FIRE SAFETY

Environmental Health & Safety

Fire Safety and Extinguisher Training

Instructor Mike Hodgson
Fire Safety Office
Services Provided

- Inspection and maintenance of fire extinguishers
- Issue Certificates of Occupancy for existing facilities
- Special Event Services
- Investigation of fires involving Institute property
- Collaboration with Facilities Design & Construction in improving early warning and fire detection systems, installation of immediate response containment systems (sprinklers), emergency vehicle access planning, and building construction plan review
- Advice and consultation on fire code compliance and other fire safety issues
- Fire Safety Education
- Fire Evacuation Drills
Why take fire safety classes?

■ 1 out of every 3 people in this room will have an experience with fire in their lifetime.

■ Over 4,000 people die each year from fires, over 27,000 are injured.

■ Education gives you the training needed to make good choices.
Fire Safety Training

What are we going to Learn Today?

- What is “fire”.
- 5 Classifications of fire.
- Leading fire causes.
- Fire prevention Information
- Barbecuing Safety
- Types of portable fire extinguishers.
- How to use a portable fire extinguishers.
- Candle Safety
- Reporting an emergency.
- Nice to know information.
Fire Safety Training

A rapid chemical reaction.

the self-sustaining process of rapid oxidation of a fuel, which produces heat and light.
Fire Safety Training

Extinguishment Theory

• Removal of Heat
• Removal of Fuel
• Reducing Oxygen

\textbf{WILL} Inhibit Chemical Chain Reaction
Fire Safety Training

Classification of Fire

Class A or Ordinary Combustibles

This includes fuels such as wood, paper, plastic, rubber, and cloth.
Fire Safety Training

Classification of Fire

Class B
or Flammable and Combustible Liquids and Gases

This includes all hydrocarbon, alcohol based liquids and gases that will support combustion.
Classification of Fire

**Class C**
or Electrical

This includes all fires involving *energized* electrical equipment.
Fire Safety Training

Classification of Fire

**Class D**
or **Combustible Metals**

Examples of these types metals are: zirconium, titanium, potassium, and magnesium.
Fire Safety Training

Classification of Fire

**Class K** for fires in unsaturated cooking oils; in well insulated cooking appliances; and in commercial kitchens.
Extinguisher Labels

- Class A
- Class B:C
- Class A:B:C
- Class D
- Class K

_labels:
- Class A
- Class B:C
- Class A:B:C
- Class D
- Class K

_Icons:
- A
- B
- C
- D
- K

_Combustible Cooking_
Fire Safety Training

Some Common Causes of Fire

- Electricity
- Poor Housekeeping
- Improper storage of cleaning supplies
- Flammable & Combustible liquids
- Unattended Cooking
- Faulty Machinery
- Construction processes
- Space Heaters
- Careless Smoking
- Open Flames
Operation E.D.I.T.H.

Exit Drills In The Home
Once out - STAY OUT!

Practice EDITH with your family - two ways out
Fire Safety Training

Reporting an Emergency

• Call the GT Police @ 4-2500 on campus.

• Call 9-1-1 Off-Campus

• It is not recommended you stay in the building to call. Call from a nearby building or a cell phone.

• Give as much information as possible to the emergency dispatcher.
Evacuation

- The last one out of the room should **not lock** the door, just close it. Locking the door hinders the fire department’s search and rescue efforts.

- Proceed to exit as outlined in the Emergency Action Plan.

- NEVER, NEVER use elevators under any circumstances.
Evacuation

- Stay Low to avoid smoke and toxic gases. The best air is close to the floor, so crawl if necessary.

- If possible cover your mouth and nose with a damp cloth to help you breathe.

- If you work in a building with multiple stories, a stairway will be your primary escape route. Most enclosed stairwells in buildings over two stories are “rated” enclosures and will provided you a safe means of exit; don’t panic, descend stairs slowly and carefully.
Be prepared: learn to use every exit from your building.
People Requiring Special Assistance

Direct those needing assistance to the nearest stairwell landing to await rescue by the Fire Department.
Fire Growth

- This video “How fast it burned” will show just how fast a fire can grow, how explosive a small fire can become, and how little time you have to react.
“How fast it burned!”

Video provided courtesy of
The University of Georgia Fire Safety Office.

Duration: 00:05:41
Some examples of what not to do
Although this area is not identified with any paint or special markings it is a fire lane and illegal to park in front of at anytime.
Don’t store things in the corridors, that lead to exits, it could cost a life!
Don’t store things in the corridors, that lead to exits, it could cost a life!

Unless the area is specifically designed for it, most hallways and all stairwells must be kept clear of furniture, office machines, or any other type of obstruction that could prevent egress in case of a fire. If you are in doubt about whether an area can be used for furniture, storage, etc, call the Fire Safety Office at 894-2990 and let us come out and visit your facility. We want to work with you on these issues before they become a fire violation.
Replace all frayed and cracked electrical cords and switches!

This is a prime example of a switch held together with duct tape and bailing wire!
DO NOT prop Fire Doors open!

This simple habit can feed a fire, spread the fire, heat, smoke, gas and cost lives!
DO NOT prop Fire Doors open!

Doors with automatic closers are designed to stay closed as part of the Life Safety feature on the building. This prevents smoke from traveling throughout the facility should a fire occur.
Overloading electrical outlets!

Get a surge protector!
Don’t store things within 18” of fire sprinkler heads
Don’t block fire alarms!

If an Alarm is not visible, precious moments could be lost trying to find the alarm!
Poor Housekeeping!

As you can see from this example, large amounts of paper left in disarray in an area is a great way to fuel a fire!
Fire Lanes and Fire Hydrants are for Emergency Vehicles Only!

Beautiful home in a great community, $200,000.

New BMW 325i - $50,000.

Fire Department breaking your car windows to get to that fire hydrant you blocked, water damage in your car and a parking ticket…

$$$ PRICELESS $$$$
Humor

Um novo vídeo todo dia!

Bacaninha

http://www.bacaninha.com.br

Duration: 00:00:50
Unattended cooking - #1 cause of home fires!
  a. don’t be distracted - kids, phone, T.V.

Grease Fires- Do not panic!
  a. Put a lid on the fire - Fire extinguisher, dry baking soda, wet towel - **Never ever use water!**
  b. Turn off burner - do not remove from stove
  c. **Always!** call the Fire Department, 9-1-1
Safety Tips:

• Turn pot handles toward the back of the stove

• Keep appliances clean - Built up grease catches fire easily.

• Heat oil slowly over moderate heat, never leave cooking oil unattended.
Kitchen Fires
Be kitchen wise.

Wear tight-fitting or rolled-up sleeves when cooking. Use oven mitts to handle hot pans. Never leave cooking unattended. If a pan of food catches fire, slide a lid over it and turn off burner. Don’t cook if you are drowsy from alcohol or medication.
Another fine mess: keep space heaters away from anything that can burn.
Another fine mess: keep space heaters away from anything that can burn.
Electrical Fires

Always place electrical cords in areas where they won’t be damaged.

- Don’t place electrical cords **through windows or doors**.

- Don’t place electrical cords **under rugs** where they can be damaged.

- When leaving your home **turn off** all appliances.
Extension Cords are for temporary use only, Not permanent fixed wiring.

All Cords must be approved by Underwriters Laboratories (UL).

Daisy Chaining (plugging one cord into another cord, etc.) is not an acceptable practice.

Using one surge protector/power strip to power another is prohibited.
Surge Protectors are allowed under GA fire codes in limited circumstances. The GA Fire Code states: “tested and listed surge protection devices may be utilized on personal computers, word processors, memory typewriters and other similar electronic devices which provide or process electronic information provided they are installed and utilized in accordance with their listings and permanently affixed to reduce the risk of physical damage. The basic standard used to investigate products in the category is UL 1449, "transient voltage suppressors.” Also, extension cords may be used but only for a single device. If in doubt, call the Fire Safety Office at (404) 894-2990 for guidance.
The number of people killed by house fires started by candles has skyrocketed over the past two decades.

30% of all house fires are caused by candles.

Annually, an estimated 23,600 fires in residences are caused by candles and result in 1,525 civilian injuries, 165 fatalities, and $390 million in direct property loss.

Women are more likely to be injured or killed in residential structure candle fires.

December has the highest occurrence of candle-ignited residential structure fires.

Over 1/3 of residential structure candle fires begin in a bedroom.

Over ½ of all residential structure candle fires were started because the candle was placed too close to combustible materials.

Source: U.S. Department of Homeland Security

U.S. Fire Administration National Fire Data Center
Because gas and charcoal grills cause an average of 1,500 structure fires and 4,800 outdoor fires in homes/properties annually in the United States, the NFPA (National Fire Protection Association) offers these sensible outdoor grilling tips to help you keep your cookout safe and fun:

- When using BBQ grills or Turkey fryers on decks and patios, be sure to leave sufficient space (approximately 10 feet) from siding, eaves, deck railings, and overhanging branches.
- Always supervise a BBQ grill or Turkey Fryer when in use.
- Declare the grill area a “Kid-Free Zone” until the grill has completely cooled off.
With charcoal grills, only use charcoal lighter fluids designed for BBQ grills and do not add fluid after coals have been lit.

With gas grills and turkey fryers be sure that the hose connection is tight and check hoses carefully for leaks.
Barbecue Safety

Pay attention around the grill!

Duration 00:00:17
Barbecue and Turkey Fryer Safety

Duration: 00:01:48  Video file provided by Underwriters Laboratories (UL).

Please note: Georgia State law prohibits the use of gas or charcoal grills on combustible balconies or within 10 feet of combustible patios of multi-family dwellings.
Smoke Detectors

SMOKE DETECTORS SAVE LIVES

PRACTICE FIRE SAFETY EVERY DAY

There are many different styles of detectors in homes

- Test detectors monthly
- Replace batteries twice a year if it is battery operated.
- Have detectors on every level of your home.

Change your clocks / Change your battery!
Smoke Detectors

SMOKE DETECTORS SAVE LIVES

PRACTICE FIRE SAFETY EVERY DAY

New Technology

Duration 5:07
Live Christmas Trees

National Institute of Standards and Technology
Technology Administration
U.S. Department of Commerce
Pictures say a thousand words!
If smoke is encountered during egress, do not walk upright …crawl. The air is cooler and less toxic near the floor.

Never use an elevator in a multi-story building. You could become trapped. Use the stairs.

If smoke is present in a stairwell, avoid it. Choose another route!

If you are in a room where fire starts, try to extinguish the fire if it’s small. If the fire is too large, leave quickly. Close the door and/ or call 404-894-2500.
Don’t do this!

This will be disturbing to some of you.
Gas Leaks

- Gas Leaks are an emergency!
- If you smell gas or suspect a gas leak in your home or office evacuate immediately.
- DO NOT turn on/off light switches
- DO NOT turn on/off any electrical appliances
- DO NOT use a cordless phone
- Go to another location and call GT Police 404-894-2500.
- Gas leaks are potentially dangerous and can cause massive explosions, we should all take them very seriously.
Clothes Dryers

In 1998, according to the United States Consumer Products Safety Commission, there were 15,600 residential fires reported and responded to by fire departments where the source of the fire was the clothes dryer or vent. These fires caused $97.3 million in damage, 370 civilian injuries, and 20 deaths.
Could this happen to you?

Watch carefully at how a simple overlooked procedure could potentially become fatal.

Duration: 00:01:20

Courtesy of Petroleum Equipment Institute
What should have been done
WARNING

SELF SERVE

- NO SMOKING
- STOP ENGINE
- WARNING - IT IS UNLAWFUL AND DANGEROUS TO DISPENSE MOTOR FUELS INTO UNAPPROVED CONTAINERS.
- PERSONS USING DISPENSERS WITH HOLD OPEN LATCHES MUST REMAIN AT THE REFUELING POINT (OUTSIDE VEHICLE) DURING REFueling.

GASOLINE HEALTH & SAFETY

- EXTREMELY FLAMMABLE, VAPORS MAY EXPLODE.
- HARMFUL OR FATAL IF SWALLOWED.
- LONG TERM EXPOSURE TO VAPORS HAS CAUSED CANCER IN LABORATORY ANIMALS.
- KEEP FACE AWAY FROM NOZZLE WHILE FILLING.
- KEEP NOZZLE AWAY FROM EYES AND SKIN.
- NEVER SYPHON BY MOUTH.
- DON’T OVERFILL TANK.

STATIC ELECTRIC SPARK EXPLOSION HAZARD

- USE APPROVED CONTAINER.
- PUT CONTAINER ON GROUND (NEVER ON OR IN A VEHICLE).
- KEEP NOZZLE IN CONTACT WITH CONTAINER.

DO NOT GET BACK IN YOUR VEHICLE WHILE REFueling

ELECTRONIC DEVICES HAZARD

DO NOT USE CELLULAR PHONES OR OTHER ELECTRONIC DEVICES WHILE DISPENSING MOTOR FUELS.
Static Electricity Fire Facts

- 50% happen when the refueler returns to the vehicle during refueling and doesn’t shut the car door.
- 29% happen when the refueler unscrews the gas cap.
- 21% happen for unknown reasons.
Who Are the Victims?

78% are women who re-enter a vehicle to:

- Return credit card to purse
- Get money out of purse
- Check on the kids
- Write a check
- Get warm
- Write down odometer reading
- Use cell phone
- Apply lipstick
DO NOT fill any container while it is inside a vehicle, a vehicle's trunk, pickup bed, or on any surface other than the ground. This includes pickup trucks, sports utility vehicles, vans, and others.

Use only an approved container.

Remove the approved container from the vehicle and place it on the ground a safe distance away from the vehicle, other customers, and traffic.

Keep the nozzle in contact with the can during filling.

Never use a latch-open device to fill a portable container.

Follow all safety procedures, including No Smoking.
San Antonio, Texas

Gas pump fire caught on tape

Duration 00:30
The Results
CONSUMER FIREWORKS:

Specifically Permitted:
Sparklers up to 100 grams each; fountains (items that say 'Emits Showers of Sparks' up to 200 grams total for multiple tube items or 75 grams for each individual tube; snakes, glow worms, snappers, party poppers.)

Specifically Prohibited: Firecrackers, torpedoes, sky rockets, roman candles, bombs, and sparklers.
This is what should not be done with fireworks
Great White Band

The following video contains disturbing footage.
The Station Nightclub Fire
In
North Warwick, Rhode Island

Duration: 00:05:37

February 20, 2003
Fire Extinguishers
Inspecting your extinguishers

- Check the plastic seal holding the pin in the extinguisher handle. Has the extinguisher been tampered with or used before?

- Water and dry chemical extinguishers have gauges indicating the pressure inside the extinguisher. The pressure needle should be in the “green” area (generally 100-175 psi., depending on the type of agent).

- CO2 is the only type of fire extinguisher that doesn’t have a gauge.
Portable Fire Extinguisher Training

Characteristics

Water extinguisher  
30-40 ft.  
60 sec.

Water fire extinguishers extinguish the fire by taking away the **heat** element of the fire triangle.

Water extinguishers are for **Class A** fires only—they should not be used on Class **B** or **C** fires. The discharge stream could spread the flammable liquid in a class B fire or could create a shock hazard on class C fire.
Portable Fire Extinguisher Training

**Characteristics**

Dry chemical 5-20 ft. 8-25 sec.

Dry Chemical fire extinguishers extinguish the fire by interrupting the chemical reaction of the fire triangle.

Today’s most widely used type of fire extinguisher is the multipurpose dry chemical that is effective on Class A, B and C fires. This agent works by creating a barrier between the oxygen element and the fuel element on class A fires.
Portable Fire Extinguisher Training

Characteristics

CO2 extinguisher  3-8 ft.  8-30 sec.

Carbon Dioxide fire extinguishers extinguish the fire by taking away the oxygen element of the fire triangle and also by removing the heat with a very cold discharge.

Carbon dioxide can be used on Class B & C fires. They are usually ineffective on Class A fires.
Inspecting your extinguishers

- Check the plastic seal holding the pin in the extinguisher handle. Has the extinguisher been tampered with or used before?

- Water and dry chemical extinguishers have gauges indicating the pressure inside the extinguisher. The pressure needle should be in the “green” area (generally 100-175 psi., depending on the type of agent).

- CO2 is the only type of fire extinguisher that doesn’t have a gauge.
“Quick-Check”

1. Is there a pin?
2. Is it sealed?
3. Check the gauge, is it full?
4. Is it the right type? Check the label
P.A.S.S. Method

Pull the pin
This will allow you to squeeze the handle in order to discharge the extinguisher.
P.A.S.S. Method

Aim at the base of the fire

Aiming at the base of the fire to extinguish the product.
P.A.S.S. Method

Squeeze the handle

This will release the pressurized extinguishing agent
Sweep side to side

Cover the entire area that is on fire using quick burst of the extinguishing agent. Continue until fire is extinguished.
Stop. drop, and roll.

If your clothing catches on fire: stop (don’t run), drop gently to the ground, cover your face with your hands, and roll over and over to smother the flames. If you cannot do that, smother the flames with a towel or blanket. Immerse burns in cool water for 10 to 15 minutes. If burns are severe, get medical help immediately.
THINK SAFETY AT ALL TIMES!
Portable Fire Extinguisher Training

You are not expected to be firefighters!
QUESTIONS?

Questions concerning Fire/Life Safety? Call the GT Fire Safety Office at 404-894-2990 or Visit our website for information.

http://www.safety.gatech.edu/fire_training