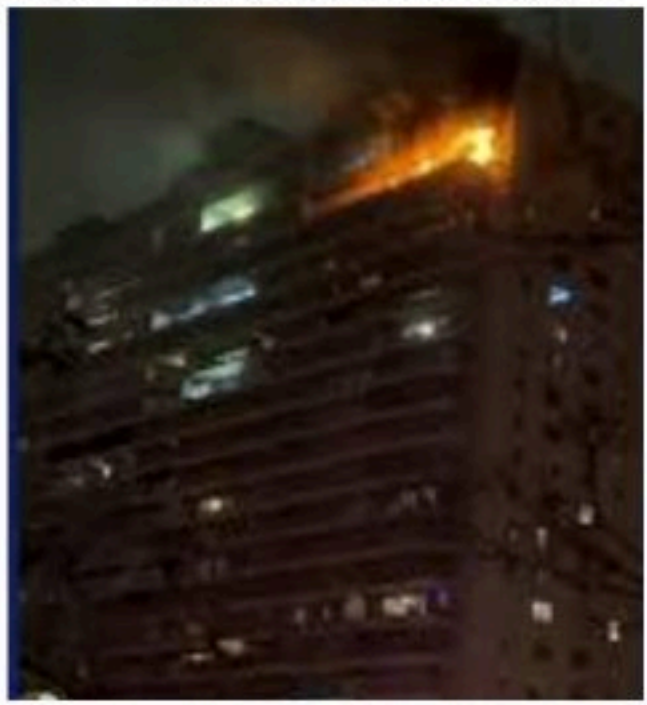
Tips from Training & Safety

Upper Floor Fires in High Rise Buildings – Supplying the Standpipe

Manhattan Box 124 – 2/19/23



Bronx Box 2-2 2478 – 2/20/23

Recent upper floor fires in HRFPMD's have emphasized the need for rapid water supply to augment the house supply. **A gravity tank system may not provide adequate water pressure at the standpipe outlet for an upper floor fire.** Ladder companies conducting searches should anticipate a possible delay in hoseline advancement and operate accordingly.

First alarm ECC's should team up to augment the system and take the following steps to supply a wet system:

- Hook-up to a serviceable hydrant with a large diameter hydrant connection
- Stretch and connect 3 ½" supply line to the buildings supply inlet. Primarily the FDC, or the first-floor outlet if the FDC is unserviceable.
- Connect supply line to suitable discharge on pumper apparatus.
    - #4 or #7 4 ½" discharges on standard pumpers.
    - #6 on high pressure equipped pumpers, when higher pressures are required.
    - #8 or #9 on Third stage pumpers when the Third stage will be required.
- Engage the pump.
- Prime the pump.
- Operate the transfer valve to engage the second stage (pressure).
- When required and if so equipped pull 3rd stage handle.
- Open selected discharge **Prior to engaging the Pro-Pressure Governor,** to fill the supply hose and dry part of the standpipe system while at 'IDLE' to prevent running away from water or damaging the system with a water hammer.
- Communicate to operating unit that the system will now be pressurized.
- Engage the Pro-Pressure Governor and set to proper pressure.
    - 105psi plus 5psi for every floor above grade.

Tips from Training & Safety

Natural Gas Detectors

Detectors installed where service enters building

Recently FDNY units responded to a Con Ed Natural Gas Detector indicating that the 10% LEL (lower explosive limit) had been reached. Units arrived and discovered fire in the building and transmitted signal 10-75; an all-hands assignment was used to control this fire. There was no indication that a gas leak was present. Consider the following points regarding these responses.

- **There have been several responses to natural gas detectors that have turned out to be structure fires. While designed to alarm for natural gas leaks, these devices have been known to alarm when exposed to smoke conditions as well. <u>Do not let your guard down; wear all of your PPE including SCBA.</u>**

- Upon confirmation of 10% LEL from a Con Ed natural gas detector the dispatcher will make an announcement for all units on the response ticket to respond in emergency mode.

- If a detector is not discovered in the given address, it might be in a nearby occupancy/exposure. There are often several addresses associated with a commercial occupancy, especially if they front on more than one street.

- FDNY units have forced entry to investigate these alarms and discovered occupants sleeping in the upper floors, unaware of the alarm. After forcing entry into the building, we must announce our presence VERY LOUDLY.

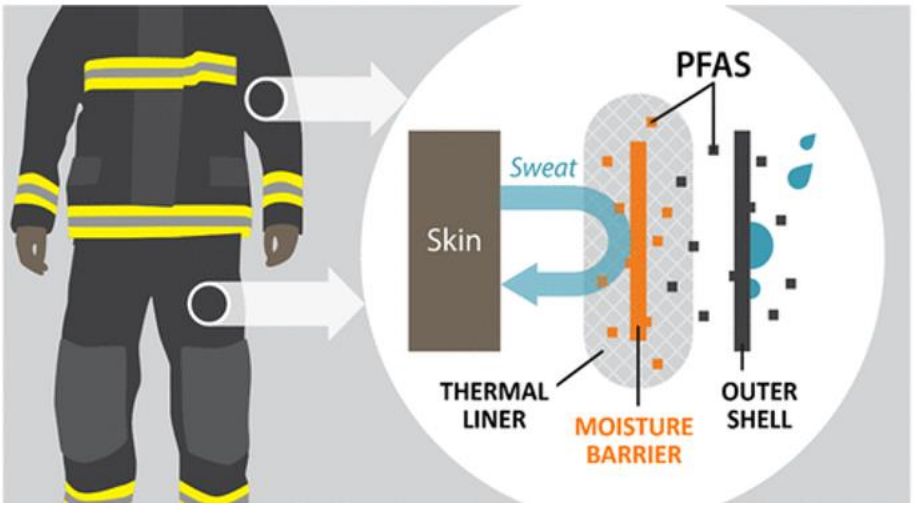
- Methane from sewer gas has been known to trigger these detectors, especially during/after periods of heavy rain.

- Natural Gas Detectors are designed to detect gas leaks in the immediate area of the service pipe. The detector's alarm may not sound in the event of a natural gas leak in a remote area of a home or building. Doors or other obstructions may also affect the rate at which natural gas reaches the Natural Gas Detector.

Tips from Training & Safety

Know Your Gear – Pathways for Exposure - PFAS

Link to Study



Note: This tip was first issued on July 7th, 2020, shortly after a scientific study was released confirming the presence of polyfluorinated alkyl substances (PFAS) in turnout gear. PFAS are added to the textiles that are used in turnout gear to provide water and oil resistance. Textiles used as firefighter turnout gear were found to have high levels of total fluorine (up to 2%), and individual PFAS were identified and measured on new and used firefighting turnout gear. **Importantly, exposures to PFAS's have been linked to several types of cancer firefighter's contract more often than the general public.**

Listed below are some simple common-sense contamination reduction strategies firefighters can take today:

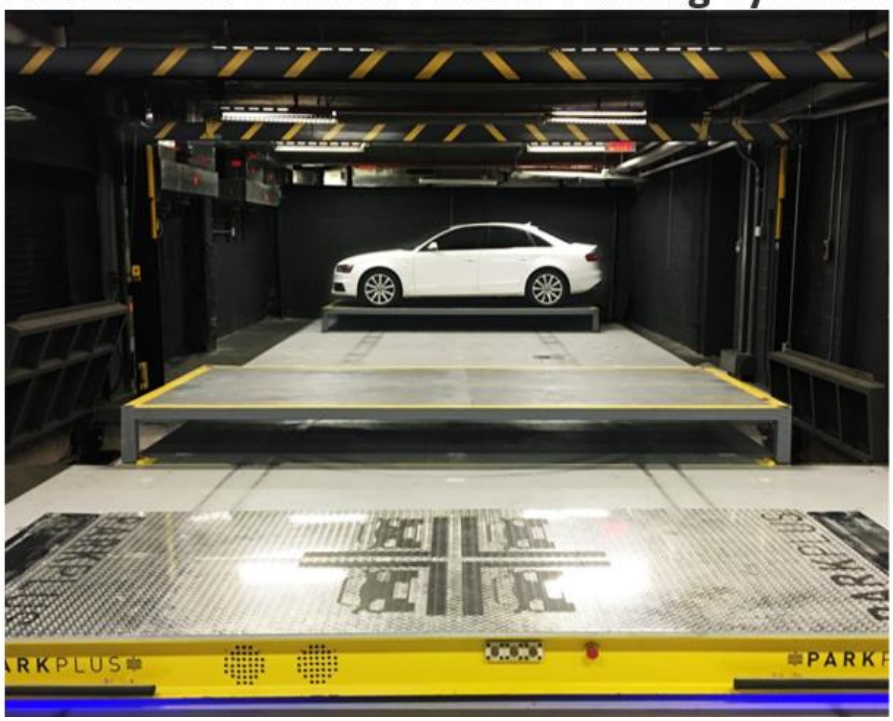
- Respect and better understand your gear.
- Wash your hands after you use or touch your bunker gear and before eating.
- Never transport bunker gear in your vehicle unless it is in your department issued gear bag.
- Shower and change into clean station wear following a fireground exposure to smoke.
- Keep bunker gear out of living areas of the firehouse.
- Do not store bunker gear in your home.
- Regularly send your bunker gear out for cleaning.
- Properly store your bunker gear - including your 2nd set of bunker gear.
- Wear bunker gear when required - not while picking up the meal, during hydrant or building inspection.

REDUCE YOUR RISK - CANCER IS THE NUMBER ONE KILLER OF FIREFIGHTERS

Tips from Training & Safety

Automated Guided Vehicle Parking Systems

AGV Locations in NYC



Video of AGV System

Automated guided vehicle (AGV) based parking systems are increasingly being installed in NYC. These systems are 100 percent automated; the vehicle is parked without the assistance of a parking attendant. The AGV system uses self-charging battery operated robotic devices to deliver vehicles from a booth (near the entrance) into a secure storage vault. Consider the following points:

- Drivers pull into the garage to a private vehicle booth that is outfitted with an array of lasers, scanners, cameras, and display monitors to assist drivers coming in. After shutting the vehicle off and getting out, the system is activated at the touch-screen kiosk in an adjacent private lobby; the car is then transferred to the vault via a lift and AGV. Drivers do not have access to the vault area.

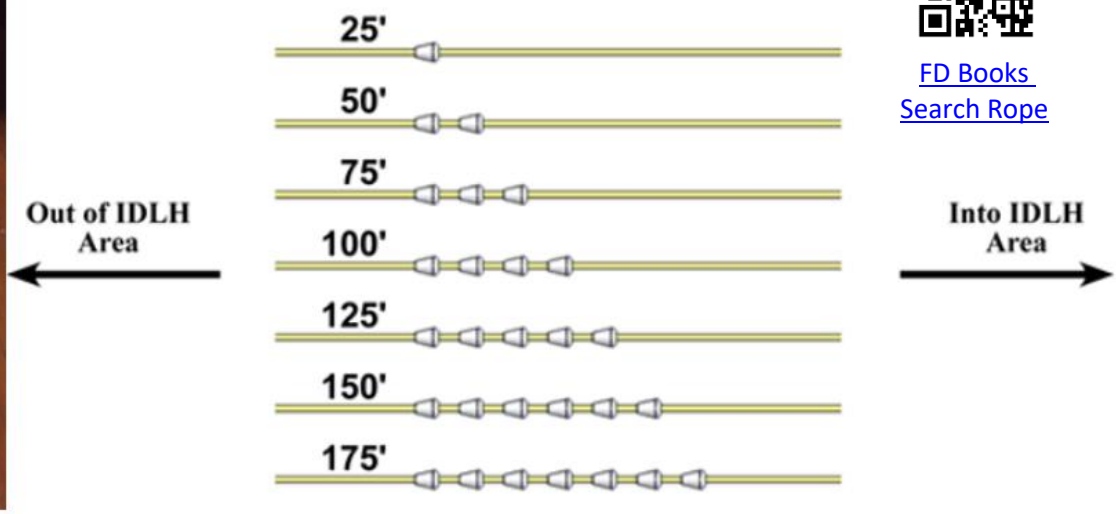
- Vehicles are retrieved in a similar manner; the driver simply requests the vehicle to be brought to the private booth via the kiosk. Video display screens allow the driver to view the entire process.

- Firefighting concerns/recommendations:
  - Although these systems are fully automated and have various safety features, there always is a chance that they may malfunction and cause a fire/emergency. It can be assumed that these robotic devices are powered by lithium-ion batteries.
  - **No one is on site to direct firefighters to stairwells that access the storage vault.**
  - AGV garages are usually located in luxury MD's. Heavy smoke conditions from a vehicle fire may permeate through to floors above.
  - Expect luxury cars to be stored at these locations, including electric vehicles (EV). **Some AGV garages offer automated charging**. A serious EV fire below grade may be extremely difficult to control and may overwhelm a sprinkler system.
  - It is imperative that these locations are documented on eCIDS; **note access to the storage vault and sprinkler FDC's.** See QR/link above for a list of garages.

Tips from Training & Safety

Search Rope Review

FD Books
Search Rope



The search rope uses a series of plastic markers to identify both direction and distance

The Search Rope is used as a supervisory tool to **maintain search team integrity.** It can be used in, but not limited to the following areas:

- Large areas such as gymnasiums, ballrooms, convention centers, parking garages, etc.
- Complex areas such as schools, banks, office areas, commercial/industrial buildings, etc.
- Below grade areas such as subways, tunnels, cellars.

The Search Rope shall be deployed to the above locations **even in light to moderate heat/smoke conditions** since conditions can deteriorate rapidly. The Thermal Imaging Camera should be used in conjunction with the search rope.

Advantages of Search Rope Deployment:

- Allows the ladder company to begin a search of the immediate fire area more rapidly and assist the engine company in reaching the fire location.
- Assists in searching more efficiently and safely for fire and/or victims in an IDLH atmosphere.
- **Provides a point of reference to guide members in and out of an area.**
- Allows the FAST unit to quickly locate and assist a member in distress.
- Allows additional members to quickly locate searching members needing assistance with victim removal, additional tools or equipment, etc.

For further review see link/QR above to FD Books: Training Bulletin: Rope 6

Tips from Training & Safety

Chemical Suicide Incidents

FDNY Haz-Mat units operate on East 56th Street in Manhattan – 3/5/23

Yesterday, Manhattan units operated at what appears to be a chemical suicide. The patient was discovered lifeless in an automobile surrounded by an assortment of chemicals. **The first arriving NYPD officers were treated for exposure.** These events pose a significant risk to first responders due to the uncontrolled release or production of toxic fumes. Consider the following points:

- **4 out of 5 chemical suicide calls nationwide result in illness or injury to first responders**.
- Most chemical suicides occur in vehicles; however, homes should never be ruled out. Often, patients post signs to warn first responders of the hazards they may encounter when arriving on scene. **All warnings must be taken seriously**.
- **Hydrogen Sulfide, Hydrogen Cyanide, Carbon Monoxide, Carbon Dioxide, and Helium** are some of the most common chemicals used to assist a chemical suicide.
- Hydrogen Sulfide (**H_2S**) is very easily created by mixing a **strong acid** (sulfuric acid and muriatic acid) and a **sulfur-based product** (dandruff shampoo, lime sulfur).
- The presence of empty containers and a strong odor of **rotten eggs** are an indicator that H_2S is present. Less than 200 ppm can result in death. Any indication that H_2S is present should be considered a threat to first responders, and they should immediately leave the area.
- The use of **"suicide bags" or "exit bags"** also pose a significant risk to first responders. Patients will connect tubing to a canister containing a **simple asphyxiant** such as **helium or carbon dioxide**.
- The tubing will run into a bag that has been placed over the patient's head, resulting in **death by asphyxiation**. It's important to remember that the **valve on the container will still be open** and can cause harm to responding crews.

Tips from Training & Safety

Roll Down Gate Secured at a Recent 5th Alarm

Queens Box 5-5 7810 – 3/7/2023

Last night in Queens a fast-moving 5th alarm fire quickly spread to several private dwellings. The alley between the two fire buildings contained a roll down gate for security. To secure this gate, units placed a portable ladder under the gate to prevent the possibility of the gate coming down on firefighters or their hose lines (right photo above). Consider the following regarding roll down gates.

- **At an operation, consider placing a portable ladder under an open roll down door to prevent the door from coming down.**

- When possible, members should avoid standing under an open roll down door.

- Roll down gates also pose a danger while in the closed position; frequently, the bolts connecting the gate to the building's brickwork are severely rusted. A gate can collapse outward, potentially crushing anyone in its path of decent. **Upon arrival, examine the integrity of these connection points.**

- We must also secure similar overhead barriers such as garage doors. Electric garage door motors have activated during fires and caused doors to descend, **trapping and killing firefighters**. See tip #51 of 2022 - Garage Door Hazards.

Tips from Training & Safety

360-Degree Size Up

Wind Impacted Fire at Queens Box 5-5 7810 – 3/7/2023

Several recent serious private dwelling fires highlight the critical need to take a more cautious approach to these fires when wind is a factor. Wind has long been an important consideration during size up. This has not changed and in fact has become increasingly more important with modern contents with significantly increased energy stored and heat release rates. Consider the following points on size up.

- When entering a structure or initiating a fire attack, knowing the wind direction is a critical fireground factor.
- Knowing whether the wind is at your back (windward side) or if you are going against the wind (leeward side) is a key size-up factor.
- A size up always includes all four sides of the structure. This can be referred to as a 360-degree size up. Exposure 3 should never be "unknown".
- This does not mean that a single person must see all sides of the structure. In the FDNY this is often not possible or practical due to the diverse urban built environment that is unique to New York City.
- However, this is why FDNY procedures specifically assign our members to critical positions that quickly cover all four sides of the structure to provide a 360-degree size up.
- Radio reports received from members assigned or operating on the sides of the structure are critical to the success of the early operations – especially when wind may be impacting fire operations.
- This size up and the information reported back to the Incident commander – Often the 1st arriving engine or ladder officer arriving before the chief must be used to drive initial tactical decision making.
- When wind is impacting operations we must consider alternate strategies – this includes quickly positioning hoselines to have the wind at our back or from a flanking position. When wind is blowing from the rear of the structure towards the front, a hoseline should attempt access from the rear.

Tips from Training & Safety

Keeping the Wind at Your Back – Windward Side Fire Attack

Video – Keeping the Wind at Your Back

Wind Impacted Fire at Staten Island Box 4-4 3593 – 2/17/2023

Several recent wind impacted private dwelling fires highlight the critical need to take a more cautious approach to these fires. We must ensure that we are entering and/or extinguishing fire from the upwind or windward side. Wind has long been an important consideration during size up. This has not changed and in fact has become increasingly more important with modern petroleum-based contents. Consider the following points on hoseline placement when wind is a factor.

- ***Windward is for winners – Leeward is for losers*** – Attack the fire in the most effective manner that accounts for member and occupant safety.
- Entering a fire downwind (leeward side) is the equivalent of attempting to push water up the tailpipe of a running vehicle.
- Remember, as the winds increase, the fire growth and speed of spread will increase as well.
- When windy conditions are encountered, we need to implement alternate procedures to put the wind at our backs. Entering with the wind at our backs also protects our members for the possibility of a window failing, which may place members in grave positions within the flowpath.
- Fuels found in the modern fire environment have evolved. This is due to the petrochemical-based plastics used to make most consumer products.
- Low mass synthetic fuels (plastics) have high heat release rates and decompose rapidly during a fire. They produce large quantities of super-heated smoke and gases which rapidly fill the compartment.
- These fires are often air regulated with growth dependent on how much outside air enters the structure. When windy conditions are encountered this will have a major impact on the fires heat release rate and growth.

Tips from Training & Safety

Wind Advisory Radio Announcement

Wind Impacted Fire at Queens Box 5-5 6068 – 6/17/2022

On February 27th, 2023, the FDNY issued a new fire dispatcher standard operating guideline (guide 400-17). This was in response to several serious private dwelling fires that were negatively impacted by wind. Wind has long been an important consideration during size up. This has not changed and in fact has become increasingly more important with modern contents. ***We must be ever mindful of the wind and the impact on our fire operations. Below are the important points of the new dispatcher guideline.***

- When it has been declared by FDOC that a wind advisory is in effect for the 9x6 or 6x9 tour, the following radio procedure shall be conducted for responses to structural fires (Reporting Fire/Smoke/Odor of Smoke).

- ANNOUNCEMENT OF WIND ADVISORY

- While responding, the 1st Due Battalion Chief shall be notified via the department radio of the following:

"Battalion XX, be advised a wind advisory is in effect; winds of this magnitude can have negative effects at fire operations."

NOTE: FDOC uses 20 mph gusts (or sustained) as a threshold for this new guideline. When wind speed is 10-20 mph, they will also send out a teleprinter message.

All responding members must be mindful of the impact of wind on fire operations. Wind speeds of 10 mph or greater can severely impact fire operations.