



FEMA

R0396

Dear National Fire Academy Student:

Congratulations on being selected to attend the U.S. Fire Administration's (USFA's)/National Fire Academy's (NFA's) "Strategic and Tactical Considerations for Fire Protection Systems" (STCFPS) course.

A significant portion of the course will be devoted to preincident planning and related training activities. These assignments and activities require your active participation. You should be proficient in developing and delivering PowerPoint presentation.

In addition to the assignment below you need to read the attached document, "Nine Career Fire Fighters Die in Rapid Fire Progression," and be prepared to discuss it in class.

You are asked to bring the following items with you for use in the course. **This is not your final project. You will develop your final project Pre-incident Plan (PIP) throughout the week you are in class.**

- A sample PIP of a target hazard in your community, preferably a plan already in use. For this course please bring a new "clean" USB flash drive (thumb drive, not to exceed 8 MB) to be used in the classroom.
- Digital photographs of the target hazard, including:
 - Exterior views.
 - Nearby streets and access points.
 - Fire hydrants or water supply locations.
 - Fire department connections.
 - Fire alarm control panels.
 - Fire sprinkler risers and pump rooms (if any).
 - Specialty fire protection systems.
 - Fire command rooms.
 - Special trends and hazards.

Note: Be sure to obtain permission from the building owner or occupant before you take photographs. They may have proprietary business information they do not want shared.

As you prepare your company level training class, departments often integrate a version of a Quick Access Prefire Plan (QAP) as a single element of the plan. The QAP is not a complete PIP; it is simply a portion used by responding companies. If your department has their own version of a QAP, use of that is preferred; otherwise a template is provided.

Your final project will be to deliver an in-depth company level training class based upon a PIP you, as students, bring to class. This training will be done in small groups and may or may not be based upon the PIP information that you provide.

This class is a six day class which starts on Sunday at 8 a.m. Subsequent classes will meet daily from 8 a.m. to 5 p.m., with evening classes possible.

The NFA classroom environment is computer based. Increased numbers of students and instructors are bringing laptop computers or other electronic devices to campus; you are responsible for the security and maintenance of your equipment. The NFA cannot provide computer software, hardware (which includes disks, printers, scanners, monitors, etc.), or technical support for your device. For your convenience, we do provide surge protector power strips at each classroom table.

Should you need to access the Student Computer Lab, it is located in Building D and is available for all students to use. The lab is open daily with a technician available Monday through Thursday from 1700 to 2100 (5 p.m. to 9 p.m.) and on Saturdays from 0800 to 1200 (8 a.m. to noon). The lab uses Windows 7 and Office 2013 as the software standard.

If you need additional information related to your course's content or requirements, please contact Mr. Keith Heckler, Fire Protection: Technical Curriculum Training Specialist, at (301) 447-7256, or by email at keith.heckler@fema.dhs.gov.

Sincerely,



Tonya L. Hoover, Superintendent
National Fire Academy
U.S. Fire Administration

Enclosures

Quick Access Prefire Plan Example

Building Address:

1234 Fairchild Street

Building Description:

One-story, exterior masonry walls.

Roof Construction:

Plywood panels on wood trusses, hot mop finish.

Floor Construction:

Concrete slab.

Occupancy Type:

Mixed production, office, warehouse.

Initial Resources Required:

Four Engines, Two Trucks, One Tender, One EMS, One Chief

Hazards to Personnel:

*Woodworking: dust and power equipment.
Flammable liquid storage and painting.*

Location of Water Supply:

Hydrants on all corners of site.

Available Flow:

1,175 gpm

		Estimated Fire Flow			
Level of Involvement	25%	50%	75%	100%	
Estimated Fire Flow	500	1,000	1,500	3,000	

Fire Behavior Prediction:

Rapid due to extensive combustible load.

Predicted Strategies:

*Assist daytime staff with immediate rescue.
Support automatic sprinkler system.
Protect exposures.*

Problems Anticipated:

Potential for low water volume at onsite hydrants.

Standpipe:

No

Sprinklers:

Wet pipe throughout

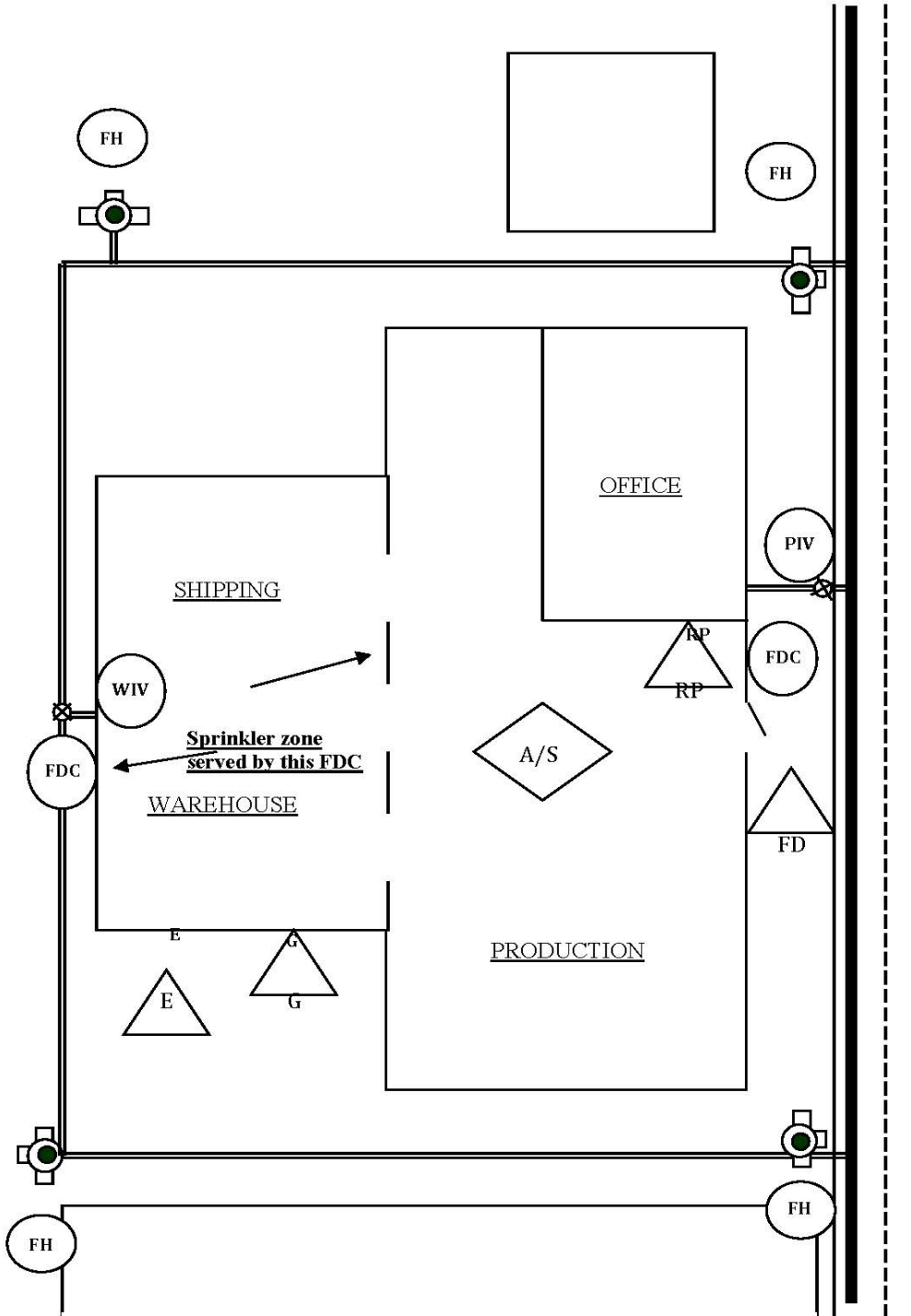
Fire Detection:

No



Address: **1234 Fairchild Street**

Occupancy: **ACME WOODWORKING AND STORAGE CO.**



Strategic And Tactical Considerations for Fire Protection Systems

Additional Pre-Course Material
Please Review Prior To Arrival

Nine Career Fire Fighters Die in Rapid Fire Progression at Commercial Furniture Showroom – South Carolina



Death in the Line of Duty...A summary of a NIOSH fire fighter fatality investigation F2007-18 Date Released: February 11, 2009

On June 18, 2007, nine career fire fighters (all males, ages 27 – 56) died when they became disoriented and ran out of air in rapidly deteriorating conditions inside a burning commercial furniture showroom and warehouse facility. The first arriving engine company found a rapidly growing fire at the enclosed loading dock connecting the showroom to the warehouse. The Assistant Chief entered the main showroom entrance at the front of the structure but did not find any signs of fire or smoke in the main showroom.

He observed fire inside the structure when a door connecting the rear of the right showroom addition to the loading dock was opened. Within minutes, the fire rapidly spread into and above the main showroom, the right showroom addition, and the warehouse. The burning furniture quickly generated a huge amount of toxic and highly flammable gases along with soot and products of incomplete combustion that added to the fuel load. The fire overwhelmed the interior attack and the interior crews became disoriented when thick black smoke filled the showrooms from ceiling to floor. The interior fire fighters realized they were in trouble and began to radio for assistance as the heat intensified. One fire fighter activated the emergency button on his radio. The front showroom windows were knocked out and fire fighters, including a crew from a mutual-aid department, were sent inside to search for the missing fire fighters. Soon after, the flammable mixture of combustion by-products ignited, and fire raced through the main showroom. Interior fire fighters were caught in the rapid fire progression and nine fire fighters from the first-responding fire department died. At least nine other fire fighters, including two mutual-aid fire fighters, barely escaped serious injury.

NIOSH investigators concluded that, to minimize the risk of similar occurrences, fire departments should:

- develop, implement and enforce written standard operating procedures (SOPs) for an occupational safety and health program in accordance with NFPA 1500

- develop, implement, and enforce a written Incident Management System to be followed at all emergency incident operations
- develop, implement, and enforce written SOPs that identify incident management training standards and requirements for members expected to serve in command roles
- ensure that the Incident Commander is clearly identified as the only individual with overall authority and responsibility for management of all activities at an incident
- ensure that the Incident Commander conducts an initial size-up and risk assessment of the incident scene before beginning interior fire fighting operations
- train fire fighters to communicate interior conditions to the Incident Commander as soon as possible and to provide regular updates
- ensure that the Incident Commander establishes a stationary command post, maintains the role of director of fireground operations, and does not become involved in fire-fighting efforts
- ensure the early implementation of division / group command into the Incident Command System
- ensure that the Incident Commander continuously evaluates the risk versus gain when determining whether the fire suppression operation will be offensive or defensive
- ensure that the Incident Commander maintains close accountability for all personnel operating on the fireground
- ensure that a separate Incident Safety Officer, independent from the Incident Commander, is appointed at each structure fire
- ensure that crew integrity is maintained during fire suppression operations
- ensure that a rapid intervention crew (RIC) / rapid intervention team (RIT) is established and available to immediately respond to emergency rescue incidents
- ensure that adequate numbers of staff are available to immediately respond to emergency incidents
- ensure that ventilation to release heat and smoke is closely coordinated with interior fire suppression operations
- conduct pre-incident planning inspections of buildings within their jurisdictions to facilitate development of safe fireground strategies and tactics
- consider establishing and enforcing standardized resource deployment approaches and utilize dispatch entities to move resources to fill service gaps
- develop and coordinate pre-incident planning protocols with mutual aid departments
- ensure that any offensive attack is conducted using adequate fire streams based on characteristics of the structure and fuel load present
- ensure that an adequate water supply is established and maintained
- consider using exit locators such as high intensity floodlights or flashing strobe lights to guide lost or disoriented fire fighters to the exit

- ensure that Mayday transmissions are received and prioritized by the Incident Commander
- train fire fighters on actions to take if they become trapped or disoriented inside a burning structure
- ensure that all fire fighters and line officers receive fundamental and annual refresher training according to NFPA 1001 and NFPA 1021
- implement joint training on response protocols with mutual aid departments
- ensure apparatus operators are properly trained and familiar with their apparatus
- protect stretched hose lines from vehicular traffic and work with law enforcement or other appropriate agencies to provide traffic control
- ensure that fire fighters wear a full array of turnout clothing and personal protective equipment appropriate for the assigned task while participating in fire suppression and overhaul activities
- ensure that fire fighters are trained in air management techniques to ensure they receive the maximum benefit from their self-contained breathing apparatus (SCBA)
- develop, implement and enforce written SOPS to ensure that SCBA cylinders are fully charged and ready for use
- use thermal imaging cameras (TICs) during the initial size-up and search phases of a fire
- develop, implement and enforce written SOPs and provide fire fighters with training on the hazards of truss construction
- establish a system to facilitate the reporting of unsafe conditions or code violations to the appropriate authorities
- ensure that fire fighters and emergency responders are provided with effective incident rehabilitation
- provide fire fighters with station / work uniforms (e.g., pants and shirts) that are compliant with NFPA 1975 and ensure the use and proper care of these garments.

Additionally, federal and state occupational safety and health administrations should:

- consider developing additional regulations to improve the safety of fire fighters, including adopting National Fire Protection Association (NFPA) consensus standards.

Additionally, manufacturers, equipment designers, and researchers should:

- continue to develop and refine durable, easy-to-use radio systems to enhance verbal and radio communication in conjunction with properly worn SCBA
- conduct research into refining existing and developing new technology to track the movement of fire fighters inside structures.

Additionally, code setting organizations and municipalities should:


- require the use of sprinkler systems in commercial structures, especially ones having high fuel loads and other unique life-safety hazards, and establish retroactive requirements for the installation of fire sprinkler systems when additions to commercial buildings increase the fire and life safety hazards
- require the use of automatic ventilation systems in large commercial structures, especially ones having high fuel loads and other unique life-safety hazards.

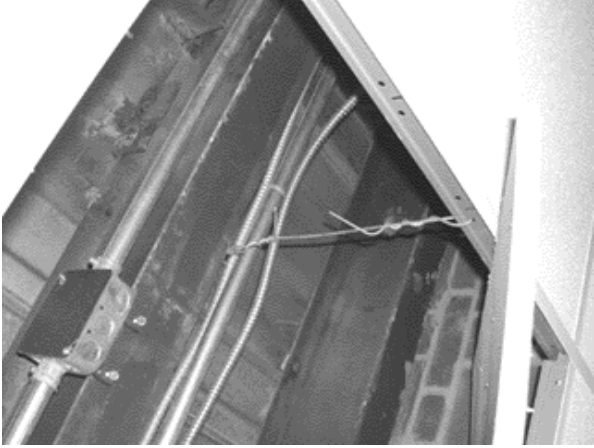
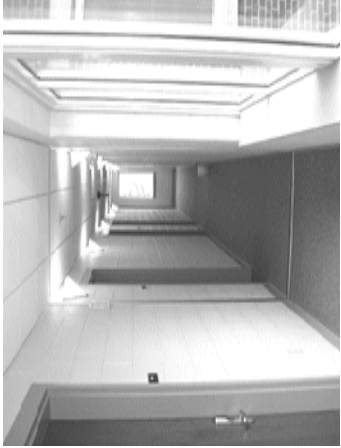
Additionally, municipalities and local authorities having jurisdiction should:



- coordinate the collection of building information and the sharing of information between building authorities and fire departments
- consider establishing one central dispatch center to coordinate and communicate activities involving units from multiple jurisdictions
- ensure that fire departments responding to mutual aid incidents are equipped with mobile and portable communications equipment that are capable of handling the volume of radio traffic and allow communications among all responding companies within their jurisdiction.


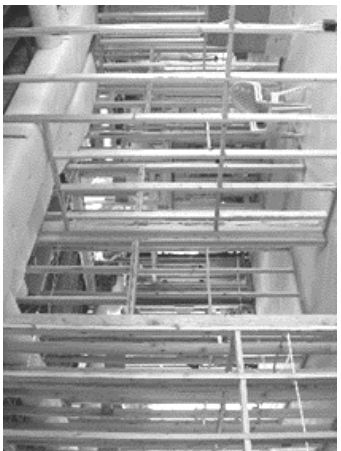
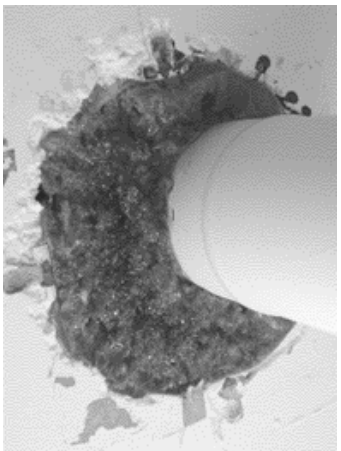
Passive Fire Protection Features



It is very difficult to identify passive fire protection features in buildings or structures once they are constructed. This job aid may help the Incident Commander (IC) or preincident planning team identify some of the more common passive fire protection features. The building department or fire marshal's office may have drawings or building plans that clearly show where these features are found on specific buildings.


	Feature	Description	Fire-Resistance Ratings (Hours)	Where Found
	Firewall	<p>A wall that restricts the spread of fire, and extends continuously from the foundation to or through the roof. All openings must be protected with fire doors or dampers. Firewalls have sufficient structural stability under fire conditions to allow structural collapse on either side without causing the wall to collapse.</p> <p>By code, firewalls create separate buildings.</p>	2, 3 or 4	Separating large open spaces; separations between different occupancy types.

	Feature	Description	Fire-Resistance Ratings (Hours)	Where Found
	<p style="text-align: center;">Fire Barrier</p>	<p>A wall or floor/ceiling assembly, or combination of both designed to restrict fire spread. All openings must be protected with fire doors or dampers.</p> <p>Fire barriers can be vertical (walls) or horizontal (floor/ceilings), or both, and end at the outer edges of the spaces they create.</p>	<p style="text-align: center;">1, 2, 3 or 4</p>	<p style="text-align: center;">Occupancy separations, shaft enclosures, exit passageways, incidental use areas, horizontal exits.</p>
	<p style="text-align: center;">Fire Partition</p>	<p>A wall designed to restrict fire spread. The partitions end at the outer edges of the spaces they create.</p>	<p style="text-align: center;">1, 2, 3 or 4</p>	<p style="text-align: center;">Corridors, walls separating dwelling units, walls separating tenant spaces in a covered mall.</p>

	Feature	Description	Fire-Resistance Ratings (Hours)	Where Found
	<p>Fire Door Assembly</p>	<p>Any combination of fire door, frame, hardware, and other accessories that together provide a specific degree of fire protection rating.</p>	<p>1/3, 1/2, 1, 1 1/2, or 3</p>	<p>Any fire-resistive rated wall assembly that has openings for moving people or goods.</p>
	<p>Fire Damper</p>	<p>A device designed to close automatically upon detection of heat, interrupt migratory airflow, and restrict flame passage.</p>	<p>1 1/2, or 3</p>	<p>Ducts and air transfer openings.</p>

	Feature	Description	Fire-Resistance Ratings (Hours)	Where Found
	Draft Stop	Material, device or construction installed to restrict the movement of air within concealed spaces of combustible buildings.	None	Crawl spaces, attics, floor/ceiling assemblies, roof/ceiling assemblies.
	Fire-blocking	Building materials installed to resist the free passage of flame to other areas of the building through concealed spaces.	None	Walls, ceilings, floors, stair stringers.
	Firestop	Specific materials or products (pillows, pads, caulk) that are designed, tested, and fire resistance rated to stop fire-spread through rated walls or ceilings.	1 to 4	Pipe penetrations, cable penetrations, duct penetrations.

	Feature	Description	Fire-Resistance Ratings (Hours)	Where Found
	Smoke Barrier	A continuous vertical or horizontal membrane that is designed and constructed to resist the passage of smoke.	None	Wall, floor, ceiling assembly, hospitals, nursing homes, jails.
	Smoke Damper	A device designed to close automatically upon the detection of smoke, and to resist the passage of air and smoke. Where required, is capable of being repositioned from a remote command station.	None, rated for air leakage	Ducts and air transfer openings.

	Feature	Description	Fire-Resistance Ratings (Hours)	Where Found
	<p>Combination Fire/Smoke Damper</p>	<p>A device designed to close automatically upon the detection of heat or smoke, and to resist the passage of air and smoke.</p> <p>Where required, is capable of being repositioned from a remote command station.</p>	<p>1 1/2 to 3 for fire damper, none for smoke damper (air leakage rated)</p>	<p>Ducts and air transfer openings.</p>

