

N.I.C.E.T Work Element Listing

Inspection and Testing of Water-Based Systems

LEVEL I – General Work Elements

Core Work Elements:

- 41001 **INSPECTION PROCEDURES**
Assist in the inspection and testing of water-based fire protection systems. Record observations and data. (NFPA 13, NFPA 25)
- 41002 **NFPA STANDARD DEFINITIONS**
Understand NFPA standard definitions, including "authority having jurisdiction", "approved", "inspect", "listed", "maintenance", "shall", "should", "test", etc. as they apply to water-based fire protection systems. ("Definition" and "Scope" sections of NFPA standards)
- 41003 **BASIC COMPONENTS**
Based on manufacturer's literature and fire protection texts, understand operation and use of sprinklers, dry/alarm/deluge valves, and other related devices. Know the purpose of product approval and testing standards organizations such as ASTM, FM, UL, and ULC.
- 41004 **BASIC METRIC UNITS AND CONVERSIONS**
Perform conversions to and from basic metric (SI) units. (IEEE/ASTM SI 10)
- 41005 **SYSTEM APPURTENANCES**
Recognize correct piping arrangements pertaining to water supply connections, fire department connections, water supply test pipes, gauges, valves, inspector's test connection, drains, etc. (NFPA 13)
- 41006 **ROLE OF THE INSPECTOR**
To inspect, test, report and document any and all system abnormalities. To instruct the owner's representative on conducting inspection and testing procedures. (NFPA 25)
- 41007 **ON-SITE INSPECTION AND TESTING PREPARATION**
Know the proper tools for inspection and testing of water-based systems. Know the frequency and methodology for inspection and testing. Know what forms and documents the owner or his/her representative must be given upon completion of the inspection and testing.
- 41008 **GENERAL SYSTEM TERMINOLOGY**
Comprehend the general and special terms used in the water-based extinguishing systems vocabulary. Understand the specific meaning of terms frequently used in the inspection and testing of water-based systems. (NFPA 13, NFPA 14, NFPA 20, Detection, Treatment and Prevention of Microbiologically Influenced Corrosion in Water-Based Fire Protection Systems)
- 41009 **INSPECTOR'S SAFETY CONCERNS**
Recognize hazardous materials and environments. Know and use appropriate safety precautions. (OSHA 29 CFR, Parts 1910 and 1926)

Non-Core Work Elements

- 41013 **FIRE PROTECTION DESIGN SYMBOLS**
Recognize standard design symbols common to the fire protection industry. (NFPA 13, NFPA 170)

- 41015 **STANDPIPE AND HOSE SYSTEM COMPONENTS**
Recognize the characteristics of standpipe and hose system components, including their purpose, function, and operation. Understand basic system terminology. (NFPA 13, NFPA 14)
- 41016 **CLASSIFICATION OF OCCUPANCIES**
Recognize hazard classification and occupancy classification concepts as defined in NFPA standards. (NFPA 13)
- 41017 **FIELD IDENTIFICATION OF SPRINKLERS**
Recognize the temperature rating, orifice size, and orientation of sprinklers. Identify the various types of sprinklers available. Determine if decorative sprinklers were factory coated to meet their listing and/or approval. (NFPA 13, NFPA 25, UL Fire Protection Equipment Directory)
- 41018 **AUTHORITIES HAVING JURISDICTION**
Recognize the role of state and local health authorities, fire departments, and insurance companies. Know the requirements for reporting system conditions. (NFPA 25)

LEVEL I - Special Work Elements

- 42001 **CONTRACTS AND FORMS**
Recognize the role of contracts and forms in determining the scope of work to be performed. Understand the inspector's scope of responsibility. Understand the owner's responsibility.
- 42004 **PRIVATE FIRE SERVICE MAIN SYSTEM COMPONENTS**
Recognize the characteristics of private fire service mains and their appurtenances, including their purpose, function, and operation. Understand basic system terminology. (NFPA 13, NFPA 24)

LEVEL II - General Work Elements

Core Work Elements

- 43001 **SPRINKLER OBSTRUCTION, POSITION, AND CONDITION**
Verify proper location and position of sprinklers with respect to obstructions, heat sources, and other special building features. Understand installation requirements for special sprinkler types (extended coverage, large-drop, ESFR), and know the minimum/maximum allowable distances permitted by codes and standards in effect presently and/or at the time of original installation. Report on condition of sprinkler heads. Report observations. (NFPA 13)
- 43002 **WET PIPE SYSTEMS**
Verify proper installation of wet pipe systems. Report observations. (NFPA 13)
- 43003 **DRY PIPE SYSTEMS**
Verify proper installation of dry pipe systems. Report observations. (NFPA 13)
- 43004 **TESTING OF GENERAL SYSTEM COMPONENTS**
Understand the test requirements for water-based fire suppression system testing. Understand what must be tested as well as the frequency and methodology. (NFPA 25)
- 43005 **GENERAL PURPOSE VALVES INSPECTION**
Inspect and test general purpose valves such as OS&Y valves, post indicator valves, roadway box valves, check valves, butterfly valves, detector check valves, relief valves, hydrants, and preaction valves. Record observations and data. Report findings. (NFPA 13, NFPA 25)

- 43006 **WATER SUPPLY REQUIREMENTS**
Verify that the water supply type, location and arrangement satisfies system requirements. Report observations. (NFPA 13, NFPA 24)
- 43007 **INSPECTION OF GENERAL SYSTEM COMPONENTS**
Understand inspection requirements for water-based fire suppression systems, recognize typical fire sprinkler system components. (NFPA 13)
- 43008 **IMPAIRMENT PROCEDURE**
Recognize the conditions for temporary impairment of water-based fire protection systems and the appropriate notification and tagging procedures. (NFPA 25)
- 43009 **INSPECTION PREPARATION**
Plan the inspection and testing of water-based fire protection systems. Understand the tools necessary for inspection and testing. Understand proper notification protocol. (NFPA 25)

Non-core Work Elements

- 43011 **STANDPIPE AND HOSE SYSTEMS INSPECTION AND TESTING**
Verify that the standpipe and hose systems being inspected conform to the requirements of NFPA and other standards in effect presently and/or at the time of original installation. Report observations. (NFPA 13, NFPA 14, NFPA 25)
- 43012 **NO-FLOW TRIP TESTS**
Perform no-flow trip tests on dry, pre-action, and deluge systems. Record data and report findings. (NFPA 25)
- 43015 **LOCAL ALARM DEVICES INSPECTION**
Inspect and test local alarm devices. Record observations and data. (NFPA 25)
- 43016 **SUPERVISORY ALARM DEVICES INSPECTION**
Inspect and test supervisory alarm devices. Record observations and data. (NFPA 25, NFPA 72)

Level II - Special Work Elements

- 44001 **RESIDENTIAL SYSTEMS INSPECTION**
Verify proper installation of residential sprinklers for one- and two-family dwellings, multi-story buildings, and manufactured homes. Report observations. (NFPA 13, NFPA 13D, NFPA 13R)
- 44012 **PREACTION AND DELUGE SYSTEMS INSPECTION**
Verify proper installation. Report observations. (NFPA 13, NFPA 25)
- 44013 **FULL FLOW TESTS OF DRY-PIPE SYSTEMS**
Perform full flow trip test of dry-pipe valve(s), including reset of system to operational condition. Record data and report findings. (NFPA 25)