



National Fire Academy

R0396 – Strategic and Tactical Considerations for Fire Protection Systems
Version: 1st edition, 3rd printing, May 2023

Quarter:

ACE Credit: In the lower-division baccalaureate/associate degree category, three semester hours in fire science or public safety.

IACET Continuing Education Units: 0.0

Length of Course: 6 Days (40 hr., 55 min. contact hours, Sunday – Friday)

Prerequisite: Yes

**Curriculum: Fire Protection: Technical
Training Specialist: Keith Heckler**

Instructor:

Instructor email/phone:

Classroom: J-

Meeting Time: 8 AM – 5 PM

Table of Contents

Course Description	Course Resources
Primary and Secondary Audience	Evaluation Procedures
Course Scope	Course Outline
Course Objectives	Policies
Course Delivery Method	Grading Rubrics

Course Description (Catalog)

R0396 – “Strategic and Tactical Considerations for Fire Protection Systems.” This six-day course is designed to provide Incident Commanders (IC) with the tools they need to conduct proper pre-incident planning for the target hazards in their communities. This knowledge will help the IC identify what fire protection systems are available at these sites, how they work, and how to use them in developing firefighting objectives and making strategic and tactical firefighting decisions.

The course covers the fundamental procedures for gathering and using information related to the fire protection systems that an IC may need during a fire or related emergency. It includes the basic concepts of pre-incident planning and the strategies an officer might use to share this information with other responders. The course describes the components of sprinkler systems, stationary fire pumps, standpipe systems, fire alarm systems, smoke management systems, and specialty fire protection systems (e.g., Halon™ suppression systems, hood-range systems, water mist systems, etc.).

Student Qualifications (Primary and Secondary Audience)

“Strategic and Tactical Considerations for Fire Protection Systems” (STCFPS) is intended for any fire officer responsible for the command and control of incident operations, preferably in the built environment. The target audience includes command officers, Company Officers (COs), fire department training officers, fire prevention staff and those acting in that capacity.

In addition, the course is open to any individual who conducts preincident surveys, or gathers and processes preincident data, as well as officers who are upwardly mobile in their organizations and will or may be in command positions in the future.

Course Scope (Goal)

Incident Commanders (ICs) will recognize the need for fire protection systems and the importance of relying on them to provide specific fire protection. ICs will understand the different types and functions of fire protection systems available. The IC at the fire scene will know what fire protection systems are available, where they are located, how they work, and how to overcome common failures. ICs will recognize the importance in using the preincident planning process and the PIP to make informed strategic and tactical decisions.

Course Objectives (Course Learning Outcomes – TLOs)

After successfully completing this course, you will be able to accomplish the following:

- Defend the importance of having prior knowledge of the fire protection systems in a building.
- Explain the importance of preincident planning in making appropriate decisions in specific emergency situations.
- Explain the benefits of preincident planning and the relationship between these activities and the effective use of fire protection systems.
- Explain the value and performance capabilities of many of the passive fire protection features installed in buildings and facilities.
- Explain the role of fire alarm systems in life safety, fire protection and fire control.
- Explain the strategic and tactical roles of water-based systems in fire control and suppression.

- Distinguish the types of smoke management systems, their locations in buildings, how they operate, and their roles in strategic and tactical efforts.
- Distinguish the role and function of specialty systems in fire protection.
- Explain the need to identify special hazards and how they affect the Pre-Incident Plan (PIP).
- Present a Pre-Incident Plan (PIP) to a multicompany drill environment.

Course Delivery Method

The National Fire Academy (NFA) offers specialized training courses and advanced management programs of national impact in an academic classroom environment [on campus at the National Emergency Training Center \(NETC\) in Emmitsburg, Maryland](#). This classroom course is designed for the national level fire service officer from State and local fire service organizations. During this 6-day delivery, students will reside in dormitories provided on campus with classes conducted in classrooms designed for critical student/instructor interaction. All course materials are designed for interactive classroom environments, in either paper notebook or electronic formats.

Course Schedule

The purpose of the course schedule is to give you, at a glance, the required preparation, activities, and evaluation components of your course.

DAY 1	DAY 2
Introduction, Welcome and Administrative	Target hazard for final project due from all groups Unit 3: Preincident Planning Benefits
<i>Break</i>	<i>Break</i>
Introduction, Welcome and Administrative (cont'd) Unit 1: Purpose of Fire Protection Systems	Unit 3: Preincident Planning Benefits (cont'd)
<i>Break</i>	<i>Break</i>
Unit 1: Purpose of Fire Protection Systems (cont'd)	Unit 3: Preincident Planning Benefits (cont'd)
<i>Lunch Break</i>	<i>Lunch Break</i>
Unit 2: Decision-Making	Unit 4: Passive Fire Protection Systems
<i>Break</i>	<i>Break</i>
Unit 2: Decision-Making (cont'd)	Unit 4: Passive Fire Protection Systems (cont'd)

Read Units 4 and 5

Read Unit 6

DAY 3	DAY 4
Unit 5: Fire Alarm Systems	Unit 6: Water-Based Protection Systems (cont'd)
<i>Break</i>	<i>Break</i>
Unit 5: Fire Alarm Systems (cont'd)	Unit 6: Water-Based Protection Systems (cont'd)
<i>Break</i>	<i>Break</i>
Unit 5: Fire Alarm Systems (cont'd)	Unit 6: Water-Based Protection Systems (cont'd)
<i>Lunch Break</i>	<i>Lunch Break</i>
Unit 5: Fire Alarm Systems (cont'd)	Unit 6: Water-Based Protection Systems (cont'd)
<i>Break</i>	<i>Break</i>
Unit 6: Water-Based Protection Systems	Unit 6: Water-Based Protection Systems (cont'd)

Read Unit 7

Read Units 8 and 9

DAY 5	DAY 6
Unit 7: Smoke Control Systems	Unit 10: Final Presentations and Examination
<i>Break</i>	<i>Break</i>
Unit 7: Smoke Control Systems (cont'd) Unit 8: Specialty Systems	Unit 10: Final Presentations and Examination (cont'd)
<i>Break</i>	<i>Break</i>
Unit 8: Specialty Systems (cont'd)	Unit 10: Final Presentations and Examination (cont'd) Final Exam
<i>Lunch Break</i>	<i>Lunch Break</i>
Unit 8: Specialty Systems (cont'd) Unit 9: Special Hazards and Trends	Unit 10: Final Presentations and Examination (cont'd)
<i>Break</i>	<i>Break</i>
Unit 9: Special Hazards and Trends (cont'd)	Unit 10: Final Presentations and Examination (cont'd) Graduation

Course Resources (Instructional Materials)

In order to be fully prepared, obtain a copy of the required textbooks and other instructional materials prior to the first day of class.

Required Readings

NIOSH. (2009). *Nine career fire fighters die in rapid fire progression at commercial furniture showroom – South Carolina.*

Required Resources (Course Textbook)

Student Manual.

Supplemental Resources (Supplemental Course Textbook)

None.

Grading Methodology (Evaluation Procedures)

Course Grade

To successfully complete the course, students must achieve at least a “C.” The following course grading plan should be used to determine the assigned course grade for each student in the class.

Grading Breakdown:

Assessments	Percentage of total grade
Course Pre-Work Completion	20%
Final Examination	40%
Final Project Activity	40%
Total	100%

Grading Scale:

Final Score	Letter Grade
100 – 90	A
89 – 80	B
79 – 70	C
69 or below	F

Course Outline

Unit 1: Purpose of Fire Protection Systems (Day 1)

Objectives

Terminal Objective

The students will be able to:

- 1.1 Defend the importance of having prior knowledge of the fire protection systems in a building.

Enabling Objectives

The students will be able to:

- 1.1 Identify components of common fire protection systems.
- 1.2 Explain reasons for the use of fire protection systems.
- 1.3 Explain the consequences that may result from the lack of understanding of fire protection systems.

Unit 2: Decision-Making (Day 1)

Objectives

Terminal Objective

The students will be able to:

- 2.1 Explain the importance of preincident planning in making appropriate decisions in specific emergency situations.

Enabling Objectives

The students will be able to:

- 2.1 Distinguish between Classical and Naturalistic Decision-Making.
- 2.2 Determine when to use each approach.

Unit 3: Preincident Planning Benefits (Day 2)

Objectives

Terminal Objective

The students will be able to:

- 3.1 Explain the benefits of preincident planning and the relationship between these activities and the effective use of fire protection systems.

Enabling Objectives

The students will be able to:

- 3.1 Outline a list of information sources for completing Pre-Incident Plans (PIPs).
- 3.2 Explain how PIPs are used before, during and after a fire.
- 3.3 Identify a list of information sources for completing PIPs.

Unit 4: Passive Fire Protection Systems (Day 2)

Objectives

Terminal Objective

The students will be able to:

- 4.1 Explain the value and performance capabilities of many of the passive fire protection features installed in buildings and facilities.

Enabling Objectives

The students will be able to:

- 4.1 Identify the types of protection provided by property line setbacks, firewalls, rated assemblies, and fire-resistive materials.
- 4.2 Predict locations of passive fire protection in a building.
- 4.3 Explain the intentions and limitations of the differing types of passive fire protection.

Unit 5: Designing Training Programs (Day 3)

Objectives

Terminal Objective

The students will be able to:

- 5.1 Explain the role of fire alarm systems in life safety, fire protection and fire control.

Enabling Objectives

The students will be able to:

- 5.1 Identify the types of alarm systems and their locations.
- 5.2 Explain how each type of alarm system works.
- 5.3 Determine the types of impairments that can affect the effectiveness of fire alarm systems.
- 5.4 Explain strategies and tactics related to the effective use of fire alarm systems.

Unit 6: Water-Based Protection Systems (Day 3)

Objectives

Terminal Objective

The students will be able to:

- 6.1 Explain the strategic and tactical roles of water-based systems in fire control and suppression.

Enabling Objectives

The students will be able to:

- 6.1 Explain the role of sprinklers in fire protection and how they operate.
- 6.2 Explain the role of standpipe systems in fire protection and how they operate.
- 6.3 Explain the role of fire pumps in fire protection and how they operate.

Unit 7: Smoke Control Systems (Day 5)

Objectives

Terminal Objective

The students will be able to:

- 7.1 Distinguish the types of smoke management systems, their locations in buildings, how they operate, and their roles in strategic and tactical efforts.

Enabling Objectives

The students will be able to:

- 7.1 Explain the types of smoke management features and their locations in buildings.
- 7.2 Explain the operation of each type of smoke management feature or system.
- 7.3 Explain the need to incorporate smoke management systems into Pre-Incident Plans (PIPs).

Unit 8: Specialty Systems (Day 5)

Objectives

Terminal Objective

The students will be able to:

- 8.1 Distinguish the role and function of specialty systems in fire protection.

Enabling Objectives

The students will be able to:

- 8.1 Identify five types of specialty fire protection systems.
- 8.2 Explain where they are likely to be found and how to operate them.
- 8.3 Explain the types of impairments to the systems that may impede their effectiveness.

Unit 9: Special Hazards and Trends (Day 5)

Objectives

Terminal Objective

The students will be able to:

- 9.1 Explain the need to identify special hazards and how they affect the Pre-Incident Plan (PIP).

Enabling Objectives

The students will be able to:

- 9.1 Recognize the different possible special hazards you could encounter in today's world.
- 9.2 Explain the importance of identifying special hazards on a location preincident survey.
- 9.3 Explain how the existence of special hazards fit into a PIP.
- 9.4 Recognize the hazards associated with new technologies and products.

Unit 10: Final Presentations and Examination (Day 6)

Objectives

Terminal Objective

The students will be able to:

- 10.1 Present a Pre-Incident Plan (PIP) to a multicompany drill environment.

Enabling Objectives

The students will be able to:

- 10.1 Analyze the physical characteristics of a structure.
- 10.2 Create resource deployment strategies.
- 10.3 Create a PIP.

Policies

Class Attendance and Cancellation Policy

Attendance

- You are required to attend all sessions of the course. If you do not, you may not receive a certificate, and your stipend may be denied.
- If you need to depart campus early and miss any portion of the course and/or graduation, you must make the request in writing to the NFA training specialist. The training specialist, in collaboration with the superintendent, may waive the attendance requirement in order to accommodate you with extraordinary circumstances as long as you complete all course requirements. If you receive approval for departing early, you must forward the approval to the Admissions Office so your stipend reimbursement is not limited.

Student Substitutions

Substitutions for NFA courses are made from waiting lists; your fire department can't send someone in your place.

Cancellations or No-Shows

NFA's mission for delivery of courses is impaired significantly by cancellations and no-shows. It is very difficult and costly to recruit students at the last minute. Currently there is a two-year ban on student attendance for students who are no-shows or cancel within 30 days of the course start date without a valid reason. If you receive such a restriction, your supervisor needs to send a letter to our Admissions Office explaining the cancellation/no-show.

Course Failure

If you fail an on-campus course, you will not be issued a stipend for that course. You can reapply for the failed course or any other NFA course and go through the random selection process. You don't have to successfully complete the failed course before attending another NFA course.

Student Code of Conduct Policy

Students, instructors and staff are expected to treat each other with respect at all times. Inappropriate behavior will not be tolerated and may result in removal from campus and denial of stipends.

Writing Expectations

Student writing will conform to the generally accepted academic standards for college papers. Papers will reflect the original work of the student and give appropriate credit through citations

for ideas belonging to other authors, publications or organizations. Student written work should be free of grammatical and syntax errors, free of profanity or obscene language or ideas, and reflect critical thinking related to the course subject matter.

Citation and Reference Style

Attention Please: Students will follow the APA, Sixth Edition as the sole citation and reference style used in written work submitted as part of coursework to NFA. Assignments completed in a narrative essay, composition format, abstract, and discussion posts must follow the citation style cited in the APA, Sixth Edition.

Late Assignments

Students are expected to submit classroom assignments by the posted due date (11:59 p.m. EDT/EST) and to complete the course according to the published class schedule. As adults, students, and working professionals, you must manage competing demands on your time. Discussion board postings submitted within 3 days after the submission deadline will receive up to a 20% deduction. Those that do not submit their discussion board postings within this timeline will receive a “0” grade for the week. Final assignment papers will not be accepted after the deadline. Any paper submitted after the deadline will receive a “0” grade for that assignment.

Netiquette

Online learning promotes the advancement of knowledge through positive and constructive debate – both inside and outside the classroom. Forums on the Internet, however, can occasionally degenerate into needless insults and “flaming.” Such activity and the loss of good manners are not acceptable in a professional learning setting – basic academic rules of good behavior and proper “Netiquette” must persist. Remember that you are in a place for the rewards and excitement of learning which does not include descent to personal attacks or student attempts to stifle the forum of others.

- Technology Limitations. While you should feel free to explore the full-range of creative composition in your formal papers, keep e-mail layouts simple. The NFA Online classroom may not fully support MIME or HTML encoded messages, which means that bold face, italics, underlining, and a variety of color-coding or other visual effects will not translate in your e-mail messages.
- Humor Note. Despite the best of intentions, jokes and especially satire can easily get lost or taken seriously. If you feel the need for humor, you may wish to add “emoticons” to help alert your readers: ;-), :), ☺.

Disclaimer Statement

Course content may vary from the outline to meet the needs of this particular group.

Grading

Please review the following rubrics that explain how grades will be awarded.

Students who do not complete the entire course will be awarded an Incomplete (I) grade. In accordance with National Fire Academy academic policies, an Incomplete (I) grade must be removed by the end of the next semester following the course, or it automatically becomes a Failing (F) grade.

If you fail an on-campus course, you will not be issued a stipend for that course. You can reapply for the failed course or any other NFA course and go through the random selection process. You don't have to successfully complete the failed course before attending another NFA course.

http://www.usfa.fema.gov/training/nfa/admissions/student_policies.html

Academic Honesty

Students are expected to exhibit exemplary ethical behavior and conduct as part of the NFA community and society as a whole. Acts of academic dishonesty including cheating, plagiarism, deliberate falsification, and other unethical behaviors will not be tolerated.

Students are expected to report academic misconduct when they witness a violation. All cases of academic misconduct shall be reported by the instructor to the Training Specialist.

If a student is found to have engaged in misconduct and the allegations are upheld, the penalties may include, but are not limited to one or a combination of the following:

- expulsion,
- withholding of stipend or forfeiture of stipend paid,
- exclusion from future classes for a specified period; depending on the severity it could range from 1-10 years, and/or
- forfeiture of certificate for course(s) enrolled in at NETC.

Refer to NFA-specific Standard Operating Procedure 700.1 – *Academic Code of Conduct and Ethics* for more information.

Grading Rubrics

Final Project Presentation Grading Rubric					
Excellent	Good	Average	Fair	Poor	
<p>Performed with an exceptional level of mastery.</p> <p>Required no assistance or prompting.</p> <p>Thoroughly answered questions while also directing students to other sources of information.</p>	<p>Performed with an above average level of mastery.</p> <p>Required minimal assistance or prompting.</p> <p>Answered questions sufficiently while providing other pertinent information.</p>	<p>Performed at an adequate level of mastery.</p> <p>Required some assistance or prompting.</p> <p>Answered questions sufficiently.</p>	<p>Performed at a minimal level of mastery.</p> <p>Required a fair amount of assistance and prompting.</p> <p>Answered questions with difficulty.</p>	<p>Performed at an inadequate level.</p> <p>Required significant assistance and prompting.</p> <p>Was unable to answer questions.</p>	1 point
5 points	4 points	3 points	2 points	1 point	
Exceptionally Competent	Highly Competent	Competent	Somewhat Competent	Not Competent	
Student Number	Team Number	Student Name	All applicable fire protection features in the facility were discussed	Overall site plan with distances and hydrants identified	PowerPoint presentation well-designed and free of grammatical errors
1.				Appropriate level of quiz provided	Presentation and student participation
2.					Total
3.					
4.					
5.					
6.					