CDC 10012

Fire Fighter II

Volume 1. Instructor Guide Sheets

Air Force Institute for Advanced Distributed Learning

Air University

Air Education and Training Command

Author: MSgt Craig S. Hall
Headquarters Air Force Civil Engineer Support Agency
HQ AFCESA/CEXF
139 Barnes Dr., Suite 1
Tyndall Air Force Base, FL 32403-5319
DSN: 523-6221
E-mail address: CDChelp@tyndall.af.mil

Instructional Systems Specialist: Patricia Christen

Editor: Jo Stokes

Air Force Institute for Advanced Distributed Learning
Air University (AETC)
Maxwell Air Force Base, Gunter Annex, Alabama 36118–5643

Welcome to the Career Development Course (CDC) program, a vital element of the Department of Defense (DOD) Fire and Emergency Services Certification Program. If this is your first attempt at a completing a CDC, we recommend you read DOD Manual 6055.6, *DOD Fire and Emergency Services Certification Program* and watch the DOD Fire Fighter Certification Program Video (DOD P/N 612888). If this is not your first CDC, we're pleased that you are progressing well through the DOD certification system and encourage you to continue your efforts to complete this CDC and obtain your Fire Fighter II certification certificate. This course, CDC 10012, *Fire Fighter II,* is designed to provide you with the information you need to become certified to this certification level.

NOTE: DOD Certification to **Fire Fighter I and Hazardous Materials Operations Course are pre-requisites** to certification at the Fire Fighter II level. See DOD Manual 6055.6 for additional guidance.

These requirements are extracted from the 2002 Edition of National Fire Protection Association (NFPA) 1001, *Standard for Fire Fighter Professional Qualifications,* and is the basis for all four units of instruction. Each unit is to be used in conjunction with the NFPA standard to ensure that all information is covered. Due to the unique nature of the NFPA Job Performance Requirement (JPR) format many topics appear to be or tend to be repeated. While it is necessary to only study the information once the candidate must realize that questions on such information may be asked in any objective to which the NFPA or the Instructor Guide Sheets refer to that information.

Your CDC consists of two separate volumes, the Instructor Guide Sheets and Performance Tests, each of which carries with it a different requirement. The successful completion of both of these requirements will result in DOD firefighter certification at the Fire Fighter II level.

First let's look at the academic portion.

The Instructor Guide Sheets are used to steer you through the knowledge portion of the course.

At the beginning of the course, you'll find a **Course Objective** so that you, the student, know exactly what your overall goal should be for completing this CDC.

An **Objective** is also specified at the beginning of each unit to provide you the guidance on what your goal should be for each unit.

The Instructor Guide Sheets are then broken into four columns.

Column one indicates the **Air Force Institute for Advanced Distributed Learning (AFIADL) Learning Objective**. Learning Objective (LO) numbers shown in the extreme left column of the Instructor Guide Sheets and are primarily for AFIADL tracking purposes but may also be used by candidates for correlation to the Certification Course Review Exercises used in the CerTest computer-based testing program. (See Chapter 4 of the CerTest Procedural Guide for additional information).

Column two indicates the **NFPA Objective,** which directly correlates to each line item in NFPA 1001, *Standard for Fire Fighter Professional Qualifications.*

Column three indicates the **Topical Areas,** which outlines the information you are required to learn.

Column four is the **Reference** area, where reference notations are made to steer you to the information necessary to successfully pass the final exam. All questions on the CerTest computer-based testing program and the AFIADL End-of-Course exams are derived from these references.

Self-Test Questions follow each topical area as a measurement tool to ensure that the student is mastering and retaining key information.

Performance Objectives will periodically following a learning objective(s) and will introduce them to manipulative skills that will subsequently be evaluated during the performance test portion of the

course. At this time, the student should begin working with their supervisor/trainer to learn and master these hands-on skills using the applicable Performance Test Supplement.

Now, let's look at the manipulative (hands-on) portion.

The Performance Test Supplement. This volume of the CDC provides the detailed performance test checklist items for candidate testing. Performance tests cannot be conducted until the candidate has successfully completed the academic part of the CDC. However, it is strongly encouraged that you use this supplement and the checklists it contains throughout the normal course of study. Candidates may practice the performance evaluations at anytime during study and up until performance testing is conducted. Practice is highly encouraged.

This particular course uses 4 workstations. Within each workstation there are several tasks and objectives (NFPA line items). A "Performance Summary Sheet" precedes each workstation or group of evaluated tasks. This sheet lists the NFPA line items evaluated and the specific tasks that need to be accomplished. Each performance test lists the setting and tools/equipment needed for the listed tasks.

The use of a name of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

To obtain a response to your questions concerning subject matter in this course, or to point out technical errors you find in the text, self-test questions, CCREs or the course examination call or write the author using the contact information on the inside front cover of this volume.

Send questions these people cannot answer to AFIADL/ACSA, 50 South Turner Blvd, Maxwell AFB, Gunter Annex AL 36118-5643, on our Form 17, Student Request for Assistance. You may choose to complete the Form 17 using the Internet at this site: http://www.maxwell.af.mil/au/afiadl/registrar/download_fr.htm.

NOTE: When you complete this course, please complete the student survey on the Internet at this site: http://www.maxwell.af.mil/au/afiadl/operations/survey_fr.htm.

This volume is valued at 9 hours and 3 points.

Preparation of this volume was aided through the cooperation and courtesy of the International Fire Service Training Association (IFSTA). The Association furnished technical materials for the Fire Fighter Certification Program training materials.

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Fire Fighter II

Instructor Guide Sheets

Course Objective: Using only NFPA Standards and the IFSTA *Essentials of Fire Fighting,* Fourth Edition, Manual, comprehend the job requirements of a Fire Fighter II by obtaining a minimum passing score of 65% on an end of course examination.

Unit 1: Fire Fighter II General Requirements

Objective. Given IFSTA *Essentials of Fire Fighting,* and this Instructor Guide Sheet, review the general knowledge/skill requirements and answer the self-test questions correctly.

AFIADL Learning Objective#	*NFPA Objective#*	*Topical Areas* *(Referring to the Learning Objective, review the following topics using your reference material)*	**Reference**
001	**6.1.1.1**	**General** The general knowledge/skill requirements of a **Fire Fighter II** are: A. Role of Fire Fighter II in the organization B. Responsibilities of a Fire Fighter II in assuming and transferring command within an incident management system (IMS) C. Responsibilities of a Fire Fighter II in performing assigned duties within standards, regulations, and standard operating procedures	IFSTA *Essentials of Fire Fighting* Introduction & Chapter 1

Self-Test Questions

After you complete these questions, verify your answers with the references given in the lesson objective.

1. Who is responsible for tactics utilized during an emergency under IMS?

2. What documents enable personnel to know what is expected of them and what role and responsibilities they have at any given incident can be best described as what?

3. What is the definition of a *company?*

4. What is the responsibility of the Logistics Officer on a scene?

5. How is the Logistics branch of the IMS broken down?

6. How are Divisions and Groups designated differently in association to IMS?

7. How does one transfer command when at an incident?

8. What is a *unified command*?

9. What NFPA standard covers Fire Department Occupational Safety and Health Program?

NOTE: Now that you have completed this portion of your knowledge training, apply this knowledge using the Performance Test supplement and start preparing for your final performance evaluation.

Performance Objective. Using all applicable safety equipment and information gained from the IFSTA *Essentials of Fire Fighting* instruction and other departmental documents.
P.O. # 1: Demonstrate the ability to use the IMS—assume command, organize and coordinate an IMS system, transfer command, and function within an assigned role.

Unit 2: Fire Department Communications

Objective: Given IFSTA *Essentials of Fire Fighting*, and this Instructor Guide Sheet, review these knowledge/skill requirements and answer the self-test questions correctly.

AFIADL Learning Objective#	*NFPA Objective#*	*Topical Areas* **(Referring to the Learning Objective, review the following topics using your reference material)**	**Reference**
002	**6.2.1**	**Communications** The knowledge/skill requirements of a **Fire Fighter II** concerning Fire Department Communications are: A. Content requirements for basic incident reports B. Purpose and usefulness of accurate reports C. Consequences of inaccurate reports D. Obtaining necessary information E. Required coding procedure	IFSTA *Essentials of Fire Fighting* Chapter 18
	6.2.2	F. Understand SOPs for alarms assignments and radio communication procedures	*Departmental Standard Operation Procedures*

Self-Test Questions

After you complete these questions, verify your answers with the references given in the lesson objective.

1. What is NFIRS?

2. What agency created NFIRS?

3. List four items that should be included in a basic incident report.

4. What is meant by the "Emergency Traffic"?

NOTE: Now that you have completed this portion of your knowledge training, apply this knowledge using the Performance Test supplement and start preparing for your final performance evaluation.

Performance Objective. Using all applicable safety equipment and information gained from the IFSTA *Essential of Fire Fighting* instruction and other departmental documents.
P.O. #2: Demonstrate ability to determine necessary codes and operate equipment necessary to complete reports.
P.O. #3: Operate fire department communication equipment.
P.O. #4: Complete a basic incident report accurately.

Unit 3: Fire Ground Operations

Objective. Given IFSTA *Essentials of Fire Fighting* and this Instructor Guide Sheet, review and apply the knowledge/performance requirements pertaining to Fire Ground Operations and answer the self-test questions correctly.

AFIADL Learning Objective#	*NFPA Objective#*	***Topical Areas*** ***(Referring to the Learning Objective, review the following topics using your reference material)***	**Reference**
003	**6.3.1**	**Fire Ground Operations** The general knowledge/skill requirements of a **Fire Fighter II** concerning Fire Ground Operations are: ***Topic (A). Ignitable Liquid Fire Fighting*** 1. Methods foam prevents or controls a hazard 2. Principles that foam is generated 3. Causes for poor foam generation and corrective measures 4. Difference between hydrocarbon and polar solvents (what concentrates work on each) 5. Characteristics, uses, and limitations of foam 6. Advantages/Disadvantages of using fog nozzles versus foam nozzles for application 7. Foam stream application techniques 8. Hazards associated with foam usage 9. Methods reduce or avoid hazards	IFSTA *Essentials of Fire Fighting* Chapters 13, 14

Self-Test Questions

After you complete these questions, verify your answers with the references given in the lesson objective.

1. Which class of fire is compressed air foam systems primarily used to fight?

2. What are some methods by which foam prevents or controls a hazard?

3. What distance between the foam eductor and the foam concentrate should one *not exceed* in order to produce high quality foam?

4. What is the gpm per square foot application rate for AFFF?

5. Plunging a water stream into a burning flammable liquid has what effect on the fire and why?

NOTE: Now that you have completed this portion of your knowledge training, apply this knowledge using the Performance Test supplement and start preparing for your final performance evaluation.

Performance Objective. Using all applicable safety equipment and information gained from the IFSTA *Essentials of Fire Fighting* instruction and other departmental documents.
P.O # 5: Prepare a foam concentrate supply for use.
P.O # 6: Assemble foam stream components.
P.O # 7: Masterfully apply foam using various foam application techniques.
P.O # 8: Approach and retreat from spills as part of a team.
P.O #9: Extinguish an ignitable liquid fire, operating as a member of a team, by creating and maintaining a foam blanket.

004 **005** **006** **007**	**6.3.2**	***Topic (B). Interior Structural Fire Fighting*** 1. Nozzle, hose, appliance, and adapter selection 2. Dangerous building conditions created by fire and fire suppression 3. Indicators of building collapse and/or structural stability 4. Effects of fire & fire suppression activities on various substances (wood, masonry, glass, etc.) 5. Suppression approaches and practices for various types of structural fires 6. Search and rescue procedures 7. Ventilation procedures 8. Association between tools and forcible entry needs	IFSTA *Essentials of Fire Fighting* Chapter 1-4 12-14 Chap 4, 7, 9 Chap 1-4, 10 Chapter 8

Self-Test Questions

After you complete these questions, verify your answers with the references given in the lesson objective.

1. A device used to connect two male ends of a fire hose is called what?

2. What are some advantages of using a solid fire stream?

3. Why does a firefighter crawl or "duck walk" when entering a hazardous environment?

4. What are some ways a firefighter could ventilate a basement?

5. When considering ventilation, what is meant by the leeward side of a building?

6. List the correct way to break a pane of glass in a window?

7. The distance at which a stream can effectively be thrown from a nozzle is its what?

8. What is considered "break over" when using a solid stream?

9. List some indicators of structural instability.

10. Which fire stream is capable of exposing a maximum water surface for heat absorption?

NOTE: Now that you have completed this portion of your knowledge training, apply this knowledge using the Performance Test supplement and start preparing for your final performance evaluation.

Performance Objective. Using all applicable safety equipment and information gained from the IFSTA *Essentials of Fire Fighting* instruction and other departmental documents.
P.O # 10: Assemble a team and choose attack techniques for various levels of fire (attic, grade level, upper levels, or basement).
P.O # 11: Evaluate and forecast fire's growth and development.
P.O # 12: Select tools for forcible entry.
P.O # 13: Incorporate search and rescue procedures along with ventilation procedures in the completion of attack team efforts.
P.O #14: Determine developing hazardous building or fire conditions.
P.O #15: Coordinate an interior attack line for team's accomplishment of an assignment in a structure fire in accordance with standards, regulations, and SOPs.

008	**6.3.3**	***Topic (C). Flammable Gas Cylinder Fire Fighting*** 1. Characteristics of pressurized flammable storage cylinders 2. Elements of a gas cylinder 3. Effects of heat and pressure on closed cylinders 4. BLEVE signs and effects 5. Methods for identifying contents 6. Identifying safe havens 7. Water stream usage and demands when on fire 8. Operations for premature extinguishment 9. Valve types and operation 10. Alternative actions related to various hazards 11. Retreat	IFSTA *Essentials of Fire Fighting* Chapter 14

Self-Test Questions

After you complete these questions, verify your answers with the references given in the lesson objective.

1. BLEVE is an acronym for?

2. What happens to the ignitability of fuel particles when they become smaller and more finely divided?

3. What are some steps a firefighter can take to identify the contents of a cylinder?

4. What is natural gas primarily made out of?

5. Is natural gas heavier or lighter than air? Why is this a concern for a firefighter?

6. What type of fire stream is used when attempting to shut off a valve where fire or vapors are present?

NOTE: Now that you have completed this portion of your knowledge training, apply this knowledge using the Performance Test supplement and start preparing for your final performance evaluation.

Performance Objective. Using all applicable safety equipment and information gained from the IFSTA *Essentials of Fire Fighting* instruction and other departmental documents;
P.O #16: Ability to effectively execute advances and retreats
P.O #17: Apply various techniques for water application
P.O #18: Assess cylinder integrity and changing cylinder conditions
P.O #19: Operate control valves
P.O #20: Choose effective procedures when conditions change
P.O #21: Control a flammable gas cylinder fire operating as a team member in accordance with standards, regulations, and SOPs

009	**6.3.4**	***Topic (D). Evidence*** 1. Methods to assess origin and cause 2. Types of evidence 3. Means to protect various types of evidence 4. Role and relationship of a Fire Fighter II 5. Effects and problems associated with removing property or evidence from the scene	IFSTA *Essentials of Fire Fighting* Chapter 17

Self-Test Questions

After you complete these questions, verify your answers with the references given in the lesson objective.

1. When may debris be removed from the incident?

2. Give a couple ways that a premise could be secured and protected?

3. What was the outcome of the case Michigan vs. Tyler?

4. When does Fire Department authority end?

5. What are some initial observations that firefighters should be aware of upon arrival?

NOTE: Now that you have completed this portion of your knowledge training, apply this knowledge using the Performance Test supplement and start preparing for your final performance evaluation.

Performance Objective. Using all applicable safety equipment and information gained from the IFSTA *Essentials of Fire Fighting* instruction and other departmental documents.
P.O #22: Locate the fire's origin area
P.O #23: Recognize possible causes
P.O #24: Protect Evidence of fire cause and origin

Unit 4: Rescue Operations

Objective. Given IFSTA *Essentials of Fire Fighting* and this Instructor Guide Sheet, review and apply the knowledge/performance requirements pertaining to Rescue Operations and answer the self-test questions correctly.

AFIADL Learning Objective#	*NFPA Objective#*	***Topical Areas*** **(Referring to the Learning Objective, review the following topics using your reference material)**	**Reference**
010	**6.4.1**	**Rescue Operations** The general knowledge/skill requirements of a **Fire Fighter II** concerning rescue operations are: ***Topic (A). Auto Extrication*** 1. Fire Department's Role at a vehicle accident 2. Points of strength/weakness in auto body construction 3. Dangers associated with components and systems 4. Limitations of hand and power equipment 5. Safety procedures	IFSTA *Essentials of Fire Fighting* Chapter 7

Self-Test Questions

After you complete these questions, verify your answers with the references given in the lesson objective.

1. Name 4 hydraulic tools available to firefighters at the scene of an accident?

2. Pressure bags should never be stacked more than how many high when lifting a vehicle?

3. What are some concerns that the driver of the fire apparatus should weigh when parking the vehicle at the scene of an accident?

4. What is the difference between tempered and laminated glass?

5. What are the names of the different posts on a vehicle, and what is the location of each?

NOTE: Now that you have completed this portion of your knowledge training, apply this knowledge using the Performance Test supplement and start preparing for your final performance evaluation.

Performance Objective. Using all applicable safety equipment and information gained from the IFSTA *Essential of Fire Fighting* instruction and other departmental documents
P.O #25: Operate hand and power tools for extrication
P.O #26: Use cribbing and shoring material
P.O #27: Choose and apply appropriate techniques for moving/removing vehicle roofs, doors, windshields, windows, steering wheels, or columns, and the dashboard
P.O #28: Extricate a victim entrapped in a vehicle as part of a team in accordance with standards, regulations, and SOPs

011	**6.4.2**	***Topic (B). Specialized Rescue*** 1. Firefighter's role at operation 2. Hazards associated 3. Types and uses of rescue tools 4. Rescue practices and goals	IFSTA *Essentials of Fire Fighting* Chapter 19

Self-Test Questions

After you complete these questions, verify your answers with the references given in the lesson objective.

1. What is a cantilever collapse?

2. What is meant by the term "shoring"?

3. List 3 safety precautions one must remember when dealing with cave-ins and excavation rescues.

4. When rescuers respond to a situation involving electricity, what must they *alway*s do?

5. What is the ice rescue protocol?

6. When no medical emergency is prevalent, what is the best course of action a firefighter should take when handling people stuck in an elevator?

NOTE: Now that you have completed this portion of your knowledge training, apply this knowledge using the Performance Test supplement and start preparing for your final performance evaluation.

Performance Objective. Using all applicable safety equipment and information gained from the IFSTA *Essentials of Fire Fighting* instruction and other departmental documents
P.O #29: Identify and retrieve various types of rescue tools
P.O #30: Establish public barriers
P.O #31: Assist rescue teams, when assigned, in accordance with standards, regulations, and SOPs

Unit 5: Prevention, Preparedness, and Maintenance

Objective. Given IFSTA *Essentials of Fire Fighting* and this Instructor Guide Sheet, review and apply the knowledge/performance requirements pertaining to Prevention, Preparedness, and Maintenance and answer the self-test questions correctly.

AFIADL Learning Objective#	*NFPA Objective#*	*Topical Areas* **(Referring to the Learning Objective, review the following topics using your reference material)**	**Reference**
012	**6.5.1**	**Prevention, Preparedness, and Maintenance** The general knowledge/skill requirements of a **Fire Fighter II** concerning prevention, preparedness, and maintenance are: ***Topic (A). Preincident Surveys*** 1. Sources of water supply for fire protection 2. Fundamentals of fire suppression and detection systems 3. Common symbols diagramming construction features 4. Department requirements for surveys and form completion 5. Importance of accurate diagrams	IFSTA *Essentials of Fire Fighting* Chapter 7 Chapter 15 Chapter 19

Self-Test Questions

After you complete these questions, verify your answers with the references given in the lesson objective.

1. What is the purpose of conducting a preincident survey?

2. What are the four different colors of fire hydrants and the pressures associated?

3. What is residual pressure?

4. What is a distributor?

5. What are the three means of moving water through a distribution system?

6. Define a fixed-temperature heat detector.

7. What are two basic types of smoke detectors?

8. What are the three basic types of flame detectors?

9. What is a "deluge" system?

10. What is a "preaction" system?

11. What is a FDC, OSY, PIV?

12. What is represented with "NS" in a diamond on a map?

13. What is meant when "AS" is within a circle on a map?

NOTE: Now that you have completed this portion of your knowledge training, apply this knowledge using the Performance Test supplement and start preparing for your final performance evaluation.

Performance Objective. Using all applicable safety equipment and information gained from the IFSTA *Essential of Fire Fighting* instruction and other departmental documents
P.O #32: Identify components of fire suppression and detection systems
P.O #33: Sketch the site, buildings, and special features
P.O #34: Detect hazards and special considerations to include preincident sketch
P.O #35: Complete all forms
P.O #36: Prepare a preincident survey in accordance with standards, regulations, and SOPs

013	**6.5.2**	***Topic (B). Maintaining Tools and Equipment*** 1. Types of cleaning methods 2. Correct use of cleaning solvents 3. Manufacturer and departmental guidelines/documentation 4. Problem-reporting practices	IFSTA *Essentials of Fire Fighting* Chapters 4,6,8,9,12, 16 and SOPs

Self-Test Questions

After you complete these questions, verify your answers with the references given in the lesson objective.

1. How is a facepiece on an SCBA masked cleaned?

2. How should synthetic fiber ropes be cleaned?

3. How often should axe heads be painted to make sure they are clean and serviceable?

4. How should fire hose be dried after washing?

5. What the differences between synthetic and canvas salvage covers when cleaning?

NOTE: Now that you have completed this portion of your knowledge training, apply this knowledge using the Performance Test supplement and start preparing for your final performance evaluation.

Performance Objective. Using all applicable safety equipment and information gained from the IFSTA *Essentials of Fire Fighting* instruction and other departmental documents;
P.O #37: Identify and select correct tools
P.O #38: Follow guidelines for maintaining equipment
P.O #39: Complete recording and reporting procedures
P.O #40: Operate power plants, power tools, and lighting equipment in accordance with manufacturer's guidance and departmental guidelines
P.O #41: Maintain power plants, power tools, and lighting equipment in accordance with manufacturer's guidance and departmental guidelines

014	**6.5.3**	***Topic (C). Fire Hose Testing*** 1. Procedures for conducting safe hose testing 2. Indicators to remove a hose from service 3. Recording hose test results	IFSTA *Essentials of Fire Fighting* Chapter 12, SOPs

Self-Test Questions

After you complete these questions, verify your answers with the references given in the lesson objective.

1. What is the maximum number of length that hose should ever be tested at?

2. What is the minimum of safety equipment that is required to be worn when testing hose?

3. What are two types of service tests for fire hose?

4. What NFPA standard governs service testing on fire hose?

NOTE: Now that you have completed this portion of your knowledge training, apply this knowledge using the Performance Test supplement and start preparing for your final performance evaluation.

Performance Objective. Using all applicable safety equipment and information gained from the IFSTA *Essentials of Fire Fighting* instruction and other departmental documents
P.O #42: Operate hose testing equipment and nozzles
P.O #43: Record results
P.O #44: Perform an annual hose test on fire hose in accordance with manufacturer's guidance and departmental guidelines

015	**6.5.4**	***Topic (D). Hydrant Testing*** 1. Flow versus hydrant obstructions 2. Direction of outlets 3. Effects of mechanical damage 4. Definition of Terms	IFSTA *Essentials of Fire Fighting* Chapter 11

Self-Test Questions

After you complete these questions, verify your answers with the references given in the lesson objective.

1. What are the different reasons for the way a hydrant flows?

2. What does a pitot tube measure?

3. How is a hydrant's ability to drain tested?

4. What is meant by the term "static" pressure?

5. What are the two methods for holding the pitot tube?

6. What should firefighters be looking for when checking fire hydrants (potential problems)?

NOTE: Now that you have completed this portion of your knowledge training, apply this knowledge using the Performance Test supplement and start preparing for your final performance evaluation.

Performance Objective. Using all applicable safety equipment and information gained from the IFSTA *Essentials of Fire Fighting* instruction and other departmental documents;
P.O #45: Operate a pressurized hydrant
P.O #46: Use a pitot tube and pressure gauges
P.O #47: Detect damage during testing
P.O #48: Record results
P.O #49: Test the operability of and flow from a fire hydrant in accordance with manufacturer's guidance and departmental guidelines

Answers to Self-Test Questions

Unit I: General

1. Operations Officer.

2. Standard Operating Procedures.

3. Group of firefighters assigned to a particular piece of fire apparatus or to a particular station. A company consists of a company officer, a driver/operator (s), and one or more firefighters.

4. Responsible for providing the facilities, services, and materials necessary to support the incident.

5. Support and Service.

6. Division is a geographical designation; Group is a functional designation.

7. Command can only be transferred to someone who is on scene. Can be accomplished face to face or via another form of communication.

8. Unified Command is based upon the principle that a person can report to only one supervisor.

9. NFPA 1500.

Answers to Self-Test Questions

Unit II: Communications

1. National Fire Incident Reporting System.
2. United States Fire Administration.
3. See *IFSTA's Essentials* manual for a comprehensive list, page 651.
4. Terminology used to emphasize an "urgent message" over the radio.

Answers to Self-Test Questions

Unit III: Fire Ground Operations

Ignitable Liquid Fire Fighting

1. Class A.

2. Separating, Cooling, and Suppressing.

3. 6 feet.

4. .10 gpm/square feet.

5. Causes increased production of flammable vapors and greatly increases fire intensity.

Interior Structural Fire Fighting

1. Double female.

2. Reach, penetration, and least effect on thermal balance.

3. Gets you below the smoke, increases visibility, and reduce chances of tripping or falling into stairways or holes in floors. (177).

4. Breaking ground level or below-ground level windows, interior vertical ventilation (natural or cutting a hole with fan support) 362.

5. The leeward side of the building is the side that is opposite of the side in which the wind is striking 364.

6. See Page 268 of IFSTA's *Essentials of Fire Fighting.*

7. Reach.

8. The point at which the stream begins to lose its forward velocity (493)

9. Sagging floors, cracked walls, loose cornices, etc.

10. Fog stream.

Answers to Self-Test Questions

Flammable Gas Cylinder Fire Fighting

1. Boiling Liquid Expanding Vapor Explosion .
2. Ignitability increases.
3. Bills of lading, manifests, placards, packaging, etc.
4. Methane with small quantities of ethane, propane, butane, and pentane added.
5. Lighter than air. Has no odor (unless mercaptan introduced) and will displace oxygen; classified as an asphyxiant.
6. Fog stream.

Evidence

1. After evidence has been properly collected by the firefighter.
2. Areas fenced can be monitored by one person at a locked gate, cordon the area, board up windows, etc.
3. Once the fire department leaves the scene, a search warrant is then necessary to reenter the premises.
4. When the last fire department representative leaves the scene.
5. See page 624 of IFSTA's *Essentials of Fire Fighting,* page 624.

Answers to Self-Test Questions

UNIT IV: Rescue Operations

Auto Extrication

1. Hydraulic shears, rams, spreaders, porta-power tool.

2. Never more than two high.

3. Vehicle should be close enough to the scene for equipment and supplies to be readily available, however, not so close as to interfere with on-scene activities; provide a barrier from oncoming traffic.

4. Tempered is used inside and sometimes rear windows; glass separates into tiny pieces decreasing likelihood of long pointed pieces of glass. Laminated glass is actually two sheets of glass bonded together to a sheet of plastic sandwiched between them. Used primarily in windshields. Laminate sheet retains most of the shards and fragments.

5. A-Post: Front post where the front door is connected to the body; B-Post: the post between the front and rear doors on a four door vehicle or the door handle end post of a two-door vehicle; C-Post: post nearest the handle on the rear door of a four-door vehicle; on a two-door vehicle the rear roof post may be considered the C-post.

Answers to Self-Test Questions

Specialized Rescue Operations

1. Pattern of collapse occurs when one sidewall of a multistory building collapse leaving the floors attached to and supported by the remaining sidewall.

2. General term used to describe any of a variety of means by which unstable structures or parts of structures can be stabilized.

3. See page 208 and 209 of IFSTA's *Essentials of Fire Fighting* for answer.

4. Assume that electrical lines or equipment are energized; call for the power provider to respond (only power company personnel cut lines); control the scene

5. See page 212 of IFSTA's *Essentials of Fire Fighting* for answer.

6. Reassure the occupants that help is on the way and then wait for the elevator mechanic to arrive and handle the problem.

Answers to Self-Test Questions

Unit V: Prevention, Preparedness, and Maintenance

Preincident Surveys

1. To provide knowledge to firefighters on building construction, hazardous material storage, building layout, special processes, fire notification and suppression features, and occupancy concerns.

2. See page 388 of IFSTA's *Essentials of Fire Fighting* for answer.

3. Represents the pressure left in a distribution system at a specific location when a quantity of water is flowing.

4. Grid arrangement of smaller mains serving the individual fire hydrants and blocks of customers.

5. Direct pumping system, gravity system, and combination system.

6. A heat detector that is set for a certain temperature to go off (usually just above the highest ceiling temperature normally expected in a certain space). When temperature reaches threshold, the heated material either expands or melts or changes take place in resistance.

7. Photoelectric and ionization.

8. Those that detect light in the ultraviolet wave spectrum (UV detectors), those that detect light in the infrared wave spectrum (IR detectors), and those that detect both (UV/IR detectors).

9. A system that wets down the area where a fire originates by discharging water from all open heads in the system; used to protect extra hazardous occupancies.

10. See page 581 in IFSTA's *Essentials of Fire Fighting* for the answer.

11. Fire Department Connection; Outside Screw and Yoke, Post Indicator Valve.

12. Not sprinklered.

13. Automatic sprinklers all floors of building.

Answers to Self-Test Questions

Maintaining Tools and Equipment

1. Thoroughly washed with warm water containing any mild commercial disinfectant, and then should be rinsed with clear, warm water.

2. Cool water and mild soap is best; washing by hand consists of wiping the rope with a cloth or scrubbing it with a brush and then thoroughly rinsing with clean water.

3. Never!

4. Hard rubber booster hose, hard suction hose, and rubber-jacketed collapsible hose may be placed back on the apparatus while wet. Woven-jacket hose requires thorough drying before being reloaded on the apparatus. Hose should be dried IAW local procedures and manufacturer's recommendations.

5. Canvas should be completely dry before folding; synthetic can be dried wet (be careful of mildew, however).

Fire Hose Testing

1. No more than the number of lengths not to exceed 300 ft.

2. Safety helmet.

3. Acceptance and service.

4. NFPA 1962.

Answers to Self-Test Questions

Hydrant Testing

1. The proximity of the feeder mains and the size of the mains to which the hydrant is connected have a major impact on the amount of flow. Sedimentation and deposits within the distribution system may increase resistance of water flow.

2. Measure the flow pressure coming from a hydrant.

3. See Page 387 of the *Essentials of Fire Fighting* for the answer.

4. Stored potential energy that is available to force water throughout pipe, fittings, fire hose, and adaptors. In other words, the normal pressure existing on a system before a flow hydrant is opened.

5. See Page 389 of the *Essentials of Fire Fighting* for an illustration.

6. Are there any obstructions near that hydrant that would create a problem for an engineer to hook up a section of hose? Is the operating stem easily turned? Is the hydrant rusting or corroding? (See page 389 of IFSTA's *Essentials of Fire Fighting* for more information.)

Student Notes

Bibliography

References:

IFSTA, *Essentials of Fire Fighting*, 4th Edition, 1998, Fire Protection Publications, Oklahoma State University.

AND

NFPA 1001: Standard for Fire Fighter Professional Qualifications, 2002, National Fire Protection Association, Quincy, Massachusetts.

NFPA 1500: Standard for Fire Department Occupational Safety and Health Program, 2002, National Fire Protection Association, Quincy, Massachusetts.

NFPA 1404: Standard for a Fire Department Self-Contained Breathing Apparatus Program,2002, National Fire Protection Association, Quincy, Massachusetts.

NFPA 1582: Standard on Medical Requirements for Fire Fighters, 2000, National Fire Protection Association, Quincy, Massachusetts.

NFPA 1962: *Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*, 2003, National Fire Protection Association, Quincy, Massachusetts

Additional Suggested Information (P/N in brackets denotes CD-ROM)

IFSTA Firefighter II Videotape Series— P/N 36168, Fire Protection Publications, Oklahoma State University. (10-video package)

IFSTA Firefighter II CD-ROM Series—[P/N 36244], Fire Protection Publications, Oklahoma State University. (10CD-ROM package)

IFSTA Firefighter II Videotape Series—*Advanced Ventilation Techniques*, P/N 36171 [P/N 36236], Fire Protection Publications, Oklahoma State University.

IFSTA Firefighter II Videotape Series—Building Construction*,* P/N 36169[P/N 36234], Fire Protection Publications, Oklahoma State University.

IFSTA Firefighter II Videotape Series—Fire Control 2*,* P/N 36173 [P/N 36238], Fire Protection Publications, Oklahoma State University.

IFSTA Firefighter II Videotape Series —*Fire Hose Appliances,* P/N 36175 [P/N 36240], Fire Protection Publications, Oklahoma State University.

IFSTA Firefighter II Videotape Series — *Foam Fire Streams,* P/N 36174 [P/N 36239], Fire Protection Publications, Oklahoma State University.

IFSTA Firefighter II Videotape Series —*Introduction to Origin and Cause,* P/N 36177 [P/N 36242], Fire Protection Publications, Oklahoma State University.

IFSTA Firefighter II Videotape Series —*Municipal Water Systems*, P/N 36172 [P/N 36237], Fire Protection Publications, Oklahoma State University.

IFSTA Firefighter II Videotape Series —*Pre-Incident Survey Inspectionss,* P/N 36178 [P/N 36243], Fire Protection Publications, Oklahoma State University.

IFSTA Firefighter II Videotape Series —*Rescue Operations,* P/N 36170 [P/N 36235], Fire Protection Publications, Oklahoma State University.

IFSTA Firefighter II Videotape Series —*Sprinkler Systems,* P/N 36176 [P/N 36241], Fire Protection Publications, Oklahoma State University.

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