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*Serving the Western United States and Rocky Mountain region
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Looking Deeper: Are Codes Affecting Your Cause?

By Kevin Reilly, CFEI, CVFI

On a recent case, several men lit a fire in an apartment building. They lit the fire because one of the men was upset with his girlfriend, who was reportedly cheating on him. The fire originated in the first floor hall outside the girlfriend's apartment and spread to the upper floors of the apartment building, trapping many of the occupants. The responding fire department had to spend many crucial minutes rescuing people over ladders, instead of fighting the flames. When it was all over, three people were dead, and the building was destroyed. An incendiary fire; that's it, bad guys caught, chapter closed, right?

Actually, no. As they say, the rest of the story is a bit more complex. During the course of the investigation, it was discovered the fire doors at the entrance to the stairways were propped open, allowing the fire to spread up the stairs, and down the upper halls. Occupants were trapped early in the course of the incident, creating the need to be rescued by the fire department ladders.



This photo was taken in the basement of an apartment building. Any fire here would extend beyond the basement area due to the large amount of combustible trash. The fire code does not allow this amount of storage in a basement.

PHOENIX/RAMPART INVESTIGATIONS, INC., AND PHOENIX LABORATORY AND ENGINEERING SERVICES

Based in Denver, Colorado, Phoenix/Rampart Investigations, Inc., conducts investigations, engineering, and laboratory services throughout the western United States and Rocky Mountain region. We are licensed as required.

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The owner had been written up about the open doors in previous fire department inspections, but to no avail. Now, civil and criminal cases may be pending due to the violation of a basic fire code.

When we look into the origin and cause of a fire, we are looking into an event that happened in the past, to bring an understanding of that event in the present. We look at fire patterns, the behavior and actions of those who were involved in the discovery of the fire, and the effects the fire initiation and growth has on the surrounding area. Damage is documented, evidence is collected and when required, responsibility is placed.

But many times, there needs to be further examination of the situation to fully understand why we see the effects of the fire, and the damage it caused. An examination of building and fire codes may reveal problems that existed long before the fire occurred. And those existing problems, though not directly involving the origin and cause of our fire, may have a direct impact on the damage incurred once the fire was initiated.

WHY CODES?

Many of today's fire and building codes originated from disastrous fires in our nation's past. Some examples include:

Our Lady of the Angeles Fire - Chicago IL, December 1958

A fire started at the base of a stairwell and spread throughout the school through the open doors and hallways. The fire entered the cockloft and ran the attic space, allowing the fire to spread even faster. Lack of fire alarms and sprinklers as well as problems with the building construction created a situation where the nuns and the children were trapped. When it was all over, 92 children and 3 nuns were killed.

As a result of the fire, changes to the fire codes were made. Included in those changes:

- ▶ Enclose all stairwells with fireproof construction and provide fire doors leading into them.
- ▶ Provide fire doors at all corridors and room partition openings.
- ▶ Provide approved automatic internal fire alarm systems linked directly to the fire department for schools.

Coconut Grove Nightclub - Boston MA, November 1942



This photos was taken in a hotel where the fire doors to the stairwells were kept open by straps and bungee cords. Any fire extending into the hallway will then extend to the upper floors, possibly trapping guests.

This was another case where open stairwells allowed a fire which started in the basement lounge, spread up to the first floor and trapped patrons. This time, the highly combustible decorations that lined the ceiling and walls of the nightclub allowed for the rapid fire spread. Blocked exits and dimly lit corridors increased the panic of the people and contributed to the large loss of life. When the smoke cleared, 492 people were killed in the second worst single building fire in America. From that fire, code changes included:

- Maintaining exit hallways and doors
- Installation of emergency lighting and exit lights
- Initiation of occupancy limits for assembly locations

From these and other tragic events, code agencies created various building and fire codes, designed to protect occupants, control the spread of fire, and to limit the amount of damage that a fire can create within a structure.

The National Fire Protection Agency created the Life Safety Code (NFPA 101) and the NFPA Fire Code (NFPA 1). The Building Officials and Code Administrators International, Inc. (BOCA) created the BOCA Fire Safety and Building Codes. The Southern Building Code Congress International, Inc. (SBCCI) created the Southern Fire and Building Codes.

The most recent application of these codes was the creation of the International Code Council in 1994. Leaders from various code adoptions joined together to create one nationally adopted code that all builders, contractors and public entities can adopt and follow. From that joint venture came the International Building Code, the International Fire Code and the International Mechanical Code, as well as other codes that address the building community needs.

LOOK, THEN LOOK AGAIN

Many times, the initial scene examination may be just the beginning of what we need to look at to fully understand the fire scene scenario. We need to examine how any violations of existing fire and safety codes created situations where the fire damage was increased or decreased.

- ◆ Did the sprinkler system work the way it was designed to?
- ◆ Did a hole in a firewall allow the fire to spread outside the fire rated compartment?
- ◆ Did an excessive amount of combustibles stored in a room allow the fire to grow beyond the ability of the suppression system to extinguish it?
- ◆ Did the occupant change the use of a structure, without updating the fire safety elements of that structure?
- ◆ Did the alarm system work in the manner and speed it was designed to operate?



Breaker panel in the shower

Knowledge of fire and building codes allows the investigator to gain a fuller understanding of the incident before them. Fire spread scenarios can be accurately determined, origin locations can be discovered and incident information can be understood with a greater degree of certainty.

If you need assistance with an existing case, or if your current investigation group doesn't fulfill your needs, give us a call. We will be glad to assist you and answer any investigation or code related question you may have.

New Faces at Phoenix

CRAIG BUSH – Electrical Engineer

Craig joined Phoenix in May this year to assist our engineering department with electrical losses. He works and lives in Phoenix, Arizona, where he is completing his PhD in Electrical Engineering. Craig has overseen over 100 fire scene examinations, personal injury loss sites, vehicle fires and destructive evidence exams. He's done work in electrical accident reconstruction, product failure mode analysis and arc flash events.

MIKE MCGEE – Senior Fire Investigator

Mike also joined Phoenix in May as a senior fire investigator. He is a CFEI and an ASE Master Heavy Duty Truck and Automotive Technician. Before coming to Phoenix, Mike was the Chief of the Rochester (Ohio) Volunteer Fire Dept. He has over 18 years experience as an arson investigator. Mike also designed and instructed the Industrial Truck Mechanic program for Lorain County Vocational School in Oberlin, Ohio.

CHRISTINA VANDER BERG – Investigative Intern

Before joining us at Phoenix, Christina worked for the Lexington (Kentucky) Fire Department working in investigations and fire prevention. She also spent two months with the Bureau of Alcohol, Tobacco, Firearms & Explosives as an intern. Christina graduated with a BA degree in Fire & Safety in May of this year. She is a Certified Fire and Explosion Investigator and a Certified Vehicle Fire Investigator.

Wildland Fire Season

It's that time of year again—wildland fire season. There have been a number of costly wildland fires in Colorado already this year. As dry as things have been this summer, chances are there will be more. Kirk Schmitt (yes, he's back!) is our wildland fire investigator. He is IAAI CFI and is certified by the National Wildfire Coordinating Group (NWCG) as a Wildland Fire Origin and Cause Determination Investigator Level 1. He's had plenty of experience investigating wildland fire scenes resulting in large recoveries for insurance companies and property owners and in the successful prosecution of those responsible for incendiary fires. He can help you understand the wildland fire arena and advise you on subrogation potential involving wildland fires.



Did You Know???

- ◆ Fire kills more Americans than all natural disasters combined.
- ◆ In 2006, direct property loss due to fires was estimated at \$11.3 billion. Intentionally set structure fires resulted in an estimated \$755 million in property damage.
- ◆ A fire department responds to a fire in the United States every 19.0 seconds.
- ◆ In 1631, Boston's Governor John Winthrop outlawed wooden chimneys and thatched roofs.
- ◆ George Washington was a volunteer firefighter in Alexandria, Virginia. In 1774, as a member of the Friendship Veterans Fire Engine Company, he bought a new fire engine and gave it to the town, which was its very first.



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