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

**DIVISION OF FIRE SAFETY**

**FIRE INSPECTOR CERTIFICATION COURSE**

**Module 9**

**Occupant Load and   
Means of Egress**

*in cooperation with*

**Kean University Fire Safety Training Program**



**Time:**  6 hours

**Teaching/Learning Level:** *Cognitive- knowledge, comprehension, application.*

**Learning/Teaching Aids:**

* Syllabus
* Board/easel pad
* Chalk/markers
* PC/laptop
* Projection unit
* Projection screen
* Power Point presentation
* New Jersey Uniform Fire Code NJAC 5:70-1 et seq.
* ICC IFC 2015 edition
* IFSTA ‘Fire Inspection and Code Enforcement’ 8th ed.
* Student Manual

**Behaviors to Foster**

Encourage students to listen carefully, take notes and to actively participate by asking questions and offering experiences that will foster discussion during lectures. It is imperative that they absorb and retain as much information as possible as well as having a solid foundation of knowledge for application in this field to assist them in successfully completion the exam for this course and the State Certification exam.

**Tasks**

* Understanding what elements comprise the ‘means of egress’.
* Understanding the need to check definitions and where to find them.
* How to calculate an occupancy load?
* Applying a ‘Place of Assembly’ case history analysis.
* Understanding the application of Chapter 10 of Subchapter 3 of the UFC.
* Understanding the application of the retro-fit section of Subchapter 4 of the UFC.

## Given in a classroom setting:

* The student handout
* New Jersey Uniform Fire Code NJAC 5:70-1 et seq.
* NJIFC 2015 edition
* IFSTA ‘Fire Inspection and Code Enforcement’ 8th ed.
* Power Point presentation

**Standards:**

NJAC 5:70-1 et seq.

NJAC 5:23-1 et seq.

**Prerequisite Knowledge:** Modules 1-8

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

## Resources/References:

New Jersey Uniform Fire Code NJAC 5:70-1 et seq. NJIFC 2015 edition

IFSTA ‘Fire Inspection and Code Enforcement’ Fire Inspection Manual, 8th ed.

## 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 to the scope of the code and the basic requirement that occupants have available and unobstructed paths to the exterior.)

## Student Performance Objective (SPO):

* SPO-1 The student will define ‘means of egress’ and its components.
* SPO-2 Given an example the student will calculate the occupancy load utilizing the method contained within the ‘Retrofit Code’ and utilizing the method contained within the IBC and IFSTA
* SPO-3 The student will understand the place of assembly history analysis and be able to apply the concepts contained within that analysis.
* SPO-4 The student will have the ability to apply the technical requirements of Chapter 10 of Subchapter 3 of the NJ IFC

## Enabling Objectives (EO):

EO 1-1-1 Working from, Chapter 10 of the New Jersey International Fire Code 2015 and Chapter 10 of the NJ UCC International Building Code 2015, and chapter 7 of the IFSTA Fire Inspection & Code Enforcement 8th edition manual, review the definition of a means of egress and the three components of the means of egress.

EO 1-1-2 Working directly from the UFC Retrofit provisions, Chapter 7 of the IFSTA Fire Inspection & Code Enforcement 8th edition manual, review the methods of calculating occupancy loads for buildings that pre-existed the UCC and for those that are currently built under the UCC.

EO 1-1-3 Utilizing a ‘Place of Assembly’ case history reviews the event and the results of the post incident analysis.

EO 1-1-4 Working from the UFC directly, review the requirements of Chapter10 of Subchapter 3 and emphasize the technical requirements available to eliminate hazards. Differentiate between those conditions that would be considered ‘imminent hazards’.

## Overview/Main Points:

* The ‘means of egress’ starts from the farthest point within a room or space and continues until the occupant reaches the public way.
* The fire inspector must know how to calculate occupancy loads. By understanding how to do this the fire inspector will have the knowledge required to recognize occupancy load capacity deficiencies.
* History is full of examples of ‘Place of Assembly’ tragedies. The fire inspector must be aware of these tragedies and the post incident analysis results to understand how occupancy load and means of egress deficiencies occur and the methods of correction needed to eliminate them.
* Required means of egress are to be available and unobstructed or otherwise impaired at all times a room, space or area is occupied. Chapter 10 of Subchapter 3 of the UFC provides the regulatory language necessary to ensure this condition is maintained.

## Initial Instructions:

Prior to this lesson the instructor shall have reviewed the lesson plan for this module, the PowerPoint presentation with notes, reference materials, the student handouts and read Chapters 10 of NJ IFC 2015 and Chapter 10, NJ UCC IBC-2015 ed. 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 addition to your review of this lesson plan, review the PowerPoint Presentation for the teaching points and the structure of the lesson. The text/graphic representations on the individual slides provide a classroom exercise to assist the students in understanding the components of the means of egress and how to assess their adequacy for potential occupant loads. Additional graphics will provide the students with visual depictions of some of the topics contained within the code language to be reviewed during this lesson.

The focus is the code language contained within the building code and the fire prevention code. The instructor MUST teach directly from the text with the students following along in their own books. If the students do not assimilate where in the codebooks various topics are covered they will not pass the certification exam.

## 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 9 Occupancy Loads/Means of Egress**

**Student Performance Objective (SPO):**

* SPO-1 The student will define ‘means of egress’ and its components.
* SPO-2 Given an example the student will calculate the occupancy load utilizing the method contained within the ‘Retrofit Code’ and utilizing the method contained within the BOCA National Building Code/1996 and IBC-2006.
* SPO-3 The student will understand the place of assembly history analysis and be able to apply the concepts contained within that analysis.
* SPO-4 The student will have the ability to apply the technical requirements of Chapter 10 of Subchapter 3 of the UFC.

## Enabling Objectives (EO):

* EO 1-1-1 Working from the UFC directly, Chapter 10 of the ICC International Fire Code 2006 edition, Chapter 10 of the BOCA National Building Code 1996, Chapter 10, of the IBC-2006 edition and chapter 6 of the IFSTA Fire Inspection & code Enforcement manual, review the definition of a means of egress and the three components of the means of egress.
* EO 1-1-2 Working directly from the UFC Retrofit provisions, chapter 6 of the IFSTA Fire Inspection & code Enforcement manual, review the methods of calculating occupancy loads for buildings that pre-existed the UCC and for those that are currently built under the UCC.
* EO 1-1-3 Utilizing a ‘Place of Assembly’ case history, review the event and the results of the post incident analysis.
* EO 1-1-4 Working from the UFC directly, review the requirements of Chapter 10 of Subchapter 3 and emphasize the technical requirements available to eliminate hazards. Differentiate between those conditions that would be considered ‘imminent hazards’.

## Overview/Main Points:

* The ‘means of egress’ starts from the farthest point with a room or space and continues until the occupant reaches the public way.
* The fire inspector must know how to calculate occupancy loads. By understanding how to do this the fire inspector will have the knowledge required to recognize occupancy load capacity deficiencies.
* History is full of examples of ‘Place of Assembly’ tragedies. The fire inspector must be aware of these tragedies and the post incident analysis results to understand how occupancy load and means of egress deficiencies occur and the methods of correction needed to eliminate them.
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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

* IFSTA Fire Prevention and Code Enforcement
  + Chapter 7, 8th edition
* UFC 5:70-3 Chapter 10

# Assignments

* After Second meeting: Quiz
* Second meeting: IFSTA Fire Prevention & Code Enforcement
* Worksheet 7, 8th edition

**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