

TEXAS STATE FIRE MARSHAL'S OFFICE

Firefighter Fatality Investigation



Investigation Number FY 09-01

Captain James Arthur Harlow, Sr.
Firefighter Damion Jon Hobbs

Houston Fire Department
April 12, 2009

Texas Department of Insurance
Austin, Texas

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ACKNOWLEDGEMENTS

The State Fire Marshal's Office wishes to thank the following entities for their assistance in preparing this report:

- City of Houston Fire Department
- Harris County Medical Examiner's Office
- City of Fort Worth Fire Department
- Texas Commission on Fire Protection
- National Institute for Occupational Safety and Health
- National Institute of Standards and Technology

Executive Summary

On April 12, 2009, City of Houston Fire Department (HFD) Engine 26 Captain James A. Harlow, Sr., and rookie Firefighter Damion J. Hobbs were fatally injured during firefighting operations at a residential single-family house fire. At 12:06 AM, Houston 911 received a report of a house fire at 7811 Oak Vista, inside the city limits of Houston, Texas.

The involved property was a single-family dwelling of wood frame construction, approximately 106 feet long and 54 feet wide. The exterior walls were wood with brick veneer. The interior finish was gypsum board walls and ceilings with wood paneling over some walls. The original construction in 1956 and subsequent additional construction created approximately 4,174 square feet of living space. The structure had large windows on the rear of the house, including solarium glass panels in the den. The rear of the house had a large elevated wooden deck approximately 20 feet above a large yard along a bayou area.

Captain Harlow and Firefighter Hobbs responded to the scene on Engine 26 from Station 26, approximately two miles from the fire scene, arriving at the front, west side of the house seven minutes after dispatch. Captain Harlow and Firefighter Hobbs entered the front door of the house and advanced a line to the central hallway and den. There were 15 to 20 mph sustained winds from the east-southeast, with gusts over 25 mph across the open area of the bayou, blowing into the house through the rear windows. Wind driven fire conditions produced a rapid fire growth that forced Captain Harlow and Firefighter Hobbs to withdraw and they collapsed while attempting to exit. Captain Harlow and Firefighter Hobbs were found and removed to the front yard where resuscitation attempts were unsuccessful. They were transported by ambulance from the scene to the Harris County Medical Examiner's Office for post-mortem examinations. This report is intended to honor these fallen firefighters by taking the lessons learned from this incident so others may not perish.

Captain Harlow, a 50-year-old, 30-year veteran of the Houston Fire Department, made Captain in 2004. He is survived by his wife, daughter, two sons, four grandchildren, and his parents. Firefighter Hobbs, a 29-year-old rookie firefighter and 10-year military veteran, was responding to his first house fire. He is survived by his parents, three sisters, two step-sisters, and a step-brother.



Introduction

On Sunday, April 12, 2009, the Texas State Fire Marshal's Office was notified of two firefighter fatalities by Houston Fire Department (HFD) District Chief Michael Shrum. Chief Shrum advised that the firefighters were still on scene and arrangements were being made to transport them to the Harris County Medical Examiner's Office.

The State Fire Marshal's Office (SFMO) commenced the firefighter fatality investigation under the authority of Texas Government Code Section 417.0075. The statute requires the SFMO to investigate the origin and cause of the fire, the condition of the structure, and the suppression operation, to determine the factors that may have contributed to the deaths of the firefighters. The State Fire Marshal is required to coordinate the investigative efforts of local government officials and may enlist established fire service organizations and private entities to assist in the investigation.

SFMO Investigators Jay Evans and Glen Harris were assigned to respond to the fire scene, initiate an assessment of the scene, and assist the HFD Investigators. State Fire Marshal Investigator Dean Shirley and Fire Safety Inspector Larry Youngblood were dispatched to respond. Investigator Shirley was assigned as the SFMO firefighter fatality investigation Incident Commander (IC). The Bureau of Alcohol, Tobacco, Firearms, and Explosives (BATFE) and the Houston Arson Bureau were on scene and initiated the scene examination and origin and cause investigation.

The investigation began on April 12, 2009, with the initial assessment and survey of the involved property, including examining the fire scene and obtaining witness information. Periodic updates regarding the investigation were provided to the SFMO IC as investigation team members responded to the incident location.

Incident briefings from SFMO staff at the scene were communicated to SFMO IC Shirley and an action plan of assignments and objectives for the investigation was established. Investigator Harris was assigned to conduct the SFMO origin and cause investigation and to coordinate investigative efforts of the on-scene personnel. Inspector Youngblood was assigned to conduct the building structures and systems examination, including gathering historical information and current condition of the residence. Investigator Evans was assigned as the SFMO Liaison Officer, providing assistance to the investigation teams, fire department, and the local media.

The Texas State Fire Marshal has agreements with the major metropolitan fire departments in Texas stating that when a firefighter fatality incident occurs, members of a participating department may be called upon to assist in the evaluation of the fireground operations and tactics, and assist in

developing recommendations. The Fort Worth Fire Department was called upon to assist and Battalion Chief Tim Hatch and Safety Officer Captain Gary Garrett responded to the scene on April 13, 2009.

The Texas Commission on Fire Protection (TCFP) assisted in the evaluation of the personal protective equipment. The National Institute for Occupational Safety and Health (NIOSH) Fire Fighter Fatality Investigation and Prevention Program was notified and responded with a team to conduct an independent investigation. The National Institute of Standards and Technology (NIST) responded on request of the HFD and obtained information for testing and evaluation purposes relating to wind-driven fires in structural firefighting. NIST will use the information to develop fire modeling specific to this incident, including structure and weather conditions, to better understand the fire development that may have contributed to the fatalities.

Building Structure and Systems

The house was a single-story residence of wood frame construction with brick veneer under a composition roof, resting on a concrete slab foundation. It measured approximately 106 feet long and 54 feet wide. The front of the house faced to the west. There is a pool inside the fenced area adjacent to the north end of the house with a gated entrance at the NW corner of the garage. The gate was equipped with a deadbolt. A brick half wall was attached to the SW corner of the house and extended approximately 15 feet toward the street.

Electrical service was supplied through a meter and load center connection at the south end of the structure. Natural gas was supplied through a meter at the northwest corner of the property. There was a seven-foot overhang along the length of the front of the structure from the northwest corner to the front entry area. There were two turbine-style roof vents for the north and south halves of the house. The vents were designed to use the wind to turn the vents and provide air circulation in the attic space.

The legal description of the property is Lot 7, Tract 6, of the Katerwood addition and the original construction dated to 1956. Permit records indicate additions, renovations, and repairs that include two recorded occurrences since its construction in 1956, including a 320 sq. ft. addition in 1980, and a 324 sq. ft. addition in 1986. It is not known what additions were added in 1980 and 1986; however, there was an addition along the east exterior wall from the enclosed solarium at the den to the southeast corner. Solarium glass panels also replaced the original wall, running the full length of the den on the east side of the structure. In January 2006 a permit was taken out for HVAC work, and roofing work was recently performed.

The house consisted of three bedrooms, three bathrooms, formal dining and living rooms, den, an attached garage, laundry room, and office space with over 4,100 square feet of living space. The interior finish was gypsum board walls and ceilings with wood paneling over some walls. There were vaulted ceilings in the den and in the bedroom located on the south end of the structure. A skylight was in the ceiling of the hallway bathroom.

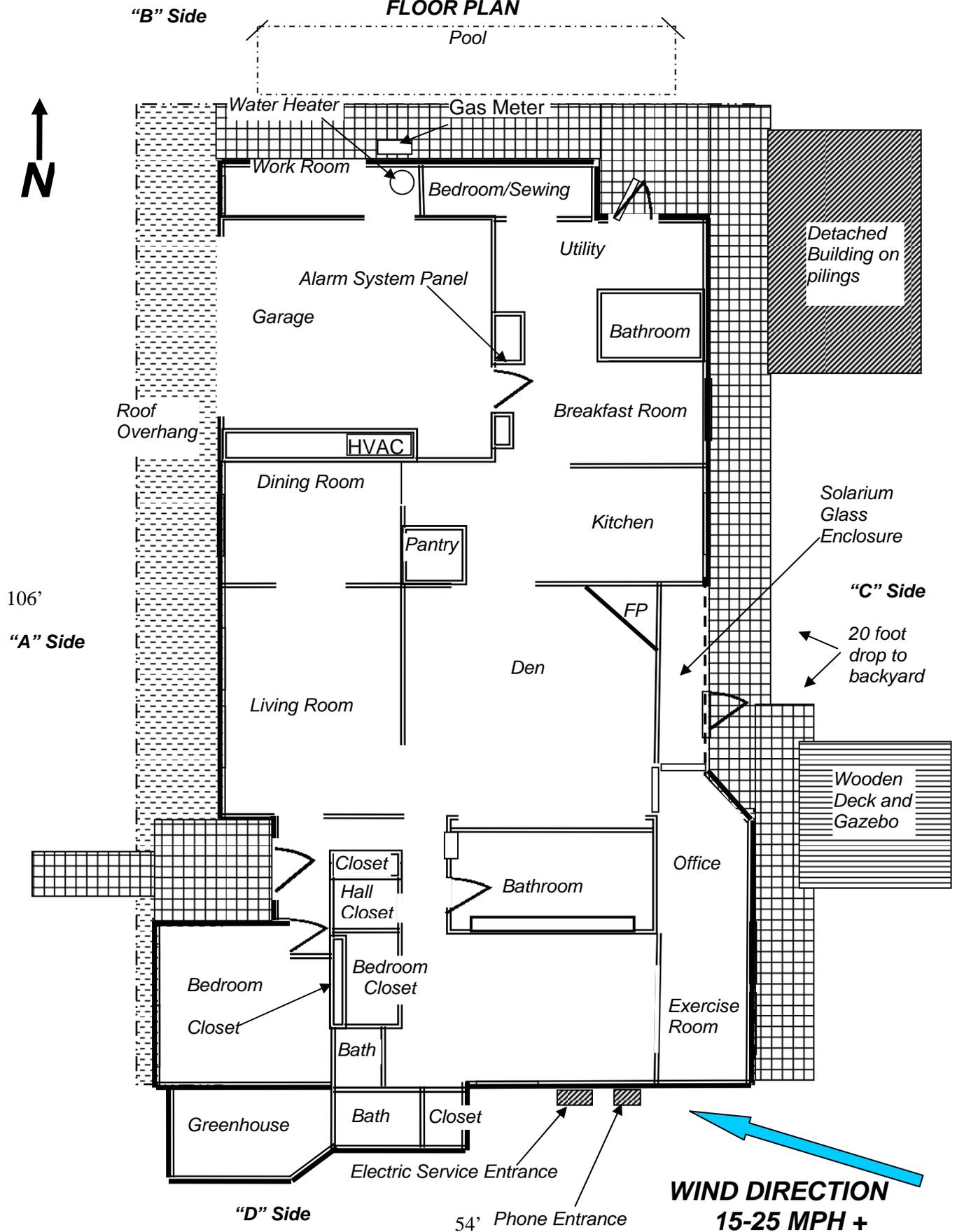
Entry doors included the main front entry door, set back approximately 10 feet from the leading edge of the roof; the garage entry door which entered the house near the breakfast room; a side door at the northeast corner to enter the utility room from the pool area; an exit door from the solarium to the patio; and a sliding patio door leading from the exercise area and master bedroom. Wrought-iron ornamental burglar bars were installed over all window and door openings. The front entry doors and

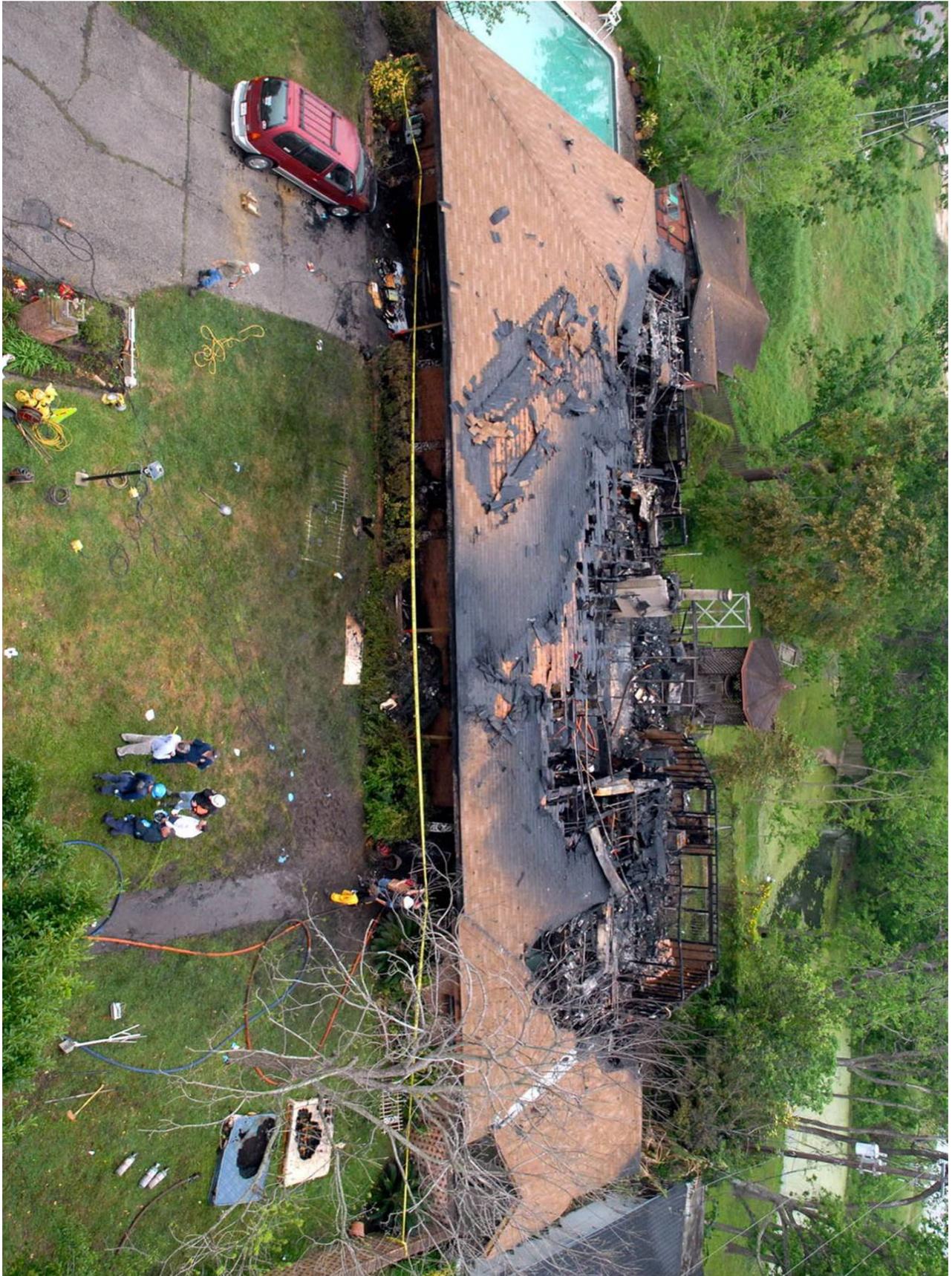
northeast doors were equipped with double cylinder deadbolt locks on both the wrought-iron burglar bars and the entry doors.

It was an occupied structure with two elderly residents who were home at the time of the discovery of the fire.

The residence was equipped with a monitored security system with motion detectors, with signaling sent off-premises by capturing the telephone line. Records indicate that the last alarm occurred in March 2009 when a motion detector activated and the owners were notified. There is no recorded activation of the system for this incident at the monitoring firm. There was a smoke detector installed in the hallway leading to the master bedroom. No other smoke detectors were reported to be installed in the structure.

**Diagram 1
FLOOR PLAN**





The construction type and condition of the building is shown in this post-fire photograph provided by the Houston Fire Department.



View of the back looking up from the backyard showing part of the solarium framing and chimney flue in the den. The 15-25 mph wind came from this direction. Photo by SFMO.



This is the view into the den through the solarium from the patio. Photo by SFMO.

Origin and Cause Investigation

The State Fire Marshal's Office origin and cause investigation began on April 12, 2009, and was led by State Fire Marshal's Office (SFMO) Investigator Glen Harris. The Houston Fire Department Arson Bureau, led by Assistant Chief Investigators Donna McLeod and Leo Gonzales, along with the Bureau of Alcohol, Tobacco, Firearms, and Explosives, led by Special Agent Eric Evers, were conducting investigations operations as the State Fire Marshal's Office personnel arrived. Documentation of the fire scene included measurements and photographs of the structure, including the locations of the victims, responding apparatus, equipment, hose lines, and the structure contents.

During the origin and cause examination of the scene, investigators identified ignition sources, ignitable materials, fire loads, electrical system features, and obtained witness information. Additionally, debris was examined and removed to reveal locations of furnishings, appliances, and electrical equipment; items were returned to pre-fire locations whenever possible. The scene was photographed throughout the examination and excavation process. Locations of electrical arcing were identified and examined to provide information pointing to the area of origin of the fire. The area of origin was initially identified by the homeowner and later corroborated by the scene examination and examination of the electrical system. The locations where the firefighters were recovered were examined and photographed showing orientation of the rooms, furnishings, and equipment.

The homeowners, an elderly couple in their eighties, were preparing food for an Easter day celebration on the evening of April 11, 2009. As they finished, the husband prepared for bed while his wife was making the final preparations in the kitchen. As the husband lay in bed he noted a flickering of light coming from the closet. When he looked in the closet he saw fire and smoke at eye level to ceiling level inside the closet. He called out to his wife and as she came through the den from the kitchen and entered the hall she saw fire and smoke exiting the closet. The couple walked back through the den and kitchen and exited the house into the garage. As they exited, she pressed the alarm button of the alarm system mounted next to the doorway to the garage. They opened the garage and moved their vehicle out and away from the house. The wife said that her husband tried to go back inside with a water hose, but she kept him outside. He stated that while he was in the front yard he eventually saw flames near the area of the skylight of the bathroom that is located across the hallway from a closet.

The origin and cause examination of the fire scene revealed extensive damage to the area of the attic and roof structure above and adjacent to the bedroom closet. Heat damage above the closet area included melting and arcing of circuit conductors, melting of a copper water line above the master

bedroom closet, loss of wood framing between joists above the bedroom closet, and arcing through a 1¼ inch conduit above the entry way closet.

A melted copper water line and heat damaged electrical circuit conductors provided indications of the area of origin above the ceiling in the attic space. Materials that were located in the attic space above the bedroom closet were found at floor level under roofing debris, indicating the ceiling above this closet collapsed early in the fire

Deep charring and the consumption of ceiling joists material above the bedroom closet were noted, as witness information indicated seeing fire and smoke at ceiling level in a closet. A light switch mounted in the closet doorframe allowed the incandescent light to switch on or off automatically when opening or closing the door. The light would remain lit whenever the door was not in the fully closed position.

The hallway closet, with a cedar board over gypsum wall, contained linens, bedding materials, pillows and other combustible items. The hallway closet light was also operated by a switch in the door frame. Circuit conductors in the junction box for the hallway closet light fixture were not as damaged as the conductors to the bedroom closet light fixture.

Failure and collapse of the roof structure and the nearly complete consumption of combustible materials above the master bedroom, hallway bathroom, exercise room, and den occurred as the fire extended unabated throughout the attic space and ceiling areas while defensive measures were employed. The east half of the roof structure and the ceiling areas of the interior were the most damaged areas, as the high winds provided increased ventilation.

An engineering examination and testing of the circuit conductors and connections by the occupant's insurance company revealed heat damage at the point of connection to the porcelain light fixture of the bedroom closet, indicating a loose connection. This failure resulted in a glowing connection, causing localized heating that ignited adjacent combustible materials.

The cause of this fire is determined to be accidental.



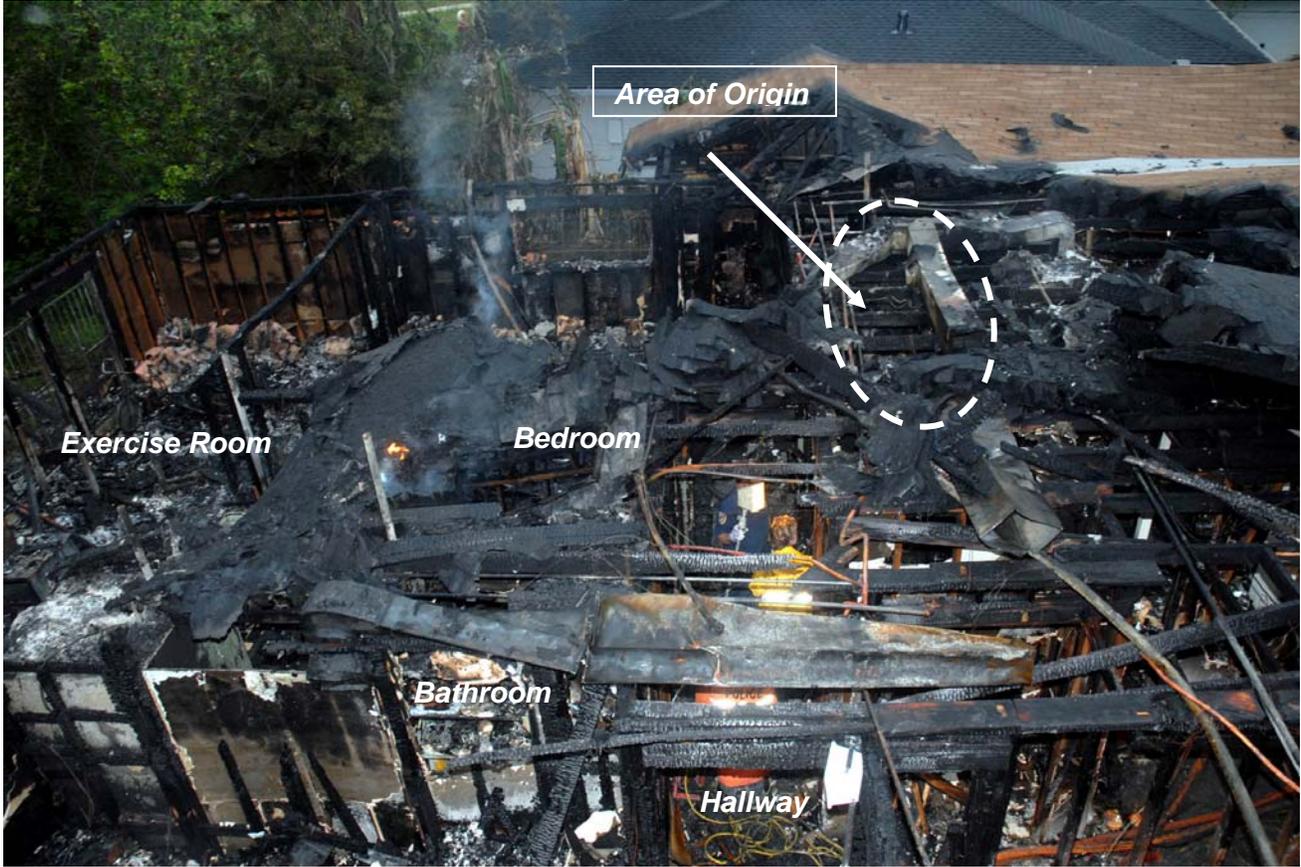
Photo of the hallway closet ceiling light fixture and damage to the junction box and ceiling joists. SFMO photograph



**Photo of the bedroom closet ceiling showing the light fixture at the point of origin.
Photo by Houston FD**



Deep charring and extensive loss of material occurred to joists above the bedroom closet.
Photo by Houston FD



This photo shows the view of the south end of house and the area of origin.
Photo by Houston FD

Fireground Operations and Tactics

Note: The following sequence of events was developed from radio transmissions and firefighter witness statements. Identified times are approximated to radio transmission information. Events without known times are approximated in the sequence of the events based on firefighter statements regarding their actions and/or observations.

Houston 911 received a structure fire call at **00:06:37** on April 12, 2009. The call was transferred to Houston Fire Dispatch at 00:06:49 and the caller indicated that the house at 7811 Oak Vista was on fire, that there were visible signs of smoke and fire, and that someone was inside. The caller then reported that the occupants were all out.

At **00:08:02** Houston Fire Dispatch toned out District 26 (D26), Engine 26 (E26), Engine 36 (E36), Engine 29 (E29), Ladder 26 (L26), Ladder 29 (L29), Ambulance 26 (A26), Medic 29 (M29), and District 23 (D23) for a reported house fire at Oak Vista and De Leon. All companies were advised to respond on radio tactical channel TAC 4.

While en-route, D26, District Chief Albert Escamilla, asked dispatch for a tactical radio channel (for fireground operations) and was assigned tactical radio channel TAC 7. Dispatch advised all responding companies to switch to TAC 7.

At **00:13:39** Engine 26 arrived on scene driven by Engineer Lance Lindsley with Captain James Harlow (Engine 26A), Firefighter Damion Hobbs (Engine 26B), and Firefighter Daniel Underwood (Engine 26C). Engineer Lindsley later stated that dense smoke was encountered more than a block west of the house, making it difficult to drive, especially while maneuvering around parked vehicles and walking pedestrians. The smoke in the area was so heavy that determining which house was on fire was difficult. When the Engine was passing the front of the involved house, the smoke cleared enough to see the house was on the driver's side and Lindsley stopped at the south end of the structure. Captain Harlow reported over the radio that there was "heavy smoke coming from a one-story wood frame, Engine 26 will be making a fast attack," and left the truck without his radio. Hobbs and Underwood pulled a 1 ¾ inch attack line from the left side and went to the front door of the structure where they were met by Captain Harlow. After forcing an ornamental security door open with a pry bar and a hydraulic forcible entry tool, Captain Harlow kicked in the front door. Underwood stated the crew encountered heavy smoke and high heat conditions at that point. Engineer Lindsley charged the hose line and Engine 26 advanced into the structure. A few feet inside they angled left

after encountering a wall directly in front of their path. Firefighter Hobbs was on the nozzle followed by Captain Harlow and then Firefighter Underwood, who was third in line to pull slack.

At **00:13:58** Chief Escamilla (D26) arrived on location just after Engine 26 and assumed Oak Vista Command. D26 re-positioned his vehicle allowing Ladder 26 to spot in front of the structure and began to assess the situation while Engine 26 and Ladder 26 performed tactical operations for a residential structure fire, including suppression and ventilation.

At **00:14:14** Ladder 26 reported on location seconds after D26 and reported heavy smoke showing from a one-story wood frame residence and announced that they would be venting the roof. Ladder 26, under the direction of Captain Mike Davis, proceeded to the front side of the structure and laddered the roof a few feet to the left of the front sidewalk, which was in line with the front door.

At **0014:30** Captain Alcazar of Engine 36 reported on location and asked Command if he wanted them to lay a supply line. Command told Engine 36 to come in and secure a water supply for Engine 26 from a closer hydrant. Engine 36 was also requested by Command to back up Engine 26 with an attack line. Engine 36 pulled a second 1 ¾ inch attack line from the left side of Engine 26 while the Engine 36 Engineer, Joshua Meyn, assisted Engine 26 Engineer Lindsley with completing a supply line hookup. Engine 26 Engineer Lindsley stated that he charged the line for Engine 36 when they were ready.

A 100 foot, 4 inch supply had been connected on the right side intake and another 4 inch supply was connected at the left side intake of Engine 26 supplying the two, 1 ¾ inch cross-lay attack lines. Engineer Lindsley stated that the tank remained above 1/2 and pressure on the discharge gauge remained between 140 and 150 psi.

Chief Escamilla continued to make strategic assignments as companies arrived.

At **00:15:40** Engine 29 reported on location and Command told Engine 29 to report to the Command Post.

At **00:15:48** Command advised Dispatch that “Grace” Accountability was in place and reported that he had Engine 26 making a fast attack and a primary search. Dispatch acknowledged both transmissions from Command.

“Grace” Accountability is a two-way signally electronic personnel accountability system with the base at the command post that monitors each firefighter as they arrive within range at the scene. The

system will initiate a pre-alert at 20 seconds and then a full alert at 30 seconds if the firefighter wearing the portable transmitter becomes still for too long.

At **00:16:06** Ladder 29 reported on location and Command assigned them to assist Engine 26 with a primary search.

At **00:16:32** Command assigned Engine 29 as the Rapid Intervention Team (RIT). Command requested Ladder 29 Engineer to assist Ladder 26 Engineer with setting up lights.

The RIT, Engine 29, included Captain Rodriguez, Firefighter Rosalessorto, and Firefighter Levo. Rodriguez stated in the post-incident interview that RIT was standing by with a “dry line.” As the RIT arrived to stand by, Captain Rodriguez conducted a quick assessment to the north and south ends of the structure.

At **00:18:18** District Chief Stephen Cichon (D23) reported on location and was assigned as Division A Command. Chief Escamilla advised District 23 that he would have Engine 26 and Ladder 29 with Engine 36 as backup. District 23 acknowledged his assignment as Division A.

Engine 36 entered the structure after their line was charged and they straightened out the hose lines for both Engine 26 and Engine 36. Smoke and heat exiting the doorway forced Engine 36’s crew to crouch down immediately and the Captain could see some legs approximately five to six feet in front of them for a short period of time, which were believed to be the crew members of Engine 26 on the initial attack line.

At about the same time that Engine 36 entered the structure, Underwood (E26C), the firefighter third in line on the Engine 26 attack line, encountered a helmet malfunction and advised whom he believed was his Captain that he needed to exit the structure to fix the helmet because the heat on his head was intense. He stated that the Captain acknowledged his situation and the firefighter left the remaining crew members on the line. The Engine 26 firefighter corrected the problem and re-entered the structure, but several firefighters were occupying the small entry space and he was not able to get back with his crew and apparently joined Engine 36 without realizing it.

Ladder 29 entered the structure under the direction of Captain Hawkins following the first attack line in (Engine 26) to assist in the primary search as directed by Command. Hawkins advised that they went in low and could see the boots of a crew several feet ahead of them down a hose line. Captain Hawkins advised that a board hampered his advance once inside, so the board was passed down the line and removed. Hawkins advised that they advanced to the den area. Firefighter Montes (L29C) entered the structure behind Hawkins and noted extreme temperatures just inside the door. Montes

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stated that he remembered seeing another crew about eight feet to his left spraying water toward the back of the house.

Roof ventilation continued while the companies were working inside. They cut a large hole in the roof from the ridge down, removed the cut-out section, and punched the ceiling below with a pike pole. Command called Ladder 26 for confirmation that vertical ventilation was complete.

Hawkins (Ladder 29A) stated that conditions deteriorated rapidly and visibility went down from a couple of feet from the floor, to floor level. Hawkins advanced down the Engine 26 hose line and found an abandoned nozzle on the floor in the den near the end of the hallway. Ladder 29, encountering serious fire conditions, began to fight fire with the nozzle they had encountered, forcing them to back up into the living room. Fire continued to build as Ladder 29 and Engine 36 worked their lines. Captain Hawkins later stated that there was adequate nozzle pressure and water volume on their line, but Captain Alcazar of Engine 36 had difficulties with both pressure and volume as reported by the officer. Both crews originally fought fire ahead of their lines, but had to turn their attention to fire that had developed above and possibly behind them at this point.

At **00:19:14** Command called Engine 26 for a “report” and received no response.

Note This was the first request for an Engine 26 report that received no response. Several requests followed.

At **00:19:22** Ladder 26A yelled over the radio “Get off the roof, Get off the roof!”

About the time Ladder 26 completed the ventilation assignment, they encountered heavy fire travelling quickly up the roof from the rear of the structure. Rapid fire growth and auto venting of the roof were noted by other firefighters on scene. Ladder 26 was forced to evacuate the roof quickly.

Command advised Engine 26C and Ladder 26B that their electronic pass “alarms” were going off and asked for a report and Ladder 26B reported “clear.”

At **00:20:07** Ladder 26 Captain reported that fire was coming through the vent hole and that they were coming off the roof. Command told Ladder 26 to report to District 23 when they got off the roof.

At **00:20:30** Command called Engine 26 but received no response.

Engine 26C, Firefighter Underwood, had not acknowledged Command’s earlier transmission about the alarm going off yet.

At **00:20:45** Command acknowledged that Engine 26C alarm was cleared, but the message from Engine 26C was not captured on the radio transmission.

At **00:20:53** Command called Dispatch for a "1-11" denoting that they had a working fire and Dispatch acknowledged the request by initiating the dispatch of the remaining first alarm companies to the fire scene.

At **00:21:03** Command requested a status report from District 23 and specifically asked to be informed about the need to "pull out." This request received no response.

At **00:21:21** Command requested a report from District 23 on the inside when he had the chance.

At **00:21:31** District 23 responded that he was just arriving on side "A" and would give an assessment in a minute.

The District 23 ICT (Incident Command Tech) reported that after arrival he went to the Command Post located behind Engine 36. Command instructed him to make a 360 and cut off the gas and electric. After cutting off the gas at side "B" he tried to go to side "C" and was stopped by the sharp drop off behind the structure. He went back and reported to Command. Dispatch informed Command that the 1-11 companies would be D46 and Engine 23.

At **00:21:51** District 23 (Division A) advised Command to go defensive. Command acknowledged and advised all companies via radio that they were going defensive and to advise him when they were all clear. He also requested horn blasts. The defensive transmission was acknowledged by Dispatch and re-transmitted over the radio to on-scene companies with an order to evacuate and blow their air horns for 30 seconds. Ladder 29, Engine 36, and Firefighter Underwood from Engine 26 (now with Engine 36 crew) received the defensive transmission from Command and withdrew from the residence.

At **00:22:23** Dispatch requested a Personnel Accountability Report (PAR) from Oak Vista Command. Ladder 26 reported a PAR. Command acknowledged a PAR from Ladder 26 and ordered Ladder 26 to make sure Engine 26, Engine 36, and Ladder 29 got out. Ladder 26 acknowledged the order. Command reported a PAR for Ladder 26. Division A reported a PAR for Engine 36 and Ladder 29.

At **00:23:02** Command acknowledged the PAR from Division A and asked for a PAR for Engine 26. Engine 36 and Engine 29 reported a PAR to Command.

At **00:23:28** Command reported a PAR for all companies and Dispatch acknowledged the PAR as complete. Command immediately corrected the PAR for all companies by advising Dispatch that he still needed a PAR for Engine 26.

Command asked Division A if they needed to set up the ladder pipe and Division A responded that they did need the ladder pipe from Ladder 26. Command advised Division A to have the Ladder 26 Captain set up the ladder pipe and supply it with Engine 26.

At **00:24:16** Command requested a PAR from Division A, who reported back that he did not have Engine 26. Division A then called Engine 26 to see if they were out of the building.

At **00:24:40** Command requested a PAR for Engine 26. Division A reported that he only had one member of Engine 26 and that the "Captain" and the "Rookie" were unaccounted for. Division A immediately deployed RIT.

RIT Engine 29 Firefighter Levo advised that as he stood by, he saw fire inside the house through a window left of the front door and fire on the other side of the roof ridge behind or to the right of the front door. Levo also stated that he watched Ladder 26 vent the roof and after the vent was made the fire became much worse, with flames coming through the windows left of the door and at the top of the front door. Rosalessorto stated that the roof auto-vented at about the same time as Ladder 26 completed its vent.

At **00:24:58** Command advised that he had RIT going in for Engine 26 and requested a 2-11 (Second Alarm). Division A attempted to reach Engine 26 Captain by radio.

At **00:25:22** Dispatch asked Command if he wanted to call a Mayday. Command confirmed the Mayday for Engine 26, sending in the RIT (Engine 29). Dispatch asked Command if he wanted a 2-11 (second alarm) and Command answered "Yes, give me a 2-11." Apparently, Command's earlier request for a 2-11 was not received.

At **00:25:53** Division A called Accountability and asked what he knew about Engine 26 Captain. Command reported back that Engine 26 Captain was in alarm. Command also advised that Engine 26B was in alarm and did not acknowledge.

At approximately the same time as RIT was deployed, Command asked Dispatch if they received his Mayday and Dispatch responded that they did and were getting his 2-11 companies. Dispatch then advised that the 2-11 companies had been dispatched and that they were sending the units to Command's Mobile Data Computer (MDC).

At **00:26:13** Command repeated that he had an alarm for Engine 26A and Engine 26B and they had not acknowledged.

The Rapid Intervention Team (Engine 29) attempted to secure a 1 ¾ inch attack line to enter the structure for search and rescue purposes, but was unable to obtain a line with adequate pressure and volume. Engine 29A initially tried to get the dry line charged, but Engine 26 Engineer could not supply the additional line as defensive measures were initiated and the ladder pipe was being supplied. Engine 29A then picked up the line brought out by Engine 36 but the pressure was still inadequate to enter the structure. The volume of fire at this point was beyond the capacity of hand line tactics and Ladder 26 was being set up for master stream operations. Division A directed RIT to back away from the front door and assigned them to side “D” of the structure to protect exposures. The temperature at the front door was so severe when they were directed to back away that Firefighter Levo saw that Captain Rodriguez’ SCBA frame was on fire and had to be extinguished.



This photo, taken at 00:26 with a cell phone camera, shows the intense fire created by the strong winds exiting the garage and front windows. Photo courtesy of the Houston FD



This photograph taken at 00:27 with a cell phone camera, shows extensive fire through the roof. Photo courtesy of the Houston FD

At **00:27:53** Division A requested a role call for a complete PAR. Command requested a PAR from all companies. Ladder 26 reported a PAR. Engine 29 reported a PAR. Engine 36 reported a PAR. Ladder 29 reported a PAR.

At **00:29:04** Command asked Engine 26 for a PAR with no response.

At **00:29:45** Supervisor 29 reported on location.

At **00:29:58** Command called Ladder 26 for ladder pipe operation. Division A ordered all companies to evacuate the front yard and cease hand line operations for ladder pipe operations.

At **00:30:28** Division A ordered Engine 36 to get a 2 ½ inch line to be ready to convert back to an offensive mode.

At **00:30:56** Command called Engine 26 Captain for a PAR.

At **00:31:13** Command called Engine 26A and B for a PAR, then called Ladder 26A for a PAR. Ladder 26A reported PAR. Command called Engine 29C for PAR and Engine 29C reported they were accounted for. Command called Ladder 29C for a PAR.

At **00:31:57** Command called Engine 26A and Engine 26B for a PAR.

At **00:32:06** Ladder 26 reported that Engine 26C had advised that Engine 26A and B had not come out yet.

At **00:32:18** Command acknowledged that they did not have a PAR for Engine 26A or B.

At **00:32:59** Command called Division A to make progress into the interior.

At **00:33:17** Command asked Division A to advise when entry was made, as Engine 26A and B were still missing.

Defensive tactics included using the ladder pipe on the roof of the house and 2 ½ inch lines from ENGINE 26. Exposures were being protected with additional 1 ¾ inch hand lines. They continued to flow the master stream across the roof for several minutes on the fire that was now venting through much of the roof.

Companies dispatched on the second alarm began arriving.

At **00:36:33** Division A reported that they had crew at the front door with a 2 ½ inch line and had fire over their heads and were still defensive.

At **00:38:15** Division A requests 2 RIT teams to standby and ready to go in.

At **00:38:38** Command reported to dispatch that Engine 26A and B remain unaccounted.

At **00:39:36** Command reported to Division A that Engine 40, Engine 61, and Engine 35 were assigned as RIT teams if needed.

At **00:44:28** District 23 reported that the plan now was to get heavy fire knocked down so they could go offensive. He could see sky through the roof, and several areas were very weak and collapse was still possible. He reported that they were probably going to expedite and go offensive here shortly.

At **00:46:48** District 23 reported that they were offensive and that Ladder 26 had entered the building with Engine 35 standing by.

Progress into the structure was slowed by heavy fire. Exposures on side "D" were protected and hose streams in through the south master bedroom windows were made. Engine 36 set up a 2 ½ inch line at the garage and at **00:47:10** reported they were already spraying water.

At **00:47:34** District 23 reported heavy fire on side "D" and that two companies were attempting a marginal search for the down firefighters.

At **00:51:10** District 23 informed Command that he would assume interior command. He and a couple of crews resumed search and rescue efforts for their two lost firefighters even though significant fire continued to burn in parts of structure.

At **00:51:17** Command repeated that Division A Interior was making an interior attack.

At **00:51:27** Engine 61 transmitted emergency traffic urgent and reported finding the first firefighter immediately to the left when entering the front door.

At **00:54:09** Engine 35 reported finding the second firefighter.

Firefighter Hobbs was found within five to six minutes after the crews entered the house, in the front living room to the left of the front door. Captain Harlow was found a few minutes later, just feet away in the dining room. Both firefighters were taken out of the structure to the front yard. The Medic 29 Paramedic reported that Hobbs's TPASS device was sounding. Engine 35B firefighter found Captain Harlow and reported hearing the SCBA alarm sounding. They were unresponsive and resuscitative efforts were initiated in the front yard of the residence. Due to the extent of injuries sustained by the firefighters, resuscitative efforts were unsuccessful. They were transported to the Harris County Medical Examiner's Office for post-mortem examinations.

Fireground operations continued until 04:29:00.

The Harris County Medical Examiner's Office performed the examinations on April 12, 2009. Captain Harlow died from thermal injuries and smoke inhalation. Firefighter Hobbs died from thermal injuries.

Diagram 2

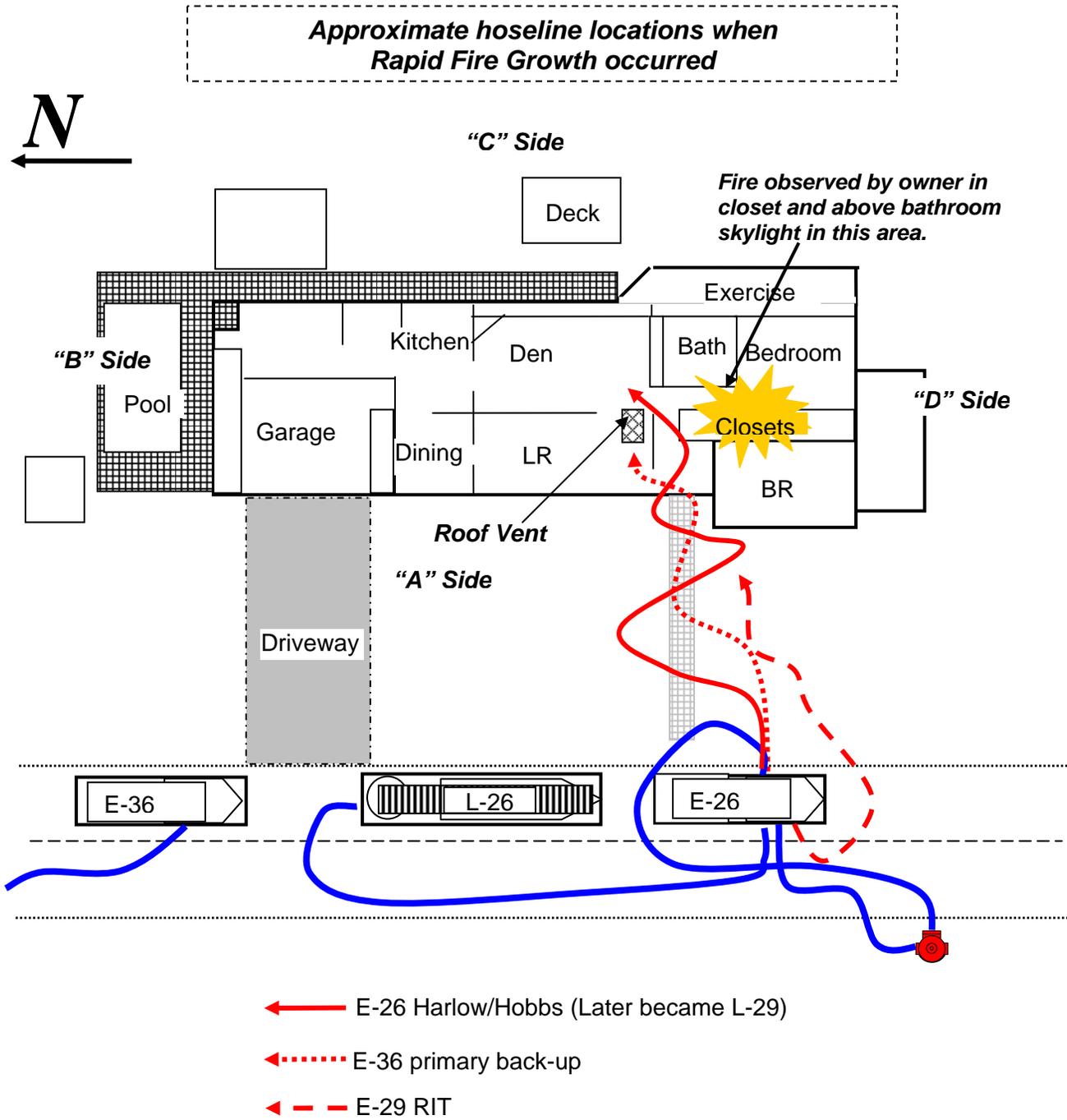


Diagram 3

Locations of Firefighters

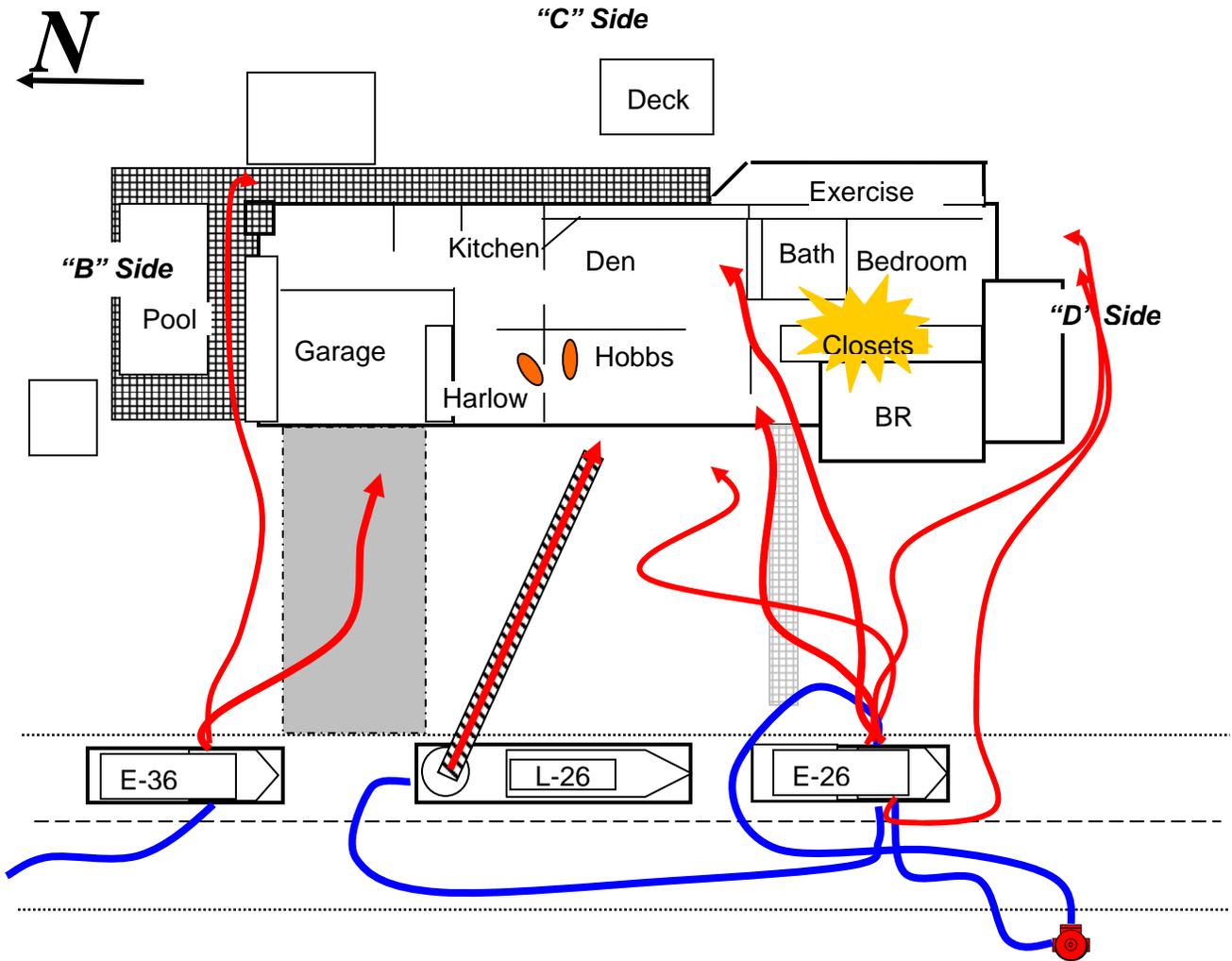
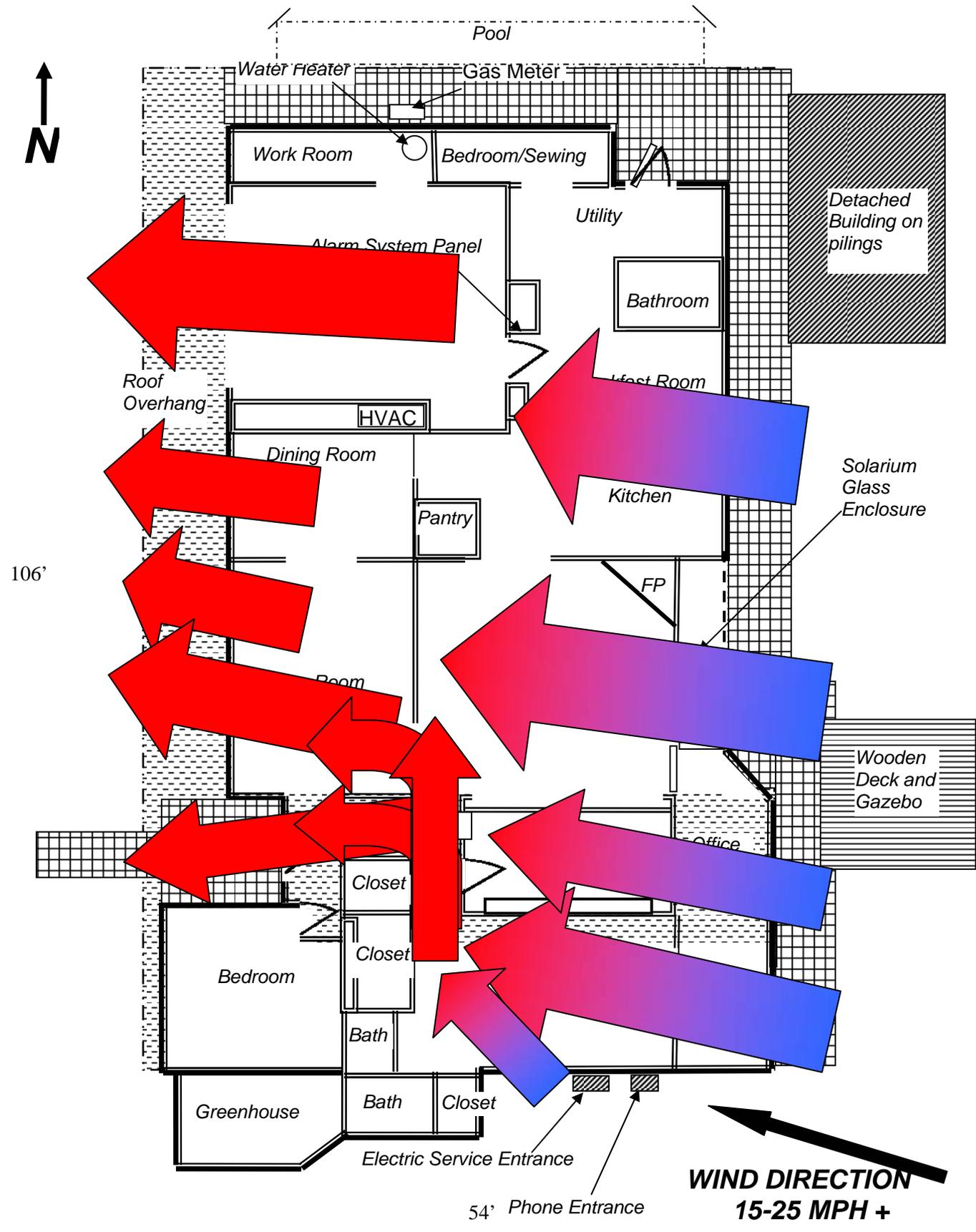


Diagram 4
WIND FLOW PATHS PROJECTION



Personal Protective Equipment Evaluation

The Texas Commission on Fire Protection (TCFP) was contacted and requested to conduct an evaluation of the firefighters' personal protective equipment (PPE) for performance. Paid Career Fire Departments in the State of Texas are required to meet performance and compliance rules of the TCFP and the adopted National Fire Protection Association standards. Although findings from the medical examiner's report and the on-scene investigation are undetermined as to any contributing factor the PPE had in the fatalities, its condition was documented.

The protective equipment was evaluated by TCFP Compliance Officer for compliance with Texas Administrative Code Title 37, Part 13, Chapters 435.1, *Protective Clothing* and 435.3, *Self-Contained Breathing Apparatus*, and NFPA standards adopted by TCFP. Photographs taken during the examination are on file at the Texas Commission on Fire Protection. The TCFP reports are located in the reference materials of the SFMO investigation file.

The examination of the protective equipment took place at Houston Fire Department Evidence Room on April 22, 2009. The gear was secured in a locked area maintained by the Houston Fire Department.

Captain Harlow

Captain Harlow had the full complement of personal protective equipment. Captain Harlow was not wearing gloves when he was removed from the scene and gloves were found on the floor of the living room. The gloves were secured by the Houston Arson Bureau Investigators. Captain Harlow did not have his radio with him and it was found in the Engine 26 cab still in the cradle.

The helmet is a Morning Pride brand and exhibited heavy charring. TCFP determined that this helmet met requirements of the National Fire Protection Association Standard 1971-2000 edition.

The hood, also a Morning Pride brand, exhibited heavy charring on the crown. The hood was determined to meet NFPA 1971 requirements of the 2007 edition.

The turnout coat and turnout pants were manufactured by Lion Industries and were extremely charred overall due to heat and flame exposure. The charring of the coat extended through the outer shell, through the moisture barrier and into the thermal barrier. The pants had charring on both the front and back with charring also extending through the outer shell through the moisture barrier and into the thermal layer. The coat and pants met the requirements of NFPA 1971-2000 edition.

The gloves are American Firewear brand and were reportedly found on the floor near the firefighter. TCFP reports that the right glove exhibited some burn damage to the reflective trim.

The footwear is of an unknown brand and its condition included the separation of the left heel and sole.

The station uniform exhibited slight thermal damage at the front of the tee shirt and at the left rear pants pocket.

The Self-Contained Breathing Apparatus (SCBA) is a Scott brand. Captain Harlow was wearing the SCBA at the time he was found. The face piece was not intact and is not serviceable. There was heavy charring and melting of the entire unit. The cylinder showed severe thermal damage with charring to the cylinder shell. The back frame and harness assembly exhibited severe heat and thermal damage. Records indicate the last full-function annual inspection was performed on October 29, 2008 and the last breathing air test was performed on January 28, 2009. A daily inspection of the unit was performed at the beginning of the shift on Saturday, April 11, 2009.

The Personal Alert Safety System (PASS) was in the "ON" condition. The device exhibited thermal damage with heavy charring. It is unknown whether or not the PASS was working when the firefighter was found and recovered. Although one witness states he believes he heard the SCBA alarm it could not be confirmed. The Houston Fire Department utilizes an electronic personnel accountability system (TPASS) in addition to the PASS and it remained in alarm at the command base during the incident as designed.

Firefighter Hobbs

Firefighter Hobbs had the full complement of Personal Protective Equipment. Firefighter Hobbs was not wearing gloves when he was found and removed. Two gloves were photographed next to a chair where he was found in the living room. The gloves were secured by Houston Arson Bureau Investigators. Hobbs was not wearing a helmet when he was found and moved from the living room. His helmet was found under a piece of furniture next to the location he was found. Firefighter Hobbs did have his radio and it was determined to have been in working condition but was not operating on the frequency used on the fire scene and it was in the OFF position.

The helmet is a Morning Pride brand. It was crushed, heavily charred, and partially melted. Hobbs's helmet was found under fire debris in the fire scene during investigation operations and was likely

walked on by fire personnel during firefighting and recovery operations. TCFP determined that this helmet met requirements of the National Fire Protection Association Standard 1971-2000 edition.

The hood, also a Morning Pride brand, exhibited heavy charring on the crown and the SCBA face piece was found to have melted to it. The hood was determined to meet requirements of NFPA 1971-2007 edition.

The turnout coat and turnout pants were manufactured by Lion Industries and were damaged due to heat and flame exposure. The back outer shell of the coat was heavily charred through the layers of the moisture barrier, causing light charring into the thermal barrier. Heavy charring was observed on the shoulders of the coat. The pants had light charring below the area where the coat extends. The liner of the pants was unaffected. The coat and pants met the requirements of NFPA 1971-2000 edition.

The gloves are American Firewear brand and two gloves were photographed on the floor next to a chair during scene investigation. Hobbs' hands sustained severe thermal injuries. TCFP reports that the left glove exhibited charring to the reflective trim on the wrist area.

The footwear is the Crosstech brand and the condition was described as "No visible damage".

The station uniform exhibited no visible damage.

The Self-Contained Breathing Apparatus (SCBA) is a Scott brand. Firefighter Hobbs was wearing the SCBA at the time he was found. The face piece was not intact and is not serviceable as it has severe charring and is melted. There was severe charring of the hoses and tubes. The positions of the valves are unknown as there was severe heat damage to the regulator. The cylinder showed severe heat damage with charring to the cylinder shell. The back frame and harness assembly exhibited severe heat and flame damage. Records indicate the last full function annual inspection was performed on October 29, 2008, and the last breathing air test was performed on January 28, 2009. A daily inspection of the unit was performed on Saturday, April 11, 2009.

The Personal Alert Safety System (PASS) was in the "ON" condition. The device exhibited melting. It is unknown whether or not the PASS was working when the firefighter was found and recovered. The Houston Fire Department also utilizes an electronic personnel accountability system (TPASS) in addition to the PASS and it remained in alarm at the command base during the incident as designed.

Findings and Recommendations

Recommendations are based upon nationally recognized consensus standards and safety practices for the fire service. All fire department personnel should know and understand nationally recognized consensus standards, and all fire departments should create and maintain SOGs and SOPs to ensure effective, efficient, and safe firefighting operations.

There were several factors that, when combined, may have contributed to the deaths of Captain Harlow and Firefighter Hobbs. It is important that we honor them by learning from the incident. Specific recommendations from this investigation include:

1. Performing a 360 degree assessment to identify potential hazards.
2. Assessing weather and wind conditions and structural elements that may influence fire travel and intensity.
3. Following standard fireground tactics, such as staying low while engaged in interior firefighting activities, carrying portable radios and utilizing thermal imagers, which are standard fire ground tactics.
4. Fireground Command is responsible for maintaining command and control of all fireground activities, including maintaining adequate communication at all times.

Finding 1: Initial crews failed to perform a 360 degree scene size-up and did not secure the utilities before operations began.

Recommendation: Perform a 360 degree evaluation of the structure upon arrival.

There was no indication that the east side, side “C,” was visually inspected by any of the responders prior to the interior attack. A rapid and full assessment of the scene would have provided information regarding the potential impact of the failure of the large glass wall, together with the impact of wind, on the interior suppression tactics. Although the gate at the Northwest corner and the half wall at the Southwest corner would have presented challenges, a full assessment of the scene should have been completed.

A thorough size-up will provide a good base for deciding tactics and operations. It provides the IC and on-scene personnel with a general understanding of fire conditions, building construction, and other special considerations such as weather, utilities, and exposures. Without a complete and accurate scene size-up, departments will have difficulty safely coordinating firefighting efforts.

Reference: *Fireground Support Operations 1st Edition, IFSTA, Chapter 10*

Fire Officer: Principles and Practice, 2006, Chapter 16
Fundamentals of Firefighting Skills, 2nd ed., Chapter 2
Structural Firefighting: Strategy and Tactics, 2nd ed., Chapter 2

Finding 2: The initial attack crew was unable to communicate with Incident Command or other crews operating on-scene.

All personnel must carry and monitor portable radios. Captain Harlow did not take his radio into the structure and Firefighter Hobbs had his radio turned off and on the wrong channel. It should be noted that Houston Fire Department procedures and recognized best practices require that these items be carried by firefighters on structure fires.

Recommendation: Remain in radio contact with Command or others outside the building.

Reference: *Essentials of Firefighting and Fire Department Operations, 5th Edition, IFSTA, Chapter 2, Firefighter Safety and Health, Pg. 76.*

Houston Fire Department Operation Procedures, Subject, May-Day, Volume No. II, Reference No. II-42, Command: Emergency Operations Sections 1.01-6.11. 6.03 E. Each member must have a portable radio while in the hot zone.

Houston Fire Department Operation Procedures, Subject, Rapid Intervention Teams, Volume No. II, Reference No. II-21, Command: Emergency Operations Sections 1.01-6.08D46.01 F. 3. All members will carry portable radios for communication with the Incident Commander/Sector Officer and other companies on scene.

Finding 3: Members of the initial attack crew did not utilize a thermal imager camera (TIC) to assess interior fire involvement. The imager was removed from the engine, but was not taken into the structure.

Although the Thermal Imaging Camera was removed from Engine 26, it was found in the front yard. There is no indication that it was utilized.

Recommendation: Utilize thermal imaging cameras (TIC) when available to evaluate the amount of fire in void spaces, especially overhead.

Reference: *Houston Fire Department Operating Procedures, Subject: Thermal Imaging Camera, Volume No. II, Reference No. II-43, Command: Emergency Operations Sections 1.01-*

6.03E.5.01. *Senior Captains/Captains will be responsible to ensure that the TIC is removed from their assigned apparatus and deployed on every dispatched structure fire and other identified situations that will enhance the safety of the firefighting personnel or rescue operations.*

Finding 4: The initial attack crew was operating in a hostile environment in an upright position.

Engine 26 entered the structure with a charged hose line which was adequate according to later reports from Ladder 29 indicating that the nozzle had good pressure and volume. Two separate crews behind Engine 26 reported seeing the legs of the crew ahead of them (E26A and E26B) in an upright position while they themselves were down low due to the intense heat.

Recommendation: Maintain a low posture while actively engaged in interior firefighting operations.

Reference: *Fundamentals of Fire Fighter Skills, Second Edition, Chapter Five, Pg. 140.*

“The temperature at the floor level is relatively low compared to the temperature at the ceiling level. By keeping low in a normal thermal balance (e.g., crawling on the floor), you stay in the area where the temperature is the lowest. Put simply, you increase your chance of survival with proper personal protective gear by staying low in the room.”

Finding 5: Captain Harlow and Firefighter Hobbs were found away from their nozzle and hose line.

While it is possible that an intense thermal blast disoriented the interior attack crew, so as to separate them from their line, maintaining contact with the hose line is critical. Abandoning the nozzle and hose line meant leaving the only lifeline and pathway to exit the structure.

Recommendation: All firefighters should become familiar with techniques for self-rescue including following a hose line by identifying the male and female ends of the coupling

Reference: *Fundamentals of Firefighter Skills, 2nd edition, NFPA and International Association of Fire Chiefs, Chapter 17, Fire Fighter Survival.*

Finding 6: Entry was made before ventilation operations were completed placing the interior crew between the fire and the ventilation pathway.

Although the ventilation point was high on the roof, when the team punched through the ceiling into the living room it placed the firefighters between the fire and the point of ventilation.

Recommendation: Fire departments should familiarize themselves and train on the proper techniques for vertical and horizontal ventilation. Ventilation is the systematic removal of smoke, heat and particles of combustion, thereby improving life safety, increasing firefighter visibility, and reducing the chances of flashover. Horizontal ventilation openings should be made as close as possible to the seat of the fire. Vertical ventilation should be performed as directly over the fire and as high as possible. Always consider wind direction and velocity when performing ventilation operations.

Reference: *Fundamentals of Fire Fighter Skills, 2nd ed., Chapter 14;*
Essentials of Fire Fighting 5th Edition, IFSTA, Chapter 11;
Structural Firefighting Strategy and Tactics, 2nd ed., Chapter 4, page 99 and Chapter 6, page 151.

The investigation revealed that a tremendous influx of fresh air from the failure of a large section of windows on the “C” side (rear) of the house and the burn-through of the roof on the back side of the ridge near the bathroom skylight simultaneously promoted rapid fire growth. The high winds then entering the east side directed the hot gases and flames through the narrow hallway at an even higher velocity with increased intensity. With sustained winds at 15-20 mph and wind gusts in excess of 25-30 mph entering into the structure from the opposite side of the house from which entry was being made, it created a positive pressure environment and probably a downward draft of the hostile attic contents. The pathway for this intense wind-driven fire was directly down the narrow hallway with a seven foot ceiling into the den, entry hallway, and living room and out through the front door and the vent in the living room ceiling made by Ladder 26, which is where Engine 26, Engine 36, and Ladder 29 were advancing. Engine 26 Engineer Lance Lindsley later described the situation, that there was some fire showing at the roof, the scene was very smoky, and all at once flames were coming out everywhere.

The effects of wind-driven fires have received much attention over the last decade. The overwhelming nature of this event is well documented, especially in situations where the wind concentrates in a narrow corridor or pathway. The **National Institute of Standards and Technology** has conducted extensive testing and research into the phenomenon of wind-driven fires and structural firefighting. In NIST Technical Note 1618, January 2009, **“Firefighting Tactics Under Wind Driven Conditions: Laboratory Experiments”**; Madrzykowski, D. and Kerber, S. I., experiments provided insight into the fire behavior and travel patterns within a structure with even minimal fire load. Experiments show the fire’s intensity upon opening the downwind doorway as having sustained temperatures above 1200-1300° F, with heat flux values in excess of 70 kW/m². Flames were exiting

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the downwind opening with extreme velocity, ceiling to floor. Even when a firefighter maintains a low posture or goes down to the floor attempting to get below the thermal layer significant life threatening injuries are likely (www.fire.nist.gov/bfrlpubs/).

NIST also published a training program DVD that specifically addresses firefighting tactics involving wind driven fires, ***“Evaluating Fire Fighting Tactics Under Wind Driven Conditions,”*** April 2009. The DVD includes training titled ***“Understanding, Surviving, and Fighting the Wind Driven Fire”*** presented by Battalion Chief Jerry Tracey of the Fire Department of New York City, Battalion Chief Peter Van Dorpe of the Chicago Fire Department, and Stephen Kerber and Daniel Madryzkowski of NIST.

At the Oak Vista fire, the large openings that were created when the east windows failed allowed the strong winds to enter and accelerate as they were channeled through the smaller hallway corridor moving toward the front of the structure. The resulting rapid fire growth moved through the narrow hallway with temperatures exceeding ratings of the PPE and SCBA.

APPENDIX

TIME LINE

Identified times are approximated to radio transmission information.

00:08:02 Dispatch to 7811 Oak Vista on TAC 4
00:10:38 D26 request a TAC Channel
00:11:00 TAC 7 assigned
00:13:39 Engine 26 reports they are on location with "Heavy smoke from a 1-story wood frame; making a fast attack."
00:13:58 D26 assumes Oak Vista Command.
Ladder 26 reports they are on scene and give the following report, "Heavy smoke from a wood frame. We will vent the roof."
00:14:30 Engine 36 on location and ask if they need to stretch a line.
00:15:12 D26 instructs Engine 36 to skull drag off Engine 26 as there is a hydrant in front of Engine 26. Command further instructs Engine 36 to "back-up" Engine 26.
00:15:40 Engine 29 is on location and reports to the Command Post.
00:15:48 Grace Accountability is in place. Command reports that Engine 26 is making a "Fast Attack" and a "primary search."
00:16:06 Command tells Ladder 29 to assist Engine 26 with primary search. Ladder 29 clears on the instructions.
00:16:32 Command tells Engine 29 they will be the Rapid Intervention Team (RIT) and tells M29 to report to Command.
00:18:18 District 23 reports he is on location. The Engineer/Operator (E/O) from Ladder 29 is told to assist in setting up the lights with Ladder 26 E/O.
00:18:28 D26 tells District 23 to assume Division A (Alpha) and tells him Engine 26, Ladder 29 and Engine 36 are "backing up Engine 26" in his division. Command asks Ladder 26 for a report and Ladder 26 reports he is punching through right now.
00:19:14 Command asks Engine 26 for a progress report and receives no response.
00:19:22 Ladder 26 transmits "get off the roof, get off the roof."
00:19:28 Engine 26C is told his alarm is going off; Ladder 26B reports PAR; Engine 26C is told he is in alarm again.
00:20:07 Ladder 26 reports fire coming through the hole and is getting off the roof.
00:20:22 D26 acknowledges the message from Ladder 26 and tells him to give District 23 a report when he gets "to the ground floor."
00:20:30 Command calls Engine 26 with no response
00:20:45 Engine 26C clears his alarm.
00:20:53 Command calls for a 1-11 fire.
00:21:03 Command asks District 23 if the crews need to "pull out."
00:21:21 Command asks District 23 for a report on the interior when he gets a chance.
00:21:32 1-11 fire is dispatched.
00:21:42 District 23 tells Command he has just arrived at the Alpha Division.
00:21:51 Alpha Division tells Command that they need to go Defensive.
00:22:05 Command tells OEC and all companies that he is going Defensive and for all companies to give an all clear and for apparatus to sound their air horns.
00:22:23 OEC declares the fire in Defensive Mode, tells apparatus to sound their air horns and that OEC needs a PAR (Personnel Accountability Report). Ladder 26 reports PAR. Command tells Ladder 26 to make sure to get Engine 26, Engine 36, and Ladder 29 out of the house. Ladder 26 clears on assignment.
00:23:00 Command announces PAR for Ladder 26 and instructs all other companies to do the same "when you get cleared (of the house)." Alpha Division gives a PAR on Ladder 29 and Engine 36. D26 repeats he needs a PAR on Engine 26.
00:23:28 Command tells OEC his PAR is complete. OEC clears on the message and immediately Command tells OEC that he needs a PAR for Engine 26.

00:24:16 Command asks for PAR on Engine 26 from Alpha Division (evacuation alerts can be heard in the background). Alpha Division reports he does not have Engine 26 at this time. Command asks for Engine 26 to give PAR and to exit the building. Command repeats he needs a PAR from Engine 26. Alpha Division reports that he only has the third man from Engine 26; that "Engine 26 captain and the rookie" are unaccounted for and it is necessary to send the Rapid Intervention Team (RIT). Command tells OEC he has RIT going in for Engine 26 and for OEC to give him a 2-11.

00:24:58 Alpha Division calls for Engine 26 captain and asks his location. OEC asks Command if he wants a MAYDAY 2-11; Command confirms – calls a MAYDAY for Engine 26 and states the RIT 29 is going in after them.

00:25:53 Alpha Division asks Accountability what the status is on Engine 26 captain.

00:26:06 Accountability reports to Alpha Division that Engine 26 captain is in alert

00:26:10 2-11 fire is dispatched. Command reports alarm for Engine 26A and Engine 26B; further, that Engine 29C alarm is going off. Command asks OEC if the MAYDAY has been received. OEC confirms the 2-11 MAYDAY call and tells Command that he is sending his 2-11 companies to his Mobile Data Computer (MDC).

00:27:53 Alpha Division requests Command to do another roll call on the PAR. Command does and receives PAR on everyone but the two missing firefighters.

00:29:58 Command tells Ladder 26 that we need the ladder pipe set up. Alpha Division tells all crews that they have water to the ladder pipe and for all crews to quit using their hand lines. Someone tells Engine 36 to get a 2 ½" and be ready to go to an offensive attack. Engine 36 clears.

00:30:56 Command asks Engine 26 to give him PAR.

00:31:13 Command asks Engine 26 for PAR. Ladder 26A and Ladder 29C go into alarm but are cleared.

00:31:57 Command asks Engine 26 for PAR.

00:32:06 Ladder 26 tells Command that Engine 26C states that Engine 26A and B have not come out yet. Command states he does not have PAR for Engine 26A or B.

00:32:59 Command calls Alpha Division and asks if they have been able to make progress into the interior. Alpha Division asks for the message to be repeated. Command asks if they have Engine 26A and B. Alpha Division reports that the ladder pipe is having little effect on the fire but they have set up two 2 ½" hand lines and are still defensive.

00:34:09 Ladder 26 is reported in alarm but reports they are OK. Other companies are told to check their TPASSs and are cleared.

00:35:03 D46 reports he is on location (OEC asks Command if D46 is on location and Command confirms).

00:36:36 Ambulance Supervision 29 asks for one additional ALS unit on TAC 4 (this is done to keep TAC 7 free of chatter).

00:36:12 Alpha Division reports that D46 will be Charlie Division with Engine 29 assigned to him Alpha Division further tells Command that there is still fire over the heads of the firefighters and that the crews are still defensive. Command clears. Alpha Division states they are having water problems and they "may be at their (supply) limits." Command asks Engine 29 if he is near a plug.

00:37:40 Alpha Division tells Command that Charlie Division has poor visibility in that division and that D46 will now check the Delta Division exposure. Companies will begin taking burglar bars off the windows on the side "A."

00:38:15 Alpha Division requests two rescue companies to stand by.

00:38:38 Command has E35 and 40 report to Division A to stand by for rescue.

00:38:51 OEC ask if all companies are accounted for; Command replies that they are not.

00:38:57 T18 on location. Command tells E35 and E40 to report to the front of the house. D46 tells Command to have those companies report to him.

00:39:40 E35 and E61 are available and will report. There is some confusion but Command tells E35 to report to the front of the house. D70 and R42 arrive on location. D70 has his ICT assist with water supply. R42 is to report to front of the house.

00:41:10 Shift Commander 27 is on location. Command tells D46 that R42 is on location. Command tells L23 to report to the Command Post. Command calls Alpha Division twice before he answers. Command informs Alpha Division that R42, E35, E40 and E61 are going to report to the front of the house.

00:44:28 Alpha Division tells Command that companies are still defensive and are attempting to knock down heavy fire, the front of the structure is weak, and there parts of the house burned through where the sky can be seen. He tells Command other areas of the house appear weak but they will be going offensive shortly.

00:45:03 Alpha Division reports it is going Offensive. Command has Ladder 26 shut ladder pipe operations. E40 asks Engine 36 if they are ready for water.

00:46:48 Alpha Division reports it is Offensive. Ladder 26 has entered the building with E35 with a line standing by. Engine 36A reports they are on side "A" at the garage door and are flowing water through a 2 ½" hand line.

00:47:34 Alpha Division tells Command it is conducting a "marginal search" due to heavy fire conditions on side "D"; that there are 2 companies inside the structure. Engine 23 tells Command they are fighting fire but have power lines down (Delta Division).

00:50:12 D70 and Engine 23 are on the side "D," 18 is to take a line off Engine 36 and assist on side "D."

00:51:10 Alpha Division tells Command he is now Interior Division and conducting the search.

00:51:27 E61 asks for Emergency Traffic. E61 has found a victim to the left of the main door. Interior Division tells companies to pull slack to the main door. Interior Division tells Command one firefighter is coming out and to have medics ready. Command tells them M29 is ready.

00:52:21 Interior Division reports that both firefighters have been found and to get medical ready. He repeats that they have recovered Engine 26A and B.

00:54:09 E35 reports they have found the second victim. Command acknowledges. R42 is told to report to Alpha Division. Interior Division asks for additional help. OEC calls Command for a count of the number of victims. Command reports there are two victims and medical is to report to the front of the building.

00:56:12 Command confirms through Supervisor 29 that the two victims are firefighters and asks if there are any civilian victims. Supervisor reports there are no civilians at this time.

00:57:08 OEC ask for PAR. Command completes the PAR and asks for two more medics units to ensure medical companies can clear the scene.

00:59:18 Interior Division asks to have the area cordoned off and asks to notify OEC for CISM. Command acknowledges.

HOUSTON FIRE DEPARTMENT STATISTICS

The 2007 census indicates that the Houston Fire Department serves a population in excess of 2.2 million people over an area of 618 square miles. During the work day, the population surges to over 3 million. The Houston Fire Department is an ISO CLASS 1 department.

The Houston Fire Department consists of 86 Fire Stations, 4 Airport Rescue ARFF Stations, and 1 Hazmat station.

These stations house 86 engines, 37 ladders which include 6 towers, 12 booster trucks, 10 evacuation boats, 10 inflatable rescue boats, 6 jet skis, 57 ambulances for basic life support (BLS) with 2 Emergency Medical Technicians, 27 medic units with 1 Paramedic, 19 squads with 2 Paramedics, and 18 Airport Rescue FF apparatus, 2 cascade trucks, 1 rehab truck, and 1 command van. There are 262 total manned apparatus not including the watercraft that are manned by station personnel as needed.

They perform this service with over 3600 uniformed personnel that include 24 District Chiefs, 3 Safety Officers, 6 EMS Supervisors and 1 shift commander. This does not include the cadet classes with 120 cadets that are in progress or the civilian support staff.

DOCUMENT LOG

Document Number	Source	Description/Assignments
1	Houston Fire Department	Computer Disc-911 Fire Call Recordings and Incident Radio Communications
2	Houston Fire Department	Event History Records
3	Houston Fire Department	Radio Transmission Transcript
4	Homeowner-Joyce Hale	Statement
5	Homeowner-Edward Hale	Statement-Discovered Fire
6	Engine 26 E/O Lindsley	Statement-Primary Pumper
7	Engine 26C FF Underwood	Statement-First Attack Line
8	District 26 Chief Escamilla	Statement-Incident Commander
9	L26A Captain Davis	Statement-Ventilation, Search
10	L26B FF Belin	Statement-Ventilation
11	L26C FF Hyatt	Statement-Ventilation
12	L26 E/O Caballero	Statement-Assisted E26 E/O
13	E36A Captain Alcazar	Statement-Secondary Line/Back up
14	E36B FF Ray	Statement-Back-up Line
15	E36C FF Rivas	Statement-Back-up Line
16	E36 E/O Meyn	Statement-Assisted Primary Pumper until deployed
17	L29A Captain Hawkins	Statement-Primary Search Team
18	L29B FF Schoenberg	Statement-Primary Search Team
19	L29C FF Montes	Statement-Primary Search
20	L29 E/O Aguilar	Statement
21	A26 FF Cano	Statement
22	A26 Driver Negrete	Statement
23	District 23 Chief Cichon	Statement- Alpha Division Command
24	D23 ICT Rivera	Statement-Assist Command/Command Post
25	Medic 29 P-EMT Wick	Statement
26	Medic 29 E/O Leufroy	Statement
27	E29A Captain Rodriguez	Statement-RIT 1 then deployed to Delta
28	E29- FF Rosalessorto	Statement-RIT 1
29	E29- FF Levo	Statement-RIT 1
30	E29 E/O Sanchez	Statement
31	E23A Captain Ybarra	Statement-Alpha/Charlie Division Hose lines
32	E23B FF Chagoya	Statement-Alpha/Charlie Division Hose lines
33	E23C FF Valdez	Statement-Alpha/Charlie Division Hose lines
34	E23 E/O Newberry	Statement
35	E35A Captain Goodroe	Statement-RIT 2 Search
36	E35B FF Sims	Statement-RIT 2 Located Harlow
37	E35C FF Robinson	Statement-RIT 2 Search
38	District 46 Chief Bisbano	Statement-Assist Alpha Division, Assess to C/D
39	D46 ICT Hayes	Statement-Assist D26 ICT accountability
40	E61A Captain Zogg	Statement-RIT 3 Located Hobbs
41	E61B FF Roy	Statement-RIT 3 Located Hobbs
42	E61C FF Mitchell	Statement-RIT 3 Located Hobbs
43	E61 E/O Pate	Statement
44	District 8 Chief Crow	Statement- Bravo Division
45	D08 ICT Cornitius	Statement-assist Bravo Division
46	E18A Captain Villasana	Statement-assisted removal of Captain Harlow

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