



## **Design Guidelines for Facilities Construction:**

**DESIGN GUIDELINE** DG21-08 Commissioning of Fire Suppression System

### **Part 1 - GENERAL**

#### 1.1 SUMMARY

- A. Section includes commissioning process requirements for fire suppression systems, assemblies, and equipment.
- B. Related Sections:
  - 1. Division 01 Section “General Commissioning Requirements” for general commissioning process requirements.
  - 2. Division 22 Section “Commissioning of Plumbing” for commissioning process activities for Plumbing systems, assemblies, equipment, and components.
  - 3. Division 23 Section “Commissioning of HVAC” for commissioning process activities for HVAC&R systems, assemblies, equipment, and components.
  - 4. Division 26 Section “Commissioning of Electrical” for commissioning process activities for Electrical systems, assemblies, equipment, and components.
  - 5. Division 28 Section “Commissioning of Fire Alarm” for commissioning process activities for Fire Alarm systems, assemblies, equipment, and components.

#### 1.2 DEFINITIONS

- A. Commissioning Plan: A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the commissioning process.
- B. CxA: Commissioning Authority.
- C. Systems, Subsystems, Equipment, and Components: Where these terms are used together or separately, they shall mean “as-built” systems, subsystems, equipment, and components.

#### 1.3 CONTRACTOR’S RESPONSIBILITIES

- A. Perform commissioning tests at the direction of the CxA as defined in the Commissioning Plan.

- B. Complete project-specific construction checklists and commissioning process test procedures for actual fire suppression systems, assemblies, equipment, and components to be furnished and installed as part of the construction contract.
- C. Attend construction phase commissioning coordination meeting.
- D. Participate in fire suppression systems, assemblies, equipment, and component maintenance orientation and inspection as directed by the CxA.
- E. Provide information requested by the CxA for final commissioning documentation.
- F. Provide measuring instruments and logging devices to record test data, and provide data acquisition equipment to record data for the complete range of testing for the required test period.
- G. Provide training to Owner's personnel on system operations, preventative maintenance, sequence of operations, and general function on systems.

#### 1.4 CxA's RESPONSIBILITIES

- A. Prepare project-specific construction checklists and commissioning process test procedures for actual fire suppression systems, assemblies, equipment, and components to be furnished and installed as part of the construction contract.
- B. Direct commissioning testing.
- C. Verifying testing, adjusting, and balancing of Work are complete.
- D. Provide test data, inspection reports, and certificates in Systems Manual.

#### 1.5 COMMISSIONING DOCUMENTATION

- A. Provide the following information to the CxA for inclusion in the commissioning plan:
  1. Plan for delivery and review of submittals, systems manuals, and other documents and reports.
  2. Identification of installed systems, assemblies, equipment, and components including design changes that occurred during the construction phase.
  3. Process and schedule for completing construction checklists and manufacturer's prestart and startup checklists for fire suppression systems, assemblies, equipment, and components to be verified and tested.
  4. Certificate of completion certifying that installation, prestart checks, and startup procedures have been completed.
  5. Certificate of readiness certifying that fire suppression systems, subsystems, equipment, and associated controls are ready for testing.
  6. Test and inspection reports and certificates.
  7. Corrective action documents.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Certificates of readiness.

- B. Certificates of completion of installation, prestart, and startup activities.

## **Part 2 – PRODUCTS (Not Used)**

## **Part 3 - EXECUTION**

### **3.1 TESTING PREPARATION**

- A. Certify that fire suppression systems, subsystems, and equipment have been installed, calibrated, and started and are operating according to the Contract Documents.
- B. Set systems, subsystems, and equipment into operating mode to be tested (e.g., normal shutdown, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions).

### **3.2 TESTING VERIFICATION**

- A. Prior to performance of testing and balancing Work, provide copies of reports, sample forms, checklists, and certificates to the CxA.
- B. Notify the CxA at least 10 days in advance of testing Work, and provide access for the CxA to witness testing Work.
- C. Provide technicians, instrumentation, and tools to verify testing of fire suppression systems at the direction of the CxA.

### **3.3 GENERAL TESTING REQUIREMENTS**

- A. Provide technicians, instrumentation, and tools to perform commissioning test at the direction of the CxA.
- B. Testing shall include measuring capacities and effectiveness of operational and control functions.
- C. Test all operating modes, interlocks, control responses, and responses to abnormal or emergency conditions, and verify proper response of building automation system controllers and sensors.
- D. The CxA along with the fire suppression installer shall prepare detailed testing plans, procedures, and checklists for fire suppression systems, subsystems, and equipment.
- E. Tests will be performed using design conditions whenever possible.
- F. If tests cannot be completed because of a deficiency outside the scope of the fire suppression system, document the deficiency and report it to the Construction Manager, CxA, and Owner. After deficiencies are resolved, reschedule tests.

### 3.4 FIRE SUPPRESSION SYSTEMS, SUBSYSTEMS, AND EQUIPMENT TESTING PROCEDURES

- A. Fire Suppression System Testing and Acceptance Procedures: Testing requirements are specified in Division 21 – Fire Suppression. Provide submittals, test data, inspection record, and certification to the CxA.

**END OF SECTION 21 0800**