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Report of the Week

"Preplan Prayer Places."

8/16/2012

Report Number: 05-0000553

Report Date: 09/28/2005 22:57

Synopsis

Structure fire in concealed ceiling causes collapse, nearly trapping interior crews.

Event Description

Our company responded to a report of a structure fire at a church. While enroute, dispatch advised that they had received an alarm from the location, and that the police department was reporting "smoke showing". Upon our arrival we noted heavy smoke, no visible fire, pushing from the eaves and roof. Our crew of four, 3 FF / 1 LT, made entry, and advanced approximately 50 feet, including 3 turns, into the building - to a set of double doors. To this point, before the double doors, the building was ordinary construction, consisting of offices and classrooms, drop ceiling, and a low, peaked roof. During this time, we had tolerable heat conditions, and good visibility.

Several inspections of the above-ceiling area revealed no fire. Upon passing through the doorway, we entered a large open area that served as an activities area. The area had substantially taller ceilings under a flat roof. We immediately encountered heavier heat conditions, diminishing visibility, but no visible fire. The nozzleman directed his stream at the ceiling, but we did not see/hear any water return to floor level. This led us to believe that there were high-heat conditions at the ceiling level. Seconds later, we heard sounds that indicated structural collapse - "shifting of structural members", "nail pops", and "cracking/breaking". The structural members immediately began falling on us. Another firefighter and I were able to dive back into the lower roof area to relative safety. We immediately re-established contact, and began calling for the nozzleman and the Lieutenant. The nozzleman answered after several seconds, and reported that he was OK, but he did not know where the Lieutenant was. As we directed our flashlights to the Lieutenant's last known location, we saw a large pile of debris, and no signs of movement. Our collective belief was that the Lieutenant was now seriously injured or dead. We resumed calling his name, and were about to call a "Mayday", when we heard the Lieutenant say, "I'm behind you!" He later told us that he had moved behind us to re-inspect the lower ceiling area just before the collapse.

With our crew intact, we quickly realized that conditions had drastically worsened to: zero visibility, large volume of fire, and extremely high heat conditions. Our crew advised IC, and began backing out. IC directed exterior crew to begin setting up for defensive operations. During this time, our crew made our way to a door that was approximately 40 feet away from our original entry point. We discovered that the fire was already 20 feet past where we had originally entered. The fire escalated to several extra alarms, and required a trench cut to save the remaining un-burned portion of the building. We later discovered that the lower roof area was not simply a peaked roof. It was essentially a "rain

roof", or a peaked roof built over an older flat roof. Investigators believe that the fire originated in this area, and was allowed to burn freely due to lack of detection and suppression systems. It also appears that the smoke and heat were able to travel to the "activities area" via the HVAC system, and the tall ceilings allowed a large volume to build.

Lessons Learned

Situational awareness - We saw the smoke pushing outside, but conditions inside didn't match up. Probably should have caused us more concern.

Equipment - (Positive) We used our skid setup, 3" supply to 150" of 1 3/4", allow us coverage of the entire structure. A preconnect would NOT have reached all areas.

(Negative) We kept our 1 3/4" hose instead of bringing our 2 1/2". We all hear about "big fire, big water, blah, blah" - Not that it would have put this fire out, but it would have offered us a whole lot more protection when we needed it.

Training - Everyone reads about "collapse indicators" in IFSTA manuals. Who knew they'd be right?

Teamwork/communication - We stayed together when things were quickly going bad, and we were able to quickly relay our deteriorating conditions to command.

Incident command - IC made sure we were all accounted for, and went defensive when needed.

Staffing - We were lucky to be running heavy that day, and that mutual aid was called quickly. We probably would have lost the entire building without all the help.

Preplanning - We knew there was both renovation and new construction at the church. It appeared that the peaked roof was a replacement for, and not an addition to the flat roof. Closer inspection of the building and talking with the construction crew probably would have tipped us off.

Demographics

Department type: Combination, Mostly paid
Job or rank: Fire Fighter
Department shift: 24 hours on - 48 hours off
Age: 25 - 33
Years of fire service experience: 7 - 10
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: 09/11/2005 07:00
Hours into the shift: 21 - 24
Event participation: Involved in the event
Weather at time of event:
Do you think this will happen again? Uncertain

What were the contributing factors?

- Decision Making
- Situational Awareness

What do you believe is the loss potential?

- Lost time injury
- Life threatening injury

Report of the Week

Single family structure fires are the bread and butter of most fire and emergency departments. It's what we respond to most frequently and our training usually reflects that by emphasizing the strategies and tactics we would use while battling a blaze in residential fires. The average house fire will involve a building that is from 1500 to 3000 square feet in size and a layout that we are familiar with in our own homes.

Fighting a fire in a large building designed for other uses, such as a church or other religious structure, often presents us with a set of challenges that require a completely different approach. Construction types can vary from ancient heavy timber frame to modern lightweight. Ceilings can reach heights of 50 feet or more. Large open areas are usually present, as well as hidden void spaces that can be difficult to locate and access. These and other factors can create a dangerous environment for firefighters, as the following excerpt from report [05-553](#) exemplifies.

"...Upon passing through the doorway, we entered a large open area that served as an activities area. The area had substantially taller ceilings under a flat roof. We immediately encountered heavier heat conditions, diminishing visibility, but no visible fire. The nozzleman directed his stream at the ceiling, but we did not see/hear any water return to floor level. This led us to believe that there were high-heat conditions at the ceiling level. Seconds later, we heard sounds that indicated structural collapse - "shifting of structural members", "nail pops", and "cracking/breaking". The structural members immediately began falling on us....."

Review Report [05-0553](#) and the related reports listed below and discuss the following issues with your crew members:

1. Does your department treat the religious structures in your response area as high hazard occupancies?
2. What causes the most religious structure fires and how would that affect the way you approach a fire involving a religious structure? (Hint: USFA is a good source of information.)
3. How often does your crew inspect or preplan the religious structures in your jurisdiction?
4. Many religious structures also contain educational occupancies such as a pre-school. How would your tactics change to address this?
5. How would the day of the week and time of day play into your Incident Action Plan for a fire at a religious structure?

As you read the reports below related to incidents involving religious structures, try to imagine how you would have reacted if you had been involved in the action on the scene.

Related Reports – Topical Relation: Religious Structure Fires

[09-215](#)

[05-166](#)

[10-1255](#)

[09-090](#)

Have you been involved in a near miss while on the scene of a religious structure fire? Submit your report to www.firefighternearmiss.com today so everyone goes home tomorrow.

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.

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