



INCIDENT REPORT



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INCIDENT HIGHLIGHTS

**DATE:**

May 16, 2021

**TIME:**

9:11 PM (approximate)

**VICTIMS:**

Three firefighters, age 46, 35, and 23

**INDUSTRY/NAICS CODE:**

Fire Protection / 922160

**EMPLOYER:**

Municipal Fire Department (combination)

**SAFETY & TRAINING:**

No training officer, no annual training schedule

**SCENE:**

Two-story apartment building

**LOCATION:**

Central Illinois

**EVENT TYPE:**

Multiple hospitalizations

INSPECTION #: 1531592 **REPORT DATE:** July 12, 2021

The Myer Incident: Three Firefighters Hospitalized After Calling a Mayday and Bailing Out Second Floor of Apartment Building

SUMMARY

On May 17th, 2021, the Illinois Department of Labor – Division of Occupational Safety and Health (IL-OSHA) learned of the hospitalization of three firefighters injured at a structure fire the previous evening. IL-OSHA inspectors arrived at the municipality on May 18, 2021 to investigate the circumstances that led to three firefighters becoming lost on the second floor of an apartment building, declaring a mayday, and exiting the structure from a second floor window resulting in a fall of approximately 21 feet.

CONTRIBUTING FACTORS

Key contributing factors identified in this investigation include:

- Lack of fire prevention code enforcement.
- A building preplan with critical information existed but affected firefighters had never seen the preplan.
- Inadequate size-up, no 360 of building, and no initial incident command established.
- Search and rescue operations performed in zero visibility without a hoseline/tagline above an active fire with no fire suppression operations in place.
- No pre-established alarm levels to request additional resources.

RECOMMENDATIONS

To help prevent similar occurrences, employers should:

- Adopt an enforce fire prevention codes.
- Develop and sustain highly capable, assertive incident commanders.
- Match tactics and strategies to available capabilities.
- Detailed recommendations on page 10.



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SUMMARY

On May 17th, 2021, the Illinois Department of Labor – Division of Occupational Safety and Health (IL-OSHA) learned of the inpatient hospitalization of three firefighters injured at a structure fire the previous evening. IL-OSHA inspectors arrived at the municipality on May 18, 2021 to investigate the circumstances that led to three firefighters becoming lost on the second floor of an apartment building, declaring a mayday, exiting the structure from a second floor window, and suffering serious injuries.



Figure 1 – Apartment building at 9:27 PM (photo credit: Brian DeLoche).

BACKGROUND

The victims worked for the municipal fire department. Victim 1, age 46, is the full-time fire and ems chief for the municipality. He has been a firefighter for approximately 24 years, recently serving primarily as a paramedic. He was appointed as chief approximately two years ago. Since November 2020, he was assigned to the first-out engine and worked as one of three full-time firefighters on a 24 hours on, 48 hours off



schedule. Victim 1 was certified by the Illinois Office of the State Fire Marshal (OSFM) as Firefighter II in 2012. Victim 2, age 35, is a volunteer firefighter for the municipality. He has been a firefighter for approximately two years and recently completed a blended OSFM Basic Operations Firefighter course through the Illinois Fire Service Institute (IFSI). Victim 3, age 23, is a volunteer firefighter for the municipality. He has been a firefighter for approximately one year and recently completed a blended OSFM Basic Operations Firefighter course with victim 2.

The fire department is a combination department with nine full-time paramedics, three full-time firefighters, and twenty-one volunteers. The department operates out of one station that is continuously staffed with one full-time firefighter assigned to drive the first out engine, and two full-time paramedics assigned to an ambulance. The department responds to approximately 1200 medical calls and 180 fire calls per year.

The involved structure was two-story, ordinary brick construction with a flat roof and full basement. It was originally built as a hotel in 1900. The building was not equipped with a fire alarm or sprinkler system and had limited, battery powered, standalone smoke detectors. Over 120 years, the building was modified to accommodate a variety of different occupancies and was last configured as an apartment building with two apartments on the first floor and eleven on the second floor.



Figure 2 – Building in September 2013 (photo credit: Google).



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NOTE: The course of events is presented from the perspective of the involved persons to give insights into how the events were perceived at the time. The narrative is based on interviews, reports, recorded radio traffic, and photo/video taken during the incident.



Figure 3 – Building aerial view (photo credit: Google).

On May 16, 2021, at 8:38 PM the fire department is dispatched for a “structure fire.” The initial dispatch does not provide any additional information other than the address of the structure and that the structure is “the white apartments on the corner.” The fire chief (victim 1) is on duty at the time of the call and responds alone to the scene in Engine 2. Engine 2 approaches the scene from the west and parks on the bravo side of the building (see figure 3). Engine 2 does not pass any other side of the building. Upon arrival at 8:43 PM the chief’s initial radio report states, “On scene, roll me all the trucks, I’m gonna need everything, we got heavy black smoke pushin.” The assistant chief acknowledges this radio report and states that he is going to respond in the 75ft. quint apparatus, Ladder 1. Shortly after, a fire department member re-pages the call as a “structure fire” and gives the address.



The second member on scene is a probationary firefighter that arrives via personal vehicle. This firefighter reports to the fire chief at Engine 2. The fire chief and this firefighter stretch an 1 ¾” attack line off Engine 2 and then starts to establish a water supply to Engine 2 from a nearby hydrant. The third firefighter arrives via personal vehicle (victim 3), reports to the chief and is assigned to the 1 ¾” attack line for an exterior attack on the bravo side of the building. The assistant chief, responding in Ladder 1 alone, requests directions over the radio for approaching the scene from the chief. The chief replies that he is “grabbing the hydrant” and instructs Ladder 1 to approach for a set up at the rear of the building and states, “We’re going to need more work at the back of it.” Immediately after this statement, a police officer in the background of the radio transmission advises the chief that, “You’ve got occupants.” The chief updates his radio report to Ladder 1 stating, “and we’ve got occupants in the rooms so I’m going to need the ladder truck for sure.” Approximately ten seconds later the chief states that he is going to “pack up” with the third firefighter to, “try and make entry and get a save here.” Prior to this point in the incident, the initial action plan was to establish a water supply and initiate an exterior attack with a focus on the bravo and charlie sides of the building.

The fire chief then observes one female occupant in a window on the second floor of the building, alpha side (see figure 4). While preparing to make entry, a fourth firefighter arrives via personal vehicle (victim 2) and is instructed to don SCBA and join the chief and the third firefighter.



Figure 4 – Alpha/Bravo side of building (photo credit: Google).



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NOTE: The police officer that notified the fire chief of the occupant on the second floor attempted to make contact with the occupant but discovered that the occupant did not speak English. The officer asked bystanders to assist with translation and a woman came forward to translate English/Spanish. The occupant was instructed through translation to place a blanket at the entry door to her apartment to attempt to reduce the amount of smoke entering the apartment. The occupant replied that she could not see or locate the entry door. The occupant was informed to stay at the window and that help was on the way.

Prior to entry, the police officer provides the fire chief with a basic layout of the entry path and second floor based on memory from prior service calls at the building.

Ladder 1 arrives on scene at 8:47 PM, four minutes after Engine 2's arrival. Ladder 1, initially directed to the rear (charlie side) of the building, repositions to the front (alpha side) to setup for occupant rescue using the aerial device. The assistant chief on Ladder 1 also makes radio calls requesting additional fire and EMS mutual aid. One mutual aid company self-dispatches based on listening to radio traffic.

Engine 1 arrives on scene at 8:49 PM with one member and stages west of the structure. This firefighter finishes establishing a water supply to Engine 2 (initially started by the fire chief).

At 8:51 PM the fire chief (victim 1) and two firefighters (victims 2 and 3) enter the structure through the 1st floor door on the alpha/bravo corner (see figure 4). Upon entry, the crew observes fire on the first floor, down the hallway at floor level. The crew enters the structure without a hoseline or tagline. No fire suppression is in operation by any on scene personnel at this point. Upon reaching the second floor, the crew observes the female occupant in the hallway under worsening visibility. One firefighter makes physical contact with the female occupant. A struggle ensues and the female occupant retreats from the hallway as visibility decreases to zero. After losing contact with the female occupant, the chief decides the crew needs to exit the building, however, the crew determines that they are disoriented. The crew proceeds with a right-hand search in an attempt to locate an exit. Approximately three minutes after entry, the chief makes a radio report stating that three firefighters are inside the building, they need help getting out, and they cannot find the exit. Immediately after this transmission, "Mayday mayday mayday" is transmitted over the radio. The assistant chief on Ladder 1 is setting up the aerial device and conducting a rescue of the female occupant (now back at the window noted in figure 4) while simultaneously managing the mayday call as well as overall incident command. The female occupant is rescued using Ladder 1's aerial device and is transported to a local hospital.

The interior crew continues a right-hand search for several minutes until they arrive at a dead-end corridor on the second floor of the bravo/charlie side of the "U" shaped building (see figure 3). During this time several radio transmissions take place between the interior crew and assistant chief. A transmission is also made to clear the fire department channel until the mayday is over. The assistant chief instructs the interior crew to make their way to the alpha side of the building (Ladder 1 is setup for rescue on the alpha side). A further instruction from the assistant chief directs the fire chief to locate a window and activate his PASS



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device. A subsequent transmission from the fire chief states, “It’s getting hot!” The assistant chief attempts to direct the interior crew to an exterior wall apartment and find a window. A few minutes later the fire chief transmits that they cannot find a hallway. The fire chief’s “vibralert” low air alarm is sounding.

After arriving at the dead-end corridor, the fire chief continues a search and locates the door to the 2nd floor apartment on the bravo/charlie corner of the building. The fire chief then locates an exterior window (see figure 5) and breaks out the window using a haligan bar.



Figure 5 – Bravo side of building (Photo credit: Google).

The interior crew experiences increasing heat and deteriorating conditions along with a “roaring” sound overhead. One firefighter (victim 2) yells out the window for a ladder, he does not have a radio. Due to heavy smoke conditions, the firefighter cannot see the ground and cannot be seen from the exterior of the building. At 9:11 PM (see figure 6) this firefighter exits the window, hangs from the window ledge by his hands, and then falls to the ground. Victim 2 suffers multiple leg and ankle fractures. The next firefighter (victim 3) exits through the window and suffers multiple hip and vertebra fractures. The fire chief (victim 1) is last to exit at 9:13 PM. By this time, a ground ladder is in place, but is located to the side of the window. The chief attempts to jump to the ladder (see figure 7) but misses and falls to the ground. He suffers multiple pelvis, sternum, and rib fractures.



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Figure 6 – Conditions on side bravo at approximate time of first bailout (Photo credit: Brian DeLoche).



Figure 7 – Ground ladder at bailout location. Time is post-bailout (Photo credit: Brian DeLoche).



INVESTIGATION BY IL-OSHA

IL-OSHA inspectors arrived at the municipality on May 18th, 2021 to investigate the incident. Subsequent visits were made to gather additional information and conduct interviews. IL-OSHA gathered information from public and private sources to build a timeline and determine if any violations of the Illinois Occupational Safety and Health Act occurred.

FINDINGS

Direct Cause: Exposure to a fall hazard of approximately 21 feet from an emergency bailout due to rapidly deteriorating fire conditions.

Indirect Causes:

1. The municipality does not have an active fire code enforcement program. The building was identified in a fire department preplan as a high-hazard building, however, no inspection documentation on the building was able to be produced.
2. A fire department preplan for the building was created in 2011. This preplan was on file at the fire department, however, the preplan was not reviewed at the incident. The preplan states several critical considerations such as: "Many openings in construction. Dead end hallways. 2nd floor rear exit, narrow steep stairwell. Very easily could get lost in this building. Consider defensive stand only. This building promotes rapid fire spread."
3. The fire department lacks several written procedures/guidelines that include but are not limited to: Incident command, structure fire response, and mayday/firefighter rescue.
4. The fire department has several training deficiencies. The department does not have a training officer, training schedule, or a training policy. The department is deficient in officer and incident command training, as well as training to ensure members can perform duties and functions safely and satisfactorily.
5. The initial arriving officer in Engine 2 did not perform a 360 drive by of the building upon arrival, nor a walkaround 360. Had this been performed it is possible that the 2nd floor female occupant would have been visually located by fire personnel earlier in the incident.
6. The initial arriving officer in Engine 2 did not assume command at an incident that required a strong initial command presence.
7. The fire department did not utilize a pre-determined automatic/mutual aid alarm system. Throughout the incident the incident commander had to request individual resources from dispatch. Dispatch also had to request clarification on resource requests. This tied up radio traffic and added



an additional workload for the incident commander that was already operating an aerial ladder to perform a rescue, managing a mayday, and managing the incident in general.

8. The interior crew entered the building without a hoseline or tagline. Additionally, they observed fire on the first floor, proceeded to the second floor without a protected means of egress, and proceeded with no fire suppression in place.
9. All members on the interior crew were equipped with SCBA facepiece mounted thermal imaging cameras, however, two members did not turn their device on, and the other member's device malfunctioned.
10. No rapid intervention team was established at the incident.
11. Upon receipt of the mayday, no ground ladders were deployed to potential egress points on the second floor.
12. Upon receipt of the mayday, non-mayday radio traffic was not diverted to another frequency.
13. Not all members of the interior crew were equipped with a radio.
14. Exterior crews did not utilize a thermal imaging camera to attempt to visually locate the interior crew's bailout location.
15. When a ground ladder was placed at the bailout window, it was placed to the side of the window rather than under the window.

CONCLUSION

For this fire department, this incident should be considered a high-risk, low-frequency incident with minimal decision-making time. These incidents present the highest potential for firefighter injury or death. The tactics and strategies selected for occupant rescue did not match the actual capabilities of the department. When a mayday was called, the department did not implement certain critical emergency actions to address the mayday.

RECOMMENDATIONS

- Adopt and enforce a fire code such as NFPA 101 Life Safety Code (2015 edition). Fire protection through prevention is a highly effective method of reducing the risk of structure fires in a community. NFPA 101 Life Safety Code (2015 edition) was adopted by the State of Illinois through the Office of the Illinois State Fire Marshal.



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- Renew the fire department building preplan program. Identify high-hazard occupancies in the community and work with building owners to develop accurate and up-to-date preplans.
- Make fire department building preplans easily accessible to fire department members before and during incidents.
- Develop, implement, and train on model standard operating guidelines/policies that promote safe and effective fireground operations.
- Develop and implement a model fire department training program of high quality.
- Appoint a fire department officer as the training officer. Ensure this officer is provided with training and education (such as the OSFM Training Program Manager course) to successfully manage the training program.
- Develop capable incident commanders through external training and education opportunities (such as IFSI, Fireground Management for Small Career and Volunteer Departments course). Ensure ongoing training and education. Consider fireground incident simulation software/apps to develop incident command decision making competencies. Consider use of a tactical worksheet for incident commanders.
- Develop and implement a pre-determined automatic/mutual aid alarm system for incidents such as the MABAS box alarm system. Conduct periodic radio drills to test the system.
- Based on current capabilities, prohibit interior search/rescue operations without a hoseline/tagline.
- Based on current capabilities, prohibit interior search/rescue operations when fire suppression is not in place.
- Train and develop proficiency in exterior ladder rescue techniques and vent-enter-search techniques.
- Train and develop proficiency in use of SCBA facepiece mounted thermal imaging cameras.



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- Ensure an adequately staffed rapid intervention team and emergency medical services are in place during interior operations.
- Develop and implement a practice to throw ground ladders to provide alternate means of egress during multi-story interior operations.
- Ensure all interior crews are individually equipped with a radio.
- Train and develop competency in exterior building assessment through the use of thermal imaging cameras for incident commanders and company officers.
- Train and develop competency on different methods of ground ladder deployment based on circumstances (ex. ventilation vs. rescue).
- Provide training for all fire personnel on building construction, building size-up as related to fire conditions, and risk/reward when considering an offensive vs. defensive strategy.
- Review the Operational Risk Management and Hierarchy of Controls sections of the IL-OSHA Occupational Safety and Health Compliance Guide for Fire Departments with fire department officers.

CITATION(S)

- ***Repeat-Serious - 29 CFR 1910.134(e)(1): General. The employer shall provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. The employer may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.***

On or about 5/18/21, it was discovered that employees are required to wear SCBA in IDLH atmospheres prior to receiving a respirator medical evaluation.

- ***Repeat-Serious - 29 CFR 1910.134(f)(2): The employer shall ensure that an employee using a tight-fitting facepiece respirator is fit tested prior to initial use of the respirator, whenever a different respirator facepiece (size, style, model or make) is used, and at least annually thereafter.***

On or about 5/18/21, it was discovered that employees are required to wear SCBA in IDLH atmospheres prior to receiving respirator fit testing.



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- ***Serious - 29 CFR 1910.134(k)(5):Retraining shall be administered annually, and when the following situations occur:***
 - *Changes in the workplace or the type of respirator render previous training obsolete;***
 - *Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or***
 - *Any other situation arises in which retraining appears necessary to ensure safe respirator use.***

On or about 5/18/21, it was discovered that employees designated as respirator users require retraining on Scott SCBA with integrated thermal imaging camera.

- ***Serious - 29 CFR 1910.156(b)(1):Organizational statement. The employer shall prepare and maintain a statement or written policy which establishes the existence of a fire brigade; the basic organizational structure; the type, amount, and frequency of training to be provided to fire brigade members; the expected number of members in the fire brigade; and the functions that the fire brigade is to perform at the workplace. The organizational statement shall be available for inspection by the Assistant Secretary and by employees or their designated representatives.***

On or about 5/18/21, it was discovered that the employer does not have a written policy that details the type, amount, and frequency of training to be provided to members.

- ***Serious - 29 CFR 1910.156(c)(1):The employer shall provide training and education for all fire brigade members commensurate with those duties and functions that fire brigade members are expected to perform. Such training and education shall be provided to fire brigade members before they perform fire brigade emergency activities. Fire brigade leaders and training instructors shall be provided with training and education which is more comprehensive than that provided to the general membership of the fire brigade.***

On or about 5/18/21, it was discovered that company and command officers of the fire department have not conducted annual training and education that is more comprehensive than the general membership exposing employees to unsafe and unsatisfactory practices and conditions on the fireground.



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- ***Serious 29 CFR 1910.156(c)(2):The employer shall assure that training and education is conducted frequently enough to assure that each member of the fire brigade is able to perform the member's assigned duties and functions satisfactorily and in a safe manner so as not to endanger fire brigade members or other employees. All fire brigade members shall be provided with training at least annually. In addition, fire brigade members who are expected to perform interior structural fire fighting shall be provided with an education session or training at least quarterly.***

On or about 5/18/21, it was discovered that members of the fire department have not received required training and education at least annually or more often to ensure safe and satisfactory operations. In addition, interior firefighters have not received interior structural fire fighting training at least quarterly.

- ***Serious - 29 CFR 1910.156(c)(3):The quality of the training and education program for fire brigade members shall be similar to those conducted by such fire training schools as the Maryland Fire and Rescue Institute; Iowa Fire Service Extension; West Virginia Fire Service Extension; Georgia Fire Academy, New York State Department, Fire Prevention and Control; Louisiana State University Firemen Training Program, or Washington State's Fire Service Training Commission for Vocational Education. (For example, for the oil refinery industry, with its unique hazards, the training and education program for those fire brigade members shall be similar to those conducted by Texas A & M University, Lamar University, Reno Fire School, or the Delaware State Fire School.)***

On or about 5/18/21, it was revealed that the employer does not have a quality training and education program for fire department members. The department lacks a training officer, a training policy, an annual training plan, and individual training lesson plans with objectives.

- ***Other-than-Serious - 56 IL Admin Code Part 350.410:Within 8 hours after the death of any employee from a work-related incident, the employer shall orally report the fatality by telephone 24/7 Notification - (800) 782-7860 or (217) 782-7860. Within 24 hours after the in-patient hospitalization of one or more employees, or an employee's amputation, or an employee's loss of an eye, as a result of a work-related incident, the employer shall report the in-patient hospitalization, amputation or loss of an eye.***

On or about 5/18/21, it was discovered that the employer did not report the inpatient hospitalization of 3 firefighters within 24 hours of a catastrophic incident during a structure fire. The employer had the Illinois form 45 and 300 logs prepared, but had not verbally reported the injuries to IL-OSHA as required by the standard. The city clerk made a notification at the time of the opening conference.