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5 SMOKE AND HEAT CONTROL VENTILATION SYSTEM

5.1 GENERAL

5.1.1 Scope

1 This Section specifies the minimum requirements of construction, material, installation, testing and commissioning for Smoke and Heat Control Ventilation System.

5.1.2 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 The General Directorate of Civil Defence (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 (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 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

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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 204 .....Standard for Smoke and Heat Venting

ANSI/UL 864	Standard for Control Units and Accessories for Fire Alarm Systems, category UUKL, for their intended purpose.
BS 1366-2	Fire resistance for service installations. Fire dampers.
EN 12101-2	Smoke and heat control systems. Natural smoke and heat exhaust ventilators.
EN 12101-3	Smoke and heat control systems. Specification for powered smoke and heat control ventilators (fans)
EN 12101-8	Smoke and heat control systems. Smoke control dampers
EN 12101-10	Smoke and heat control systems - Part 10: Power supplies
FM 4430	Heat and smoke vents
ISO 10294-1	Fire resistance tests — Fire dampers for air distribution systems — Part 1: Test method; (ISO 21925-1 Fire resistance tests — Fire dampers for air distribution systems — Part 1: Mechanical dampers).
ISO 21927-2	Smoke and heat control systems — Part 2: Specifications for natural smoke and heat exhaust ventilators
ISO 21927-3	Smoke and heat control systems — Part 3: Specifications for powered smoke and heat exhaust ventilators
ISO 21927-8	Smoke and heat control systems — Part 8: Smoke control dampers.
ISO 21927-9	Smoke and heat control systems — Part 9: Specification for control equipment
UL 268	Standard for Smoke Detectors for Fire Alarm Systems
UL 268 A	Standard for Smoke Detectors for Duct Application
UL 555	Standard for Fire Dampers.
UL 555S	Standard for Smoke Dampers.
UL 705	Standard for Power Ventilators
UL 793	Standard for Automatically Operated Roof Vents for Smoke and Heat
UL 864	Standard for Control Units and Accessories for Fire Alarm Systems
UL 2043	Standard for Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces

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VDS 2159 Guidelines for natural smoke extraction systems. Pneumatic smoke and heat exhaust systems. Requirements and test methods.

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

5.1.3 Smoke and Heat Control Ventilation System

1 Smoke and Heat Control Ventilation System

(a) Powered Smoke and Heat Control Ventilators / Pressurization Fans & Components

(b) Natural Exhaust Ventilators & Components

(c) Smoke Control Panels / Firefighters Control Panels & Components

(d) Fire/Smoke Dampers & Components

(e) Ducts

(f) Other - Smoke & Heat Control Ventilation System Products / Components / Accessories

Other products related Smoke & Heat Control Ventilation System not included in this list shall be referred to QCD Safety Systems Division for review and evaluation.

5.1.4 Authority Having Jurisdiction

1 All works, regulatory requirements and approvals related to Smoke and Heat Control Ventilation System in Qatar shall be under the jurisdiction of Qatar Civil Defence.

5.1.5 Company Registration

1 The Company responsible for the supplies & trading, installation & maintenance of Smoke & Heat Control Ventilation System shall be registered and on the approved list of Qatar Civil Defence and Ministry of Commerce and Industry. For details on the updates of the latest licensing and registration requirements, consult Qatar Civil Defence.

5.1.6 Engineer Registration

1 The Engineer in charge for the Design, Supervision of Installation, Testing, Commissioning and Maintenance of the Smoke and Heat Control Ventilation System shall be 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.

5.1.7 Contractor's Responsibility

1 The Contractor shall arrange for a qualified Specialty Contractor to supply, install, test, commission and maintain the Smoke and Heat Control Ventilation System based on approved plan, products and installation subject to the approval of Qatar Civil Defence.

5.1.8 Quality Assurance

Products, equipment and materials in this part shall obtain QCD Product Approval thru the Safety Systems Division of Qatar Civil Defence. A qualified Smoke and Heat Control Ventilation System Contractor shall be in charge for the installation, testing and commissioningof the project.

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5.1.9 Plan Review

1 The Engineering Design for Smoke and Heat Control Ventilation System shall be submitted to Qatar Civil Defence for evaluation, technical review and approval. Refer to the latest guidelines of Plan Review Section for further details.

5.2 PRODUCTS

5.2.1 5.2.1 Product Approval

1 Products for Smoke and Heat Control Ventilation System shall be QCD Approved. It shall meet listing requirements, appropriate standards, technical specifications, certified and tested by a QCD Recognized Product Certification Body or Testing Laboratory as per Qatar Civil Defence Regulations.

2 The following Smoke and Heat Control Ventilation System products, equipment and materials shall be required to obtain QCD Approval.

(a) Powered Smoke and Heat Control Ventilators / Pressurization Fans & Components

(b) Natural Exhaust Ventilators & Components

(c) Smoke Control Panels / Firefighters Control Panels & Components

(d) Fire/Smoke Dampers & Components

(e) Ducts

(f) Other - Smoke & Heat Control Ventilation System Products / Components / Accessories

3 Other related Smoke and Heat Control Ventilation System products / materials and new innovations not included in this list shall be referred to QCD Safety Systems Division for review and evaluation.

4 A guide (sample standards) regarding acceptable product standards for Smoke and Heat Control Ventilation System are indicated from 5.2.2 to 5.2.7 of this Section.

5 Products that complies to equivalent BS EN standards or other international standards are subject to QCD Engineers technical review and for the final approval of QCD Officers / Head of Section.

5.2.2 Smoke Exhaust Ventilators

Product	Standard
Heat and smoke vents (natural)	UL 793. Automatically Operated Roof Vents for Smoke and Heat FM class 4430. Heat and smoke vents EN 12101-2. Smoke and heat control systems. Natural smoke and heat exhaust ventilators. VDS 2159. Guidelines for natural smoke extraction systems. Pneumatic smoke and heat exhaust systems. Requirements and test methods. ISO 21927-2. Smoke and heat control systems. Specification for natural smoke and heat exhaust ventilators.

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Product	Standard
Powered heat and smoke ventilators	UL 705. Power Ventilators UL 793. Automatically Operated Roof Vents for Smoke and Heat EN 12101-3. Smoke and heat control systems. Specification for powered smoke and heat control ventilators (fans) ISO 21927-3. Smoke and heat control systems. Specification for powered smoke and heat exhaust ventilators

5.2.3 Smoke Control Panel

Product	Standard
Control Panel	EN 12101-10 UL 864 UL 2043 ISO 21927-9 NFPA 92 - 6.4.1 Control systems shall be listed in accordance with ANSI/UL 864, Standard for Control Units and Accessories for Fire Alarm Systems, category UUKL, for their intended purpose.

5.2.4 Pressurization Fans

Product	Standard
Pressurization Fans	UL 705. Power Ventilators UL 793. Automatically Operated Roof Vents for Smoke and Heat EN 12101-3. Smoke and heat control systems. Specification for powered smoke and heat control ventilators (fans) ISO 21927-3. Smoke and heat control systems. Specification for powered smoke and heat exhaust ventilators

5.2.5 Natural Exhaust Ventilators

Product	Standard
Heat and smoke vents (natural)	UL 793. Automatically Operated Roof Vents for Smoke and Heat FM class 4430. Heat and smoke vents EN 12101-2. Smoke and heat control systems. Natural smoke and heat exhaust ventilators. VDS 2159. Guidelines for natural smoke extraction systems. Pneumatic smoke and heat exhaust systems. Requirements and test methods. ISO 21927-2. Smoke and heat control systems. Specification for natural smoke and heat exhaust ventilators.

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5.2.6 Smoke and Fire Dampers

Product	Standard
Dampers	UL 555. Fire Dampers. UL 555S. Smoke Dampers. BS 1366-2. Fire resistance for service installations. Fire dampers. ISO 10294-1. Fire resistance tests. Fire dampers for air distribution systems. EN 12101-8. Smoke and heat control systems. Smoke control dampers. ISO 21927-8. Smoke and heat control systems. Smoke control dampers.

5.2.7 Duct Detectors

Product	Standard
Duct Detector	UL 268 UL 268 A

5.2.8 Other Smoke and Heat Control Ventilation System products & components

Standards used to evaluate other products/components for Smoke and Heat Control Ventilation System shall be reviewed and subject to the final approval of Qatar Civil Defence.

5.3 INSPECTION, TESTING, COMMISSIONINING & MAINTENANCE

1 The UPDA Certified Supervising Consultant that oversees the qualified Contractor shall arrange inspection, testing and commissioning Smoke and Heat Control Ventilation System 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 The Owner or Owner's Representative shall arrange inspection, testing, commissioning and maintenance of the Smoke and Heat Control Ventilation System of the existing buildings / premises / structures with Qatar Civil Defence done by a qualified Contractor during the building maintenance stage as a requirement for the issuance of a Building Commercial Permit or License Renewal.

3 Inspection, Testing, Commissioning and Maintenance of Smoke and Heat Control Ventilation System shall be based on:

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)

Qatar Civil Defence Guidelines (latest edition approved by QCD)

4 Reference to NFPA Codes/Standards and other International Codes/Standards are subject to QCD technical review, evaluation and final approval.

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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 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 204 .....Standard for Smoke and Heat Venting

NFPA 101.....Life Safety Code

Manufacturer's Listing Instructions

Manufacturer's Recommendation / Published Instructions

5 The final approval for works related to Smoke and Heat Control Ventilation System shall be as per the acceptance of the Authority Having Jurisdiction known as Qatar Civil Defence.

END OF PART

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