

Post Incident Analysis



Keller Residential Fire

Incident Review **P.1**

Strengths **P.3**

Key Recommendations **P.4**

Mission

To combine strengths and resources for the purpose of enhancing service delivery to our communities across all jurisdictional boundaries.

Values

- Collaboration
- Service Excellence
- Accountability
- Transparency
- Visionary
- Community-Focused

Residential Fire Incident Summary

On May 8, 2019 at 0439, NETCOM dispatched a structure fire for a residence at 1625 Crestwood Trail in Keller, TX. The residence was built in 1999 (added onto in the 2000's) utilizing custom wood frame construction and contained 4,241 square feet of living space. Framing materials were a combination of wood products including solid wood, open web trusses, and engineered I-beams. The attic was custom framed with various pitches and valleys. Many voids were created by the framing for the fireplace flues, drop ceilings, utility access, and additions. Also, many wall studs ran from the foundation to the attic. This created openings and fire behavior similar to balloon frame construction. As the natural gas entered the residence, it transitioned from iron pipe to Corrugated Stainless Steel Tubing (CSST). The CSST ran throughout the residence to the various gas fired appliances including the fireplaces, HVAC, and water heaters. Prior to 0439, thunder from storms woke the occupants. Everyone gathered together in the master bedroom when lightning apparently struck the house. A few moments later, the smoke alarms started going off and the homeowner noticed smoke coming from

the covered patio area. The homeowner evacuated the structure with all occupants and called 911. Companies dispatched were Engine 582, Quint 583, Truck 581, Medic 581 and 583, Colleyville Engine 243, Southlake Engine 402, Battalion 58, and Battalion 24. Responding companies had to be cautious responding because of the severe thunderstorms and the air to ground lightning. Response was delayed because of the weather conditions.

Battalion 58 arrived on scene with Truck 581 and Medic 581 and reported out with "Nothing Showing from 3 Sides". He established Command, started a 360, and moved operations to Keller Channel 3. While they were investigating the situation, other companies arrived on scene and Level 1 staged. Upon completion of the 360, Battalion 58 updated his size-up to "Smoke coming from the west side, this will be a working fire". Battalion 58 saw a light haze in the front door and light colored smoke from the eaves of the house. The assumption was made that they had an attic fire. Truck 581 was directed to advance a line to the second floor for fire attack and the Officer would be "Interior". Medic 581 was assigned utilities and Engine 582 was assigned to pull another

VISION

To be a reliable and sustainable organization

Strengthen the continuity of operations and partnership

Industry leader in regional partnerships that provide specialty services

Identify and evaluate opportunities for additional collaboration

Promote a culture of safety for our members



Always Consider

Command and Control

Communications

Building Construction

Tactical Priorities

Span-of-Control

Continual Size-Up

line to the second floor and report to Truck 581. This line came off Truck 581. Quint 583 was assigned to be On-deck. Medic 581 was requested by Truck 581 and they were assigned to him and Medic 583 was then assigned to secure the utilities. As Truck 581 made it to the second floor, they had good visibility and low heat conditions. They found a door that accessed the attic and they opened it to investigate conditions. They found thick brown smoke but no fire. They closed the door and went to another door that accessed the attic and found the same conditions. Smoke started to fill the second floor but they still had low heat conditions. Colleyville Engine 243 arrived and was assigned to be the Rapid Intervention Team on the Alpha side of the house. Quint 583's Officer was doing his own 360 and advised Command that on the Charlie side of the house there was fire between the first and second floors. Command assigned Southlake Engine 402 to pull a line off Truck 581 and attack the fire in the sub-floor between floors 1 and 2. Command advised Interior of the fire beneath them and asked for a CAN report. Interior advised that they had heavy smoke with little heat and that he was moving Engine 582 to the first floor. Engine 582 moved their line downstairs, started pulling ceiling, requested another company, and became Division 1. Quint 583 was assigned to assist Engine 582. As Division 1 opened the first floor ceilings they found fire between the floors. Interior (Truck 581 and Medic 581) decided it was time to exit the second floor and in doing so found smoke coming from the stairs that separated two different

rooms. They stopped and decided to open up the wall beside the stairs. As they did this, smoke and heat filled the second floor from the fire they found when they made the opening in the wall. They operated their nozzle for a short period of time and then continued their exit. Medic 581 and Truck 581C lead the way, but Truck 581B tripped on the steps and fell. As he was getting up, Truck 581A ran into him and knocked him down again. In the process of getting back up and getting back together, they lost the hoseline and their orientation. They attempted to re-orient their selves but kept getting into an area that didn't seem correct. While using the Thermal Imaging Camera, the floor looked white with heat and the floor sounded unstable. Efforts to look for windows or exterior doors were unsuccessful. Truck 581C tried to communicate with Truck 581A and they had trouble with their communication. Command had all companies working or assigned so he requested a second alarm. Apparently during the calling for the second alarm, Truck 581A called a Mayday. Some heard it, but Command did not. Engine 402 advised Command of the Mayday. Simultaneously, Truck 581 re-transmitted the Mayday with clear communications about their situation but did not activate their PASS devices. Command assigned RIT and told them they were looking for Truck 581A and B on the second floor. RIT entered but did not take any equipment or ropes with them to aid in the search of the missing members. Command also told companies to continue with their current assignments. Truck 581C and Medic 581 had made it back to the staircase when they realized that they were missing two of

LUNAR

Location

Unit

Name

Assignment/Air Supply

Resources Needed

their crew. Truck 581C advised Command that he was with Medic 581 and they were going to search for the missing members. Engine 243 (RIT) made it to the second floor but did not know about Truck 581C and Medic 581 being on the second floor also. Several times they ran into each other and thought they had found the missing members. Members tried to use the hose on the second floor as a tool to find their way back to the stairs but the hose had been pulled in so many directions, it confused members more than it helped. Truck 581A called the Mayday several more times and Command reassured him that they were working on getting to them. After several room

searches, Truck 581A and B were located and led from the structure. Truck 581C notified Command that they were out of the structure with the missing firefighters along with Engine 243 and Medic 581. Command ordered all companies from the building and a PAR was taken. Everyone was accounted for and the shift in strategy to defensive was communicated. The fire was extinguished with master streams and during the investigation, it was learned that the house was hit by lightning at least 7 times and that the CSST gas lines had developed pin holes in the lines from the lightning. This led to a gas fueled fire throughout the void spaces and fire moving through the structure because of the openings in the frame construction.

CONTRIBUTING FACTORS

The following were part of the Contributing Factors:

- **Situational Awareness/Analysis**
- **Weather, specifically the lightning**
- **Utilities and materials used (CSST)**
- **Early identification of construction features**
- **Recognize how the fire may spread**

STRENGTHS

THINGS THAT WENT WELL

- **Good initial size up of the situation.**
- **Calling for a second alarm when IC saw that he was committing all resources.**
- **Situational updates.**
- **Radio messages and confirmation of assignments.**
- **Early call of the Mayday.**
- **Good LUNAR report.**
- **Everyone stayed engaged and put forth good effort.**

WHEN TO CALL A MAYDAY

- **Become pinned, tangled, or stuck.**
- **Collapse that blocks your exit.**
- **You become disoriented or separated.**
- **Low air alarm with no exit.**
- **Fire conditions change that you cannot control.**
- **Your PPE fails.**
- **You become injured or have a medical emergency while in IDLH.**
- **If you have a gut feeling that something is not right and you cannot get out of the situation.**

Training... Training... Training...

Never stop training. NEFDA has made a commitment to learning by educating every member of our 14 organizations. All information learned during this incident will be passed on, with the common goal of continued excellence in fire fighting and Fire Fighter Safety.

KEY RECOMMENDATIONS

COMMAND AND CONTROL

- Continually size up the building and fire conditions.
- Companies should clear the first floor prior to going upstairs.
- Pull ceilings to see if fire above you.
- Understand the significance of fire in void areas, especially under you.
- Coordination between interior and exterior operations is essential.
- Consider a method to get the Incident Commander a Command Technician on working incidents.
- Consider adding additional apparatus to a “Working Fire” announcement.
- Companies calling a Mayday should activate their PASS devices and turn on their flashlights to aid in locating them.
- Consider sweeping of the walls with a gloved hand to help locate windows and doors.
- RIT – remember to assemble and use RIT equipment, especially the TIC and rope on the initial entry. Also, Command and other companies should coordinate with the RIT company to ensure an efficient search and rescue.
- Consider laying additional lines from other companies and not pulling everything off one company.
- Consider dual pumping so that if there is a apparatus failure, the operation is not completely shut down.

BUILDING CONSTRUCTION

- Remember the limitations of wood construction (time, weight, connectors, voids, etc...)
- Understand the hazards of Corrugated Stainless Steel gas lines or plastic gas lines.

COMMUNICATIONS

- ICS terminology (Interior, Divisions, etc...) Remember that someone has to manage those areas. Interior has the entire inside of a structure. In this case, Division 1 would answer to Interior.

