

<b>PROGRAM: Living With Fire</b> <b>MODULE: Evacuation</b>
---

**MODULE OVERVIEW:**

Evacuation is a critical but often neglected strategy in the college environment. This module seeks to provide students with an increased awareness relative to the danger of fire. Emphasis is placed upon the student's behavior and decision-making pertaining to evacuation procedures during a fire situation. Through case review, rapid evacuation is presented as a tool that is all too often critical to survival. As such this program should not be presented or constructed as a definitive source of fire related instruction. Based on the limited nature of this lesson plan it should be expanded and or adapted to address local needs.

**GENERAL DESCRIPTION:**

Living with Fire is a unique, student-centered project that seeks to determine and address the needs of the student relating to the dangers of fire in the college environment. As students, you must now be capable of independently making the correct choices that affect your ability to survive should a fire develop.

This program will establish a national source for college fire related information and produce a series of new activities, events and educational resources specific to the college student. If we are going to make a difference and reduce the tragic effects of fire, we need your candid conversation and honest input. During this focus group, please provide as much input and discussion when responding to a question or discussion. Your assistance will help us to create quality programs that will save lives.

**DISCLAIMER:**

**This lesson plan may not address all of the issues, needs, requirements and policies of your college or university. It's objective is to provide a basis for the development of a lesson plan specific to your institution. The instructor MUST evaluate the relevancy of the information in this lesson plan to your local conditions and use it as a resource to modify as necessary to address local needs.**

**INTERNET REFERENCE SOURCES:**

**American Cancer Society**  
[www.cancer.org](http://www.cancer.org)

**NFPA International**  
[www.nfpa.org](http://www.nfpa.org)

**Campus Firewatch**  
[www.campus-firewatch.com](http://www.campus-firewatch.com)

**SimplexGrinnell**  
[www.simplexgrinnell.com](http://www.simplexgrinnell.com)

**National Electric Manufacturers Association**  
[www.nema.org](http://www.nema.org)

**United States Fire Administration**  
[www.usfa.fema.gov](http://www.usfa.fema.gov)

**National Fire Sprinkler Association**  
[www.nfsa.org](http://www.nfsa.org)

**University of Texas System**  
[www.utsystem.edu](http://www.utsystem.edu)

**INSTRUCTOR TIME GUIDE:**

**This lesson should not exceed fifty minutes inclusive of practical activities.**

**PROGRAM: Living With Fire****MODULE: Evacuation**

- 20 minutes – overview of the building features, need to evacuate and strategies for evacuation
- 20 minutes Video – “Get out and Stay Alive”
- 15 minutes – practical demonstration and student evacuation exercise

**Note:** time for the practical exercise will depend on actual class size. However, it should be noted that the students both remember and enjoy this level of participation.

**METHODS OF INSTRUCTION:**

- Lecture
- Video presentation – “Get out and Stay Alive”
- Practical activity and demonstration

<b>PROGRAM: Living With Fire</b> <b>MODULE: Evacuation</b>
---

**RECOMMENDED MATERIALS, VISUAL AIDS & EQUIPMENT:**

- Computer for PowerPoint presentation
- LCD projector
- Projection Screen
- PowerPoint presentation – a customized presentation can be developed using the photo library, video segments and incident information from the Living With Fire web site.
- Examples of items destroyed by fire
- Living With Fire student information bulletins
- VCR
- Video “Get Out and Stay Alive” available from the USFA ([www.usfa.fema.gov](http://www.usfa.fema.gov))
- Statistics on fire losses available from the NFPA ([www.nfpa.org](http://www.nfpa.org))

**LEARNING OBJECTIVES:**

- Provide the student with an understanding of the risks of not evacuating when an alarm sounds.
- Provide an overview of the proper behaviors when an alarm sounds.
- Provide the student with the ability to apply evacuation strategies and navigate a smoke filled corridor.
- Provide the student with the proper steps to take when detecting a fire and or evacuating.
- Expand the concept of evacuation from on-campus residence halls to off-campus residential housing

**A. Case Studies**

1. Chapel Hill, North Carolina – May 1996, 5 students killed in a fraternity fire. A tragic fire at the University of North Carolina killed five students.

A number of significant factors contributed to the deaths, including a lack of sprinklers, open central stairwells and a lack of an alarm system.

2. Millikin University – June 2000 – 1 student killed A fire occurred in an occupied fraternity at Millikin University in Decatur, Illinois. The fire claimed the life of one male student.

The building where the fire occurred was a three-story wood frame structure with a brick veneer. It was about 60 to 70 years old, with a two-story addition that was built in the late 1960's. The structure had originally been built as a house and was converted into a fraternity sometime in the past.

The building was not equipped with an automatic fire sprinkler system.

The building was equipped with single station, battery-powered smoke detectors in each of the residence rooms. These detectors were replaced every year.

There was a fire alarm system in the building that would only sound a local alarm. It was equipped with detection in the common areas and not in the individual rooms. It was reported that at the time of the fire the alarm system was functional, but the audible devices had been silenced.

At the time of the fire, there were 20 people in the building.

It was reported that there were two means of egress throughout the structure. One was an interior stairwell that extended to the third floor. Another interior stairway extended two floors. The second means of egress on the third floor was onto an exterior deck where an exit ladder was located.

The stair that extended to the third floor was connected to a common room on the third floor, which was the area of origin for the fire. There was a door between the stairway and the common room, but it was open at the time of the fire. The door, which was a metal, fire-rated door, was not equipped with an automatic door closer.

There were four residence rooms on the third floor. Two of the rooms were immediately off the common area where the fire occurred. One of the rooms was equipped with a hollow-core door

**INSTRUCTOR NOTES**

**TEACHING POINTS**

between it and the common room, while the other had a solid wood door.

At the time of the fire, there were two people in two separate rooms off the common room on the third floor. Normally, there would be five occupants living in this area.

The fire started in an upholstered chair in the common room. The cause of the fire is officially undetermined, but fire officials speculated that it might have been started by careless disposal of smoking materials. The chair was located approximately eight feet from the room equipped with the hollow core door.

The fire extended from the chair and involved the contents in the common room, blocking any possibility of egress from the two residence rooms.

A passerby, who notified the fire department, detected the fire. However, this person did not know the exact address. He/she pounded on the front door of the fraternity to waken the occupants, and then was able to notify the fire department of the correct address.

The occupant in the room equipped with the solid wood door was awakened when the smoke detector in his room activated. Using a cellular telephone, he contacted the fire department and was in constant contact until the fire fighters rescued him.

It is unclear what actions the person in the room with the hollow-core door took. He normally slept in the top bunk, and he was found out of bed, approximately six feet into the room. The door between the residence room and the common room failed during the fire, letting smoke and heat extend into the residence room. According to the fire department, the fire was limited to the common room and did not extend into the residence room where the fatality occurred. The cause of death was carbon monoxide poisoning.

3. University of Massachusetts – October 2001 – fraternity house destroyed by fire. This fire, possibly ignited by an unattended candle, resulted in 23 students losing their home and all of their possessions. The alarm was delayed as the students had taped bags around each smoke detector.

**B. Common ignition scenarios**

1. Arson – the leading cause of fire in the college setting
2. Candles
3. Cooking
4. Smoking materials

**INSTRUCTOR NOTES**

**TEACHING POINTS**

**C. Common factors**

1. Disabled smoke detectors
2. Students become incapacitated due to alcohol or drugs
3. Smoking
4. Candles
5. Leaving Items unattended

**D. Failure to evacuate – is the risk worth it?**

1. Often a students decision not to evacuate places students at increased risk from fire
2. False alarms contribute to a perception that students are not at great risk
3. Many student doubt that a fire could involve them
4. Statistics indicate approximately 1,700 fires per year occur in the college environment
5. Each year several students die from fire and smoke
6. Smoke and fire gases' can kill
7. Fire grows quickly and students have a limited window of time to get out – several vide segments demonstrating rapid fire growth are available on the Living With Fire Web Site.
8. Smoke kills not fire

Students often have a perception “it won’t happen to me”

**E. Overview of fire alarm systems**

1. Fire alarm systems are designed to detect smoke, heat or be manually activated.
2. New technology is reducing false alarms other than those caused by student actions
  - Verification
  - Cross zoning
3. False alarms vs. unwanted alarms

Ask the students what are some reasons that they would not evacuate when the fire alarm sounds?

Often students assume that a fire alarm is false

Note – during a recent fatal fire at Seton Hall University a student was found after the fire hiding in her closet. She said that she often went into her closet to escape the sound of the fire alarm that disturbed her sleep.

Show a picture of an item or an actual item of student property that was damaged in a fire on your campus.

Students often believe that all sprinkler heads activate when a fire is detected.

**F. Overview of sprinkler systems**

1. Sprinkler systems are activated by heat
2. Only the sprinkler heads that are heated by the fire activate
3. Each head flows about 11 gallons per minute vs. 150-200 GPM for a fire hose
4. Sprinklers minimize the time to get water onto a fire and therefore reduce the size of the fire.

**G. Evacuation strategies – proper actions**

**INSTRUCTOR NOTES**

The key is to have a plan

Students need to practice evacuation and have a predestinated meeting place

Once outside students should report to a common meeting place

Students should look for exit signs and be aware of their surroundings as it is to late once a fire starts

Having students move through a simulated “smoke-filled” corridor is an exercise that will impress upon them the importance of fire safety as well as providing a memorable experience. The information provided in this lesson plan does not describe all of the logistics and arrangements that will be needed to conduct this exercise. The instructor should evaluate local conditions and modify as needed to conduct a safe evacuation exercise.

Care should be taken to ensure that students with asthma or other respiratory conditions are fully prepared for this exercise.

A Student Awareness Fire Education (SAFE) trailer or “The Great Escape should be utilized as the practical activity.

**TEACHING POINTS**

1. Know two evacuation routes
2. Feels doors for heat
3. Sound building fire alarm or alert others
4. Avoid smoke filled areas
5. If you need to traverse a smoke filled corridor crawl low where heat is reduced and visibility is better.
6. Once outside, stay outside
7. If trapped call the fire department to indicate your location
8. Keep door closed, go to a window and signal for help
9. Each room should have an evacuation map posted
10. Fire doors – what they are and what they do

**H. Video Presentation**

1. “Get out and Stay Alive 18 Minutes”

**I. Practical Activity**

1. Use a hallway for practical exercise
2. Fill the hallway with non-toxic smoke (theater smoke) to simulate the conditions that might be found in a fire
3. Ensure that there are sufficient instructors to assist the students through the corridor
4. Be prepared to assist any students that may show signs of distress, disorientation, etc.
5. Point to emphasize during the exercise include:
  - Smoke and fire gases can kill
  - When you are exposed to smoke, carbon monoxide can deplete the oxygen and impair your judgment
  - Smoke kills the majority of people that die in fires
  - Describe smoke layering
  - Don’t go through the smoke if you have an alternative such as another exit or to return to your room.
  - Use known exits
6. Strategies to use in a smoke-filled environment:
  - Enter
  - Crawl Low in smoke
  - Feel for heat and exit doors
  - Assemble at a predestinated meeting place

**J. Building Construction Features**

**INSTRUCTOR NOTES**

**TEACHING POINTS**

1. Compartmentation & pressurization
2. Stair Towers
3. Fire Doors
4. Means of egress
5. Sprinkler systems
6. Fire alarm systems.

**K. Questions?**

1. Was this realistic
2. Do you feel this could happen to you
3. If it did could you "Get out Alive?"