

**Investigation
Line of Duty Injuries
On October 25, 2009
Kissimmee Fire Department
Kissimmee, Florida**



**Safety Investigation Report
Prepared by the Safety Section
Bureau of Fire Standards and Training
Florida Division of State Fire Marshal
Florida Department of Financial Services**

Issued: May 11, 2010

Safety Investigation Report

I. Authority, Purpose, and Scope

The Department of Financial Services, Division of State Fire Marshal (“division”) is authorized by the provisions of Section 633.806, *Florida Statutes*, to conduct investigations into the causes of firefighter employee injuries and death for the purpose of enhancing firefighter occupational safety and health in the State of Florida, and to make recommendations to the Legislature, firefighter employers, and insurers as to the best means of prevention. The division is authorized to impose penalties on any firefighter employer who violates or fails or refuses to comply with Sections 633.801 through 633.821, *Florida Statutes*, the “Florida Firefighters Occupational Safety and Health Act,” (“FFOSHA”), Rule 69A-62, *Florida Administrative Code* (“F.A.C.”), and lawful orders of the Department of Financial Services under FFOSHA. The scope of this investigation is to determine the facts surrounding two line-of-duty (“LOD”) injuries and the course of further action, if any.

II. Background and Methodology

The division was advised of the LOD injuries by arson investigators from Bureau of Fire and Arson who investigated a structure fire on October 25, 2009 in Kissimmee, Florida. Kissimmee Fire Department was contacted regarding the incident on October 26, 2009 and a subsequent site visit was conducted on October 28, 2009. A joint investigation was conducted with Kissimmee Fire Department’s Safety Office. Computer assisted dispatch records, fire reports, scene and post-scene photographs, written and oral statements of firefighters and emergency medical personnel on the fire scene were reviewed and the protective equipment was examined; these activities form the basis of this report. The Kissimmee Fire Department Safety Review report and Post Incident Analysis report of the incident are attached.

III. Executive Summary, Findings and Recommendations

The Kissimmee Fire Department responded to a report of fire in a three-story wood frame apartment building. The building had open-air stairwells and hallways with lightweight timber truss roof and floor construction. The fire appeared to be in the attic of the building and had broken through the roof by the time the first fire units arrived. One lieutenant and one firefighter, on-board the first fire engine to arrive at the scene, were assigned as crew to conduct interior operations. The crew advanced hose and equipment to the third floor landing beneath the area where the fire had broken through the roof. The crew was wearing personal protective equipment, including their self-contained breathing apparatus (“SCBA”), but the SCBA were not activated, the masks were attached to the regulators and not secured on their faces and their protective hoods were around their necks but not in-place. In addition, the firefighter’s gloves were secured to his bunker coat and not in place on his hands.

Upon arriving on the third floor, an exploratory hole was cut in the ceiling of the third-floor stairway landing (as part of an anticipated offensive fire attack). No smoke or heat was detected initially, either visually or with a thermal imager. Shortly afterward, a section of third floor wall fell away and fire was seen coming from this new opening.

The lieutenant told the firefighter to don his mask and activate his SCBA. The crew was in the process of donning their masks and activating their SCBA when the ceiling collapsed with an ensuing flash fire. From this flash fire, the lieutenant received burns to his face and head; the firefighter received burns to his face, head and hands. An emergency radio call for help, known as a "MAYDAY" was not called, but the crew was able to self-evacuate without assistance.

Communication problems occurred just after the collapse, which exacerbated the situation. Multiple units trying to talk on the communications system simultaneously overloaded the system making effective transmissions difficult. This resulted in a delay in notifying command that the interior crew had been accounted for. Consequently, an additional crew was sent to rescue a reportedly trapped firefighter. The rescue crew was recalled shortly before entering harm's way when command learned that the initial crew was safe.

The injured lieutenant and firefighter were treated initially on scene and then transported to the hospital for further care and treatment.

Finding 1. The assigned interior crew engaged in offensive action without having their SCBA units activated, SCBA masks in place, protective hoods in place, and in one case, without gloves on his hands.

Finding 2. When the need for full personal protection was realized, it was donned in place rather than in a place of refuge such as lower floor.

Finding 3. Lack of effective radio discipline immediately after the collapse seemingly delayed communication of critical information.

Finding 4. A MAYDAY call was not communicated by the injured firefighters or others who observed the changing conditions.

Recommendation 1. Prior to taking offensive action, firefighters should always be fully protected with personal protective equipment in place and functioning.

Recommendation 2. Personal protective equipment should always be donned in a safe area.

Recommendation 3. Communications and MAYDAY procedures should be reviewed with training as necessary to ensure that proper radio discipline and procedure is always followed.

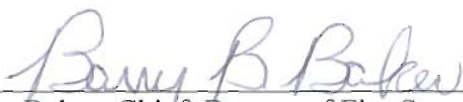
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Prepared by:



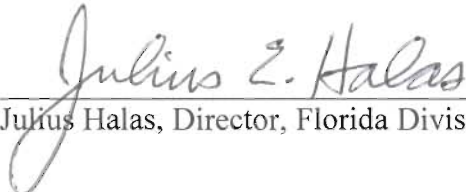
Charles F Brush, Manager, Safety Section

Approved by:



Barry Baker, Chief, Bureau of Fire Standards & Training

Approved for distribution by:



Julius Halas, Director, Florida Division of State Fire Marshal

Attachments

Kissimmee Fire Department Safety Review

Kissimmee Fire Department Post Incident Analysis



KISSIMMEE FIRE DEPARTMENT

Safety Review

Incident #09-0007597
October 25, 2009
Villa Del Sol Apartments
4103 Tropical Isle Blvd.
Kissimmee, Florida

Prepared by: Health and Safety Chief Karen Hunter & Deputy Chief Jeremy F. Donovan

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Executive Summary:

On October 25, 2009 at 20:59, units of the Kissimmee Fire Department arrived to find a working fire at 4103 Tropical Isle Boulevard, an apartment complex located in Station 13's first due area. The initial caller reported smoke coming from the top of the building. On arrival of fire department units, the fire was through the 3rd story roof over the gabled end of b-side stairwell (picture 2). The apartment building construction was wood frame with a mesh and stucco covering in some areas and clapboard siding in other areas. The roof and floors were constructed of lightweight trusses, OSB board and the roof covering was shingle. Six minutes after arrival of the first unit a roof collapse occurred. This collapse engulfed two firefighters in a flash type fire causing first and second degree burns to their face and hands. This report will explore causal factors including:

- Environment
- Personnel/Procedural
- Personal Protective Equipment
- Management /Incident Command

It is the intention of this report to bring attention to the causal factors that contributed to this near-miss incident and to make firefighters aware of the chain of events that occurred. It must be remembered however, that all it takes is one part of the accident chain to be completed for the results to be much different than what actually happened.

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INCIDENT DATA

Date of Incident: 10/25/09

Time of Alarm: 20:54:33

Location: 4103 Tropical Isle Boulevard

Incident Type: Building Fire

Incident #: 09-0007597

Type Construction: Type 5; Wood frame with a stucco or clapboard siding covering

Roof: Lightweight truss with asphalt shingles

Response Zone: Station 13 City

Weather: Clear and warm

Incident:

On October 25, 2009 at 20:54:33, a 911 call was received by Kissimmee Police/Fire Communications of a reported building fire at the Villa Del Sol apartment complex (picture 1) and after confirming the location, units were dispatched at 20:56:14. The initial caller reported smoke coming from the top of the building however, multiple calls were received reporting flames coming from the roof. As Battalion 1/B is preparing to respond a citizen walks up and reports “fire through the roof of the building” and he advises dispatch to request additional units from Osceola County Fire Rescue. Battalion 1/B was the first arriving fire department unit at 20:59:41 and reported “3 story apartment building, fire through the roof, please send out an admin page”. Arriving simultaneously with Battalion 1, the first arriving engine (Engine 13) was assigned to attack the fire. Engine 13 entered the B-side stairwell from Side-A (picture 2), stretching one 1¾ line up the stairwell to the third floor landing to attack the fire. The open stairwell was one of two in the building that each ran from Side-A to Side-C – this one closer to Side-B (picture 2). As Engine 13’s crew was deploying the hose line, dispatch advised that a wheel chair bound resident was still inside a first floor apartment and

needed assistance getting out. Engine 13 Lieutenant advised command who assigned Rescue 13 to handle the evacuation of the resident. Engine 13 Engineer advised command they would need a water supply. Rescue 13 advised the victim had been evacuated and turned over to KPD officers who escorted the resident to a safe location. Engine 11 was second arriving engine at 21:04:07 and assisted Engine 13 in establishing a water supply which consisted of Engine 11 laying in a 5" supply line and assisting Engine 13 in hand-jacking another 5" line back to a second hydrant. Engine 13 Lieutenant notified command they "need more water pressure".

Both the Lieutenant and the Firefighter from Engine 13 state conditions on the third floor landing were good, no smoke and very little fire was visible. A small hole was breached in the ceiling of the third floor landing by the Lieutenant and no smoke or fire was found. The Lieutenant reported he could see some heat via the thermal imaging camera up near the dormer area on Side-A of the building. The Lieutenant reported a small hole opening up in the wall of the dormer area several feet in front of them where a small amount of flames escaped indicating fire was coming up from below in the exterior wall (picture 3). The Lieutenant instructed the Firefighter to don his SCBA mask and was in the process of doing the same when they became engulfed in heat and flames (pictures 5, 6 and 7). The time of this occurrence was approximately 21:05. Command noticed a large volume of fire erupt from the third floor and inquired Engine 13 for a status check. About the same time, Engine 11 was in the process of assisting Rescue 13 in deploying a 2 ½ inch hose line and reports hearing a crash and seeing a large volume of fire erupt from the third floor landing. Engine 13's Lieutenant directs his Firefighter to follow him as he leads them both out of the area. They crawled to the breezeway that ran east and west through the interior of the building between the open stairwells and exited down the Side-C stairs (pictures 4 and 5) where they made contact with KPD officers and Engine 14's engineer (figure 1).

Command makes two more calls to Engine 13 requesting "PAR" with no response. Engine 11 inquires to command if he has acquired a "PAR" from Engine 13 and he responds "negative" and attempts once again to contact the crew of Engine 13. At this time, Command assigns Engine 14's Lieutenant as Operations Section Chief. At 21:07

Engine 14 Engineer advises he has two burned firefighters with burns to face and hands at Rescue 11's vehicle and he needs rescue personnel to assist him. He attempts to advise who the firefighters were and what unit they were from, but his radio transmission is unreadable due to being "walked on" as multiple units talk at once. Communications contacted command and advised a KPD canine unit on Side-C of the building can see someone down on the third floor. Engine 11 calls command again asking if there had been a "PAR" for Engine 13. Several units attempt to communicate via the radio and "walk over" each other. Seeing a helmet on the third floor landing, Engine 12's Lieutenant calls command reporting a "possible mayday" for a firefighter down. Command reports they have a collapse and fire is in the attic. Operations attempts to achieve PAR for all units but has difficulty due to heavy radio traffic and inaudible transmissions by several units.

Operations has a face to face with Rescue 11 crew and directs them to the third floor to find the downed firefighter. Rescue 11 encounters a large amount of debris on the third floor landing (picture 6) but finds no firefighters however, they do find the helmet of the firefighter from Engine 13 in the breezeway on the third floor (picture 7). At 21:18 hours PAR is achieved on all units and firefighting efforts continue in a defensive mode until the fire is declared out. The injured firefighter from Engine 13 is transported via helicopter and the Lieutenant via rescue for treatment for their injuries. In addition to the units above, Kissimmee Rescues 12 and 14, Heavy Rescue 1, HSO 1 (Health & Safety Officer), and FD-2 (Deputy Chief) respond as well as Osceola Fire Rescue's Battalion 4, Engines 43 and 62, Rescue 42, Squad 42 (Special Operations Engine), Tower 72, and Med 6 (Safety Officer).

With the assistance of the State Fire Marshal's Office, it was later determined the fire started when residents attempted to eliminate a beehive on the entry landing ceiling of vacant unit # 121 on the 2nd floor by dousing it with an aerosol flammable liquid and igniting it (picture 8). They believed they had extinguished the ensuing fire and left the area, however flame had entered the space above the ledger and traveled unimpeded up the inside of an exterior wall into the roof where fire burned undetected for some period of time (pictures 3 and 8).

CAUSAL FACTORS

I. Environment:

- Night time-poor illumination.
- Lightweight truss construction involved in fire.
- Dormer contained no fire stops.
- Due to frequent previous false alarms, residents ignored fire alarm for extended period of time
- Although a fully sprinklered building, the fire was above the heads and none were set-off.

II. Personnel & Procedural:

- Ensure operational crews communicate current updates on conditions and actions taken.
- Ensure all personnel understand and practice **Mayday** and **Emergency Evacuation Procedures**.
- Ensure personnel utilize appropriate RIT procedures.
- Ensure personnel speak in a calm and clear voice on the radio and do not “walk over” other transmissions, limiting those transmissions to urgent/tactical messages during heavy fire situations.

III. Personal Protective Equipment:

- Ensure that all Personal Protective Equipment is being worn appropriately for the evident conditions.

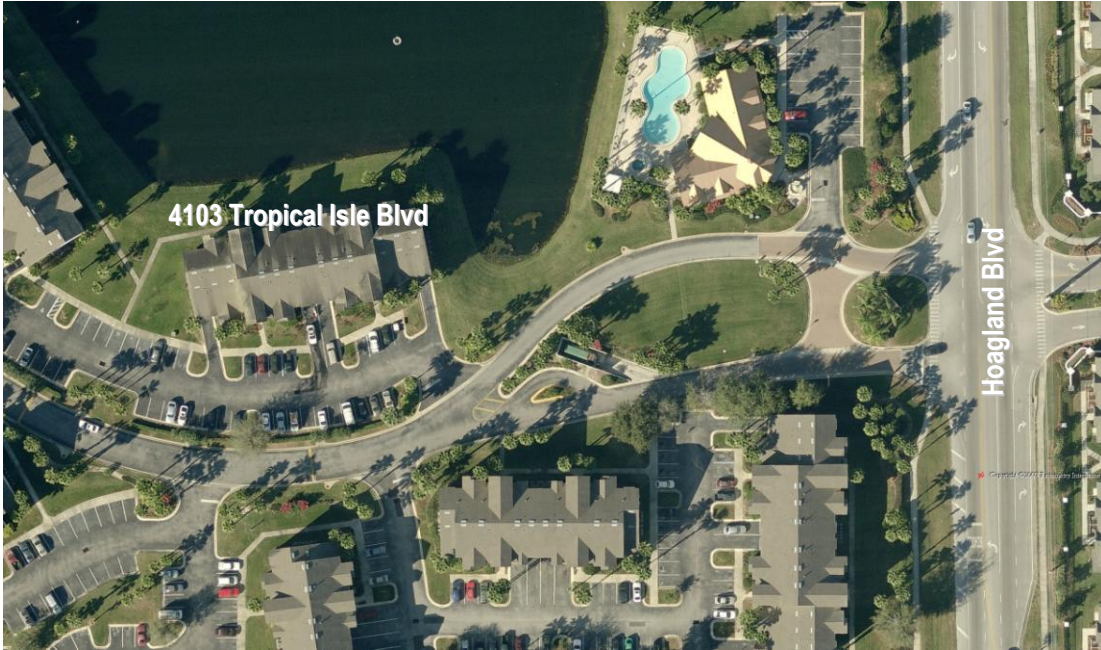
IV. Incident Command:

- Ensure that the incident commander conducts an initial size-up and risk assessment of the incident scene before beginning interior firefighting operations and continuously evaluates risk versus gain during the incident.
- Ensure that officers are assertive when reporting changing conditions and requests for resources.
- Consider the risk versus benefit of interior structural firefighting in lightweight truss construction.

- Ensure firefighters use extreme caution when operating under lightweight truss roofs.
- Conduct routine tailboard and formal critiques of incidents.
- Ensure operational personnel communicate current conditions and actions taken.
- Ensure importance of Personnel Accountability Report (PAR) being a priority is understood by all.

V. Organization Management:

- Ensure personnel are trained to identify truss roof systems.
- Ensure personnel complete recurrent training in building construction, lightweight truss and emergency procedures.
- Develop Emergency Operating Procedures for buildings constructed with lightweight roof trusses.
- Continue to ensure recurrent training is conducted in RIT, Mayday, and Emergency Evacuation procedures.
- Continue to ensure recurrent training with thermal imaging cameras.
- Continue to ensure that routine tailboard and formal critiques are completed.
- Utilize after action information to develop new procedural guidelines.



Picture 1 – Aerial Photo – 4103 Tropical Isle Blvd.



Picture 2 – Northward view of 4103 Tropical Isle Blvd noting Side B and Side D stairwells.

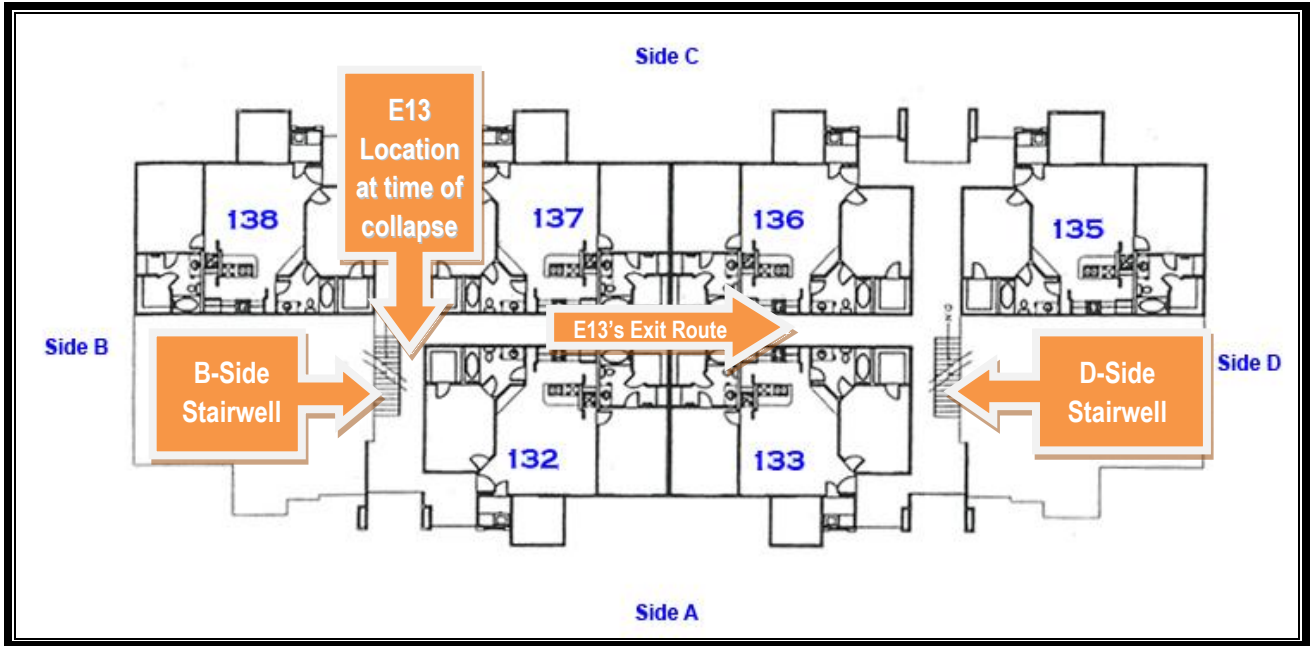


Figure 1 – 3rd Floor Diagram



Picture 3 – Side A at E13's point-of-entry to B Side stairwell.



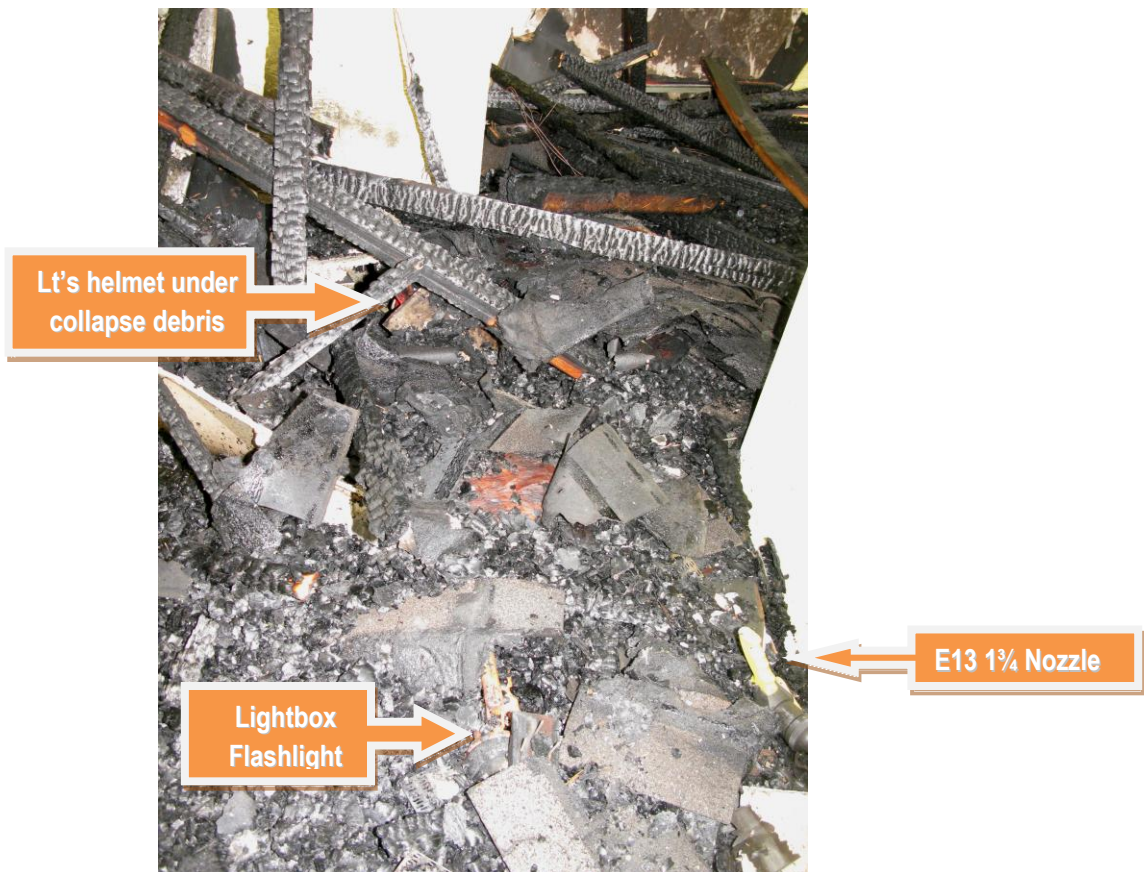
Picture 4 – Side A exit point of E13 from the D Side stairwell.



Picture 5 – Aerial view of 3rd floor Side B stairwell landing & breezeway.



Picture 6 –View from Side A of 3rd floor landing on Side B stairwell.



Picture 7 – View from 3rd Floor breezeway looking towards Side B stairwell landing – location of E13 when roof collapsed.



Picture 7 – View down 3rd floor breezeway from the Side D stairwell's landing looking towards Side B stairwell landing – E13's crew exited via this breezeway and down the Side D stairwell.



Picture 8 – Unit 121 2nd floor entry landing indicating the area of fire origin and route of travel up exterior wall to the attic above.

Conclusion

It is the intention of this report to not only bring forth causal factors of this near-miss incident, but to bring attention to the dangers of lightweight trusses, the need for recurrent training, and the importance of the proper use of PPE. All firefighters are reminded that Firefighter safety can never be compromised for property that will most likely be torn down and rebuilt after the fire is out. Our mission is to protect the citizens of the City of Kissimmee, but our duty is to go home safe to our families after every shift. “Everyone Goes Home” should be the fire that burns within all of us. Be safe!

Respectfully submitted:

(Signatures on File)

Karen L. Hunter
Health and Safety Chief

Jeremy F. Donovan
Deputy Chief

Robert L. King
Fire Chief