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Report of the Week

First you see it then you don't
8/29/08

Report Number: 08-377

Report Date: 08/13/2008 1629

Demographics

Department type: Paid Municipal

Job or rank: Battalion Chief / District Chief

Department shift: Other: 24 ON/24 OFF/24 ON/24 OFF/24 ON/96 OFF

Age: 34 - 42

Years of fire service experience: 17 - 20

Region: FEMA Region V

Service Area: Suburban

Event Information

Event type: Fire emergency event: structure fire, vehicle fire, wildland fire, etc.

Event date and time: 07/14/2008 2210

Hours into the shift:

Event participation: Told of event, but neither involved nor witnessed event

Weather at time of event: Clear and Dry

Do you think this will happen again?

What do you believe caused the event?

- Decision Making
- Situational Awareness
- Staffing
- Task Allocation
- Command

What do you believe is the loss potential?

- Property damage
- Minor injury
- Lost time injury
- Life threatening injury

Event Description

All bracketed areas [] denote reviewer de-identification. Engine [1] along with Engine [2], Ladder [1], Medic [1] and mutual aid from two other departments were dispatched at 22:10 for a structure fire. While responding, dispatch advised that police officers were on scene and reporting visible flames. There was also a possibility of an unaccounted for occupant on the second floor. Engine [1] was the first unit to arrive and had smoke visible from the roof line and a "glow" coming from what appeared to be the roof on side C. Engine [1] located a hydrant near where they had parked and the driver/operator hand stretched a supply line to the hydrant and established water supply. The Engine [1] officer met with the residents outside and they relayed that all occupants were out of the structure and they believed the fire was on the second floor. The Engine [1] officer and firefighter then stretched a dry 200' 1.75" hand line into the building.

Upon entering the building through the main entrance side A, crews encountered no signs of fire or smoke in the division 1 apartment. The crew then proceeded up the stairs to division 2 apartment. They found no smoke or fire. From the division 2 kitchen window side C, the Engine [1] officer could see the glow from what appeared to be a self venting fire on division 3 side C. With no smoke or fire on the second floor, the Engine [1] crew proceeded back to the stairs with the intent of going to division 3. On the second floor landing there was a metal door which was locked and this blocked access to the division 3 apartment. Engine [1] crew used a halligan bar and axe to pry open the door and then proceeded up the stairs. As the crew approached the division 3 landing, light smoke was visible. This was the first smoke that was encountered on the interior of the structure. The crew donned their SCBA masks before proceeding up into the division 3 apartment. At the top of the division 3 stairs there was a drop down attic access ladder. Assuming that this was an attic fire, the Engine [1] officer opened the hatch and shined his flashlight into the attic. The officer found no smoke or fire in the attic. Knowing that the fire was presenting itself somewhere along side C, the Engine [1] officer and firefighter proceeded through the apartment towards the C/B corner. At this time, the Engine [1] crew still had light smoke and no heat present. Just beyond the bathroom, crews found a small room in the B/C corner of the apartment. This room was an access door to the knee wall access space. The Engine [1] officer believed the fire was somewhere in the side C attic area and could hear crackling sounds in the walls. The Engine [1] officer then opened the knee wall access looking for signs of fire. Immediately upon opening the knee wall access door, heavy smoke billowed out of the knee wall space. The door was placed back over the opening to contain the smoke and fire until the hand line could be placed into position. The Engine [1] officer radioed command and advised they had located the fire. At this time, the Engine [1] firefighter advised that he was out of hose and could not reach the fire's location. The crew radioed for more hose to be brought inside to extend the attack line. The crew of Engine [2] arrived with the extra section of hose and proceeded to extend the hose line. It was at this time, the Engine [1] officer's low air bell began to alarm and he exited the structure to retrieve a full SCBA cylinder. Soon after the Engine [1] officer exited to replenish his SCBA, the Engine [1] firefighter also exited the structure due to low air. Both the Engine [1] officer and firefighter returned to division 3 minutes later with full SCBA. With the hose line extension completed, the hose line was re-charged and crews proceeded to extend the hand line to the B/C corner. Conditions on division 3 started to rapidly change and smoke was becoming darker and thicker. For the first time, crews stated they felt some heat but it was still very tenable. The Engine [1] officer (knowing the location of the knee wall access) proceeded back to this area followed by the Engine [2] officer. The hand line was also stretched in behind them by the crew of Engine [2]. Upon entering the room on the B/C corner of division 3, an explosion occurred. This was before ventilation or fire attack could be initiated. There was a loud bang and the entire division 3 area turned bright orange from floor to ceiling. This was later described as a wave of heat and smoke and the event pushed all the firefighters to the floor and knocked off the Engine [2] officer's helmet. Command seeing the heavy smoke and fire suddenly erupt from division 3, immediately sounded the evacuation order both via radio and apparatus air horns. The Engine [2] nozzle firefighter could see a silhouette of the two firefighters in front of him (Engine [1] and Engine [2] officer) and he opened the nozzle above and around them for several seconds. The glow subsided but there was still heavy smoke with almost zero visibility. The Engine [2] firefighter threw the nozzle forward to the firefighters in front of him so that they could use the hose line as an escape route.

Simultaneously, the other firefighters were scrambling down the stairs and conducting their own personnel accountability report (PAR). After all firefighters were accounted for, they exited the structure.

Lessons Learned

STAFFING: Adequate staffing is always a significant factor for fire departments especially during a serious emergency like this fire; on the night of the fire staffing was 10 personnel. Increase staffing is the only way we will be able to safely meet the national safety standards. This would greatly improve our overall capabilities as well as make our fire scene safer for our personnel. When we are at minimum staffing we must take a more realistic view of our emergency scene and determine if our staffing is sufficient to fight an interior structure fire. A risk benefit analysis should be made at every fire and based upon the analysis more resources should be requested and the mode of fire attack (offensive vs. defensive) should be made to ensure firefighter safety. The fire departments tradition of do more with less obviously has saved lives and property but continues to put our firefighters at great personal risk. **CREW CONTINUITY:** Several firefighters ended up operating with personnel other than the crew they arrived with. In addition two personnel exited the structure alone to replenish their SCBA bottle and then re-entered alone. Crews need to operate as a crew throughout the incident, especially when operating in an IDLH atmosphere. Many of the firefighters discussed that crew integrity is routinely broken up due to the lack of sufficient manpower and firefighters try to do more with less. While the staffing issue is a reality, crew integrity and our safety is more important than any other fire ground task. Personnel should review polices as they pertain to personnel accountability and ensure we are following the passport accountability system. Crews who enter together must exit together. Company officers must maintain crew integrity throughout an incident. A separate, designated accountability officer needs to be established as early as possible for all working fires to track firefighter entry into the IDLH area. A separate, designated safety officer needs to be established as early as possible for all working fires to monitor crew's activities and fire conditions. **EQUIPMENT:** The first in attack crew did not take their TIC with them. It is assumed that if they had the thermal imaging camera with them it may have assisted in finding the fire quicker. Company officers need to remember what a valuable tool a TIC is and utilize this important tool on all RIC responses. The initial attack line, a 200' 1.75" line did not reach the area of the fire on division 3. While pre-connected lines are quicker and easier to deploy the "one length fits all" philosophy does not match all buildings, especially in larger homes and structures. Crews should practice hose line selection at different occupancy types around their community. Extension of a hand line should occur at the pump or outside the IDLH atmosphere whenever possible. Although extending the hose line inside the structure puts the extra hose closer to the fire and requires less pulling of hose once charged it required the firefighters to operate without water in an IDLH atmosphere for an extended time (6 minutes) and could also create more kinks and obstructions once charged as opposed to if it was flaked out across the yard. **COMMAND & CONTROL:** The first arriving company officer was functioning as a member of the engine crew and therefore could not fill the incident commander's role. The second arriving officer although a competent company officer has less rank and time on the job and therefore normally wouldn't be the most appropriate person to take command. Again due to staffing shortages the Engine [2] officer was forced to assume command of the fire until help arrived. Fire departments should formally establish a procedure for command officers to respond to every structure fire in their community city. Consideration should be given to utilizing

all command staff chiefs, off duty officers, mutual aid chiefs and any other means necessary to quickly provide a core group of command officers on every fire response. Command was transferred three times in the first fourteen (14) minutes of the call. While transfer of command is an important element of any smooth incident command process, so many transfers in such a short time period increase the possibility of misinformation and a lack of situational awareness for each new incident commander. PPE: The majority of the nine (9) firefighters operating inside the structure at the time of the smoke explosion were wearing their PPE properly. This is obviously a contributing factor as to why there were no serious injuries. Although several pieces of equipment were removed from service due to fire damage none of the firefighters received a burn injury. Two firefighters indicated that their helmets were knocked off during the explosion, neither firefighter had secured their helmet's chin strap under their SCBA mask and the helmet was therefore just balancing on their head. Had the subsequent fire ball been more intense or sustained longer these firefighters could have suffered burns to their head.

Discussion Questions

Fires in concealed spaces can be frustrating and exceptionally deceptive. Sometimes visible from the outside, but often difficult to locate inside, concealed space fires sap crews' operational efficiency due to the "unresolved discrepancy" of the incident (I can see the fire on the outside, but I can't find it from the inside). As the clock continues to click, exasperation piles on the pressure to mount the fire attack. Once you have read **08-377** in its entirety, consider the following:

1. What coordinating strategies do you use to narrow the time frame of locating a fire that is visible on the outside but difficult to locate inside?
2. Does your SOP with mutual aid companies (or neighboring stations within the same department) involve specific operational assignments to cover all floors of 2 and 3 story structures?
3. How do you advance an attack line to an upper floor with the crew you typically run with?
4. What are your thoughts on running dry hoselines into structures with visible fire or smoke showing upon arrival?
5. What are the "indicators" on the outside of a structure that suggest or indicate the presence of concealed spaces?

Note: The questions posed by the reviewers are designed to generate discussion and thought in the name of promoting firefighter safety. They are not intended to pass judgment on the actions and performance of individuals in the reports.