**STATE OF NEW JERSEY  
DEPARTMENT OF COMMUNITY AFFAIRS**

**DIVISION OF FIRE SAFETY**

**FIRE INSPECTOR CERTIFICATION COURSE**



**Module 16**

**Practical Evolutions**

*in cooperation with*

**Kean University Fire Safety Training Program**



**Time:** 3 hours

**Teaching/Learning Level:** *Cognitive- knowledge, comprehension, application, Evaluation. Psychomotor- perception, set, guided response.*

## Learning/Teaching Aids:

* IFSTA ‘Fire Inspection and Code Enforcement’ 8th ed., Chapters 7, 9, 11, 12 and 16.
* New Jersey Uniform Fire Code NJAC 5:70-3 et seq., specifically Chapter 5
* NFPA Fire Inspection Manual, 8th Ed
* NFPA Standard 25, Inspection, Maintenance and testing of Water Based Fire Protection Systems
* Student Handouts

**Behaviors to Foster**

Encourage students to listen carefully, follow directions, take notes and to actively participate in the field skills by asking questions, identifying potential violations or items to check, and by perform the psychomotor skills. It is imperative that they absorb and retain as much information as possible to assist them in having a solid foundation of knowledge for application in this field as well as successfully completion the exam for this course and the State Certification exam.

**Tasks:**

* Providing the students with the opportunity to apply the knowledge they have gained up to this point in the classroom through participation in a simulated inspection. Students are to take measurements, note potential hazards and verbally describe the code problem. Instructors are to reinforce the observations and to point out hazards students miss.
* Providing the students the ability to witness and participate in the inspection and flow testing of a fire sprinkler system, including both the 2 inch drain test and the inspectors test connection test.
* Providing the students the ability to witness and participate in a guided inspection of a fire pump installation.
* Providing the students to ability to actively perform and properly record the results of a fire hydrant flow test.

**Given in a field setting:**

* The student handouts
* New Jersey Uniform Fire Code NJAC 5:70-3 et seq., specifically Chapter 5
* IFSTA ‘Fire Inspection and Code Enforcement’ 8th ed., Chapter 7.
* NFPA Standard 25, Inspection, Maintenance and testing of Water Based Fire Protection Systems

**Standards:**

* NJAC 5:70-1 et seq.
* NJAC 5:23-1 et seq.

**Prerequisite Knowledge:** Modules 1-15

**Prerequisite Skills:** Ability to listen effectively; follows directions; take notes; and retain knowledge.

## Resources/References:

* New Jersey Uniform Fire Code NJAC 5:70-1 et seq.
* NJ UCC approved adopted code
* IFSTA ‘Fire Inspection and Code Enforcement’ Chapters 7, 9, 11 and 16.
* Student Handouts
* NFPA Standard 25, Inspection, Maintenance and Testing of Water Based Fire Protection Systems

## Attention: (Call to Order)

**Motivation: (State Need to Know)**

A reminder to instructors; it is best if the instructor uses an example from a recent or current event that is pertinent to the lesson. In this case you can refer an example where your ability to effectively conduct an inspection relied on your knowledge of the basic inspection skills or of how inspections and flow testing of fire protection devices are to be performed.

## Student Performance Objective (SPO):

* SPO-1 The student will actively participate in a guided field inspection of a multi occupancy structure.
* SPO-2 The student will participate in the inspection of a fire sprinkler system.
* SPO-3 The student will participate in the inspection of a fire pump installation.
* SPO-4 The student will participate in the flow testing of fire hydrants.

## Enabling Objectives (EO):

* EO 1-1-1 Utilizing a multi occupancy structure, (or multiple structures of various uses), the instructor will guide the students on a mock inspection. Emphasis will be placed on how to conduct the inspection and ensuring all areas would be inspected and on taking the time to observe the conditions of the facility. Students are to be encouraged to utilize flashlights, tape measures and notepads. Instructors will respond to potential hazards identified and quiz students on ‘why’ they believe it to be a hazard and will point out items students may have missed.
* EO 1-1-2 Utilizing a working fire sprinkler system, (can be in the same facility inspected), the instructor will guide the students through an inspection of the system and the riser components. Flow tests of the 2 inch drain and inspectors test connection are to be performed to show the students how they are to be conducted for accuracy.
* EO 1-1-3 Utilizing a working fire pump installation, the instructor will guide the student in what to inspect and in how a fire pump test would be conducted. Students will review sample fire pump test report forms in conjunction with this practical exercise.
* EO 1-1-4 Utilizing functioning fire hydrants the instructor will guide the students as they perform a water flow test and take the readings by using a pitot tube and cap and gauge arrangement.

## Overview/Main Points:

* At this point in the program the students should have gained sufficient knowledge to assist in the inspection of a multi occupancy structure and to apply that knowledge in the identification of potential hazards or items that should be checked.
* The fire inspector must have the ability to identify potential problems with fire sprinkler systems by visual inspection and by understanding the proper method of conducting 2 inch drain tests and inspector test connection tests for comparison against previous results. How can the inspector interpret results of the flows if he/she does not know how the technician was supposed to conduct the flow test?
* The fire inspector must have the ability to identify potential problems with fire pump installations by visual inspection and by interpreting results of subsequent flow tests.
* The fire inspector must know how conduct an accurate fire hydrant water flow test. Witnessing such tests for proper performance is a standard duty in many LEAs.

**Initial Instructions:**

Prior to this lesson the instructor shall have reviewed the lesson plan for this module, the reference materials and the student handouts to refresh the instructor’s knowledge on this topic.

## Opener: Call to order; start with a motivator (need to know) related to objectives and the lesson; state objectives and main points.

**Teaching points**

* In choosing the facility for the inspection the following types of occupancies should be included when possible, business use office area, assembly use, commercial cooking kitchen and a vehicle service use. Many of these uses can be found within government owned buildings which may assist the instructor in arranging for the activity to take place.
* The inspection should be guided as to direction followed; however, the students should be the ones identifying the hazards. Obvious hazards that are about to be missed can be handled by advising the students to look closer.
* The water fire sprinkler and fire pump evolutions can be as hands on as the instructor wishes. The reasons for the flows and frequency specified in the code and referenced standards are to be verbally explained as the evolution progresses.
* The fire hydrant flow tests are to be hands on and the students are to record the flows and prepare a flow graph.
* Ensure the students wear appropriated PPE for these field evolutions.

## Summary:

Summarize the material covered in this lesson by reviewing the SPOs listed and the Main Points during the Evaluation. At the end of the Summary/Evaluation remind the students of the next class date/time and the homework that must be completed to successfully participate in class and comprehend the material provided during the next lesson.

**Module 16 Practical Evolutions**

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## Enabling Objectives (EO):

* EO 1-1-1 Utilizing a multi occupancy structure, (or multiple structures of various uses), the instructor will guide the students on a mock inspection. Emphasis will be placed on how to conduct the inspection and ensuring all areas would be inspected and on taking the time to observe the conditions of the facility. Students are to be encouraged to utilize flashlights, tape measures and notepads. Instructors will respond to potential hazards identified and quiz students on ‘why’ they believe it to be a hazard and will point out items students may have missed.
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## EVALUATION

**Oral Review:** Utilizing the SPOs and Main Points, orally assess the students’ comprehension of the material provided during this lesson.

**Other Evaluation:** *(If there are assigned quizzes for this lesson, state that fact here.)*

Instructors may use course quizzes, or create and use lesson quizzes and other learning reinforcements. Quizzes are diagnostic and may be given as in-class group assignments to generate discussion or as home assignments and used as review prior to starting the next session.

**HOMEWORK**

# Readings

* none

# Assignments

* Quiz # 15

**APPENDIX**

# LEVEL OF INSTRUCTION

|  |  |
| --- | --- |
| **Cognitive**   1. Knowledge 2. Comprehension 3. Application 4. Analysis 5. Synthesis 6. Evaluation | **Psychomotor**   1. Perception 2. Set 3. Guided Response. 4. Mechanism 5. Complex Overt Response 6. Adaptation 7. Origination |

### DESCRIPTIONS

**Cognitive:**

1. Knowledge: remembers, recalls; the lowest learning level. Defines, describes, identifies, labels, lists, matches, names, outlines, reproduces, selects, states.
2. Comprehension: grasps meaning, interprets material, estimates future trends; the lowest level of understanding. Converts, defends, gives examples, distinguishes, estimates, explains, extends, generalizes, infers, paraphrases, predicts, rewrites, summarizes.
3. Application: uses material in new and concrete situations, applies rules, methods, concepts, principles, laws, and theories; requires higher understanding level. Changes, computes, demonstrate, solve, discover, manipulate, modify, operate, predict, prepare, uses, produces, relates.
4. Analysis: breaks material into components to understand structural organizational; higher intellectual level than comprehension and application requiring understanding of both structure and content. Breaks down, diagrams, differentiates, infers, discriminates, relates, distinguishes, identifies, illustrates, outlines, points out, selects, separates, subdivides.
5. Synthesis: able to put parts together to form a new whole, stresses creative behaviors, emphasizes forming new patterns or structures. Categorizes, combines, complies, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, relates, revises, reconstructs, reorganizes, writes/rewrites, summarizes, tells.
6. Evaluation: able to judge value of material for a given purpose based on definite criteria. Highest in cognitive hierarchy as this contains elements of all other categories plus conscious value judgments based on clearly defined criteria. Appraises, compares, concludes, relates, contrasts, criticizes, describes, discriminates, explains, justifies, interprets, summarizes, supports.

**Psychomotor:**

1. Perception: uses organs or sense to obtain cues to guide motor activity. Chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects, separates
2. Set: readiness to take a particular type of action; includes mental, physical or emotional set. Begins, displays, explains, moves, shows, proceeds, reacts, responds, starts, volunteers.
3. Guided Response: early stages in learning a complex skill; includes imitation, trial and error. Assembles, builds, calibrates, displays, constructs, dismantles, dissects, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches, works.
4. Mechanism: performs acts where learned responses have become habitual and moves with confidence and proficiency; same as guided response.
5. Complex Overt Response: skillful motor performance of complex movement. Performs proficiently, quickly, smoothly, accurately with minimum energy, without hesitation. Same as guided response.
6. Adaptation: skills are so well developed that movement patterns can be modified to fit special requirements or meet problem situations. Adapts, alters, changes, rearranges, reorganizes, revises, varies.
7. Origination: creates new movement patterns to fit a unique situation or problem. Emphasizes creativity based on highly developed skills. Arranges, combines, composes, constructs, designs, originates