Guidelines for Battling High-Rise Building Fires

by Deputy Chief James R. Wendling

Response to high-rise building fires or emergencies requires quick and decisive action by the first-responding Chief Officer. In today's world, with the constant threat of terrorism, the initial actions will significantly impact the number of injuries and casualties suffered by the victims and first responders. This is a most demanding position and it requires all the wisdom of a chess master.

The Chief not only must be able to recognize what has happened, but also foresee what will happen and anticipate the results of his/her actions. The Chief must evaluate the dynamics of the incident. Is it active or passive? Mistakes or omissions can be disastrous to the first responders, citizens and the environment. For these reasons, I have developed an acronym--***HIGH-RISE FIRE***--for Chiefs to use in developing a strategy for fighting a high-rise fire in a terrorist environment.

(H) Hazard

- Was this fire/emergency an accident or terrorism? Answering this question in the early stages of the fire/emergency is critical, because you must try and determine the *intention* of the terrorists. Did they want to cause serious injury or harm? Did they want to destroy the building? How successful they are in their objective will determine the amount of resources you commit to the interior of the building. Risk assessment starts upon dispatch.
- Is the building designated high profile?
- What hazards are you facing?
- IDLH (immediately dangerous to life and health)--Recognize and deal with this danger for all first responders.
- Will there be fatalities, injuries, property and environmental damage?
- Is the fire/emergency creating a serious risk to the occupants and responders? What are the health risks? Do you have adequate Emergency Medical Technicians responding?
- Can you communicate with the occupants in the building?
- Will there be substantial property losses?
- Was there an explosion? Damage to the fireproofing, plasterboard stairways or exit passageways, fire suppression equipment (sprinklers, standpipe and/or HVAC)?
- HVAC system--Is it operating or has it been compromised? If not operating, the building may require manual ventilation, a time- and labor-intensive and difficult operation.
- When was the building constructed? This is important because it determines building code compliance. The old code (1938) was a specification code, indicating "heavy construction techniques." The new code (1968) is a performance code, predicting when structural elements will fail (in a lab); less redundancy in protection.

(I) Intervention

- Establish the Incident Command Post (ICP). Inside or outside the building? Outside dictates that someone is stationed at the lobby Command Post when units are committed to interior operations. Initiate the Command channel, using all communication equipment available at the scene--repeater, Post radio, interoperability radio and/or Department vehicles. Special-call a Battalion Chief as the Communication Unit Leader.
- Inform the borough dispatcher of the Command Post location for all responding units and other agencies. Inform the dispatcher of actions taken. Responding units and Chief Officers will be able to prepare, both mentally and physically, for the tasks they most likely will be asked to perform, based on rank and training.
- Will you commit resources to fight the fire? Yes or no? During the early stages of a high-rise fire that has had *significant* structural damage to the building, the best initial course of action may be the evacuation of *all* occupants with the minimum commitment of first responders. Accidental fires do not require total evacuation of the building occupants, but only the fire floor, floor above/below and the attack stairway.
- Identify conditions via the Air Recon Chief or send a Chief with binoculars to an exposure. Request a report of the observed structural damage and the direction of the wind. Be specific.
- Is there an inhalation hazard (CBRN--chemical, biological, radiological, nuclear)? Have units equipped with meters and monitoring equipment take surveys to develop a base line of air samples.
- Intelligence--Request a police or FBI representative for information regarding the threat. Are there simultaneous attacks in the City, state or nation? Do not wait until they respond to the ICP. Have the dispatcher contact these agencies via direct phone calls and establish the interoperability channel on the designated handie-talkie. Actions taken and the speed of their completion may be directly related to the information you receive. Transportation in the area may be severely compromised, causing delays of assisting parties responding to the ICP.
- Information must flow from/to the Operations Post to/from the Command Post. This act often is overlooked. Avoid speculation; report all critical information.

(G) Goals

- Operate per normal FDNY high-rise standard operating procedures (SOPs). (See *Firefighting Procedures*, Volume 1, Book 5, High-Rise Office Buildings.)
- Evacuate the whole building? This may take one to two hours. Remember, no building is designed for immediate, full evacuation. Therefore, time is critical.
- What are you trying to prevent? No additional injuries or fatalities--including first responders--after you arrive on the scene.
- What do you want to accomplish? Preventing collateral damage to the adjoining buildings or environment.
- Set up a collapse zone around the building perimeter.
- Extinguish the fire.

(H) Haz Mat

- Is this a haz-mat operation and will there be a need for mass decontamination?

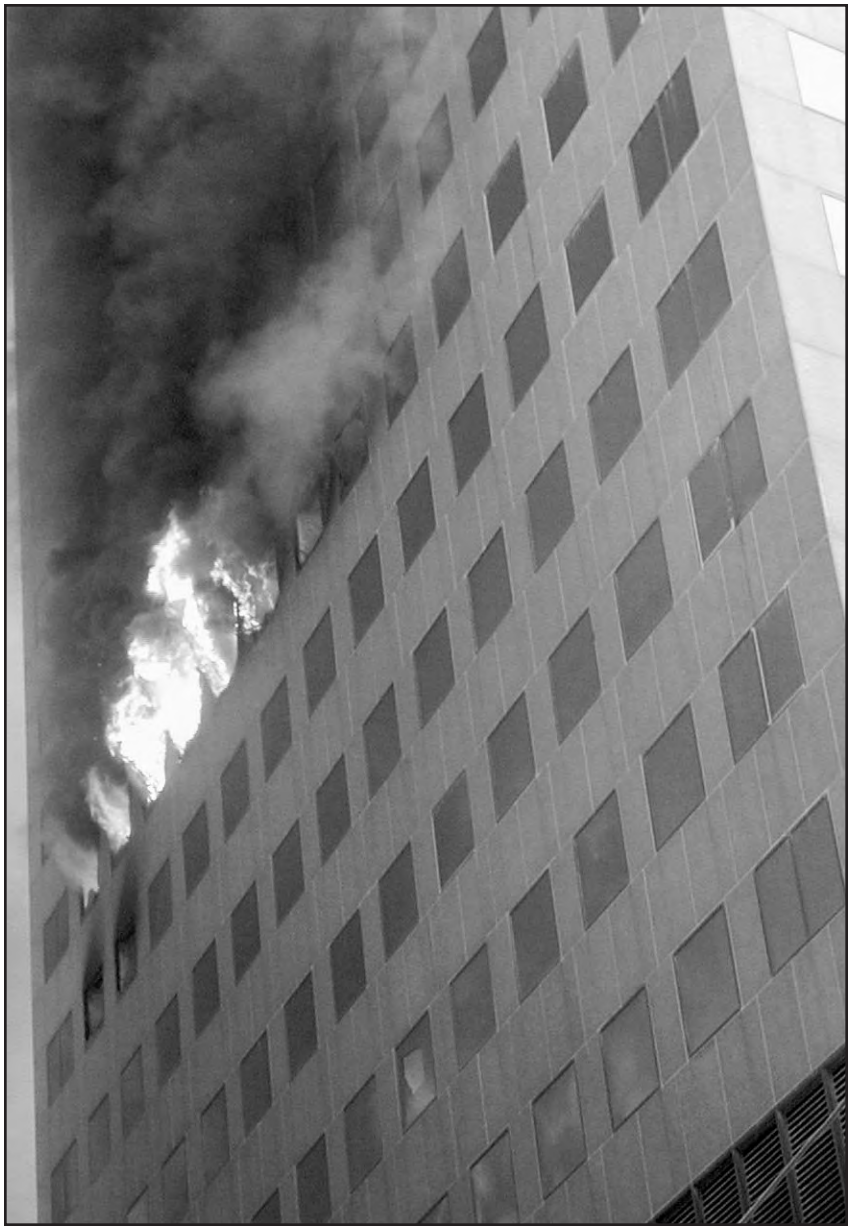
- How many resources do you have on the scene? Do you need to transmit multiple alarms? Do you need specialized resources--City, state or federal? Be alert to special events in your area and the different resources that will be available. The City-wide Action Plans found on the FDNY intranet are a great source of information.
- Do you need the Haz-Mat response group? (10-80, Code 3 or 4)
- Confer with the Haz-Mat Battalion Chief for his/her specialized knowledge. State what your concerns are and have him/her assess the situation.
- Have specialized units take readings. They should report to you and the Haz-Mat Chief and the Chief should report back to you with a recommended course of action.
- Isolate any haz-mat area. Use the NYPD for perimeter control.
- Establish Control Zones.
- If the haz-mat incident is in conjunction with a fire, how long has the fire been burning? Begin a time line, since this information will be critical for future decisions. Borough dispatchers now provide information on the duration of the incident during the course of a fire/emergency. Uncontrolled burning for 20 to 30 minutes indicates that you are in the "danger zone."
- Heat and humidity will be factors if you have a large fire or haz-mat incident.

(R) Resources

- Review the actions taken prior to your arrival.
- Rescue plan for non-ambulatory victims.
- *React* to changing conditions.
- Repeater--Activate the repeater and institute the Command Channel.
- Reconnaissance must be continual and reports timely. Establish a log.
- Radio signals--Have you transmitted all the necessary radio signals (10-76, 10-77, 10-60, 10-80, etc.) to the dispatcher?
- Response route--Do you need to designate a response route for the NYPD to clear for emergency access? (Radio signal 10-47)
- Response objectives and options--To which locations do you want the units to respond? Designate the Staging area.
- Resources available and those held in reserve--Are you using the civilian members of the fire safety plan, fire safety director, fire brigade, floor wardens and the building engineer? If they leave the building, have a handie-talkie-equipped member accompany them.

(I) Institute the plan

- Identify all critical factors.
- Conduct interactive discussion with all assigned to the Command Post.
- Inform all Chiefs of the plan. Be specific; the less said is not the best course of action. If everyone is focused on the same goal, you will be successful.
- Provide instructions to all assigned personnel of their role in the mitigation.
- Interview--Have Fire Marshals respond to interview survivors to get a better picture regarding any remaining trapped victims, blocked stairways, working elevators or any other crucial information that may be apparent only to those who witnessed the event first-hand. (Think of how many books you have read that reveal survivor stories and how you thought while reading them, "if I only knew that at that time." Don't wait for the book.)
- Influence the outcome.



A high-rise fire will present the Incident Commander with many challenges and numerous decisions to make. *photo by FDNY Photo Unit*

(S) Safety

- Secure the Command Post. Have the NYPD secure the Command Post from possible terrorists.
- Stay the course. Do not let other agencies confuse you with conflicting information and inquiries. Establish a liaison to handle other agencies so that critical information is received and evaluated.
- Conduct searches--primary and secondary. What are the smoke conditions above the fire?
- Stairway configuration will determine your plan of action. If there are scissor stairs and you have lost part of or the entire stairway, your only option may be evacuating the occupants *before* fighting the fire. Protecting evacuating occupants with a hose-line may be the initial operation required. Condition of the stairs used for egress must be determined early in the fire/emergency.

- Designate the "attack" stairway. The other stairways used for evacuation must be made known to all. (All stairways other than the *one* used for attack will be used for evacuation.) If the IC is unable to communicate with the occupants of the building due to failure of the PA system in the building, notify the Borough dispatcher to make a public service announcement over the commercial radio regarding the location of the safe stairway(s). (Occupants may not know of a safe means of egress. With the use of phones--both cellular and land line--this information could be passed on by the dispatcher and those watching an incident unfold on television. During the WTC disaster, there were many calls from trapped occupants looking for help and information from the dispatcher and loved ones.)
- Provide relief and rotation of members.
- Systems in the building--Are the alarm, communication, HVAC and electrical systems operating?
- Sprinkler system operating? If not, you will be dealing with a fire in a large, uncompartmented area. The installation of a sprinkler system allowed builders to increase the size of the floor area. Coupled with a large fire load of plastics and paper, you will be dealing with a very large, hot fire.
- Standpipe system operating? Are the fire pumps operating?
- Siamese connections available? Are the engines able to get close enough to the building (collapse zone) to supply the siamese? Was an IED (improvised explosive device) used to compromise the siamese connections? After the check valve or the riser control valve? An action like this would require you to assign a Chief Officer early in the fire as a Water Resource Officer. (S)he would need to locate the check valves, either through a building schematic--sometimes found at the Lobby Command Post--or from the building engineer. Overcoming this problem requires early recognition and action, possibly using hose-lines up the exterior of the building. Remember that terrorists attempt to use everyday objects against us and are very resourceful in their attacks.
- Personnel--Give the Safety Coordinator and the Safety Battalion Chief a specific assignment. Survey the scene for signs of a possible collapse. Have him/her develop a plan for a *mayday* transmission, requiring evacuation of all members. If necessary, designate a Safety Chief at the Command Post for liaison with this group.
- Be aware of short-term exposure to any haz-mat contaminants based on the level of protection that the material dictates.
- Steel--Is the fire heating any exposed steel to its failure point? Call for a Department of Buildings' engineer early, since the response time will be at least 30 to 45 minutes.
- Was there any device? Secondary device--Notify the NYPD to check for a secondary device, if necessary.
- Staging--Stage units away from the scene, using only those units critical to the operation.
- Scope--What is the scope of the emergency? Is it confined to this site or are there multiple sites within the City, state or nation? Answering this question will help you focus on actions that may yet occur. Plans are good only if they lead to the correct action.
- Success--Monitor completion of assignments.

(E) Execution

- Evaluate progress and completion of objectives. Use Department checklists to determine progress of assignment completion.
- Evacuate--Be prepared to issue a *mayday* if conditions so dictate. You must anticipate this and be prepared to issue it on a large scale. Make the Safety Chief aware of your concerns and have him/her prepare a plan. Failure to visualize what may happen will limit your preparation for all eventualities.
- Elevators--Have the shafts been compromised and do you have sufficient units to search and remove occupants from all elevators? High-rise buildings have numerous elevators.
- EMS--Coordinate with the EMS Supervisor regarding the number and type of units needed. A triage, treatment and transportation area must be set up in a safe location.
- Environmental hazards--Have the required agencies monitor the air in the vicinity for environmental impact. This information may be needed for future legal/monetary reimbursement.
- Emergency assistance may be needed from other agencies, such as CHEMTREC or military units.

Members are urged to review the following reference materials:
- ICS Manual, chapter 2, addendum 3.
- "High-Rise Risk Assessment and Management," by then-Assistant Chief of Operations Peter E. Hayden and Deputy Assistant Chief of Operations Joseph W. Pfeifer, in the 2nd/2002 issue of *WNYF*.
- Attack Stairway, FDNY procedures
- All Units Circular 269
- Fire Tactics & Procedures, ERP Hazardous Materials; Radiological Operations, Emergency Response Plan, Addendum 4 (2006)
- Communication Manual
- Training Bulletin
- Local Law #5
- "Standpipe Systems--The Basics," by Battalion Chief Gerald Tracy and then-Lieutenant Thomas Meara, in the 3rd/2000 issue of *WNYF*.
- DOT (Department of Transportation) Emergency Response Guidebook
- All Units Circular 331
- "Stair & Hallway Dangers During Firefighting," by Deputy Chief Vincent Dunn, in the 2nd/98 issue of *WNYF*.
- "Scissor Stairs Review," by then-Battalion Chief Orio J. Palmer, in the 4th/97 issue of *WNYF*.
- "Dirty Fires: Radiological Incendiary Devices," by Deputy Assistant Chief Joseph W. Pfeifer, in the 2nd/2006 issue of *WNYF*.

(F) Fire

- Fuel--What is feeding the fire?
- Floors--How are they constructed?
- Feedback--Make sure you are receiving (and providing) feedback.
- Foam--Will you need foam to extinguish this fire?
- Fatigue--Units will be debilitated quickly in the operation.

This strategy is designed to help by giving you a choice of options in the event of a large-scale attack on an occupied high-rise building. Acting out plans during a high-stress environment is difficult and taxing, even for the most seasoned Fire Chief, but by training and remaining focused, you will succeed. This article is not meant to cover all situations, but it will help you organize and prioritize your actions.

About the Author...

Deputy Chief James R. Wendling is a 35-year veteran of the FDNY. He has been a Chief Officer for 13 years and is assigned to Division 3. He is an instructor for the Chiefs Command course, teaching firefighting in high-rise buildings. He is a member of the FDNY Incident Management Team. He is FDNY's representative for the Model Building Code on egress and for rewriting the Fire Safety Director's test. He holds a BA degree in psychology. This is his first article for WNYF.