



## **AFTER ACTION INCIDENT REPORT**

### **INCIDENT DATE**

*July 3, 2009*

### **INCIDENT TYPE**

*Structure Fire*

### **Special Circumstances**

*Two Exposures*

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## EXECUTIVE SUMMARY

On Friday, July 3<sup>rd</sup> 2009, the Mooresville Fire Department responded to a residential structure fire with exposure extension into the adjacent residential structures on both sides of 197 Flowering Grove. The structure was a three-story home with lightweight construction components. A full residential alarm responded to the scene. Upon arrival, Battalion 1 established command and noticed light smoke coming from the eaves of the roof. Engine companies advanced two separate 1 ¼ hose-lines into the structure and encountered clear visibility on the second floor. Fire suppression crews located fire in the attic and within minutes, fire conditions developed on the second floor, pushing the attack crews out of the structure. Battalion 1 issued an evacuation call to clear the structure. Fire conditions rapidly changed, with roof collapse within fifteen minutes of dispatch. Interior crews were pushed outside by heavy fire and smoke conditions changing within seconds.

Extension to the adjacent structures on both sides of the fire structure occurred within minutes of arrival, causing exterior hand line and deck gun operations to be implemented. A second alarm was initiated in order to achieve fire ground operational goals and extinguish all three structures involved with fire. All apparatus from the Mooresville Fire Department along with Shepherds VFD, South Iredell VFD, Lake Norman VFD and Mount Mourne VFD were utilized to control and manage the incident, as well as maintain coverage for the Town of Mooresville. Crews were on scene for 8 hours. Lightweight construction contributed to the rapid fire development. The ability to maintain crew continuity and the use of the department's accountability system allowed the firefighter's to escape the fire without serious injury or harm.

## INCIDENT NARRATIVE

On Friday, July 3, 2009 at 7:11 p.m. the Mooresville Fire Department received a call for a residential structure fire at 197 Flowering Grove Drive within the Town of Mooresville. Initial dispatch information was just of a reported fire. The weather conditions that day were the temperature in the 90's and light winds. Given a day in the spring or fall where the wind is blowing, the conditions would have contributed to an aggressive spread of fire to multiple structures. There were no other calls or information from ECOM indicating this was an actual working structure fire. This incident was located 2.7 miles from the Mooresville Fire Station 1. July 3<sup>rd</sup> was a day full of activities for the Mooresville Fire Department. The Mooresville Police and Fire were involved in the management of the Lowe's YMCA 4<sup>th</sup> of July festivities. Due to crews on site at the YMCA, Engine 3 was relocated to station 1 on Main Street in order to modify coverage of the Town. Engine 4 was relocated to station 2 to cover for Engine 2 while Engine 2 assisted at the YMCA. This would work to the Mooresville Fire Departments benefit during the Flowering Grove incident. Due to Engine 3 standing by at station 1, Engine 3 and its personnel were able to arrive with Engine 1 on scene at the same time. This would not have been the case on a usual response. The ability to have the additional 4 personnel on scene in a timely manner dramatically reduced the risk involved in the mitigation of the incident.

Units responding on the initial dispatch were Engine 1 (4 personnel), Engine 3 (4 personnel) and Engine 4 (4 personnel), Tower 1 (2 personnel), Battalion 1 with Battalion Chief Robinson, Command 3 with Assistant Chief LaCount, Command 1 with Chief Greene, Mooresville Rescue Squad with Air 14 and Rescue 3. Battalion 1 arrived on the scene within 4:10 minutes, establishing Flowering Grove command and reporting smoke visible from the roof and eaves of the structure. Battalion 1 advised all companies to bring accountability passports to the command post before entering the structure. Battalion 1 advised Engine 1 to advance an 1 ¾ inch hose line into the front door to the second floor and attack the attic fire by opening the ceiling. Engine 3 was advised to establish water supply for Engine 1. ECOM

advised that the only hydrant showing for the location was located at the entrance to the subdivision at HWY 150. Battalion 1 located a hydrant past the incident on the right approximately 7 houses. Engine 3 was advised to reverse lay to the hydrant from Engine 1 and to not pump the hydrant. A reverse line is where the line to the hydrant is laid off of the truck from the engine pumping the fire forward to the hydrant. This is not like the typical process of laying a supply hose from the hydrant to the engine pumping the fire. The reverse lay was required due to the spacing of the hydrants on Flowering Grove.

The 1<sup>st</sup> hydrant was located at the entrance to the subdivision. The distance to the house would have taken all of our supply hose off of the truck and the supply engine would still have been short in length. Engine 3's crew was advised not to pump the hydrant and bring all personnel to the command post. The additional manpower was needed to mitigate the conditions present if a save was going to occur on the residence and exposures. Engine 3's crews were also to establish a back-up line and enter behind Engine 1. This was a necessity in order to meet OSHA's Respiratory Protection Rule of 2 in and 2 out. This rule states that 2 persons must be on the exterior ready to perform life saving action for the fire personnel on the interior of the structure at all times.

Engine 1's Captain conducted a walk around of the structure and transmitted to command that there appeared to be a fire on the deck that had traveled up the siding into the attic, with a small fire present on the exterior. Engine 1's three personnel advanced a dry hose-line to the second floor of the structure. No smoke or flame was visible on the second floor. Engine 3's four personnel advanced the back-up line to the second floor to assist Engine 1. All personnel donned their SCBA and called for water on the attack lines prior to opening the attic. Battalion 1 advised the interior crews that the fire in the attic had evolved into a full blown attic fire. Smoke conditions on the exterior were changing rapidly with the interior conditions still light smoke and clear visibility.



Engine 4's four personnel were ordered to establish a Rapid Intervention Team and asked to place lines to protect the exposures on the B and D side of the fire structure. When looking at the structure on fire, the front side of the structure is the A-Alpha side. If you continue clockwise, the left side of the structure is the B-Bravo side, the rear is the C-Charlie side and the right side is the D-Delta side. The exposures will follow the same designation. Engine 1 (3 personnel) opened the pull down attic staircase and notice heavy smoke. They utilized their Thermal Imaging Camera and the screen turned completely white, indicating high heat. Engine 1 (3 personnel) flowed water into the attic to attempt to extinguish the fire. At the same time Engine 3 (4 personnel) open to holes in the ceiling and flowed water into the attic. Smoke conditions began to rapidly change on the interior. Battalion 1 at this point ordered all

crews to exit the structure. Fire and heavy smoke conditions were present and conditions were changing fast on the exterior. Conditions changed, in a matter of 2 minutes or less, from light smoke to heavy fire, smoke and heat.





The evacuation order was transmitted numerous times, with the evacuation signals (all sirens and horns on scene activated continuously) sounded from Engine 1 (3 personnel) and Engine 4 (4 personnel). Engine 1 (3 personnel) and Engine 3 (4 personnel) acknowledge the evacuation order and exited the structure with fire and smoke conditions worsening by the second.



Conditions changed so fast that the firefighters had to leave behind hose lines, axes, thermal imaging cameras and radio equipment. From the time firefighters arrived on scene to the time evacuation was complete was only 6 minutes. The interior conditions went from clear visibility to heavy fire and smoke conditions, over running crews in 2 minutes. Immediately upon exiting the structure, Engine 1 (3 personnel) and Engine 3 (4 personnel) contacted command and gave a Personal Accountability Report (PAR) with their crews. Battalion 1 advised Chief LaCount that the Personnel Accountability Report was confirmed and that all units were out of the structure. Command 1 assumed command and Battalion 1 was transferred to Operations at that time. Operations advised crews to deploy handlines and Engine 1's deck gun onto the exposures.





Tower 1 was deploying outriggers and raising the Tower Bucket. Operations assigned Tower 1 to fire suppression of the main structure and all other crews were to protect and extinguish the two exposures. Tower 1 was staffed with 2 personnel (instead of the usual 3), which dramatically contributed to a delay in deploying the Tower bucket for fire suppression. The Tower requires a minimum of 2 persons in the bucket in order to operate the ladder and operate the two nozzles. Utilizing this bucket/ladder with one person in the bucket is not a safe operation. It decreases the effectiveness that this person can have on a fire. One person in the bucket and one person on the turn-table increases the time frame required to set-up the Tower for operation. Tower 1 made a knockdown on the main fire and all other crews maintained the exposures. Exposure B suffered fire development on the interior of the attic along with fire ignition to the side of the house. Exposure C experienced ignition to the exterior of the structure.





The Fire Marshal's office arrived on scene and conducted a fire investigation. Overhaul and Salvage operations were conducted, and the last crew cleared the scene at 3:30am July 4<sup>th</sup>, 2009. An incident briefing was conducted on all three shifts immediately following the fire.





## TIMELINE

- 7:09 p.m. ECOM receives 911 call
- 7:11 p.m. Mooresville Fire Department Toned for Incident
- 7:12 p.m. Battalion 1 (Chief Robinson), Engine 1, Engine 3, Engine 4, and Tower 1 enroute
- 7:15 p.m. Battalion 1 on scene and Command
- 7:15 p.m. Command 1 and Command 3 enroute
- 7:17 p.m. Engine 1 on scene
- 7:18 p.m. Engine 3 on scene
- 7:18 p.m. Engine 1A conducts walk-around
- 7:19 p.m. Engine 1 and Engine 3 advance attack and back-up hose lines inside the structure
- 7:21 p.m. Engine 4 has RIT team in place on scene
- 7:22 p.m. Engine 1 calls for water
- 7:22 p.m. Command 1 and Command 3 on scene
- 7:23 p.m. Engine 4 has exposure lines in operation
- 7:24 p.m. Evacuation Order Transmitted
- 7:25 p.m. Crews out of structure and PAR established
- 7:35 p.m. Forward progression of Fire controlled
- 7:59 p.m. Fire Marshal on scene
- 3:30 a.m. All units assignment complete

## **SPECIAL OPERATIONS/CONSIDERATION**

This incident challenged the Mooresville Fire Department's strategies and tactics due to the nature of fire development combined with lightweight construction components. The National Fire Protection Association (NFPA), International Association of Fire Chief's (IAFC), National Institute of Occupational Safety and Health (NIOSH) and International Association of Firefighters (IAFF) have for years expressed concerns in the construction world about the use of lightweight construction. Documented research has illustrated the weakness and failure concerns of this type of construction. The older style residential construction has in the past allowed for Fast Attack inside working structure fires. Interior fire suppression crews were able to work inside the structure performing essential duties such as rescue, extinguishment and property conservation. The concern for roof collapse has always been present; however the time frame for deterioration usually did not reach the critical time frame.

With lightweight residential truss construction, time frames for structure collapse have been lowered and new construction techniques that replace gusset plates with glues will reduce the amount of time firefighters have to enter a structure for rescue. This fire has allowed the Mooresville Fire Department to uncover areas for improvement on operations. The set-backs between homes in many of the communities in Mooresville pose the same threat as experienced in the Cherry Grove Subdivision. Time and manpower will continue to be major factors in the successful suppression and the continued safety of the citizens and firefighters. Listed in the following sections are recommendations that have been discussed that we feel could have made a major impact on the activities of the Cherry Grove fire and will play into the successfulness of future fire in the Town of Mooresville.

## **SUMMARY**

The incident on Flowering Grove Road is happening everyday in America. The implementation of lightweight construction has placed the fire service in grave danger. Time is of the essence and adequate station staffing and placement is a must in order to lower the risk to the community and fire department. The implementation of residential fire sprinklers has been proven to save lives and protect property. An ordinance of this nature would add a level of

protect to the citizens of Mooresville that will lead the nation. The Mooresville Fire Department provides the best service possible to the citizens of Mooresville. The rapid growth has been difficult to keep up with for all services within the Town. The video provide in this report paints the picture of what the future in Mooresville will begin to look like unless we act now to jump ahead of the growth and prepare for the inevitable. The expansion of these services will propel that Mooresville Fire Department ahead of the past growth to a balanced point and allow for a safer and more effective response the growing fire threat in the Town of Mooresville.