

# EMPLOYER'S REQUIREMENTS FOR DESIGN, SUPPLY & INSTALLATION OF FIRE FIGHTING SYSTEMS IN HDC BUILDING, MSO YARD & PROCUREMENT WAREHOUSE

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## 1. PROJECT DETAILS

The project consists of design, supply, installation, testing and commissioning of firefighting systems including conducting a comprehensive assessment of existing dry riser firefighting systems, in HDC Building, MSO Yard & Warehouse in accordance with these requirements, drawings and specifications.

## 2. SITE DATA

The project is focused on three key locations: the HDC buildings, MSO yard and Procurement warehouse, where the implementation of a fire-fighting system is imperative to enhance safety and prevention of loss to life & property.

The HDC building, located in Neighborhood 1 in Hulhumalé Phase I, is a four-story structure consisting of the ground floor and three additional floors. The building operates with office spaces on each floor. The building has an existing dry riser firefighting system with manual call points, fire alarm bells and fire extinguishers. One of the dry riser pipes has been cut off without properly sealed in the third floor.

MSO yard & Procurement warehouse are located in Industrial area situated in Hulhumalé Phase I, comprised of blocks with different storeys and diverse range of functions. This facility encompasses labor accommodations, a labor mess, staff accommodations, office spaces for administrative work, storage areas, laboratories, and various other functionalities.

The procurement warehouse is a three-storey building used for the storage of various materials. The building has an existing dry riser firefighting system, which was installed approximately 3 years back, with hose reels, addressable fire alarm control panel with fire alarms, smoke detectors, manual call point and fire extinguishers.

## 3. GENERAL REQUIREMENTS

The general scope of the project is the design, supply, installation, testing and commissioning of firefighting systems in HDC building, MSO yard and Procurement warehouse as per these requirements, approved drawings and specifications. It is inclusive of three main components.

1. Assessment of existing system and replacement of damages or nonoperational component as required.
2. Design, supply, installation, testing and commissioning of addressable fire alarm and detection system.
3. Development and execution of fire evacuation plan and training.



The Employer will provide the requirement drawings which include the design parameters and minimum specification requirements. The Contractor shall verify the requirements prior to design, supply and installation works. The Contractor shall prepare the detail designs, specifications and schedules as per these requirements including any details not shown in the attached requirement drawings and obtain approval from MNDF and the Employer. The Contractor shall also prepare all necessary shop drawings for the completion of the Works. The Contractor shall not deviate from the approved design & specifications without prior approval from the Employer and MNDF.

The Contractor shall design, fabricate, supply and execute the construction and installation of various works, equipment, systems, necessary to complete and make ready for operation as per the approved drawings, specifications, and conditions of contract, and in compliance with applicable standards and codes and requirements of relevant authorities for the Project.

The Contractor shall provide all necessary labour, supervision, Materials and other equipment to accomplish the following works by utilizing trained employees, supervised and scheduled by the Contractor. The Contractor will be expected to provide food and lodging for all management staff and labour. The Contractor will have to conform to the Laws of the Republic of Maldives in all respects in executing the Works.

The work progress and quality of work will be inspected by the Employer throughout the Project duration, to check whether the Works conform with the documents stated in this Employer's Requirements. The Contractor shall facilitate the Employer to carry out these inspections.

The Contractor shall execute and complete the Works within the duration of the Project stipulated in the Conditions of the Contract.

The Contractor shall dispose of any debris or waste materials through WAMCO or any other means arranged by the Contractor and shall be as per WAMCO guidelines.

The Contractor shall submit all the documents stated in Employer's Requirements (particularly all documents stated herein under Clause 5 [Contractor's Documents]) and Conditions of Contract for review and approval. The Employer will check/review whether the submitted documents are practical and give approval/comments. The review period by the Employer is 14 calendar days from the date of full submission of each document.

A maximum of 45 days (within the project duration) will be allocated for design submission, review and approval. Contractor shall submit the MNDF approved design within 30 days from the Commencement Date for Employer's review and approval. The design milestones shall be clearly identified in the work programme.

Notwithstanding the aforementioned, Contractor can commence the physical works on Site only for Works which he has obtained written approval from the Employer.

#### **4. SCOPE OF WORK**

The Works shall include, but shall not be limited to, the following.

Prior to commencement of construction works:

- Survey and inspect the existing fire-fighting system to identify any defects or malfunctioning parts or components in the existing dry riser system in HDC building, and Procurement warehouse including inspection of the existing fire extinguishers at HDC building, MSO yard & Procurement warehouse and prepare a report.
- Design a firefighting system in compliance with relevant international and national standards and guidelines and obtain approval from MNDF. The design shall incorporate hose reels, an addressable fire alarm system, addressable smoke detectors, addressable heat detectors, addressable manual call points, addressable sounder, fire extinguishers, emergency lights, backlit exit signs, backlit directional exit signs etc. The design shall also incorporate rectifications required as per survey & inspection report and respective method statements as well including replacement of staircase doors with the fire doors.
- Propose and develop an emergency fire evacuation plan for HDC building, MSO yard and Procurement warehouse, in alignment with both international fire safety guidelines and local fire regulations and acquire approval from MNDF (Maldives National Defense Force).

HDC Building:

All works shall be carried out as per the approved drawings and specifications.

- Replacing damaged or faulty components of the existing dry riser system in HDC Building, including brackets, fire cabinets, inlet valves, with new and reliable parts, and ensuring the proper removal and disposal off-site.
- Remove all existing manual call points, fire alarm bells and disposal off-site from HDC Building and make good all openings created after removal of existing manual call point and existing fire alarm bells, including suitable covering system and finish to match to the existing wall finish.
- Supply, installation and commissioning of new addressable fire alarm control panel.
- Supply, installation and commissioning of addressable firefighting system includes heat detectors, smoke detectors, manual call points, sounders, emergency lights, backlit exit signage boxes and backlit directional exit signage boxes in complete.
- Refurbishing and installation of existing fire extinguisher units deemed reusable in surveying and inspection report including supplying and installation of additional fire extinguishers from the total requirement and based on the initial survey report.

- Replacement of existing staircase doors with fire-rated doors.
- Disposal of all removed non usable and nonoperational components, off site.

MSO Yard & Procurement Warehouse:

All works shall be carried out as per the approved drawings and specifications.

- Replacing damaged or faulty components of the existing dry riser system in Procurement warehouse, including brackets, fire cabinets, inlet valves, with new and reliable parts, and ensuring the proper removal and disposal off-site as require as per the inspection report.
- Refurbishing and installation of existing fire extinguisher units deemed reusable in surveying and inspection report including supplying and installation of additional fire extinguishers to meet the total requirement and based on the initial survey report.
- Disposal of all removed non usable and nonoperational components, off site.

After completion of Works:

- Testing and commissioning of total system and submit certificate/report from authorized entity.

Compline to the fire evacuation plan:

- Supply and install Fire egress path layout map in each department in HDC building, procurement warehouse and necessary location in MSO yard.
- Training designated staff members appointed by the Employer to efficiently respond to emergency evacuations and firefighting scenarios.

**NOTE:**

- All cables utilized in the installation shall adhere to fire-rated specifications, and they shall be meticulously routed through duct pipes approved in accordance with international and local fire safety guidelines.
- All wiring cables should be fire rates and approved by MNDF.
- Demolition areas should be clearly marked with warning signs and restrict unauthorized access during demolition and removal works.
- Contractor shall prepare all necessary shop drawings where required.
- Contractor shall make good of all affected areas after all chipping, removal and cutting works.
- Contractor shall include for cleaning and removing all debris from all buildings during work period and after completion.
- Contractor shall remove and dispose off-site all material and debris from demolition works.

- As the buildings are frequently used by the staff, Contractor shall include in his proposal, the service of attending to maintenance upon instruction of the Employer during the project duration and defects liability period.
- The contractor should submit a testing and commissioning report issued by Service Engineer/authorized party.
- The demolition debris will be systematically stacked to maintain clear residential pathways and unobstructed access until it is transported away from the site.
- Pointing and making good works wherever required due to the above-mentioned works including repainting with shade similar to the existing paint.

## **5. CONTRACTOR'S DOCUMENTS**

### **5.1. Design Submission**

Following are the documents that need to be completed and approval obtained from the Employer prior to the commencement of physical works on Site.

- a) Detail firefighting and fire detection system drawings for HDC building, MSO yard and Procurement warehouse, including layouts, elevations, details, sections, ensuring its functionality and compliance with specified requirements, including approval from MNDF.
- b) Fire Alarm Control Panel (FACP) system for HDC building, ensuring its functionality and compliance with specified requirements as stated in the concept drawing and approved from MNDF.
- c) Material and Equipment schedule.
- d) Design and technical specifications for complete Works.
- e) BOQ
- f) Any other drawings or documents required for local authority approval (if any).

### **5.2. Project Management Plan & Work Programme**

The Contractor shall submit the followings documents as soon as practicable after the Contract is signed, but no later than the date stated in Conditions of Contract. These documents should be revised during construction when required.

- (a) Detail Work Programme in accordance to the Clause 8 of Conditions of the Contract. The Programme shall also include the timelines when specific areas of the Site would be required to the Contractor.
  - a. Manpower schedule showing the number and timing of required personals for Works.
  - b. Equipment schedule showing the supplying quantity and timing of major apparatus, machinery, vehicles or any other equipment required for the Works.
- (b) Work methodology or method statement showing the method each work will be

carried out, responsibilities of the Contractor's Personnel, inspections and any testing that needs to be carried out.

### **5.3. Project monitoring documents**

The Contractor shall submit the followings documents as detailed below, after the Contract is signed.

- (a) Daily progress report should be submitted daily, showing all the activities carried out at Site, the number of personnel (both direct and indirect), machinery and Plant, major Materials used, weather condition and any other important incidents at Site.
- (b) Weekly progress report should be submitted weekly, showing all the activities carried out at Site, the planned activities for the following week, the number of personnel (both direct and indirect), machinery and Plant, major Materials used, weather condition, progress photos and any other important incidents at Site.
- (c) Monthly progress report should be submitted monthly, at the end of each 30-day period from the Commencement Date, showing all the progress at Site (planned versus actual using a Gantt chart), the number of personnel (both direct and indirect), machinery and Plant, major Materials used, weather chart, Materials approved, claim Notice and claims, variations, financial status, progress photos and any other important incidents at Site and off Site. Additionally, the report shall include the following as a minimum requirement:
  - Ongoing works and upcoming works for next month
  - Incidents/accidents report (if any)
  - Issues and challenges on Site
  - List of attended inspections and its reports
  - List of instructions given on-Site
  - Documentation of approved methodologies
  - Test and analysis report (if any)

Note: Contractor shall arrange periodic sessions where the Employer can carry out a headcount to verify the personnel mentioned in the reports.

### **5.4. Quality Assurance Documents**

The Contractor shall submit the following, as soon as practicable during the contract period. A format of these documents will be provided by the Employer during the implementation as a guide; however, the Employer may amend these formats at any time.

- a) Material Approval form should be submitted along with the physical sample where applicable, and with other specifics and certificates.
- b) Request for Information should be submitted whenever the Contractor has any doubt about any matter, especially on the drawings or specifications.
- c) Request for Inspection request should be submitted after making the work ready for inspection.

### 5.5. Billing Format

Interim applications: Billing should be made in the format approved by the Employer; Employer may amend these formats at any time and inform the Contractor.

### 5.6. Shop Drawings

The Contractor shall submit all shop drawings required to carry out the Works, prior to commencement of any work. The Contractor shall also submit any additional shop drawings requested by the Employer.

### 5.7. Warranty

The Contractor shall provide 365 calendar days warranty period for all equipment from the date of completion.

## 6. KEY PERSONNEL

The Contractor must ensure that the required, professional, technical and administrative inputs, required to deliver on the project are considered, costed and made available to the Works as necessary.

The Contractor shall provide sufficient evidence and detail of qualifications, certification, experience and availability for and of personnel, which must be available for the required time to allow the Contractor to deliver on the requirements of the Contract.

The Employer reserves the right to accept or reject based on changes to the Contractor's personnel.

The Contractor shall make available all the key personnel required for the whole duration that the Works are being executed as per the Conditions of the Contract.

Position	Qualification
Project Manager	Degree in Project management or relevant field with 5 years of Project Management experience.
Site supervisor	Diploma in firefighting/Fire safety/Service engineering or construction related field with 3 years of experience, or 5 years of experience in Construction field

## 7. WORK PROGRESS

The work progress and quality of work will be inspected by the Employer throughout the Project duration, to check whether the Works conform with the above-mentioned documents. The Employer will share forms via which inspections shall be requested by the Contractor.

The actual work progress will be determined by the Employer in reference to the submitted Work Program as per the contract document.

## **8. STANDARDS**

All designs shall be according to relevant international and national guideline and standards and approved by MNDF.

All supply, installation and construction Works shall be carried out in accordance with the approved detail drawings, and in compliance with the specifications. If no particular standard is stated, then the appropriate "British Standard" shall apply.

## **9. Attachments**

- Location map and Concept drawings

## **10. Additional Information:**

### Site:

Rights of access to the site shall be granted to the Contractor within the agreed timelines as stipulated in the approved work program. The Contractor shall assess and consider the difficulties and challenges associated with all existing site conditions.

The Contractor shall also liaise with the Employer to ensure accessibility to the buildings, as the site is an actively used office area. Furthermore, the third floor is currently undergoing renovation, and the Contractor must ensure that the work is carried out without interrupting the renovation process. The work program, project duration, and contract sum shall include these considerations.

Contractor should check the requirement and verify if any additional items are required to complete the project and inform to the Employer during the Tender inquiry period.

The Contractor shall visit and inspect the site and identify the existing site conditions and submit their proposal inclusive of all identified site requirements. The Contractor shall submit a full cost breakdown for all the works based on the site condition. The Contractor shall verify all measurements on-site prior to any works. The Contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of his tender for the works and of the lump sum price stated in the quotation, which shall be inclusive of all ancillary and other works and expenditure whether separately or specifically mentioned or described in these Requirements and Contract documents or not, which are either indispensably necessary to carry out and bring completion of the Works described in the Contract documents or which may contingently become necessary to overcome difficulties' before completion.

The Contractor shall also examine the accessibility of routes to site, nearest material unloading and loading ports/harbor, and take all these matters in to considerations. The contract sum and



duration shall be inclusive of such considerations.

Contractor shall respect the privacy of the residents and shall not interfere unnecessarily or improperly with the convenience of the residents and public or the access to and use of all roads and footpaths, irrespective of whether they are public or in possession of the Employer or of others. The contract sum and duration shall be inclusive of such considerations.

Materials for Works:

All Materials shall be approved by Employer prior to commencing works on Site. The Contractor shall submit a sample with all necessary information including specification/manual/tests certificate etc. to the Employer for Material approval and the Contractor. All material and equipment shall meet the standards and safety regulations set by MNDF and relevant regulatory authorities of the Maldives.

Working Hours:

The Contractor shall schedule all works on weekends only or after 16:00 hours during weekdays. The Contractor shall schedule all noisy works such as demolition between 16:00 – 24:00 hrs. during weekdays and between (8:00 – 24:00 hrs.) on weekends.

The Contractor shall not use the passenger lift for transportation of materials or any other project related activities. A designated staircase will be allocated for use during the course of the project. The side and/or back entrance shall be utilized for Material deliveries and such during office hours (8:00-16:00hrs) on weekdays. Front entrance shall not be used during office hours.

Temporary Services:

The Contractor should examine the accessibility of temporary and permanent services. Regarding temporary connections, it is Contractor's responsibility to obtain the temporary water and electricity from the service providers, to carry out the construction works and terminate all the temporary connections when the Project is completed. All the cost should be borne by the Contractor including initial setup & termination costs and ongoing monthly bills. If such services are not available in the Site area Contractor shall provide on Contractor's own cost alternative methods to obtain electricity, water and any other utility service which is required to complete the work.

No temporary land will be allocated for Contractor's temporary facilities, Plant, machinery, vehicles, etc. All necessary logistics & safe transportation of Materials to the Site shall be part of Contractor's scope & respective costs shall be included in the Contract amount. Contractor shall make own arrangements for storage of Materials, Plant and equipment and staff accommodation and offices.

Others:

Contractor should take all necessary safety measures when carrying out the construction works, including warning signs and tapes to cordon off the working areas and other indications to inform the staff that work is on-going. Contractor shall also abide to the guidelines of the municipal and relevant local authorities when carrying out the works.

Contractor shall also take necessary measures to protect the staff and public property such as vehicle, apparel, doors and windows from paint any other Materials used in the Works. Contractor shall have adequate fencing/covering of the work areas.

On practical completion of the Project, the Contractor should at no extra cost thoroughly clean all floors, cleaning glasses, removing paint stains, mortar droppings, and clear Site completely of all debris and restore to original conditions. This shall include all the routes taken on Site for transportation of Materials and any other Site areas the Contractor used for works.