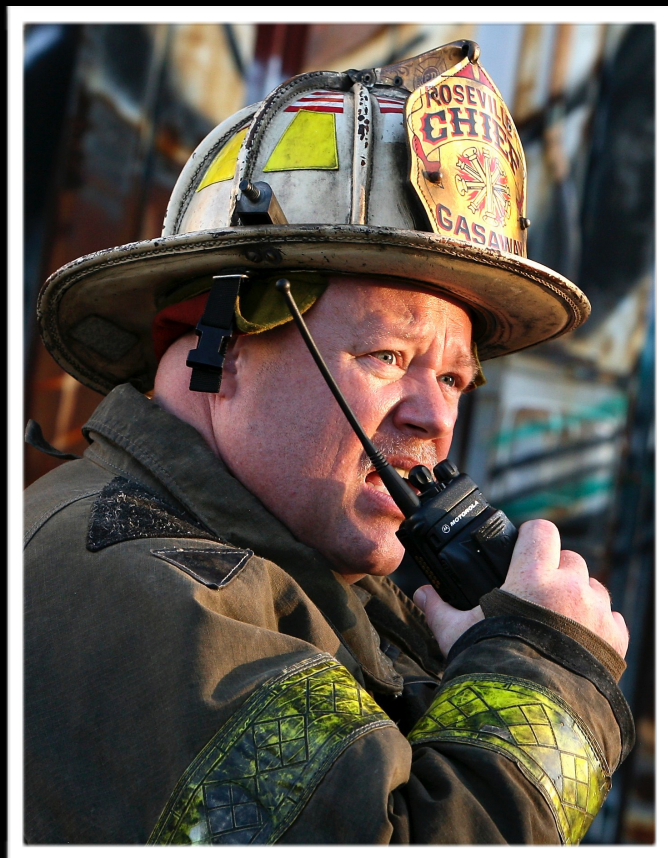


A detailed illustration of a phoenix, a mythical bird that is reborn from its own ashes. The phoenix is depicted with large, dark green and brown wings spread wide, standing on a pile of dark, jagged rocks. The background is a vibrant, fiery orange and yellow, suggesting a intense fire or a sunrise. The overall mood is one of resilience and renewal.

How quickly a firefighter can die.

Learning and growing
from tragedy.

Dr. Richard B. Gasaway
Situational Awareness Matters!
Saint Paul, Minnesota



If you are interested in
hosting a program
please contact
Dr. Gasaway at

www.SAMatters.com

Phone: 612-548-4424

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Captain Jeff Bowen
Asheville Fire Department
Final Alarm: July 28, 2011

Asheville

- Population: 83,000
- Coverage area: 60 Square Miles
- 12 Fire Stations
- 17 Fire Companies
- 15,000 Fire and Medical Emergencies annually
- 239 Employees

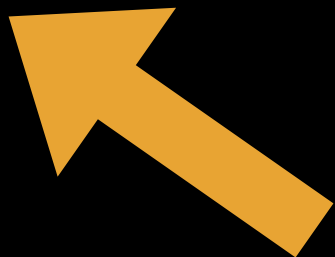


445 Biltmore Avenue

- 6 Story Medical Complex
- Non-Combustible Construction
- Partially sprinklered (2nd floor sleep center)
- 22 Medical Practices and Clinics
- 200+ Occupants
- Risk Hazard Classification: High Risk Occupancy

Biltmore Avenue

North



Initial Response

- 12:26 - Automatic Fire Alarm received at PSAP
- 12:28 - Engine 1, Engine 2, Ladder 1 and Squad 1 dispatched on the initial assignment*
- 12:31 - From Biltmore Avenue Engine 2 reports a working fire on the top floor with heavy smoke and flames showing and immediately requests a second alarm. 201 in Command*
- By procedure, the incident is assigned an operating channel & all units switch their radios to Fire 2
- 12:32 Fire Marshal 10, Car 3, Rescue 3, Battalion Chief 1, Engine 6 are dispatched
- On the announcement of a working fire, the fire chief responds to the call (because his office is close by).

- By procedure, Engine 1 secures a water supply on Biltmore Avenue and the standpipe is charged
- Concurrently, on the opposite side of the building, crews make entry and are being met by evacuating occupants
- Crews conduct primary searches on all floors below the fire floor where additional occupants are located and escorted out
- At the same time, an engine crew advances up the North stairwell with a high-rise bundle to the fire floor. Reporting extremely heavy smoke. Audible fire alarms are impacting communications.*

- The six-story building had two stairwells (North and South)
- The North (closest to the fire) was designated for fire operations
- The South (furthest from the fire) was designated for occupant evacuations
- The bottom floor (at grade) is labeled “Ground”
- The second floor (above grade) is labeled “First Floor”
- The fire is located on the top floor, which was labeled “Fifth Floor” but is actually the sixth floor above grade.

- Engine 101 reports no water in the standpipe*
- 201 running low on air reports a lot of heavy smoke and a lot of heat. Still have not reached the fire. Every door is locked*
- 201 & 203 ordered out by command
- 301 reports high heat. Believes the fire is above them. No water*
- 601 says air supply will be set up on the 3rd floor
- 101 reporting no water. VibraAlert going off. Reporting they are running out of air. Command orders them out
- Ladder 1 and 601 says they can attack the fire from the platform*

- 12:55 - The IC requests a third alarm (29 minutes into the incident)
- Engine 8, Engine 10, Quint 5, and Battalion Chief 2 are dispatched
- Each engine crew takes a high-rise pack up the North stairwell, pursuant to SOP and training
- 301 locates the fire. Needs water*
- 301 reporting low air (VibraAlert) and needs a bottle change. Exits and Bettencourt joins up with them*

- 201 reports they have water
- 601 reports they have water on the platform. Advancing a handline
- 201 reports their hose line is 30' short of reaching the fire*
- 301 reports there is plenty of hose in the stairwell
- 601 reports venting complete. Waiting on interior crew to get the hose line*
- E-10 identifies self as RIT
- 201 reporting it's really hot.

- 201 reports their leaving (VibraAlert sounding)*
- 601 advancing a hose line in from the platform
- 301 requests water in the North stairwell
- 201 recommends a defensive attack. It's too hot*
- 601 reports fire attack in process
- Command tells 301 to come out if no water in the North stairwell*
- Fire conditions become worse and Rescue 3 crew stages in the stairwell.

- 301 advances and asks for water again
- Command tells 301 to exit the building
- 101 vents a window they think is on the North side. They are actually on the West side
- E8 reporting heavy smoke and heavy heat. Requesting ventilation in the North stairwell*
- 301 reports out of air - heading out (VibraAlert sounding)
- Command asks for Par.*

- 601, 101, 301, 501, reports PAR. Par check is abandoned due to radio traffic
- Vent results in free-burning fire on West side
- Rescue 3 crew heads out for bottle change
- Rescue 3 makes it to the stairwell and, for reasons never to be known, Captain Bowen (301) bypasses the stairwell and starts down the hallway
- The crew, confused by Bowen's actions, pursues him. Bowen makes a series of right turns and ends up in a restroom. He turns to his crew with a look of confusion.

- Johnson & Bettencourt realize something is wrong with Bowen and they need to get out
- The problem is, they don't know exactly where they are or how to get out
- The crew exits the bathroom
- They are out of air
- Johnson looks right and sees a water spray that's coming from the platform crew. He goes right
- Bettencourt and Bowen go left (back the same way they came in). Now the crew is separated.

- Bowen runs out of air and starts to buddy breath with Bettencourt
- 13:24 - Bettencourt transmits a Mayday call. (58 minutes into the incident
- “Mayday, Mayday, Mayday. By the elevators”
- “Mayday, Mayday, Mayday. I need some air. I’m on the 5th floor”
- 601 reports he has Johnson at the platform. Out of air. He is separated from his crew.

- Command asks repeatedly who calls the mayday
- Dispatch shows on the CAD it's 1101's radio.*

- Bowen removes his face piece and the total air supply is quickly depleted
- Bowen loses consciousness
- All crews operating on the incident are advised to take their radio traffic to Fire 3, leaving Fire 2 for the distressed crew
- “304 to Command. Mayday on the 5th Floor. Hurry up”
- A second Mayday is transmitted over Fire 3
- “Rescue 3. Off air.”

- Bettencourt starts to drag Bowen but realizes he doesn't know where the exit is
- Bettencourt decides to leave Bowen to search for an exit
- 13:32 - Engine 7, Engine 9, and Ladder 8 are dispatched
- Out of air and breathing smoke, Bettencourt removes his SCBA entirely and makes his way down a hallway in search of an exit
- All the doors are locked.

- Bettencourt resigns himself to the fact that he doesn't know where he's at and he's probably going to die there
- Bettencourt becomes angry that he let himself get into this situation
- Bettencourt doesn't give up and keeps searching. He's breathing heat and smoke and has no visibility
- He makes a left turn and sweeps his arm and finds an unlocked door
- It's the South stairwell.

- The air is clean. There is no heat and visibility is good
- He sits there for a few minutes to compose himself and to think what he should do next
- He realizes he needs notify command where he's at
- He reaches for his radio... it's gone
- He contemplates making his way down the stairs to get some help for Captain Bowen.

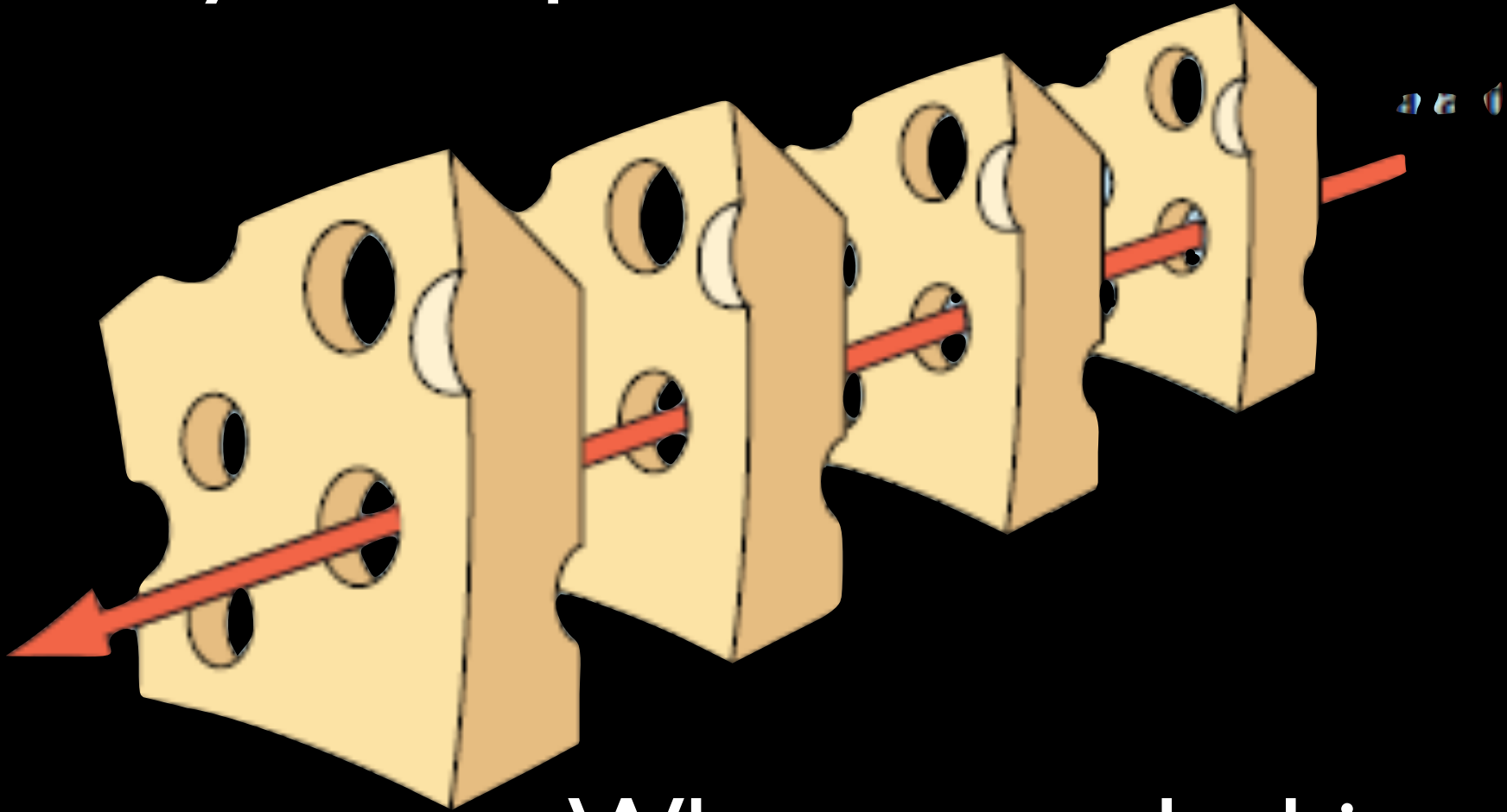
- Bettencourt decides he's not leaving Bowen
- Bettencourt re-enters the smoke filled, zero visibility environment hallway and locates Bowen
- Bettencourt drags Bowen toward the South stairwell
- Engine 10 makes entry on to the fire floor from the North stairwell and reports hearing PASS device activations but reports it sounds like they are moving away from Engine 10**
- Engine 10 running out of air and exits.

- Bettencourt successfully gets Bowen into the South stairwell
- The RIT reports the PASS devices have gone silent
- Bettencourt is exhausted but knows he needs to get help for Bowen
- Bettencourt grabs Bowen in a bear hug and starts rolling down the stairs
- Just short of the landing between Floor Three and Four, Bowen's foot becomes wedged in the railing
- Bettencourt is pinned underneath Bowen and cannot move.

- Bettencourt struggles to free himself
- Bettencourt loses consciousness
- Additional RIT crews make their way into the South stairwell and report hearing PASS alarm activations
- “Two men down.Two men down.Third floor.Third Floor”*
- From the time the Mayday is transmitted until Bettencourt and Bowen are found in the South stairwell
- 14 minutes, 13 seconds
- After being located, it took the RIT 5 minutes, 49 seconds to remove the two firefighters from the building.

- Bettencourt is transported and treated for thermal and respiratory burns
- Bowen, in cardiac arrest, is worked at the scene and transported to the hospital where he is pronounced dead
- 13:43 - Engine 4 and Ladder 10 are dispatched.

Layers of protection...



When enough things get
through all the layers of
protection... we get

The background of the image is a dense, chaotic pile of broken wooden planks and beams. The wood is light brown and shows signs of weathering and splitting. The pieces are of various sizes and orientations, creating a textured, three-dimensional effect. The text is overlaid on the upper half of the image.

The collapse of a
system designed to
keep us safe.

Bricks on the cart

- When responding units switch to Channel 2, they were no longer monitoring the dispatch channel.
- Even though E-2 asked for a second alarm, the dispatcher did not transmit a second alarm. Instead, she filled the balance of the first alarm.
- Because the dispatch channel was not monitored, command was not aware of this.
- When the third alarm was called, it was actually the second alarm companies dispatched.
- Again, command was not aware of this.

Bricks on the cart

- The incident was a full alarm assignment behind in staffing and none realized it.
- It wasn't until later in the incident that command realizes the critical staffing shortage caused by the error at dispatch.
- Two companies were short-staffed at the time of the call (12 personnel on-scene).
- Command was informed of this earlier in the day, but it was not immediately recalled by the commander under the stress of the incident.
- Rescue 3, the crew Captain Bowen led, was short-staffed (Jay Bettencourt was doing driver training with another company).

Bricks on the cart

- In the north Stairwell, the orientation of the exit door on to the floor was different than lower floors.
- Crews knew that as they exited the stairwell to turn right to go in the direction of the fire.
- But the orientation of the door on the top floor was West facing (not North like all the previous floors).
- As crews exited the stairwell and turned right, they were heading away from the fire.

Bricks on the cart

- Staffing shortage issues, compounded by high heat and humidity, caused several heat-related illnesses during the incident.
- Command did not know the North stairwell was charged with smoke and crews were breathing air on the way up.
- The working air supply on the fire floor was 5-10 minutes, causing crews to make multiple trips to the exterior for air bottle changes.
- As crews reached the fire floor and reported their arrival to command some Vibra-Alerts were heard over the radio.
- They are arriving on the fire floor with low air.

Bricks on the cart

- The building was so large the safety officer could not maintain a visual fix on all companies working.
- It was especially difficult to monitor the status of staged apparatus because personnel did not report to a fixed staging area.
- Apparatus operators remained with their vehicles, even if their vehicles were staged, contributing to the staffing shortfall.
- The dispatcher was working alone and quickly became overwhelmed with the complexity of the incident and the volume of radio traffic.

Bricks on the cart

- Numerous command staff were on the scene but did not commit themselves to any dedicated ICS role other than “observer.”
- Personnel were not assigned to roles to support the commander (e.g., staging, accountability, rehab, air support, logistics, liaison).
- The department adopted a model high-rise SOG from a large metropolitan fire department that was not validated for Asheville.
- The staffing levels in Asheville would not have allowed them to effectively use their high-rise SOG even if fully staffed (and they knew it!).

Bricks on the cart

- Some members were not knowledgeable of revised SOGs and were still operating under the guidance of outdated SOGs.
- Command was using one portable radio, on scan. When the first Mayday was transmitted, it was on Fire 3, but command didn't know that.
- Then Command told all units to go to Fire 3, putting them on the same channel as the distressed crew.
- Then Bettencourt called the second Mayday on Fire 3... the same channel he called the first Mayday on.

Bricks on the cart

- It was standard practice for firefighters to keep their radios in external radio pockets, with no lapel mic attached. When they needed to talk on the radio, they would pull it out of their pocket. Talk. Then return the radio to their pocket.
- This practice caused the loss of two portable radios and loss of communications from distressed crews.
- Radio traffic was so heavy that some companies noted they could not get air time the report deteriorating interior conditions.
- There were five thermal imaging cameras on the scene. None were taken inside the building.

Bricks on the cart

- The size of the building made it impractical for the officer on every crew to follow policy to hand-deliver Passport tags to Command.
- The department's accountability system was not used.
- Personnel Accountability Reports (PAR) were called for, but not completed.
- Crews sizes changed dynamically as off-duty personnel arrived and joined up with on-duty crews.
- Due to administrative workload, the command staff rarely participated in company-level training.

Bricks on the cart

- The lack of visible smoke and fire contributed to a complacent mindset: “This is a small fire and the sprinkler system will hold it in check.”
- Reverse stack affect was drawing hot air in from the outside.
- Large ceiling void spaces concealed the volume of smoke present.
- Due to a construction flaw, the fire dampers did not close, allowing air to fill the North stairwell.
- Every engine crew took a high-rise bundle up the North stairwell. The volume of hose on the stairwell and on the fire floor created problems.

Bricks on the cart

- Some of the members had fallen out of physical fitness, contributing to heat-related medical issues and staffing shortages.
- The geographic orientation used was “North, South, East, West” which created challenges for crews operating inside who did not have exterior landmarks for orientation.
- Incident pre-plans were on mobile data computers but the system was notoriously slow to access.

Bricks on the cart

Asheville Firefighters brought their small fire habits and a small fire mindset to a big fire.

Recommendations

- Working high-rise fire should trigger automatic second alarm.
- Heat and humidity indexes should trigger additional staffing to working incidents.
- Command and Accountability officer should monitor CAD to ensure resources are dispatched, responding and arriving.
- Commit a second dispatcher to complex, multiple alarm fires, creating a “dispatch team.” Other dispatchers “floated” in and out of supporting the first dispatching, adding to stress and workload.

Recommendations

- Provide command with worksheets and checklists to guide duties and priorities for complex tasks for tasks performed infrequently.
- Provide worksheets and checklists for ALL command support roles so personnel assigned know what they are supposed to do.
- Make sure adopted SOGs are department specific and department achievable.
- Operations SOGs should be trained on as part of the implementation process. (Even minor changes).

Recommendations

- Where operational information is shared down the chain of command by shift commanders, it is imperative they are well-trained and knowledgeable of the content, and intent of the SOG.
- Practice filling command support roles at smaller incidents to workout bugs and improve communications flow.
- Strive to always have a two-person command team (minimum) at working structure fires to manage mental workload.
- Where using a radio repeater, ensure there is a means for “talk-around” and someone is monitoring that channel at all times.

Recommendations

- Ensure the commander has a way to know what resources are dispatched to an incident.
- When short staffed, crews should announce their staffing on arrival so command is aware.
- Develop and practice Mayday radio procedures. If you change radio channels, a second person should be designated to monitor the second channel.
- When assigning an operational channel, ensure all personnel and radios are on the proper channel.

Recommendations

- Develop and implement Automatic aid agreements with neighboring departments and have an effective means to callback off-duty personnel.
- Ensure the commander and operate in a quiet, distraction-free environment.
- Develop standard practices to reduce non-essential radio traffic.
- Use a standard radio cadence that identifies both the sender and receiver.
- Use full communications loop to ensure understanding.

Recommendations

- Establish an air replenishment station 1-2 floors below the fire so crews do not have to descent 6 stories to replenish air.
- Adopt an air management policy where crews exit prior to low air alarm activation.
- Involve dispatchers in training exercises and have them manage the radio communications as they would at a real fire.
- Develop and implement an extreme weather SOG.

Situational Awareness Matters!



Helping you see the bad things coming...
in time to change the outcome.

If I can help you in any way, please contact me:

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