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Engineering Specification – Section 28 XX XX

Self-Testing Initiating Devices

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SECTION 28XXXX.XX – SELF-TEST INITIATING DEVICE

PART 1 - GENERAL

1.1   SUMMARY

        1.   The system shall be capable of supporting self-testing initiating devices without the need of traditional physical testing methods. Actuation of self-test mode shall be done via functionality from the Connected Life Safety Services (CLSS) mobile app.

PART 2 - PRODUCTS

2.1   SELT-TEST INITIATING DEVICES

    A.   Initiating devices shall be capable of providing both a functional test and smoke entry test using a self-test function.

    B.   Detectors shall be compatible with standard and sounder bases.

    C.   The detector shall transmit a wireless beacon activated only during self-test mode designed to communicate with the CLSS app to prove successful completion of a visual inspection.

    D.   The system will register real events from all initiating devices not in test mode after each test. Upon an alarm condition during the self-test process the system will be overwritten and initiate an alarm at the FACP.

REMOVE INTIATING DEVICES BELOW THAT DO NOT APPLY TO PROJECT REQUIREMENTS

    E.   Self-Testing Photo Smoke Detector

        1.   Smoke detectors shall be intelligent addressable devices using photoelectric (light-scattering) principal to measure smoke density. It shall connect via two wires to the fire alarm control panel signaling line circuit.
        2.   The detector must have the ability to retrieve the characteristics of the detector from the FACP to include the following:

                a.   Primary Status
                b.   Device Type
                c.   Detector Sensitivity
                d.   Detector Average Value
                e.   Detector Sensor Status

        3.   The detector shall comply with UL268 7th edition; operating at 24-V dc, nominal.
        4.   The self-test sensor shall generate a controlled amount of smoke into the chamber which will test the optics in response to a real smoke simulation.
        5.   The detector shall also measure the dilution of smoke within a set time frame to determine if there is masking that will prevent smoke from entering the chamber.

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6. An alarm condition shall be generated upon smoke entering the chamber.
7. A trouble condition shall be generated if the testing chamber reveals its being blocked.

F. Self-Testing Thermal Detector

1. Thermal detectors shall be intelligent addressable devices rated at 135°F (57.2°C) Fixed Temperature. It shall connect via two wires to the fire alarm control panel signaling line circuit.
2. The detector must have the ability to retrieve the characteristics of the detector from the FACP to include the following:

   a. Primary Status
   b. Device Type
   c. Detector Sensor Status

3. The detector shall comply with UL521 7th edition; operating at 24-V dc, nominal.
4. The self-test sensor shall generate energy into an internal thermistor to allow register heat to be identified.
5. The detector shall also measure the cooling of the heating element after it's cycle has been completed.
6. An alarm condition shall be generated upon the introduction of heat from the thermistor.
7. A trouble condition shall be generated if the thermistor does not detect heat.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine and test the Fire Alarm Systems full functionality as required per NFPA-72 Test and Inspection and Commissioning requirements. All testing shall be in compliance with manufacturers recommendations.

3.2 TEST AND INSPECTION

A. Only a factory-authorized service representative trained to operate the CLSS software shall be allowed to test and inspect components, assemblies, and equipment installations, including connections.

B. Perform the following tests and inspections via the mobile app:

1. Visual Inspection: Conduct visual inspection prior to testing.

   a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Documentation" chapter in NFPA 72.

   b. Comply with the "Visual Inspection" table in the "Inspection" section of the "Inspection, Testing, and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

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2. Verification shall take place carrying out an automated self-testing process (without need of manual intervention or a smoke/ heat pole). The detectors shall be able to carry out the following;

   a. Functional test on heat or smoke
   b. Smoke entry test for smoke alarms
   c. Determine that the dust cover is in place during construction.
   d. Determine that the dust cover has been removed when the building becomes ready for occupation.
   e. Provide an automated summary report of above points.

3. System Testing: Comply with the "Testing" table in the "Testing" section of the "Inspection, Testing, and Maintenance" chapter in NFPA 72.

4. During inspection the software shall automatically comply and generate "Fire Alarm System Record of Completion" in the "Documentation" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing, and Maintenance" chapter in NFPA 72.

C. Annual Test and Inspection: One year after date of Substantial Completion, test fire alarm system complying with visual and testing inspection requirements in NFPA 72. A report shall automatically be generated from the mobile app upon completion and provided to applicable parties.

END OF SECTION

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