



- 4. Joint Sealant:
  - a. ASTM C 719, Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle), high performance, medium-modulus, low-VOC, UVstable, non-sag elastomeric sealant approved by waterproofing manufacturer for adhesion and compatibility with waterproofing and accessories.
- 5. Expansion Joint:
  - a. Pre-compressed or Closed Cell, Monolithic Foam System. Foam Structure Must not Contain Unbonded Foam Laminations
- 6. Protection Course:
  - a. Waterproofing manufacturer's standard protection course material recommended for application.

# 2.00 APPLICATION

1. Liquid applied membranes shall be used on all flat roof slabs in locations shown within the design drawings.

# **3.00 PREFERENCES**

### 3.01 ENVIRONMENTAL

- 1. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- 2. Do not apply roofing/waterproofing membrane during or with the threat of inclement weather.
- 3. When ambient temperatures reach 85 degrees F (30 degrees C) or higher, follow Membrane System Manufacturer's recommendations for weather related additives and application procedures.
- 4. Ensure that substrate materials are dry and free of contaminants. DO NOT commence with the application unless substrate conditions are suitable. Contractor shall demonstrate that substrate conditions are suitable for the application of the materials.
- 5. Odour control and elimination measures are not typically necessary, but if required by the owner or his designated Representative, Contractor shall implement odour control and elimination measures prior to and during the application of the roofing/waterproofing materials. Control/elimination measures shall be field tested at off-hours.

# 3.02 TEMPORARY PROTECTION

- 1. Building components shall be protected adequately (with tarp or other suitable material) from soil, stains, or spills at hoisting points and area of application. Contractor shall be responsible for preventing damage from any operation under its contract. Any such damage shall be repaired at Contractor's expense to Owner's satisfaction or be restored to original condition.
- 2. Protect finished roofing/waterproofing membrane from damage by other trades. Do not allow waste products containing hydrocarbons such as petroleum, grease, acid, solvents, vegetable or mineral oil, animal oil or animal fat, or direct steam venting to come into direct contact with the membrane.

# 3.03 SUBMITTALS

Contractor shall submit the following:

1. Product Data: Provide current standard printed product literature indicating characteristics of



membrane materials, flashing materials, components, and accessories product specification and installation; submit copies of current Material Safety Data Sheets (MSDS) for components of the work:

- a. Preparation instructions and recommendations.
- b. Storage and handling requirements and recommendations.
- c. Cleaning methods.
- 2. Shop Drawings: Submit shop drawings of liquid applied membrane showing a project plan, size, relevant flashing details etc. for review and approval by the Owners Representative and Membrane Manufacturer.
- 3. Warranty Documentation: Submit 2 executed copies of both the manufacturer and applicator warranties for the periods stipulated, starting from the date of the substantial completion. Each warranty must be signed by an authorized representative of the issuing company.

### 3.04 QUALITY ASSURANCE

- 1. Evaluate moisture content of substrate materials. Contractor shall determine substrate moisture content throughout the work and record with Daily Inspection Reports or other form of reporting acceptable to the Owner or designated Representative and Membrane Manufacturer.
- 2. Random tests to determine tensile bond strength of membrane to substrate shall be conducted by the Contractor at the job site using an adhesion tester, or by the performance of a manual pull test. Contractor shall perform tests at the beginning of the Work, and at intervals as required to assure specified adhesion with a minimum of 3 tests. Test results shall be submitted to the Owner or his designated Representative and the Membrane Manufacturer. Contractor shall immediately notify the Owner or his designated Representative and Membrane Manufacturer in the event bond test results are below specified values.
- 3. Adequate surface preparation will be indicated by tensile bond strength of membrane to substrate greater than or equal to 220 psi (1.5 N/mm2), as determined by use of an adhesion tester.
- 4. Adequate surface preparation will be indicated by peel bond strength of membrane to substrate such that cohesive failure of substrate or membrane occurs before adhesive failure of membrane/substrate interface.

# 3.05 SAFETY, SECURITY, OPERATIONS

- 1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement.
- 2. Contractor shall convene a pre-installation meeting at the jobsite 1 week before starting work of this section and require attendance of parties directly affecting work of this section, including but not limited to the following:
  - a. Architect.
  - b. Engineer
  - c. Roofing/Waterproofing Consultant.
  - d. Owner's Representative.

### 4.00 REFERENCED STANDARDS

Most recent versions of the standards below

- 1. ASTM D41 Standard Specification for Asphalt Primer Used in Roofing, Damp- proofing, and Waterproofing.
- 2. Underwriters Laboratories (UL): ANSI/UL 790 Standard Test Methods of Roof Coverings.
- 3. ASTM D312 Standard Specification for Asphalt Used in Roofing.
- 4. ASTM D471 Standard Test Method for Rubber Property Effect of Liquids



- 5. ASTM C836/C 836M Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course
- 6. ASTM C719 Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)

# 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage

- Waterproofing shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.
- 2. Manufacturer's product Warranty: Provide manufacturer's standard warranty document executed by authorized company official for a minimum of 10 years commencing on Date of Substantial Completion.



# SECTION 1001 – PLASTERBOARD DRY LININGS, PARTITIONS & CEILINGS

# **1.0 GENERAL**

### **1.01 DESCRIPTION**

Plasterboard dry linings/ partitions/ ceilings incorporates the process of instilling plasterboard to for interior walls and ceilings

### 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install the following:

- 1. Plasterboard dry lining:
  - a. Interior surfaces of external walls
- 2. Partitions:
  - a. Instillation of internal non-load bearing walls
  - b. Walls are to provide fire resistance
- 3. Ceilings
  - a. Painted gypsum board ceiling

### **1.03 PRODUCTS**

Plasterboard dry linings/ partitions/ ceilings may include a combination of the following products/ elements:

- 1. Gypsum boards referencing ASTM C1396 Standard specification for gypsum boards:
  - a. Gypsum board
  - b. Type X Gypsum
  - c. Type C Gypsum
  - d. Moisture resistant Gypsum Board
- 2. Cement boards complying with:
  - a. ASTM C1186 Standard specification for cement board fabricatiors.
- 3. Framing to comply with:
  - a. ASTM A1003 Standard specification for steel sheets, carbon, metallic and non-metallic coated for cold form framing members
  - b. ASTM C754 Standard specification for instillation of steel framing members to receive screw attached gypsum panel products
  - c. ASTM A653 Standard specification for steel sheet, Zinc-coated (galvanized) or zinc iron alloy coated (Galvannealed) by the hot dip process
  - d. ASTM E119 Standard test methods for fire test for building construction and materials. Fire rated for 1, 2, 3 and 4 hour rated walls.
- 4. Fasteners to comply with:
  - ASTM C1002 Standard Specification for steel self-piercing tapping screws for application of gypsum panel products or metal plaster bases to wood studs or steel studs or ASTM C954 Standard specification for steel drill screw for the application of gypsum panel products for



metal plaster bases to steel studs.

- 5. Joint reinforcement and joint tape for fixing gypsum boards to comply with:
  - a. ASTM C475/C475M Standard specification for joint compound and joint tape for finishing gypsum board
- 6. Fire, sound, thermal insulation to comply with:
  - a. ASTM C553 Standard specification for mineral fibre blanket thermal insulation for commercial and industrial applications
  - b. ASTM C665 Standard specification for mineral fibre blanket thermal insulation for light frame construction and manufactured housing
  - c. ASTM C726 Standard specification for mineral wall roof insulation board
  - d. ASTM E84 Standard test method for surface burning characteristics of building materials. Class A

### 2.00 APPLICATION

- 1. Interior wall partitions.
  - a. Partitions providing vertical separation between adjacent spaces on the interior of the building.
- 2. Interior surfaces of external wall.
- 3. Ceilings

### **3.00 PREFERENCES**

### 3.01 SUBMITTALS

- Contractors shall submit for approval:
- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology

### 3.03 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

### 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

# 4.00 REFERENCED STANDARDS

- 1. ASTM C1396 Standard specifications for gypsum boards
- 2. ASTM C1186 Standard specification for cement board fabrications
- 3. ASTM A1003 Standard specification for steel sheets, carbon, metallic coated for cold form framing members
- 4. ASTM C754 Standard specification for instillation of steel framing members to receive screw



attached gypsum panel products

- 5. ASTM A653 Standard specification for steel sheet, Zinc-coated (galvanized) or zinc iron alloy coated (Galvannealed) by the hot dip process
- 6. ASTM E119 Standard test methods for fire test for building construction and materials. Fire rated for 1, 2, 3 and 4 hour rated walls.
- 7. ASTM C1002 Standard Specification for steel self-piercing tapping screws for application of gypsum panel products or metal plaster bases to wood studs or steel studs or ASTM C954 Standard specification for steel drill screw for the application of gypsum panel products for metal plaster bases to steel studs.
- 8. ASTM C475/C475M Standard specification for joint compound and joint tape for finishing gypsum board.
- 9. ASTM C553 Standard specification for mineral fiber blanket thermal insulation for commercial and industrial applications
- 10. ASTM C665 Standard specification for mineral fiber blanket thermal insulation for light frame construction and manufactured housing
- 11. ASTM C726 Standard specification for mineral wall roof insulation board
- 12. ASTM E84 Standard test method for surface burning characteristics of building materials. Class A

### 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage
- 3. Joint sealers in exterior walls: Lifespan expectancy equal to that specified for primary weather barriers.

### 6.00 WARRANTIES, GUARANTEES AND MAINTENANCE

1. Plasterboard dry linings/ partitions/ ceilings shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.



# SECTION 1008 – DEMOUNTABLE SUSPENDED CEILINGS

### **1.0 GENERAL**

### **1.01 DESCRIPTION**

Demountable suspended ceilings incorporates grid ceiling systems that are used in conjunction with suspended ceiling systems.

### 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install the following:

- 1. Interior ceiling treatments
- 2. Suspended ceiling systems

### **1.03 PRODUCTS**

Demountable suspended ceiling may include a combination of the following products/ elements:

- 1. Interior ceiling treatment in compliance with:
  - a. ASTM E1264 Standard classification for acoustical ceiling products
  - b. ASTM C1396 Standard specification for gypsum boards
- 2. Suspended ceiling framing in compliance with:
  - a. ASTM C635 Standard specification for manufacture, performance and testing of metal suspension systems for acoustical tile and lay-in panel ceilings.
  - b. ASTM G30 Standard specifications for making and using u-bend stress-corrosion test specimens
  - c. ASTM A153 Standard specification for zinc coating (hot-dip) on iron and steel hard wear
  - d. ASTM A653 Standard specification for steel sheet, zinc-coated (galvanized) or zinc-iron alloy-coated (galvannealed) by the hot-dip process
  - e. ASTM E119 Standard test methods for fire test for building construction and materials. Fire rated for 1, 2, 3 and 4 hour rated walls.
- 3. Fire, sound, thermal insulation in compliance with:
  - a. ASTM C553 Standard specification for mineral fibre blanket thermal insulation for commercial and industrial applications

### 2.00 APPLICATION

1. Ceiling.

#### **3.00 PREFERENCES**

#### 3.01 SUBMITTALS

Contractors shall submit for approval:

1. Materials listing and certification indicating that products adhere to standard specifications.



2. Installation methodology

### 3.04 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

### 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

# 4.00 REFERENCED STANDARDS

- 1. ASTM E1264
- 2. ASTM C635
- 3. ASTM G30
- 4. ASTM A153
- 5. ASTM A653
- 6. ASTM C553

# **5.00 DURABILITY**

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage

- 1. Demountable suspended ceilings shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.
- 2. Manufacturer's Warranty: Provide manufacturer's standard warranty document executed by authorized company official for a minimum of 15 years commencing on Date of Substantial Completion.



# SECTION 1101 – WINDOWS, ROOFLIGHTS, SCREENS & LOUVERS

# **1.0 GENERAL**

### **1.01 DESCRIPTION**

Windows / roof lights / screens / louvers incorporates wall openings and features / accessories that provide light and airflow while retaining the structure's profile.

### 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install the following:

- 1. Windows:
- 2. Roof lights
- 3. Screens
- 4. Louvers

### **1.03 PRODUCTS**

Windows / roof lights / screens / may include a combination of the following products/ elements:

- 1. Exterior windows and structural elements to comply with:
  - a. ASTM E2112: Standard practice for installation of exterior windows, doors and skylights.
  - b. ASTM F2912: Standard specifications for glazing and glazing system subject to air blast loading.
  - c. ASTM E1105: Standard test method for fire determination of water penetration of installed exterior windows, skylights, doors and curtail walls, by uniform or cyclic static air pressure difference
- 2. Framing to comply with:
  - a. ASTM E2112: Standard practice for installation of exterior windows, doors and skylights.
- 3. Louvers to comply with:
  - a. ASTM E1886: Standard test method for performance of exterior windows, curtain walls, doors and impact protective system impacted by missile(s) and exposed to cyclic pressure differentials.
  - b. ASTM E1996: Standard specification for performance of exterior windows, curtain walls, doors and impact protective systems impacted by windborne debris in hurricanes.
- 4. Screening to comply with:
  - a. ASTM D3656 / D3656M: Standard specification for insect screening and louver cloth woven from vinyl coated glass yarns
- 5. Fire, sound and thermal control to comply with:
  - a. ASTM E119 Standard specification for fire tests of building construction and materials

# 2.00 APPLICATION

- 1. Specified exterior walls openings.
- 2. Specified roof openings
- 3. Ceilings
- 4. Window treatments



# **3.00 PREFERENCES**

### 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology
- 3. Window schedule

### 3.05 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

### 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

### 4.00 REFERENCED STANDARDS

- 1. ASTM E2112
- 2. ASTM F2912
- 3. ASTM E1105
- 4. ASTM E1886
- 5. ASTM E1996
- 6. ASTM D3656 /D3656M
- 7. ASTM E119

### 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage
- 3. Joint sealers in exterior walls: Lifespan expectancy equal to that specified for primary weather barriers.

- 1. Windows / roof lights / screens / louvers shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.
- 2. Manufacturer's Warranty: Provide manufacturer's standard warranty document executed by authorized company official for a minimum of 15 years commencing on Date of Substantial Completion for the window frames and for a minimum of 5 years for laminated glass and window hardware.



# SECTION 1102 - DOORS / SHUTTERS / HATCHES

# **1.0 GENERAL**

### **1.01 DESCRIPTION**

1. The elements comprising doors/ shutters/ hatches includes the aforementioned items of all sizes and uses and elements that form or complete the openings, unless they are an integral part of another element.

### 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install the following:

- 1. Internal Doors
- 2. External Doors
- 3. Internal doors with glazed vision panels
- 4. External doors with glazed vision panels
- 5. Internal Door Frames
- 6. External Door Frames
- 7. Shutters
- 8. Hatches

### **1.03 PRODUCTS**

- Doors / Shutters / Hatches may include a combination of the following products/ elements:
- 1. Internal and external doors shall comprised of galvanized steel and shall comply with:
  - a. ANSI A250.8 Standard Specification for Standard Steel doors and Frames (SDI-100)
  - b. ASTM A879 Standard specification for steel sheet, zinc coated by the electrolytic process for applications requiring designation of the coating on each surface.
  - c. ASTM E2112 (19c) Standard practice for instillation of exterior windows, doors and skylight
- 2. Frames shall be galvanized steel and shall comply with:
  - a. ANSI A250.8 Standard Specification for Standard Steel doors and Frames (SDI-100)
- 3. Glazed Vision Panels:
  - a. Doors shall consist of glazed vision panels where appropriate based on user requirements
- 4. Hatches:
  - a. ASTM C1802 (20) Standard specification for design, testing, manufacture, selection, and installation of horizontal fabricated metal access hatches for utility, water and wastewater structures
- 5. Security:
  - a. ASTM E2395 (18) Standard specification for voluntary security performance of window and door assemblies with glazing impact
- 6. Fire resistance:
  - a. ASTM E119 (20) Standard test method for fire test of building construction and materials
  - b. NFPA 252 or UL 10B Ratings for fire walls and fire doors
- 7. Weather resistance:
  - a. ASTM E1996(20) Standard for performance of exterior windows, curtain walls, door and impact protective system impacted by windborne debris in hurricanes
  - ASTM E115(15) Standard test method for field determination of water penetration of installed exterior windows, skylights, doors and curtain walls, by uniform cyclic static air pressure difference



# 2.00 APPLICATION

- 1. Exterior doors
- 2. Interior doors
- 3. Overhead / ceiling access
- 4. Underground access

### **3.00 PREFERENCES**

### 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology

### 3.06 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

### 3.03 SAFETY, SECURITY, OPERATIONS

2. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

### 4.00 REFERENCED STANDARDS

- 1. ASTM E 2112(19C)
- 2. ANSI/SDI A250.8
- 3. ASTM A879
- 4. ASTM C1802 (20)
- 5. ASTM E2395 (18)
- 6. ASTM E119 (20)
- 7. NFPA 252 IR UL 10B
- 8. ASTM E1996 (20)

# 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage
- 3. Joint sealers in exterior walls: Lifespan expectancy equal to that specified for primary weather barriers.

# 6.0 WARRANTIES, GUARANTEES AND MAINTENANCE

1. Doors / Shutters / Hatches shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the



contractor or his/her designated representative.

2. Manufacturer's Warranty: Provide manufacturer's standard warranty document executed by authorized company official for a minimum of 5 years commencing on Date of Substantial Completion.



# SECTION 1104 – STAIRS/ RAMPS/ HANDRAIL & GUARD RAILS

# **1.0 GENERAL**

### **1.01 DESCRIPTION**

This section includes devices for connecting various building levels (stairs & ramps) and the protection and guidance systems (rails & guards) associated with these devices.

### 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install the following:

- 1. External Stairs
- 2. Internal Stairs
- 3. External Ramps
- 4. Internal Ramps
- 5. Handrails
- 6. Guard Rails

### 1.03 PRODUCTS

This section may include a combination of the following products/ elements:

- 1. Internal & External Stairs
  - a. Cast in place treads and landings shall comply with the standards set out in Section 501 "In situ & Precast Concrete"
  - b. Precast treads & landings shall comply with the standards set out in Section 501 "In situ & Precast Concrete"
  - c. Steel stairs and landings
    - i. Exposed surfaces shall be free of seam marks, rolled names, and other irregularities.
    - ii. Steel shapes shall comply with ASTM A36 Standard specification for carbon structural steel.
    - iii. Steel Sheets shall comply with ASTM A1008 Standard specification for cold rolled structural steel.
    - iv. Galvanized Steel Sheets shall comply with ASTM A653 Standard specification for steel sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip process.
    - v. External stairs shall be fabricated to shed water and provide weep holes where water may accumulate
  - d. External stairs shall be fabricated to shed water and provide weep holes where water may accumulate
- 2. Internal & External Ramps
  - a. Cast in place ramps and landings shall comply with the standards set out in Section 501 "In situ & Precast Concrete"
  - b. Precast concrete ramps & landings to comply with the standards set out in Section 501 "In situ & Precast Concrete"
  - c. Steel framed ramps and landings
    - i. Exposed surfaces shall be free of seam marks, rolled names, and other irregularities.
    - ii. Steel shapes shall comply with ASTM A36 Standard specification for carbon structural steel.
    - iii. Steel Sheets shall comply with ASTM A1008 Standard specification for cold rolled structural steel.



- iv. Galvanized Steel Sheets shall comply with ASTM A653 Standard specification for steel sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip process.
- v. External ramps shall be fabricated to shed water and provide weep holes where water may accumulate
- 3. Metal railings
  - a. Hand rails & Guard rails
    - i. Exposed surfaces shall be free of seam marks, rolled names, and other irregularities.
    - ii. Steel shapes shall comply with ASTM A36 Standard specification for carbon structural steel.
- 4. Concrete railings
  - a. Hand rails & Guard rails shall comply with the standards set out in Section 501 "In situ & Precast Concrete"
- 5. Fasteners
  - a. Post-Installed Anchors/ chemical anchors shall comply with ASTM E1512 Standard test methods for testing bond performance of Bonded anchors
  - b. Stainless steel fasteners shall comply with ASTM F593 Standard specification for stainless steel bolts, hex cap screws and studs.
  - c. Connection Bolts shall comply with ASTM A307 Standard specification for carbon steel bolts, studs and threaded rod 60,000 PSI Tensile strength,
  - d. Steel Nuts shall comply with ASTM A563 Standard specification for carbon and Alloy Steel Nuts
- 6. Finishes
  - a. Primer to be applied to all surfaces except those to be field welded or embedded in concrete.
  - b. A second coat of primer is to be applied to surfaces that will be concealed when installed, and to bolts and welds.
  - c. Galvanizing is to comply with ASTM A153 Standard specification for Zinc coating (Hot-dip) on iron and steel hardware and ASTM A123 Standard specification for Zinc (Hot-dip galvanized) coatings on Iron and steel products.

# 2.00 APPLICATION

- 1. External walking surfaces connecting various levels
- 2. Internal walking surfaces connecting various building floors/ levels
  - a. Partitions providing vertical separation between adjacent spaces on the interior of the building.
- 3. Protection for open stair, ramp or landing edges above 762mm (30")

# **3.00 PREFERENCES**

### 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology
- 3. Shop Drawings: Plans, sections, elevations, details, attachments
- 4. Certificates
  - a. Welding qualifications
  - b. Paint compatibility



- c. Mill certificates
- d. Test certificates ensuring code compliance of steel and anchors

### 3.07 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

### 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

### 4.00 REFERENCED STANDARDS

### 4.01 ACCESSIBILITY REQUIREMENTS

1. The components detailed in this section shall comply with the accessibility standards of the ICC/ ANSI A117.1 - Accessible and Usable buildings and Facilities Standard

### 4.02 SEISMIC REQUIREMENTS

1. The design of elements in this section shall comply with the requirements of ASCE / SEI 7.

### 4.03 INTERNATIONAL BUILDING CODE (IBC) REFERENCES

- 1. The design of elements in this section shall comply with the requirements the IBC generally paying particular attention to the comply withing:
  - a. Section 1007 Accessible means of egress
  - b. Section 1009 Stairs
  - c. Section 1010 Ramps
  - d. Section 1012 Handrails
  - e. Section 1013 Guards

### 4.04 ASTM STANDARDS

- 1. ASTM A36
- 2. ASTM A1008
- 3. ASTM A653
- 4. ASTM E1512
- 5. ASTM F593
- 6. ASTM A563
- 7. ASTM A153 and ASTM A123

### **5.00 DURABILITY**

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage



# 6.00 WARRANTIES, GUARANTEES AND MAINTENANCE

1. Stairs/ Ramps/ Handrail & Guardrails shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.



# SECTION 1205 – PLASTERED, RENDERED, ROUGHCAST COATING

# **1.0 GENERAL**

### **1.01 DESCRIPTION**

Plastered, rendered, roughcasting coating incorporates coarse finishing materials that hardens while drying and are applied to wall or ceilings for aesthetic purposes or as weather protection.

### 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install plastered, rendered or roughcast coatings on the following surfaces:

- 1. Exterior walls
- 2. Interior walls
- 3. Exterior ceilings
- 4. Interior ceilings
- 5. Interior partitions

### **1.03 PRODUCTS**

Plastered, rendered, roughcasting coating may include a combination of the following products/ elements:

- 1. Lime in compliance with:
  - a. ASTM C25 Test methods for chemical analysis of limestone, quicklime and hydrated lime
  - b. ASTM C206-14 Standard specification for finishing hydrate lime
- 2. Portland Cement in compliance with:
  - a. ASTM C150/C150M-20 Standard specification for Portland cement
  - b. ASTM C926 Standard specification for application of Portland cement based plaster
- 3. Aggregate in compliance with:
  - a. ASTM C35 Specification for inorganic aggregates for use in gypsum plaster
  - b. ASTM C897 Standard specification for aggregate job-mixed Portland cement-based plasters
- 4. Plaster Mix in compliance with:
  - a. ASTM C1157 Standard performance specification for hydraulic cement
  - b. ASTM C260 Specification for blended hydraulic cement
  - c. ASTM C91 Standard specification for masonry cement
- 5. Partitions in compliance with:
  - a. ASTM C59/C59M Standard specifications for gypsum casting plaster and gypsum molding plaster
  - b. ASTM C595 Specifications for bonding compounds for interior gypsum plastering
  - c. ASTM C932 Specifications for surface-applied bonding compounds for exterior plastering
  - d. ASTM C631 Specification for bounding compounds for interior gypsum plastering
- 6. Fire, thermal and sound insulation in compliance with:
  - a. ASTM E119 Test methods for fire tests building materials
    - b. ASTM E90 Test methods for laboratory measurement of airborne sound transmission of building partitions and elements

# 2.00 APPLICATION

- 1. Interior surfaces
  - a. Walls
  - b. Partitions
  - c. Ceilings
- 2. Exterior surfaces
  - a. Walls



b. Ceilings

### **3.00 PREFERENCES**

### 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology

### 3.08 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

### 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

### 4.00 REFERENCED STANDARDS

- 1. ASTM C25
- 2. ASTM C206-14
- 3. ASTM C150M-20
- 4. ASTM C926
- 5. ASTM C1157
- 6. ASTM C260
- 7. ASTM C91
- 8. ASTM C59
- 9. ASTM C595
- 10. ASTM C932
- 11. ASTM C631
- 12. ASTM E119
- 13. ASTM E119
- 15. ASTIVI E90

# 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage

# 6.00 WARRANTIES, GUARANTEES AND MAINTENANCE

1. Plastered, rendered and roughcast coatings shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.



# SECTION 1209 – STONE, CONCRETE, QUARRY, CERAMIC & MOSAIC TILING

# **1.0 GENERAL**

### **1.01 DESCRIPTION**

- 1. Stone incorporates natural material used aesthetically as surface finishes.
- 2. Concrete handmade tile primarily used as decorative floor finishes
- 3. Quarry construction tile made of natural clays commonly  $\frac{1}{2}$ " to  $\frac{3}{4}$ " thick
- 4. Ceramic tiling
- 5. Mosaic

# 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install plastered, rendered or roughcast coatings on the following surfaces:

- 1. Walls
- 2. Floors

# **1.03 PRODUCTS**

Stone / concrete / quarry / ceramic tiling / mosaic may include a combination of the following products/ elements:

- 1. ASTM C503 Standard specifications for marble dimension stone
- 2. ASTM C126 Standard specification for ceramic glazed structural clay facing tile, facing brick and solid masonry units
- 3. ANSI A137.1 Standard specification for ceramic tile
- 4. ASTM C1670 Standard specifications for adheres manufactured stone masonry veneer units

# 2.00 APPLICATION

- 1. Exterior floor surfaces
- 2. Interior floor surfaces
- 3. Exterior wall surfaces
- 4. Interior wall surfaces

# **3.00 PREFERENCES**

# 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology

# 3.09 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.



3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

# 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

# 4.00 REFERENCED STANDARDS

- 1. ASTM C503
- 2. ASTM C126
- 3. ANSI A137.1
- 4. ASTM C1670

# 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage
- 3. Joint sealers in exterior walls: Lifespan expectancy equal to that specified for primary weather barriers.

# 6.00 WARRANTIES, GUARANTEES AND MAINTENANCE

1. Stone, concrete, quarry, ceramic & mosaic tiling shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.



# SECTION 1212 – RUBBER / PLASTIC / CORK / LINOLEUM / CARPET TILING / SHEETING

# **1.0 GENERAL**

### **1.01 DESCRIPTION**

This section incorporates flooring finishes consisting of synthetic and natural materials as an alternative to traditional floor finishing, providing durability, longevity once maintained properly

### 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install the following types of flooring:

- 1. Rubber
- 2. Plastic
- 3. Cork
- 4. Linoleum
- 5. Carpet tiling
- 6. Sheeting
- 7. Vinyl sheet flooring
- 8. Luxury vinyl tiles (LVT) flooring

### **1.03 PRODUCTS**

Rubber / plastic / cork / lino / carpet tiling / sheeting may include a combination of the following products/ elements:

- 1. Rubber flooring:
  - a. ASTM F1859 Standard specification for rubber sheet floor covering without backing
  - b. ASTM F1860 Standard specification for rubber sheet floor covering with backing
  - c. ASTM F2041 Standard specification for bonded rubber crumb floor coverings
- 2. Cork Flooring:
  - a. ASTM F3008 Standard specification for cork floor tile
- 3. Lino (linoleum) flooring:
  - a. ASTM F2195 Standard specification for linoleum floor tile
- 4. Luxury vinyl flooring
  - a. ASTM F1066 Standard specification for vinyl composition floor tile
  - b. ASTM F1700 Standard specification for solid vinyl floor tile
  - c. ASTM F3261 Standard specification for resilient flooring in modular format with rigid polymeric core
  - d. ASTM F386 Standard test method for thickness of resilient flooring material having flat surfaces
  - e. ASTM F1514 Standard test method for measuring heat stability of resilient flooring by colour change
- 5. Vinyl sheet flooring
  - a. ASTM F1303 Standard specification for sheet vinyl floor covering with backing
  - b. ASTM F1913 Standard specification for vinyl sheet floor covering without backing

# 2.00 APPLICATION

- 1. Flooring pertaining to this project me include the following common areas of application:
  - a. Auditorium



- b. Staff room / offices
- c. Kitchen
- d. Restrooms
- e. Dressing rooms
- f. Classrooms
- g. Day care
- h. Intermediate areas not mentioned

### **3.00 PREFERENCES**

### 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology

### 3.10 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

### 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

### 4.00 REFERENCED STANDARDS

- 1. ASTM F1859
- 2. ASTM F1860
- 3. ASTM F2041
- 4. ASTM F3008
- 5. ASTM F2195
- 6. ASTM F1066
- 7. ASTM F1700
- 8. ASTM F3261
- 9. ASTM F386
- 10. ASTM F1514
- 11. ASTM F1303
- 12. ASTM F1913

# **5.00 DURABILITY**

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage
- 3. Joint sealers in exterior walls: Lifespan expectancy equal to that specified for primary weather barriers.



- 2. Rubber / plastic / cork / lino / carpet tiling / sheeting shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.
- 3. Manufacturer's Warranty: Provide manufacturer's standard warranty document executed by authorized company official for a minimum of 10 years commencing on Date of Substantial Completion.



# **SECTION 1215 – PAINTING / CLEAR FINISHING**

### **1.0 GENERAL**

### **1.01 DESCRIPTION**

Painting / Clear Finishing incorporates the application of stain, paint or thin coating as the finial finish or layer of protection to various surfaces as instructed.

### 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to paint/ clear finish the following surfaces:

- 1. Exterior wooden surfaces
- 2. Interior wooden surfaces
- 3. Exterior masonry surfaces
- 4. Interior masonry surfaces
- 5. Exterior partitions (cement board)
- 6. Interior partitions (gypsum/ cement board)
- 7. Interior rendered/ plastered or roughcast surfaces
- 8. Exterior rendered/ plastered or roughcast surfaces
- 9. Interior Ceilings
- 10. Exterior Ceilings
- 11. Exterior metal surfaces
- 12. Interior metal surfaces

### **1.03 PRODUCTS**

Painting / Clear Finishing may include a combination of the following products/ elements:

- 1. Paint arrangements:
  - a. Paint
  - b. Undercoats
  - c. Primers
  - d. Varnish stains
  - e. Polyurethane lacquers
  - f. Emulsion paints
- 2. All paint arrangements detailed above shall be digitally mixed as specified by the employer
- 3. Manufacturers' quality control: sample testing may be engaged by the client/architect.

### 2.00 APPLICATION

- 1. Interior, exterior wood work surfaces
  - a. Cabinetry
  - b. Partitions
  - c. Joinery
- 2. Interior, exterior masonry surfaces
  - a. Brick
  - b. Stone
  - c. Plastered / rendered materials
  - d. Stucco
  - e. Concrete



- 3. Interior/ exterior metal surfaces.
  - a. Aluminium
  - b. Iron
  - c. Steel
  - d. Copper

# **3.00 PREFERENCES**

### 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology

### 3.11 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

# 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

### 4.00 REFERENCED STANDARDS

1. All paint works shall be in compliance with the guidelines of the latest version of the Painting Contractors Association (PDCA) Industry Standards.

### **5.00 DURABILITY**

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage
- 3. Joint sealers in exterior walls: Lifespan expectancy equal to that specified for primary weather barriers.

- 1. Painting and clear finishing shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.
- 2. Manufacturer's Warranty: Provide manufacturer's standard warranty document executed by authorized company official for a minimum of 10 years commencing on Date of Substantial Completion.



# **SECTION 1304 – SANITARY APPLIANCES & FITTINGS**

# **1.0 GENERAL**

### **1.01 DESCRIPTION**

This section includes plumbing fixtures comprising of the following:

- 1. All fixtures necessary for the sanitation, occupancy and use of the facility connected to the water supply and/or drainage
- 2. Fixtures required as specified by the user requirements, the International Building Code (IBC) and/ or by the local Authority Having Jurisdiction (AHJ).

### 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install the following sanitary appliances and fittings:

- 1. Water Closets
- 2. Urinals
- 3. Lavatories
- 4. Accessible washroom fixtures
- 5. Kitchen sinks
- 6. Faucets and trims
- 7. Drinking Fountains
- 8. Utility/ Mop/ Janitor's Sinks

### **1.03 PRODUCTS**

This section may include a combination of the following products/ elements:

- 1. Water Closets shall comprise of one or more of the following properties:
  - a. Vitreous china that complies with BS 3402:1969 Specification for quality of vitreous china sanitary appliances
  - b. Floor mounted fixtures
  - c. Wall mounted fixtures
- 2. Urinals
  - a. Vitreous china that complies with BS 3402:1969 Specification for quality of vitreous china sanitary appliances
  - b. Wall mounted fixtures
- 3. Lavatories
  - a. Vitreous china that complies with BS 3402:1969 Specification for quality of vitreous china sanitary appliances
  - b. Countertop mounted fixtures
  - c. Under-counter mounted fixtures
  - d. Pedestal mounted fixtures
- 4. Accessible washroom fixtures
  - a. Toilets/ toilet compartments and all fixtures, fittings and accessories contained therein required by specific user requirements or as guided by the International Building Code shall conform to ICC/ ANSI A117.1 Accessible and Usable buildings and Facilities Standard
- 5. Kitchen sinks
  - a. Stainless steel that complies with ASTM A240 Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet And Strip For Pressure Vessels And For General Applications



- b. Countertop mounted fixtures
- c. Under-counter mounted fixtures
- 6. Faucets and trims
  - a. Polished chrome plated finish
  - b. Satin nickel plated finish
  - c. Brushed stainless steel finish
- 7. Utility/ Mop/ Janitor's Sinks
  - a. Stainless steel that complies with ASTM A240 Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet And Strip For Pressure Vessels And For General Applications
  - b. Vitreous china that complies with BS 3402:1969 Specification for quality of vitreous china sanitary appliances
  - c. Wall mounted fixture
  - d. Floor mounted fixture

### **1.04 DESIGN CRITERIA**

- 1. Fixture Functions
  - a. Lavatories shall have a standard spout with integral overflow
  - b. Urinals shall have a siphon jet flushing actions
  - c. Kitchen sinks shall have a swivel spout and water spray nozzle
- 2. Fixture installation is to be in compliance with IPC Section 405 Installation of fixtures
- 3. Water Consumption
  - a. Shall be in compliance with table 604.4 of the International Plumbing code (IPC) which indicates the "Maximum Flow Rates for Plumbing Fixtures and Fittings"

# 2.00 APPLICATION

1. To provide plumbing fixtures necessary for occupancy, use and sanitation of the facility as specified by the user requirements, the International Building Code (IBC) and/ or by the local Authority Having Jurisdiction (AHJ).

# **3.00 PREFERENCES**

### 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology
- 3. Specification/ Cut Sheets

# 3.12 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

# 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement



# 4.00 REFERENCED STANDARDS

# 4.01 INTERNATIONAL BUILDING CODE (IBC) REFERENCES

- 1. The design of elements in this section are to comply with the requirements the IBC generally paying particular attention to the following:
  - a. Chapter 29 Plumbing Systems

### 4.02 INTERNATIONAL PLUMBING CODE (IBC) REFERENCES

- 1. The design is to comply with the standards of the International Plumbing Code (IPC) generally paying particular attention to the following:
  - a. IPC Section 405 Installation of fixtures
  - b. IPC table 604.4 Maximum Flow Rates for Plumbing Fixtures and Fittings

### 4.04 ACCESSIBILITY STANDARDS

1. Components of the design requiring accessibility are to comply with the standards of the ICC/ ANSI A117.1 - Accessible and Usable buildings and Facilities Standard

### 4.05 STANDARD SPECIFICATIONS

- 1. BS 3402:1969
- 2. ASTM A240

### 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage

- 1. All sanitary appliances shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.
- 2. Manufacturer's Warranty: Provide manufacturer's standard warranty document executed by authorized company official for a minimum of 10 years commencing on Date of Substantial Completion for the sanitary appliances and fittings detailed in this section.



# **SECTION 1310 – EXTERNAL SIGNAGE**

### 2.0 GENERAL

### **1.01 DESCRIPTION**

This section includes external building signage comprising of the following:

All fixtures, fittings, fastening and accessories and electrical components necessary for the fabrication and installation of the external building signage as specified by the user requirements, and in keeping with the requirements of the local Authority Having Jurisdiction (AHJ).

### 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install one or more of the following:

- 1. Signage consisting of cast metal dimensional characters.
- 2. Signage consisting of extruded metal dimensional characters.
- 3. Signage consisting of cut-out metal dimensional characters.
- 4. Signage consisting of moulded-plastic dimensional characters.

### **1.03 PRODUCTS**

This section may include a combination of the following products/ elements:

- 1. Cast metal dimensional characters having one or more of the following characteristics:
  - a. Characters having uniform faces, precisely formed lines and profiles.
    - b. Aluminium Castings complying with : ASTM B26 Standard Specification for Aluminium Alloy Sand Castings
    - c. Copper Alloy (Brass) Castings complying with : ASTM B584 Standard Specification for Aluminium – Alloy Sand Castings
- 2. Extruded metal dimensional characters having one or more of the following characteristics:
  - a. Characters having uniform faces, precisely formed lines and profiles.
  - b. Aluminium Extrusions complying with: ASTM B221 Standard Specification for Aluminium and Aluminium Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
- 3. Cut-out metal dimensional characters having one or more of the following characteristics:
  - a. Characters having uniform faces, smooth, clean cuts and precisely formed lines and profiles.
  - b. Aluminium cut-out characters complying with ASTM B209 Standard Specification for Aluminium and Aluminium Alloy Sheet and Plate
  - c. Copper Alloy (Brass) cut-out characters complying with ASTM B36 Standard Specification for Brass Plate, Sheet, Strip and Rolled Bar
- 4. Moulded-plastic dimensional characters.
  - a. Characters having uniform faces, precisely formed lines and profiles.
  - b. Acrylic characters complying with ASTM D4802 Standard Specification for Poly (Methyl Methacrylate) Acrylic Plastic Sheet
- 5. Electrical components devices and accessories tested by the Underwriters Laboratory (UL) and in compliance with NFPA 70 The National Electrical Code (NEC) Handbook
- 6. Fasteners, anchors and adhesives
  - a. For external signage stainless-steel fasteners shall be used
  - b. Concealed fasteners and anchors shall be used unless otherwise indicated
  - c. Exposed metal fasteners shall be matched to final finish of the sign
  - d. Adhesives shall have a VOC content of less than 70 g/L



e. Asphalt-base emulsion protective coatings for Metal shall comply with ASTM D1187-Standard specification for Asphalt-Base Emulsion for Use as Protective Coatings for Metal

# 2.00 APPLICATION

1. External building signage as specified by the user requirements, and in keeping with the requirements of the local Authority Having Jurisdiction (AHJ).

# **3.00 PREFERENCES**

### 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology.
- 3. Specification/ Cut Sheets.
- 4. Shop drawings fabrication and installation and attachment details indicating mounting heights, locations of supports and/or accessories.
- 5. Listing of the fonts, typestyles and graphics to be utilized.
- 6. Samples of the colours and materials to be utilized.

### 3.13 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

### 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

### 4.00 REFERENCED STANDARDS

- 1. ASTM B26
- 2. ASTM B584
- 3. ASTM B221
- 4. ASTM B209
- 5. ASTM B36
- 6. ASTM D4802
- 7. ASTM D1187
- 8. NFPA 70

### **5.00 DURABILITY**

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements



caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage

- 1. All signage shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.
- 2. Manufacturer's Warranty: Provide manufacturer's standard warranty document executed by authorized company official for a minimum of 5 years commencing on Date of Substantial Completion.



# SECTION 1405 – UNFRAMED ISOLATED TRIMS/ SKIRTINGS/ SUNDRY ITEMS

# **1.0 GENERAL**

### **1.01 DESCRIPTION**

Trims shall refer to mouldings applied around doors and windows, or to conceal rough cuts, conceal joints, corners and changes in material

Skirtings shall refer to a continuous border material at the base of a wall to be both protective and decorative in nature.

Sundry Items shall refer to miscellaneous items or works that do not readily fit into standard categories.

### 1.02 SCOPE

Work to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install all trims and skirtings as indicated in the design drawings.

### **1.03 PRODUCTS**

- 1. Mouldings:
  - a) Solid Concrete Mouldings
  - b) Structural Foam Mouldings
- 2. Skirtings:
  - a) Timber Skirtings
  - b) Tile Skirtings
  - c) Vinyl Skirtings
- 3. Adhesives

# 2.00 APPLICATION

- 1. Mouldings: Exterior windows as indicated in the design, special façade elements as indicated in the design drawings.
- 2. Skirtings: In all interior spaces
- 3. Sundry Items: Not applicable

### 3.00 PREFERENCES

#### 3.01 SUBMITTALS

Contractors shall submit for approval the following:

- 1. For door and window hardware:
  - a) Cut sheets for all products to be used
  - b) Verification Samples: representative units of each type, size, surface finish of door or window hardware
  - c) Approved Door and Window Schedules with corresponding Hardware Schedules
  - d) Door and Window Hardware supplier information and contact information upon closeout.
  - e) Care and maintenance instructions for all hardware upon closeout.
- 2. For Grille work elements:



- a) Shop Drawings: Include plans, elevations, sections, and attachment details
- b) Samples of welded connections; Show method of finishing members at intersections. Samples need not be full height.

### 3.14 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All structural aspects of work covered in this specification shall be subject to inspection by the Engineer, or his representative. The Contractor shall submit a schedule of his activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.
- 3. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials

### 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement.

### 4.00 REFERENCED STANDARDS

Consult latest versions of the following standards:

- 1. ASTM A276 Standard Specification for Stainless Steel Bars and Shapes
- 2. ASTM B633 Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel
- 3. ANSI /BHMA A156 Series

# 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage

- 1. Supply Warranties for door and window hardware as per supplier. Warranty period shall be a minimum of 3 years against defects in material and workmanship from the date of substantial completion.
- 2. Grille-work elements shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration or stains caused by foreign substances, Acts of God (environmental disasters beyond normal climactic conditions) and modifications/ repairs done by anyone other than the contractor or his/her designated representative.


# **SECTION 1405 – DOOR & WINDOW IRONMONGERY**

# **1.0 GENERAL**

#### **1.01 DESCRIPTION**

Architectural ironmongery shall refer to items made from iron, steel, aluminium, brass or other metals. Such items, sometimes also described as architectural hardware, include door handles, locks, door closers, hinges, window fittings, metal door and window grille work / burglar proofing.

#### 1.02 SCOPE

Work to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install all ironmongery items including anchorage systems.

# **1.03 PRODUCTS**

- Door Hardware: door hinges, escutcheons, latches, bolts, cylinders, pulls must be at minimum Commercial / security Grade 2, provided that Grade 2 is sufficiently granted warranty by the supplier for the specific application. Otherwise, door hardware will be Commercial Grade 1 with functions as defined by ANSI /BHMA A156. Confirm that functions are permitted by Local Codes and Regulations. Consult NFPA 80 (latest version) concerning hinge requirements for fire doors.
- 2. Window Hardware: locks, pulleys, sash handles, fasteners, catches, hinges must be at minimum Commercial / security Grade 2, provided that Grade 2 is sufficiently granted warranty by the supplier for the specific application. Otherwise, door hardware will be Commercial Grade 1 with functions as as defined by ANSI /BHMA A156
- 3. **Grille Work Elements:** Hollow section steel elements (Square hollow section: SHS, Rectangular Hollow Section: RHS, Circular Hollow Section: CHS). Bars and Shapes: ASTM A 276, Type 304.
  - a) For the fabrication of work exposed to view, use only materials that are smooth and free of surface blemishes, including pitting, seam marks, roller marks, rolled trade names, and roughness. Remove blemishes by grinding, or by welding and grinding, before cleaning, treating, and applying surface finishes.
  - b) Use materials of size and thicknesses indicated or, if not indicated, of the size and thickness necessary to produce adequate strength and durability in the finished product for its intended use. Work the materials to the dimensions indicated on approved detail drawings, using proven details of fabrication and support. Use the type of materials indicated or specified for the various components of work.
  - c) Form exposed work true to line and level, with accurate angles and surfaces and straight sharp edges. Ensure that all exposed edges are eased to a radius of approximately 0.8 millimetre 1/32



inch. Bend metal corners to the smallest radius possible without causing grain separation or otherwise impairing the work.

- d) Form the exposed connections with hairline joints that are flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of the type indicated or, if not indicated, use countersunk Phillips flathead screws or bolts.
- e) Provide anchorage of the type indicated and coordinated with the supporting structure. Fabricate anchoring devices and space as indicated and as required to provide adequate support for the intended use of the work.
- f) Seismic Performance: Where seismic resilience is required, provide railings, connections, and/or components identified which will accommodate movement without permanent inelastic deformation.
- 4. **Paints and Coatings:** Coatings on ferrous and galvanized metal surfaces shall consist of a prime coat and not less than two finish coats. Coatings shall have high abrasion resistance, good flexibility and chemical resistance, UV resistance and be applied in a manner that yields a uniform coverage and thickness, without bubbles, bulges and other textural inconsistencies.
- 5. **Fasteners for Anchoring to Other Construction:** Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.

Fastener materials – Unless otherwise indicated, provide the following:

- a) Stainless-Steel Components: Type 304 stainless-steel fasteners.
- b) Brackets, Flanges, and Anchors: Same metal and finish as supported members unless otherwise indicated.
- c) Uncoated Steel Components: Plated-steel fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating where concealed; Type 304 stainless steel fasteners where exposed.
- d) Galvanized-Steel Components: Plated-steel fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating.
- e) Dissimilar Metals: Type 304 stainless-steel fasteners.

# 2.00 APPLICATION

- 1. Interior and exterior doors
- 2. Exterior Windows
- 3. Exterior Grille-work building entry

# 3.00 PREFERENCES

#### 3.01 SUBMITTALS

Contractors shall submit for approval the following:



- 1. For door and window hardware:
  - f) Cut sheets for all products to be used
  - g) Verification Samples: representative units of each type, size, surface finish of door or window hardware
  - h) Approved Door and Window Schedules with corresponding Hardware Schedules
  - i) Door and Window Hardware supplier information and contact information upon closeout.
  - j) Care and maintenance instructions for all hardware upon closeout.
- 2. For Grille work elements:
  - c) Shop Drawings: Include plans, elevations, sections, and attachment details
  - d) Samples of welded connections; Show method of finishing members at intersections. Samples need not be full height.

#### 3.15 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All structural aspects of work covered in this specification shall be subject to inspection by the Engineer, or his representative. The Contractor shall submit a schedule of his activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.
- 3. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials

# 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement.

#### 4.00 REFERENCED STANDARDS

Consult latest versions of the following standards:

- 1. ASTM A276 Standard Specification for Stainless Steel Bars and Shapes
- 2. ASTM B633 Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel
- 3. ANSI /BHMA A156 Series

# 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage



#### 6.00 WARRANTIES, GUARANTEES AND MAINTENANCE

- 1. Supply Warranties for door and window hardware as per supplier. Warranty period shall be a minimum of 3 years against defects in material and workmanship from the date of substantial completion.
- 2. Grille-work elements shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration or stains caused by foreign substances, Acts of God (environmental disasters beyond normal climactic conditions) and modifications/ repairs done by anyone other than the contractor or his/her designated representative.



# SECTION 1506 – EXTERNAL WORKS – INTERLOCKING BRICKS/ BLOCKS, ROADS & PAVING

# **1.0 GENERAL**

# **1.01 DESCRIPTION**

- 1. External works incorporates the immediate surrounding context of a building.
- 2. Paving incorporates the variation of materials uses to create hard surface area "hardscape" for a buildings surroundings.

#### 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install the following works:

- 1. Minor roads
- 2. Pathways
- 3. Driveways
- 4. Parking

#### **1.03 PRODUCTS**

External works / Paving may include a combination of the following products/ elements:

- 1. Paving to comply with:
  - a. ASTM D3666(16): Standard specification for minimum requirements for agencies testing and inspecting road and paving materials
- 2. Aggregate to comply with:
  - a. ASTM D448(12) Standard classification for sizes of aggregate for road and bridge construction
  - b. ASTM D242M(19 Standard specification for mineral filler for asphalt mixtures
  - c. ASTM D692M(20) Standard specification for course aggregate for asphalt paving mixtures
  - d. ASTM D1073(16) Standard specification for fine aggregate for asphalt paving mixtures
- 3. Asphalt to comply with:
  - a. ASTM D5710M Standard specification for Trinidad lake modified asphalt
  - b. ASTM D977(20) Standard specification emulsified asphalt
  - c. ASTM D4215(20) Standard specification for cold mixed, cold laid asphalt paving mixtures
  - d. ASTM D946 Standard specification for penetration graded asphalt binder for use in pavement construction
  - e. ASTM D2026, D2027, D2028 Standard specification for cutback asphalt
- 4. Filler materials to comply with:
  - a. ASTM D5078 Standard specification for crack fillers, hot applied for asphalt concrete and Portland cement concrete pavements
- 5. Surface texture to comply with:
  - a. ASTM E501 Standard specifications for standard rib tire for pavement skid-resistance test
  - b. ASTM E524(08)2020 Standard specification for smooth tire for pavement skid-resistance test

# 2.00 APPLICATION

- 1. External site work
- 2. Minor road surfaces
- 3. Pavements



# **3.00 PREFERENCES**

## 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology

# 3.16 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

# 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

# 4.00 REFERENCED STANDARDS

- 1. ASTM D3666(16)
- 2. ASTM D448(12)
- 3. ASTM D242M(19)
- 4. ASTM D692M(20)
- 5. ASTMD1073(16)
- 6. ASTM D5710M
- 7. ASTM D977(20)
- 8. ASTM D4215(20)
- 9. ASTM D946
- 10. ASTM D2026,2027,2028
- 11. ASTM D5078
- 12. ASTM E201
- 13. ASTM E524(08) 2020

#### 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage
- 3. Joint sealers: Lifespan expectancy equal to that specified for primary weather barriers.

# 6.00 WARRANTIES, GUARANTEES AND MAINTENANCE

1. External works interlocking bricks/ blocks, roads & paving shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.



# SECTION 1511 – EXTERNAL WORKS - FENCING

## **1.0 GENERAL**

#### 1.01 DESCRIPTION

The erection of fencing, perimeter walls, grillwork and gates to secure the boundary of the immediate surrounding context of the building.

#### 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install the following works:

- 1. Boundary walls
- 2. Boundary Fencing
- 3. Gates
- 4. Decorative grillwork

#### **1.03 PRODUCTS**

The fencing works may include a combination of the following products/ elements:

- 1. Boundary walls which may include one or more of the following:
  - a. In situ concrete which shall comply with the standards set out in Section 501 "In situ & Precast Concrete"
  - b. Precast concrete which shall comply with the standards set out in Section 501 "In situ & Precast Concrete"
  - c. Block walling which shall comply with the standards set out in Section 601 "Block walling"
- 2. "Anti-climb" medium security perimeter fencing which shall include the following properties:
  - a. Panel height minimum of 2440mm (8ft)
  - b. Mesh size maximum of 200mm (8") high x 50mm (2") wide.
  - c. Wire diameter minimum of 5mm
  - d. Wire gauge minimum of 4g
  - e. Post system minimum 2.25" x 2.25" (57mm x 57mm) square galvanized steel post. Steel shapes shall comply with ASTM A36 Standard specification for carbon structural steel.
  - f. Finish: hot dipped galvanize Powder coated colour to be selected by the employer. Galvanizing is to comply with ASTM A153 – Standard specification for Zinc coating (Hot-dip) on iron and steel hardware and ASTM A123 – Standard specification for Zinc (Hot-dip galvanized) coatings on Iron and steel products.
- 3. Gates in the "Anti-climb" medium security perimeter fencing which shall include the properties detailed for the fencing and must provide a gate width appropriate to the use (pedestrian and/or vehicular access)
- 4. Metal grillwork gates shall include the following properties:
  - a. Exposed surfaces shall be free of seam marks, rolled names, and other irregularities.
  - b. Steel shapes shall comply with ASTM A36 Standard specification for carbon structural steel.
  - c. Coatings on the iron/ steel shall comply with ASTM A123 Standard specification for Zinc (Hot-dip galvanized) coatings on Iron and steel products.
- 5. Decorative Grillwork shall include the following properties:
  - a. Exposed surfaces shall be free of seam marks, rolled names, and other irregularities.
  - b. Steel shapes shall comply with ASTM A36 Standard specification for carbon structural steel.
  - c. Coatings on the iron/ steel shall comply with ASTM A123 Standard specification for Zinc (Hot-dip galvanized) coatings on Iron and steel products.



# 2.00 APPLICATION

- 1. Masonry boundary walls
- 2. "Anti-climb" medium security perimeter fencing
- 3. "Anti-climb" medium security perimeter fencing gates
- 4. Grillwork gates providing access to the site through the masonry boundary walls and/or the perimeter fencing
- 5. Decorative grillwork panel inserts between sections of the perimeter wall

# **3.00 PREFERENCES**

#### 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology

#### 3.17 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

#### 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

# 4.00 REFERENCED STANDARDS

- 1. ASTM A153
- 2. ASTM A123
- 3. ASTM A36

# **5.00 DURABILITY**

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic, excluding joint sealers
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage
- 3. Joint sealers: Lifespan expectancy equal to that specified for primary weather barriers.

# 6.0 WARRANTIES, GUARANTEES AND MAINTENANCE

- 1. External works fencing shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.
- 2. Manufacturer's Warranty: Provide manufacturer's standard warranty document executed by authorized company official for a minimum of 10 years commencing on Date of Substantial Completion for the "Anti-climb" medium security perimeter fencing.



# SECTION 2200 – PURPOSE MADE JOINERY & CARPENTRY

# **3.0 GENERAL**

#### **1.01 DESCRIPTION**

1. This section includes purpose made joinery and built in cabinetry required for the completion of the facility in keeping with the design requirements.

## 1.02 SCOPE

The works to be completed under this section shall include all labour, equipment, plant and materials necessary to furnish and install the following purpose made joinery and carpentry:

- 1. Cabinetry
- 2. Vanities
- 3. Cabinet doors
- 4. Shelves
- 5. Drawers
- 6. Base and Wall Unit Carcasses and Frames
- 7. Laminate
- 8. Countertops
- 9. Washroom partitioning
- 10. Wooden Louvers

#### **1.03 PRODUCTS**

This section may include a combination of the following products/ elements:

- 1. Timber: Timber products shall be sound with reasonably straight grain and at least 85% heartwood, free from large shakes, wavy edges splits, loose or dead knots, worm, rot, fungus, decay or infestation.
- 2. Pitch Pine:
  - a. Pitch pine shall be best imported quality of mature growth, free from gross defects, wellseasoned
  - b. It should have a minimum density of 673 kgs/m3 and an average equilibrium moisture content of 10% in accordance with BS EN 942:2007 Timber for workmanship in joinery Specification for Timber.
- 3. Hardwood:
  - a. Where 'hardwood' is specified this shall be either Cedar, Mahogany, Apamate, Cypre or Greenheart and shall be the best quality available and be pressure treated and must be free from gross defects.
  - b. The Contractor must exercise care in selecting all timber and shall notify the Architect with regard to the type and sources of the hardwoods he proposes to use and provide samples for approval prior to purchase.
- 4. Treated Timber:
  - a. Softwood and hardwood timber shall be treated against termite (and other) attack and decay damage by Wolmanising or similar pressure/vacuum impregnation with an approved preservative in order to obtain a minimum net chemical retention of 8.01 kgs/m3 of timber in accordance with the manufacturer's instructions and thereafter either air dry or kiln dry all timber to the best practice standards.
  - b. Treat all cut surfaces after pre-treatment with surface applied preservative against wood borer attack and against decay by rot or fungus.
- 5. Plywood:



- a. Plywood shall conform to BS EN 635-2 & BS EN 635-3 Plywood classification by surface appearance Hardwood/ Softwood
- b. Marine plywood shall conform to BS 1088 Marine Plywood Requirement.
- c. Where plywood is to have a natural or varnished finish, Grade 1shall be used. Where plywood is to be painted, Grade 2 may be used.
- d. All treated plywood should be further treated with surface application of preservative prior to finishing as an added precaution.
- 6. Plastic Laminate:
  - a. Plastic laminate shall be 1.2mm thick by 'Wilsonart' (or equal and approved by Architect)
  - b. It should comply with BS EN 438-1:1991-Decorative high pressure laminates (HPL) sheets based on thermosetting resins Specifications
  - c. It should be bonded to plywood or timber backing with synthetic resin adhesive strictly in accordance with the manufacturer's printed instructions.
- 7. Solid Surface Countertops: Solid Surface Countertops shall be a minimum of 13mm / 1/2" thick
- 8. Glazing: Where cabinet doors are required to include glazing it shall 6mm thk. clear float glass with 10mm (3/8") dressed treated hardwood beads and appropriate sealant as required.
- Lighting: Where lighting is specified within joinery elements the electrical components/ devices or accessories shall be tested by the Underwriters Laboratory (UL) and shall in compliance with NFPA 70 – The National Electrical Code (NEC) Handbook
- 10. Fixings: All fixings, plates, shoes or straps shall be formed from galvanized mild steel plate pre-drilled and/ or welded as necessary. Stainless steel (Type 316 L fixings) where requested or specified shall comply with BS EN 10051 Continuously hot-rolled uncoated plate, sheet and strip of non-alloy and allow steels. Tolerances on dimensions and shape.
- 11. Bolts, Nails and Screws:
  - a. The specification (i.e. type of fixing, diameter, material, length and gauge) and use of all nails and screws shall be in strict accordance with the relevant manufacturer's recommendations.
  - b. Annular ringed nails shall be used.
  - c. Screws are to be counter sunk into pre-drilled holes and pelleted with dowels in the matching timber to the surrounding joinery.
- 12. Concealed Cabinet Hinges: All cabinet hinges shall be fully concealed, self-closing 125 degree opening, satin stainless steel finished. A minimum of two (2) shall be supplied hinges per cabinet door.
- 13. Adhesives: Adhesives shall have a VOC content of less than 70 g/L
- 14. Frames:
  - a. Frames shall be constructed to conform to BS 1567 and BS 4748, Part 1.
  - b. Where frames are to be painted, they shall be primed on all faces prior to fixing.

# **1.04 DESIGN CRITERIA**

- Joinery Work: All joinery work shall be carried out in accordance with BS EN 942:2007 Timber in Joinery – General Requirements- Specification for Timber & BS 1186-2 Timber for workmanship in joinery - Specification for Workmanship.
- Carpentry Work: All carpentry work shall be carried out in accordance with BS EN 1995-1-1:2004+A2:2014 – Eurocode 5: Design of timber structures. General. Common riles and rules for buildings
  - a. Joinery and carpentry works shall be executed in the best and most workmanlike manner.
  - b. Joints shall be so placed that knots do not occur in tension zones.
  - c. Frames shall be put together by mortise and tenon, dovetail or other suitable jointing methods
  - d. All workmanship to comply with BS 1186-2 Timber for workmanship in joinery Specification for Workmanship.



- 3. Tolerances: All structural timbers shall be sawn timbers to the section given on the drawings Permissible tolerance on cross section dimensions will be +6mm and -3mm with no allowance for wane.
- 4. Exposed Faces: Timber which is to be exposed in the finished work shall be 'dressed' unless otherwise described.
- 5. Nails: Nails, sprigs, etc., shall be punched below the surface; holes shall be stopped with putty or other equal and approved filler specially selected to match colour and texture of timbers which are to be polished.
- 6. Screws:
  - a. Screws (other than Grade 316L stainless steel screws with cups) shall be counter sunk head wood screws driven to 1/2" below the surface.
  - b. Screws heads for painting shall be stopped in putty or filler before any trace of rust appears
  - c. All rusted screws shall be replaced before painting.
- 7. Crossed tongued joints shall be glued.
- 8. Framed Joinery:
  - a. Joinery work described as 'framed' shall be jointed using mortise and tenon, combed or dovetail joints only.
  - b. Where joints are not specifically indicated they shall be the recognized forms of joints for each position.
- 9. Tolerances:
  - All structural timber shall be sawn timbers to the sections given on the drawings.
    Permissible tolerances on cross-section dimensions will be +/- 3mm (1/8") with no allowance for wane.
  - b. Reasonable tolerance shall be provided at all connections between joinery work and the building carcass to compensate for any irregularities, settlements or other movements.
- 10. Shrinkage: All joinery work shall be arranged, joined and fixed in such a manner that shrinkage in any part and in any direction shall not impair the strength and appearance of the finished work and shall not cause damage to adjoining material or structure.
- 11. Finishing of Cabinet Doors & Exposed Faces
  - a. All bevelled edges of tongues of panels in raised panel cabinet doors and other similar exposed joints shall be pre-finished with one (1) finishing coat of the prepared stain so that
  - b. In the event of shrinkage of the panel the material wood colour will remain concealed.
- 12. Surface Finish on Joinery: The surface finish on joinery shall be such that if properly finished with gloss paint, imperfections in manufacture will not be apparent.
- 13. Natural Finish: When natural finish or finish for staining, clear polish or varnishing is specified, the timber in adjacent pieces shall be selected and matched to be uniform and symmetrical in colour and grain.
- 14. Painted Joinery:
  - a. All joinery that is to be painted shall be knotted and primed with the primer before being fixed. This applies particularly to the 'covered up' or 'hidden parts of joinery work.
  - b. All external joinery work shall be put in a thick mixture of red or white lead and linseed oil or waterproof adhesive.
  - c. The arrangement, jointing and fixing of all joinery works shall be such that shrinkage in any part and in any direction shall be compensated in the joints and shall not impair the strength and appearance of the finished work and shall not cause damage to contiguous materials or structures.
  - d. All joinery components shall be pre-finished by spray- applied application off site and wrapped and brought on site protected from damage.
  - e. Pre-finished joinery components shall be unwrapped and installed on site.
  - f. Only final touch-ups are to be carried out on site.



15. Fixing to Block work or Concrete: Where timber is described as plugged allow for supplying and fixing wooden plugs treated with termite fluid. Alternatively, plugs may be an approved proprietary make. The use of any approved system of fixing to block work or concrete with special nails, screws or bolts, inserted with spring cartridges of power tools will be permitted in lieu of plugging.

# 2.00 APPLICATION

- 1. This section includes purpose made joinery required for the facility that may include one or more of the following:
  - a. Washroom Vanities
  - b. Washroom Partitions
  - c. Kitchen Cabinetry
  - d. Countertops
  - e. Built in/ Purpose built furniture

# **3.00 PREFERENCES**

#### 3.01 SUBMITTALS

Contractors shall submit for approval:

- 1. Materials listing and certification indicating that products adhere to standard specifications.
- 2. Installation methodology
- 3. Specification/ Cut Sheets
- 4. Treatment Certificates are to be provided prior to the incorporation of timber into the works.
- 5. Mockups and samples as follows shall be provided prior to commencement of fabrication for the review and approval of the Architect.
  - a. The joinery sub-contractor shall provide one (1) sample of each joinery type
  - b. finished wood sample 150mm x 150mm
  - c. available laminate finish
  - d. countertop finish sample 150mm x150mm

# 3.18 QUALITY ASSURANCE

- 1. Contractors shall comply with local governing codes and regulations and contact all relevant statutory bodies before commencing construction.
- 2. All aspects of work covered in this specification shall be subject to inspection by the Engineer, or his/her representative.
- 3. The Contractor shall submit a schedule of his/her activities to the Engineer so that the Engineer will be able to work out his inspection program selectively.

# 3.03 SAFETY, SECURITY, OPERATIONS

1. Contractor shall provide Health and Safety documentation including a Health and Safety risk assessment and a Method Statement

# 3.03 FABRICATION, PROTECTION & DELIVERY

- 1. Fabrication: Fabrication of joinery components shall take place in an offsite location at a joinery shop.
- 2. Joinery Sub-contractor to cross check all as-built masonry openings for joinery items on site prior to fabrication.
- 3. Protection of Joinery Components: Each joinery component is to be wrapped in protective film and separated during transport to avoid bruising. Large frame components are to be filled with diagonal cross bracing to avoid warping.
- 4. Once delivered to site, joinery components are to be unwrapped and stored with a designated location uncovered and subject to free ventilation.

# 4.00 REFERENCED STANDARDS



- 1. BS EN 942:2007
- 2. BS 1186-2
- 3. BS EN 635-2 & BS EN 635-3
- 4. BS 1088.
- 5. BS EN 438-1:1991
- 6. BS EN 10051
- 7. BS EN 1995-1-1:2004+A2:2014
- 8. NFPA 70

# 5.00 DURABILITY

- 1. Expected service life span: Same as facility as a whole. Minimum 50 years functional and aesthetic
- 2. Temperature endurance: Allow for daily expansion and contraction within and between elements caused by temperature range from most extreme low temperature to 39 degrees C greater than the most extreme high temperature, in any year, without causing detrimental effect to components and anchorage

# 6.00 WARRANTIES, GUARANTEES AND MAINTENANCE

- 1. All joinery items shall have a warranty for a period of one year against faulty workmanship including: installation defects. The warranty excludes discoloration, stains caused by foreign substances, Acts of God (flood, wind, etc.), and modifications/ repairs done by anyone other than the contractor or his/her designated representative.
- 2. The Employer shall be furnished with an extended written guarantee by the joinery sub-contractor for a period of three (3) years against collapse, warping, twisting, swelling and splitting.



# **APPENDIX 5 – CADASTRAL SURVEY**



Containing together three thousand eight hundred and eight point six square metres Surveyed by me, with due authority, in April 2022 for Housing Development Corporation Certified Correct in accordance with Regulation 25(1) of the Land Surveyors Regulations 1998.

Checked by .....

Entered on ..