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# 1 GENERAL

## 1.1 INTRODUCTION

### 1.1.1 Scope

- 1 This Section specifies the minimum requirements of construction, material, equipment, installation, testing, commissioning and maintenance for Fire Protection and Life Safety Systems in Qatar.

### 1.1.2 General

- 1 All Works related to Fire Protection and Life Safety Systems such as Plan Review, Product Evaluation, Registration of Engineers & Technicians, Registration of Contractors, Acceptance Inspection, Periodic Inspection Testing & Maintenance as well as Hazardous Materials Regulations shall comply with the latest regulatory requirements of The General Directorate of Civil Defence (Qatar Civil Defence).
- 2 The Clauses in this Specification, all other information provided in the Project Documentation and the Qatar Civil Defence Regulations shall be considered a minimum requirement for integrity, performance and quality.
- 3 Final approval for works related Fire Protection and Life Safety shall be as per the technical review and acceptance of the Authority Having Jurisdiction (AHJ) known as The General Directorate of Civil Defence (Qatar Civil Defence).
- 4 The Gypsum board fire resistance classification / fire rating shall be specified in line with the project certified (life and safety) drawings by Qatar Civil Defence Department (QCD)
- 5 The purpose of QCS is to provide as a general technical guide for acceptable construction work practices in the State of Qatar, considering this; any addition for technology, material, specification, standard that are not mentioned in this section or their modification, shall be subject to approval as stated in the introduction of QCS (00-02).

### 1.1.3 References

- 1 All supplies and services offered in response to this specification shall conform to the latest local regulations, codes and standards subject to the approval of Qatar Civil Defence.

- 2 The following Qatar Civil Defence (QCD) Guidelines and Regulations (latest editions) are referred to in this Section:

Qatar Civil Defence - Fire and Life Safety Requirements (latest edition approved by QCD)

Qatar Civil Defence - General Fire Safety Requirement – Guideline Annexes (latest edition approved by QCD)

Qatar Civil Defence - Product Evaluation, Company & Engineers Registration Guidelines (latest edition approved by QCD)

Qatar Civil Defence - Currently Recognized Product Certification Bodies and Testing Laboratories (latest edition approved by QCD)

Qatar Civil Defence – Acceptance Inspection & Testing Guidelines (latest edition approved

by QCD)

Qatar Civil Defence – Inspection, Testing and Maintenance Guidelines M&E (latest edition approved by QCD)

- 3 Other NFPA Codes/Standards and other International Codes/Standards are subject to QCD technical review, evaluation and final approval.

NFPA Codes and Standards

NFPA 1.....Fire Code

NFPA 3.....Standard for Commissioning of Fire Protection and Life Safety Systems

NFPA 4.....Standard for Integrated Fire Protection and Life Safety System Testing

NFPA 10.....Standard for Portable Fire Extinguishers

NFPA 11.....Standard for Low-, Medium-, and High-Expansion Foam

NFPA 11A .....Standard for Medium- and High-Expansion Foam Systems

NFPA 11C .....Standard for Mobile Foam Apparatus

NFPA 13.....Standard for the Installation of Sprinkler Systems

NFPA 13D .....Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes

NFPA 13E .....Recommended Practice for Fire Department Operations in Properties Protected by Sprinkler and Standpipe Systems

NFPA 13R .....Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies

NFPA 14.....Standard for the Installation of Standpipe and Hose Systems

NFPA 15.....Standard for Water Spray Fixed Systems for Fire Protection

NFPA 16.....Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems

NFPA 17.....Standard for Dry Chemical Extinguishing Systems

NFPA 17A .....Standard for Wet Chemical Extinguishing Systems

NFPA 18.....Standard on Wetting Agents

NFPA 18A .....Standard on Water Additives for Fire Control and Vapor Mitigation

NFPA 20.....Standard for the Installation of Stationary Pumps for Fire Protection

NFPA 22.....Standard for Water Tanks for Private Fire Protection

NFPA 24.....Standard for the Installation of Private Fire Service Mains and Their Appurtenances

NFPA 25.....Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems

NFPA 70.....National Electrical Code

NFPA 72.....National Fire Alarm and Signaling Code

NFPA 80.....Standard for Fire Doors and Other Opening Protectives

NFPA 80A .....Recommended Practice for Protection of Buildings from Exterior Fire Exposures

NFPA 90A .....Standard for the Installation of Air-Conditioning and Ventilating Systems

- NFPA 90B .....Standard for the Installation of Warm Air Heating and Air-Conditioning Systems  
NFPA 91.....Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids  
NFPA 92.....Standard for Smoke Control Systems  
NFPA 92A .....Standard for Smoke-Control Systems Utilizing Barriers and Pressure Differences  
NFPA 92B .....Standard for Smoke Management Systems in Malls, Atria, and Large Spaces  
NFPA 96.....Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations  
NFPA 101.....Life Safety Code  
NFPA 110.....Standard for Emergency and Standby Power Systems  
NFPA 111.....Standard on Stored Electrical Energy Emergency and Standby Power Systems  
NFPA 251.....Standard Methods of Tests of Fire Resistance of Building Construction and Materials  
NFPA 252.....Standard Methods of Fire Tests of Door Assemblies  
NFPA 253.....Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source  
NFPA 255.....Standard Method of Test of Surface Burning Characteristics of Building Materials  
NFPA 256.....Standard Methods of Fire Tests of Roof Coverings  
NFPA 257 .....Standard on Fire Test for Window and Glass Block Assemblies  
NFPA 285.....Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components  
NFPA 286.....Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth  
NFPA 750.....Standard on Water Mist Fire Protection Systems  
NFPA 2001.....Standard on Clean Agent Fire Extinguishing Systems  
NFPA 2010.....Standard for Fixed Aerosol Fire-Extinguishing Systems  
NFPA 5000.....Building Construction and Safety Code®

Other related NFPA Codes / Standards and other equivalent International Codes / Standards

#### **1.1.4   Fire Protection and Life Safety Systems**

- 1      Fire Detection and Alarm System
- 2      Fire Fighting System
- 3      Emergency Lighting & Emergency Power Supply System
- 4      Smoke and Heat Control Ventilation System
- 5      Passive Fire Protection System

- 6 Other works related Fire Protection and Life Safety Systems not included in this list shall be referred to Qatar Civil Defence for technical review and evaluation.

#### 1.1.5 Related Works

Section 1 ..... General  
Section 2 ..... Quality Assurance and Quality Control  
Section 9 ..... Mechanical and Electrical Equipment  
Section 10 ..... Instrumentation, Control and Automation  
Section 11 ..... Health and Safety  
Section 14 ..... Earthworks Related to Buildings  
Section 15 ..... Insulation of Buildings  
Section 16 ..... Structural Steelworks  
Section 18 ..... Carpentry, Joinery and Ironmongery  
Section 21 ..... Electrical Works  
Section 22 ..... Air conditioning, Refrigeration and Ventilation  
Section 24 ..... Finishes to Buildings  
Section 25 ..... Glass and Glazing  
Section 29 ..... Railways  
Section 30 ..... Project Testing and Commissioning  
Section 31 ..... Maintenance, Repair and Rehabilitation  
Section 32 ..... Environmental Management

#### 1.1.6 Definition

- 1 Authority Having Jurisdiction - An organization, office or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation or a procedure. (Qatar Civil Defence)
- 2 Code - The building, construction or fire code adopted by the jurisdiction. Refers to laws, regulations, ordinances or codes that establish requirements for construction and fire safety.
- 3 System Standards – The document containing requirements, guidelines, and specifications, outlining minimum levels of performance, protection, construction, design, and installation of specific components of the fire and life safety systems. The document that the codes refers to and gives specifics on how to meet the code requirements.
- 4 Product Standard - The written minimum requirement by which a product, service or process is evaluated. Refers to listing agency standards that ensure product safety, reliability and certain performance level.
- 5 Approved - Acceptable to the Authority Having Jurisdiction.
- 6 Listed - Equipment, materials, or services included in a list published by an organization that is acceptable to the AHJ and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodicevaluation of services, and whose listing states that either the equipment, material, orservice meets appropriate designated standards or has been tested and found suitable for a specified purpose.
- 7 Labelled - Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the AHJ and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials,

and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

- 8      Recognized Certification Body and Testing Laboratory - An organization acceptable to the Authority Having Jurisdiction and concerned with product evaluation
- 9      Fire Protection System - Systems, devices, and equipment used to detect a fire and its by-products, actuate an alarm, or suppress or control a fire and its by-products, or any combination thereof.
- 10     Life Safety System - Those systems that enhance or facilitate evacuation, smoke control, compartmentalization, and/or isolation.
- 11     Active Fire Protection System - A system that uses moving mechanical or electrical parts to achieve a fire protection goal.
- 12     Passive Fire Protection System - Any portion of a building or structure that provides protection from fire or smoke without any type of system activation or movement.
- 13     Equivalency - An alternative means of providing an equal or greater degree of safety than that afforded by strict conformance to prescribed codes and standards.
- 14     Inspection - A visual examination of a system or portion thereof to verify that it appears to be in operating condition and is free of physical damage.
- 15     Testing - A procedure used to determine the operational status of a component or system by conducting periodic physical checks.
- 16     Commissioning - A systematic process that provides documented confirmation that building systems function according to the intended design criteria set forth in the project documents and satisfy the owner's operational needs, including compliance with applicable laws, regulations, codes, and standards.
- 17     Maintenance - Work performed to keep equipment operable or to make repairs.

#### **1.1.7    Regulations**

- 1      General Directorate of Civil Defence (Qatar Civil Defence)
  - (a)     Products for Fire Protection and Life Safety Systems such as Fire Detection and Alarm Systems, Fire Fighting System, Emergency Lighting & Emergency Power Supply System, Smoke & Heat Control Ventilation System, Passive Fire Protection System and other related Systems including components, parts and/or accessories shall conform to the requirements of Qatar Civil Defence.
  - (b)     Product Approval related to Fire Protection and Life Safety shall be obtained from Qatar Civil Defence.
  - (c)     Particular attention shall be made with respect to Qatar Civil Defence review and approval of Plans prior to Construction. Building Plans and Engineering Designs related to Fire Protection and Life Safety shall be submitted Qatar Civil Defence for design review and approval.
  - (d)     For further details on QCD Plan Review, refer to the latest Fire Safety Guidelines

approved by Qatar Civil Defence.

- (e) All works related to Fire Protection and Life Safety shall be inspected, tested, commissioned and approved by Qatar Civil Defence.
- (f) New and Existing Buildings are subject to a Fire Protection and Life Safety inspection, testing, commissioning and maintenance assessment that shall be conducted by Qatar Civil Defence.
- (g) The design review, product evaluation, inspection, installation and maintenance requirements shall be in accordance with the standard requirements of the following :
  - (i) Latest Fire Protection and Life Safety Guidelines and Requirements approved/published by the Authority Having Jurisdiction (AHJ) also known as Qatar Civil Defence (QCD).
  - (ii) NFPA Codes / Standards and other equivalent International Codes / Standards subject to technical review, evaluation and approval of Qatar Civil Defence (QCD).
- (h) Engineers, Technicians and Contractors involved in the Fire Protection and Life Safety Systems shall comply with the licensing and registration requirements of Qatar Civil Defence.
- (i) Fire Protection and Life Safety Works related to Hazardous Materials shall be referred to Hazmat Section of Qatar Civil Defence.

## 2      Electrical Installations

- (a) All electrical installations shall comply with all the relevant provisions of the regulations of the following:
  - (i) Regulations for Electrical Installations as issued by the Qatar General Electricity and Water Corporation (QGEWC or KAHRAMAA)
  - (ii) Standards relating to Electrical Installations and equipment as issued by the International Electrotechnical Commission (I.E.C.) and British Standards Institute (BSI)
  - (iii) National Fire Protection Association (NFPA)
  - (iv) Qatar Civil Defence Regulations for Fire Protection and Life Safety related works
  - (v) other international electrical regulations acceptable to KAHRAMAA and Qatar Civil Defence
- (b) Electrical Works related to Fire Protection and Life Safety shall be regulated by Qatar Civil Defence.

## 3      Other Related Works and Standards

- (a) In general, Fire Protection and Life Safety Works shall be under the Qatar Civil Defence regulations.
- (b) Scope of Works not directly related to Fire Protection and Life Safety are excluded in the scope of regulation of Qatar Civil Defence. For any clarification and further inquiries, Qatar Civil Defence shall be consulted.
- (c) Where two or more applicable standards and/or the Specifications are in conflict, the most stringent shall apply subject to Qatar Civil Defence / AHJ review and approval.

#### **1.1.8 Authority Having Jurisdiction**

- 1 All works, regulatory requirements and approvals related to Fire Protection and Life Safety Systems in Qatar shall be under the jurisdiction of Qatar Civil Defence.

#### **1.1.9 Company Registration**

- 1 The Company responsible for the supplies & trading, installation & maintenance of Active Fire Protection System, Passive Fire Protection System and other related Fire Protection & Life Safety Systems shall be registered and on the approved list of Qatar Civil Defence & Ministry of Commerce and Industry. For details on the updates of the latest licensing and registration requirements, consult Qatar Civil Defence.

#### **1.1.10 Engineer & Technician Registration**

- 1 The Engineer / Technician in charge for the Design, Supervision of Installation, Testing, Commissioning and Maintenance of the Fire Protection and Life Safety Works shall be qualified, registered and licensed based on the latest regulatory requirements of Qatar Civil Defence. For details on the updates of the latest licensing and registration requirements, consult Qatar Civil Defence.

## **1.2 PRODUCTS**

#### **1.2.1 Product Approval**

- 1 Products for Fire Protection and Life Safety Systems shall be QCD Approved. It shall meet listing requirements, appropriate standards, technical specifications and certified / tested by a QCD Recognized Product Certification Body or Testing Laboratory as per Qatar Civil Defence Regulations.
- 2 Product, equipment and material for the following Fire Protection and Life Safety Systems shall be required to obtain QCD Approval.
  - (a) Fire Detection and Alarm System
  - (b) Fire Fighting System
  - (c) Emergency Lighting & Emergency Power Supply System
  - (d) Smoke and Heat Control Ventilation System
  - (e) Passive Fire Protection System

Other related Fire Protection and Life Safety products / materials and new innovations not included in this list shall be referred to Qatar Civil Defence for technical review and evaluation.

#### 1.2.2 Submittal

- 1 QCD Registered Companies with Fire Protection and Life Safety products shall be required to submit applications online thru the official Qatar Civil Defence website with the following documents:
- (a) Product Certificate from a QCD Recognized Certification Body
  - (b) Manufacturer's Datasheet
  - (c) Company Registration
  - (d) Test Report ( as required )
  - (e) Design, Installation and Maintenance Manual (as required)
  - (f) Other Supporting Documents (as required)

#### 1.2.3 Standards

- 1 Products shall be investigated, certified, tested to comply with appropriate Fire Protection and Life Safety standards.

#### 1.2.4 Product Certification and Testing

- 1 Listing, Certification and Testing requirements for Fire Protection and Life Safety products shall be in accordance with NFPA Codes / Standards and Qatar Civil Defence regulations.
- 2 Products that are regulated by QCD are required to be listed, labelled or approved based on international codes, standards and local regulations to ensure that equipment/material has met appropriate designated standard or has been tested and found suitable for a specified purpose in addition to maintaining periodic inspection of production and labelling conditions.

#### 1.2.5 QCD Recognized Certification Body and Testing Laboratory

- 1 Fire Protection and Life Safety products that requires QCD Approval shall be certified and tested from a QCD Recognized Certification Body and Testing Laboratory. An online verification thru the Certification Body and Testing Laboratory website shall be required for the products prior to issuance of QCD Approval.
- 2 International Certification Bodies and Testing Laboratories concerned with product evaluation are organizations referred to and currently recognized by QCD with regard to product regulations.
- 3 Each QCD Recognized Certification Bodies and Testing Laboratories has been approved based on their Scope of Accreditation for product certification and testing.
- 4 The List of QCD Recognized Certification Body and Testing Laboratory are reviewed annually for updates and published by Qatar Civil Defence (QCD).

Note: The Current List of QCD Recognized Certification Body and Testing Laboratory is subject to regular update as guided and advised by the Head of Section of the Safety Systems Division – Qatar Civil Defence.

### 1.2.6 Custom's Clearance

- 1 Regulated Fire Protection and Life Safety products in Qatar shall obtain Custom's Clearance subject to the approval of Qatar Civil Defence.

## 1.3 INSPECTION, TESTING, COMMISSIONING & MAINTENANCE

### 1.3.1 Inspection, Testing & Commissioning (Building Construction Completion Stage)

- 1 The UPDA Certified Supervising Consultant that oversees the Registered Contractor shall arrange inspection, testing and commissioning of the Fire Protection and Life Safety Systems of the new buildings / premises / structures with Qatar Civil Defence during the building completion stage of the project as a prerequisite for the issuance of an Occupancy Permit.
- 2 Product Certificates issued by QCD are valid only if products / materials are installed in accordance with international codes, standards, manufacturer's recommendation and local regulations that is acceptable to the Authority Having Jurisdiction ( QCD ).
- 3 Methods of Inspection, Testing and Commissioning shall be based on the latest Acceptance Inspection & Testing, NFPA Codes, Standards, other internationally accepted Codes/Standards, Manufacturer's recommendation Guidelines subject to the review and approval of the Authority Having Jurisdiction.
- 4 All Acceptance Inspection, Testing & Commissioning works related to Fire Protection and Life Safety shall be done by a QCD Approved Contractor employing QCD Registered Engineers & Technicians under the supervision of a Certified Consultant subject to the final evaluation and approval of Qatar Civil Defence.

### 1.3.2 Inspection, Testing & Maintenance (Building Commercial Permit Renewal Stage)

- 1 The Owner or Owner's Representative shall arrange inspection, testing, commissioning and maintenance of the Fire Protection and Life Safety Systems of the existing buildings / premises / structures with Qatar Civil Defence done by a Registered Contractor during the building maintenance stage as a requirement for the issuance of a Building Commercial Permit or License Renewal.
- 2 Records shall be made for all inspections, tests, and maintenance of the system and its components and shall be made available to the Authority Having Jurisdiction ( AHJ ).
  - (a) Original Acceptance Inspection and Test Records
  - (b) Inspection, Testing and Maintenance (ITM) Reports
  - (c) Maintenance Contract(s)
  - (d) QCD Approved Drawings
  - (e) Others (as required) :
    - (i) Inspection, Testing and Maintenance Records / Procedures from Manufacturer's / Specialists
    - (ii) Operation and Maintenance (O&M) Manuals
    - (iii) Manufacturer's Datasheets

- (iv) Mechanical & Electrical Calculations ( such as Hydraulic calculations, Battery Calculations etc. )

Methods of Inspection, Testing, Commissioning and Maintenance shall be based on the latest Inspection Testing & Maintenance (ITM) Guidelines, NFPA Codes & Standards, other internationally recognized Codes/Standards and Manufacturer's recommendation subject to the technical review, evaluation and approval of the Authority Having Jurisdiction.

- 3 All ITM works related to Fire Protection and Life Safety shall be done by a QCD Approved Contractor employing QCD Registered Engineers & Technicians subject to the final evaluation and approval of Qatar Civil Defence.
- 4 Product Labelling shall be based on labelling procedures of a QCD recognized certification body, NFPA and other internationally accepted codes/standards subject to the approval of Qatar Civil Defence.
- 5 All electrical and electronic equipment shall be designed, manufactured, installed and tested to the International Electrotechnical Commission (IEC), British Standards Institute (BSI) and other international standards acceptable to Qatar General Electricity and Water Authority (KAHRAMAA) and Qatar Civil Defence (QCD).
- 6 For updates on regulations & guidelines of Qatar Civil Defence, stakeholders involved in Fire Protection and Life Safety works in Qatar should consult the AHJ for relevant inquiries & clarifications.
- 7 Note that the primary of focus this Section is more on the Construction works related to Fire Protection and Life Safety Systems, however, it also discusses related Maintenance works (after Project Construction/Handover), which is a mandatory requirement of Qatar Civil Defence.
- 8 If in case of conflict and differences, the approval of the AHJ known as Qatar Civil Defence shall be considered final and concluding for works related to Fire Protection and Life Safety.

END OF PART