Rapid Intervention

- You've carefully thought out all the angles.
- You've done it a thousand times.
- It comes naturally to you.
- You know what you're doing, its what you've been trained to do your whole life.
- Nothing could possibly go wrong, right ?

Think Again.

Chris Forkner

Rapid Prevention

Goals and Introduction

- To better understand fire ground fatalities and injuries.
- To facilitate and implement personal accountability and awareness to reduce your chances of injury or death.
- Help with better decision making so that ***rapid intervention wont have to be used at all.***
- Standardization of working fire assignments within the department as well as mutual aid & automatic response.

Goals and Introduction

- Program will be focused on three key areas.
  - Current trends, and basic fireground realities.
    - Revising fireground assignments
  - Self awareness and survival skills.
  - Rapid Intervention Teams.

Current Trends

- Overall number of fires are down.
- Today's fires are burning hotter than in the past.
  - More synthetics in construction & furnishings.
  - Pre-fabricated lightweight trusses, held together with gussets that fail after a brief exposure to 800-1000 degrees F. Resulting in quicker collapse.
  - Buildings are less fire resistant.
  - Due to declining number of fires, firefighters have less fire ground experience.

Current Trends

- Young officers with less live fire experience.
  - Inability to "read" the fire building.
  - Inability to read signs of flashover and building collapse.
  - Inability to have a "command presence".
- Live fire training in acquired structures.
  - Lack of good burns, all burn building type evolutions.
- Personal protective gear is better than it ever has been before.

Statistics

Table 1. Leading Nature of Fatal Injury by Age (1990–2000)

Age	Burns/ Asphyxiation	Medical	Trauma	Other	Total
Under 21	23%	5%	70%	2%	100%
21–25	33%	6%	52%	10%	100%
26–30	46%	11%	43%	1%	100%
31–35	30%	17%	48%	5%	100%
36–40	**30%**	**34%**	**33%**	**4%**	**100%**
41–45	23%	47%	23%	6%	100%
46–50	10%	59%	22%	8%	100%
51–55	9%	66%	20%	5%	100%
56–60	3%	76%	19%	2%	100%
61+	4%	78%	16%	2%	100%

Sample size:	1,085
Valid entries:	1,052
Invalid entries:	33

Statistics

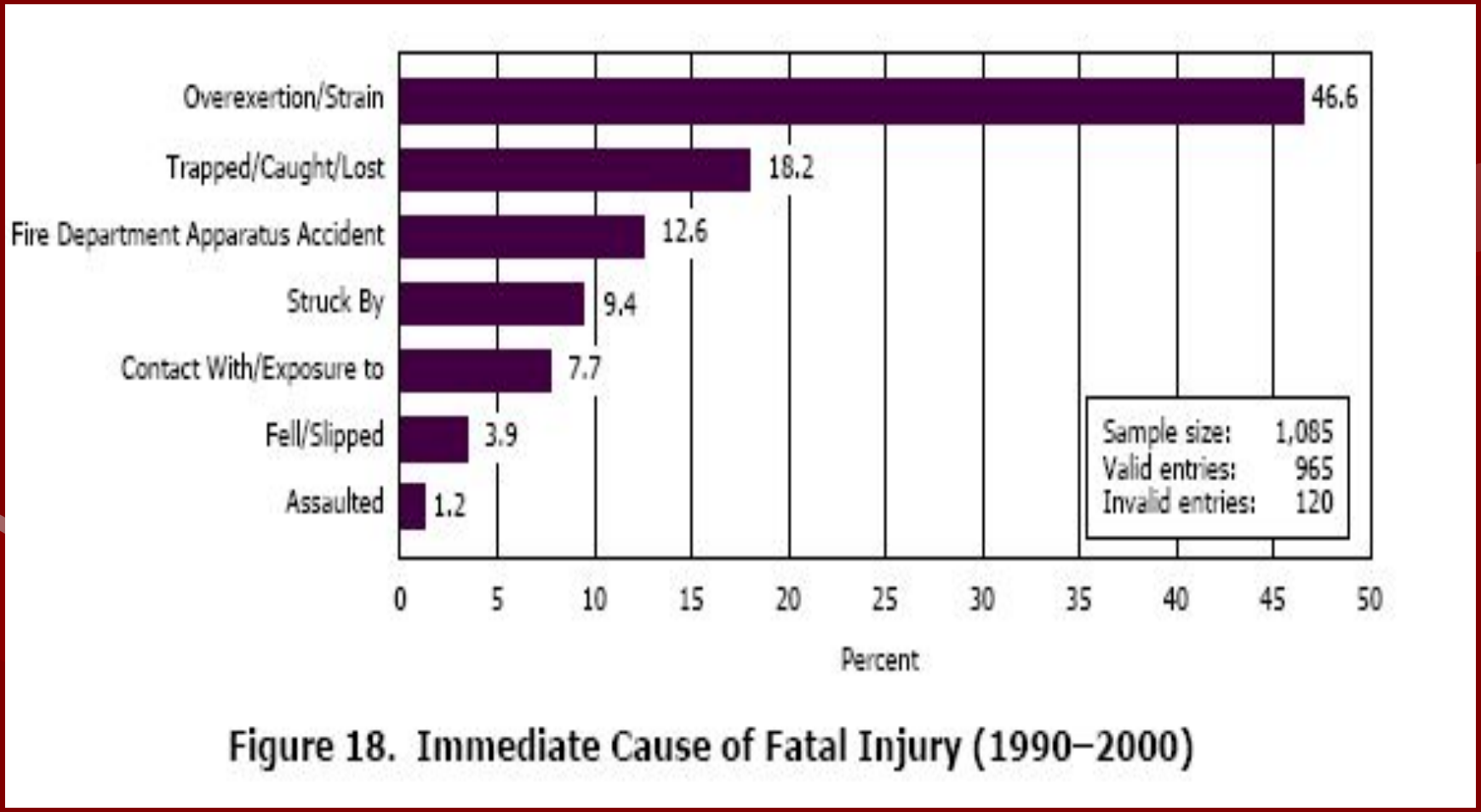


Figure 18. Immediate Cause of Fatal Injury (1990–2000)

Statistics

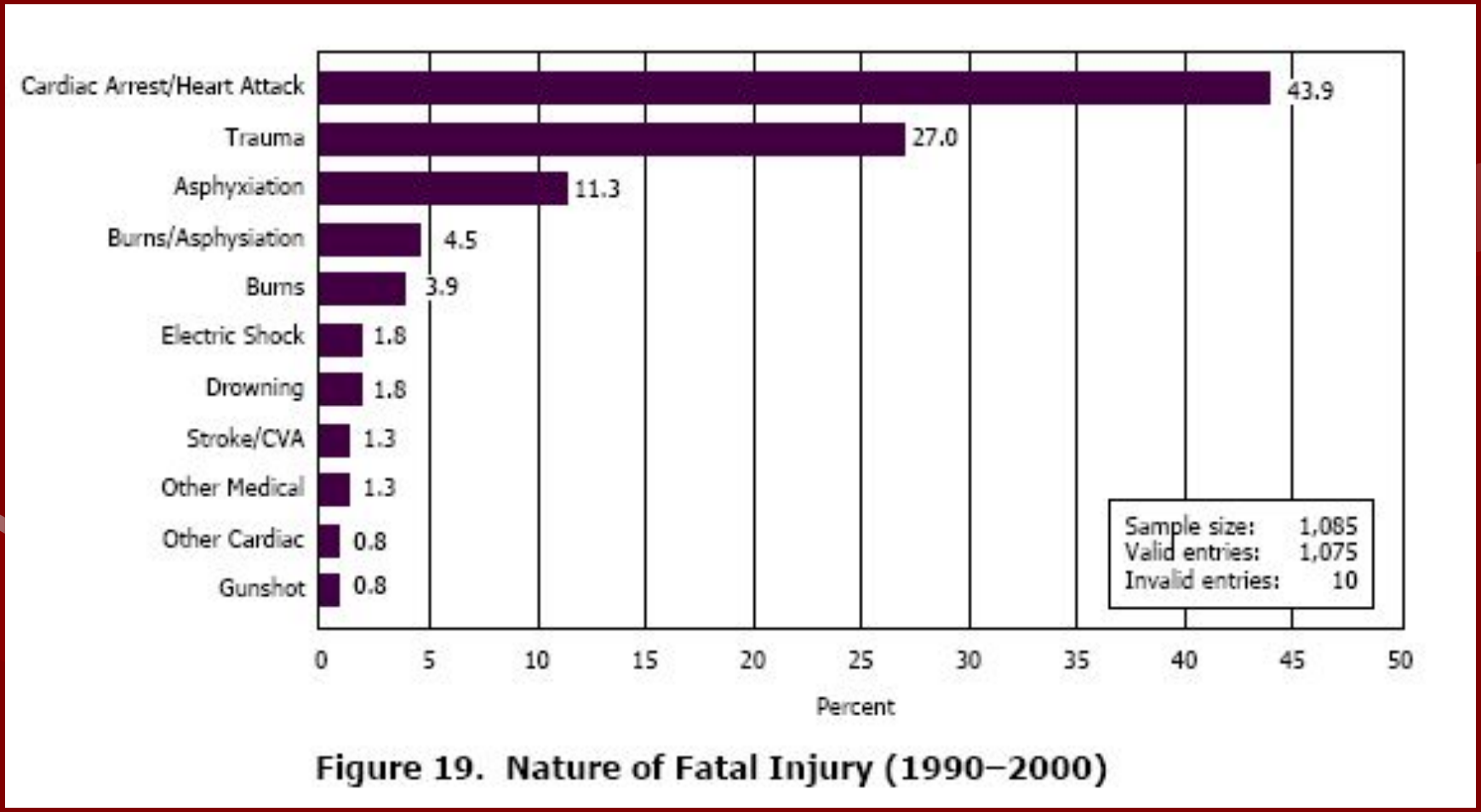


Figure 19. Nature of Fatal Injury (1990–2000)

Statistics

Table 11. Nature of Fatal Injury, Single- vs. Multiple-Fatality Incidents

Nature of Fatal Injury	Firefighters in Multiple-Fatality Incidents	Firefighters in Single-Fatality Incidents
Asphyxiation	32%	7%
Burns	12%	2%
Burns/Asphyxiation	15%	2%
Cardiac Arrest/ Heart Attack	1%	53%
Drowning	3%	2%
Electric Shock	3%	1%
Gunshot	3%	0%
Trauma	32%	26%
Stroke/CVA	0%	2%
Total	100%	100%

Multiple Fatality	
Sample size:	190
Valid entries:	188
Invalid entries	2

Single Fatality	
Sample size:	895
Valid entries:	886
Invalid entries:	9

Motor Vehicle Accidents

- MVC's 11.8% of fatalities for 1990-2000
  - Wear your seatbelt
  - Approach intersections with caution.
  - Implement driver's training programs.
  - In-charge people look after your folks.

Cardiac Arrest

- 1990-2000 Statistics cardiac arrest was responsible for 43.9% of fatalities.
- Overexertion & Strain was responsible for 46.6% as the immediate cause of fatal injury.
  - Consider placing an AED with the RIC or at the command post.
  - Have the support on scene to rehab working members.

Statistics

- Since 1977 Firefighter deaths are down 38%.
- However the rate of deaths per 100,000 incidents is up.
- So in reality our problems are going up.

1 ¾" Fire? Staffing issues?

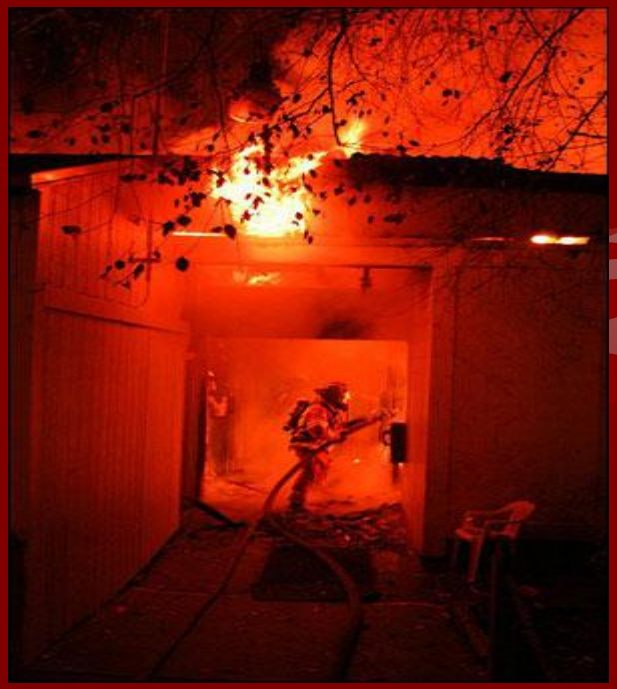
Back to the Basics?

- Why did we leave them in the first place?
- It's the fundamentals that carry us through successfully.
  - Firefighter Safety
  - Civilian Safety
  - Stop the Problem
  - Conserve Property

20 minutes later. Time checks at regular intervals?

Back to the Basics?

- Risk vs. Benefit
- What benefits are to be gained by committing firefighting personnel into a certain tactical operation under certain conditions?
- Slow down and take in what's going on…the emergency is *over* once we arrive.



Back to the Basics?

- Tactics
  - Attack
  - Search
  - Back-up
  - Ventilation
  - Exposures
  - Extension
  - Overhaul
  - Salvage

Oxygen cylinder explodes at “bread & butter” trailer fire.

Building Construction

- Understanding the elements that building components are likely to fail.
- Understand the effects of gravity on the fire building.
- Peaked roof operations.
- Parapets walls
- The forces of nature on the structure.

Building Construction

- Type I - Fire Resistive
- Type II – Non-Combustible/Limited Combustible
- Type III – Ordinary/Brick-and-Joist
- Type IV – Heavy Timber
- Type V – Wood-Frame
- Type VI – Hybrids ????

Building Construction

Rapid Prevention

Building Construction

Building Construction

ALERT FIRE BOX 14-7


E-321 ARRIVED
HEAVY SMOKE SHOWING


7 MINUTES AFTER ARRIVAL
MAYDAY IS CALLED
2 FIREFIGHTERS ARE DOWN

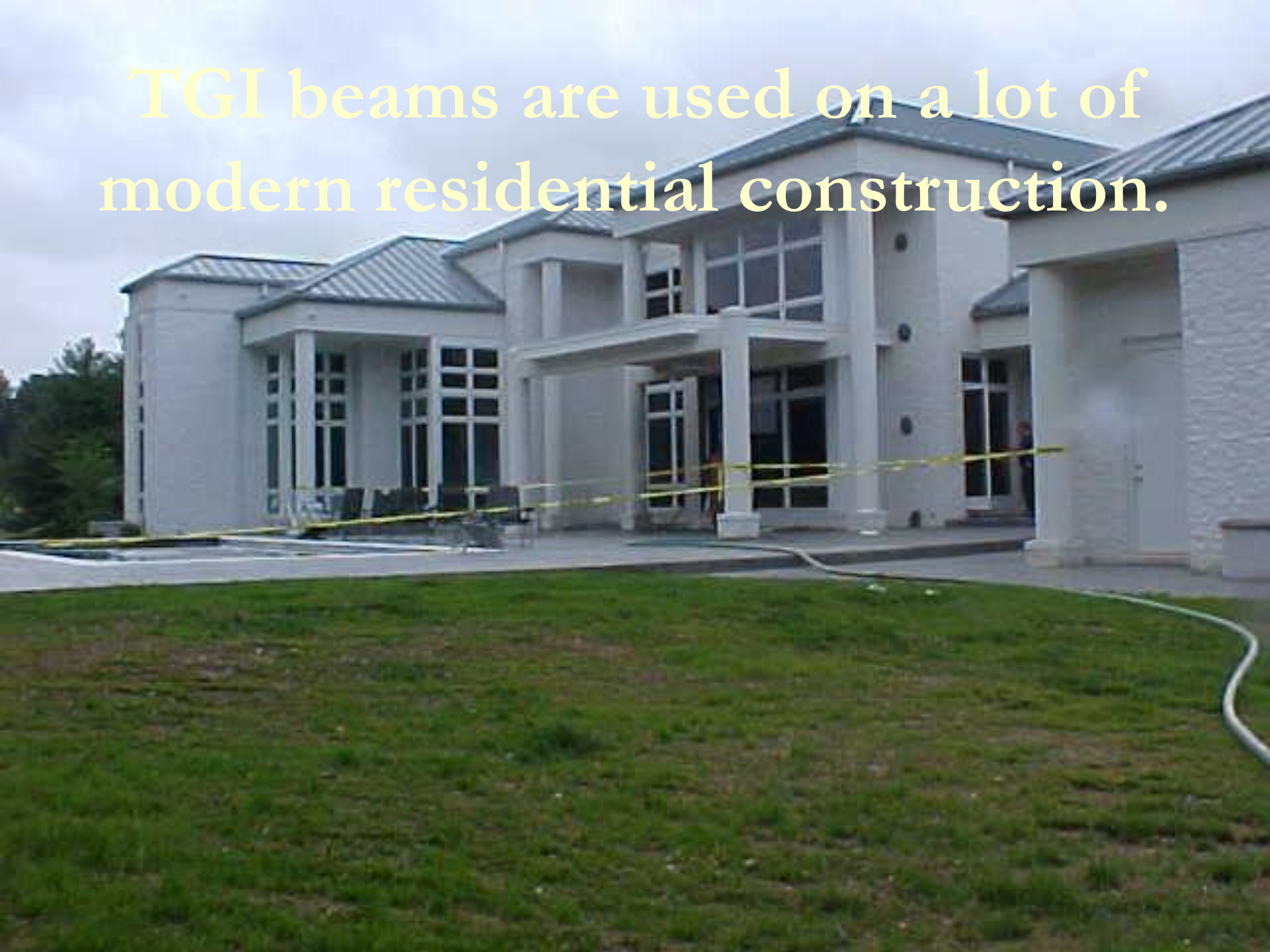

These are TGI beams,
Before a Fire.


This is what's left after a little fire impingement.


This is where the should be
hanging


And this is what happens when
they are gone.


FIRE LINE DO NOT CROSS


TGI beams are used on a lot of modern residential construction.


THIS COULD BE YOUR
NEXT FIRE.
BE CAREFUL!!!

Incident Size-Up

- Don't ignore incident size-up.
  - It's everyone's responsibility.
- Proper size-up begins at the time of call and continues throughout the whole incident.
- Be personally accountable for monitoring and communicating changing conditions.

Incident Size-Up

- What do we have?
  - Construction
  - Occupancy
  - Fire location & extent, smoke conditions, life hazards.

Incident Size-Up

- **Where is it going?**
  - **Fire travel**
  - **Smoke travel**
  - **Inside and outside conditions**

Incident Size-Up

- **Where are the people?**
  - **How do we get them?**
  - **How do we protect them?**
  - **How do we get them out?**
  - **Where are the firefighters?**
    - **Who's who, what, and where?**

Incident Size-Up

- **What do we need to do?**
  - **Offensive**
  - **Defensive**

COAL TWAS WEALTHS

Construction, Occupancy, Appliances & Staffing, Life Hazard, Terrain, Water Supply, Auxiliary appliances & aids, Street Conditions, Weather, Exposures, Area, Location & Extent of Fire, Time, Height, Special Considerations

Fire Behavior

- Get enough GPMs to override the BTUs
  - Do we have enough initial resources & the resources to deliver it?
- Specific incidents where proper water application had a direct outcome to the incident.
  - 23rd Street collapse in Manhattan, NY, 17 October 1966, which killed 12 firefighters. "Only Herculean efforts of the firefighters pushing back the fire with 2 ½ inch hand lines allowed rescue teams to reach the trapped firefighters…" preventing the loss of many more lives.

Fire Behavior

– Commercial Building fire, 12 March 1987, in which the Detroit, MI Fire Department lost three firefighters. “In an odd set of circumstances, an officer and a firefighter were killed by the collapse of a fire wall, and another officer was killed in a fall from a third floor window after being trapped by rapid fire spread.” The article points out that if it were not for aggressive fire stream application by an additional engine company this tragedy would have been greater.

Changing Fire Conditions

- Rollover-precursor to flashover, flashes of fire in the heated smoke.
- Flashover-total room involvement caused by thermal re-radiation, simultaneous ignition of the area.
- Backdraft-caused by combustion of a flammable gas-air mixture, the introduction of air into a confined space containing combustion gases, that are heated to their ignition temp.

Accountability

- SOPs & SOGs
- ICS
- Riding Positions
- Crew Integrity
- Crew Discipline

Personal Gear/Personal Accountability & Safety Equipment

- Lost or disoriented.
- PASS Activation.
- PPE, Gloves, Hoods, Helmet Straps, & SCBA Masks.
  - Don't view PPE as optional equipment!
  - Officers lookout for your people!
  - Lookout for yourself!

Thermal Imagers

- Remember to take them with you.
- Train with them regularly to understand the way objects look on ***your*** camera.
- Some objects may give false temp.
- Does not monitor air temp.

Communications

- Don't ignore communication problems or hazards.
- The fire ground is not the place to find out you have an interoperability issue.
- Relay important information to command.
- Notify command immediately when there is a problem.
- Many hesitate to call for help, you can always downgrade the response if it's not needed.

Staffing & Mutual Aid

- Limiting or ignoring resources.
  - Bring enough equipment soon enough so that all fire ground tasks can be accomplished.
  - Have mutual aid & automatic response where available.
    - If not for your customers. ***DO IT FOR YOUR PEOPLE!***
    - Personality Based Mutual Aid IS ***WRONG!***

Possible Changes

- Increased response initially on "good calls of fires".
  - Proposed change to add 2 Engines & Chief to all "A" and "B" assignments.
- Medic units assisting with sector & command responsibilities.
- Utilizing a back-up line.
  - Disciplined crew with extra "firepower" in the event that the first line gets in trouble.
  - This crew does not actively seek out fire it actively monitors conditions and protects interior crews.
  - Placement of additional crews within the action area or a "forward staging area"

Possible Changes

- 20 Minute callout is given after the call is received; not upon crew's arrival or the mark of a working incident.
  - This serves as an ***accountability*** report.
  - As well as an ***air*** report.
    - In charge people check on your people.
    - People check on YOUR air!
    - Have the crews in the "forward staging area" relieve crews before the bell tolls.

Possible Changes

- Propose a downgraded response on service runs.
  - Update a what's "hot" & "what's not" policy.
  - First due crews respond, Other crews advance in on a "cold" response.
    - Slow down after nothing showing.

Mayday vs. Urgent Transmissions

- Urgent or Emergency Traffic
  - Demands radio silence and the problem may be remedied by the person making the call or those in the immediate area.
    - Minor S.C.B.A. leak
    - Minor entanglement
    - Firefighters exiting building on SCBA low-pressure alarms
    - Investigate an active PASS
    - Investigation of an unaccounted firefighter

Mayday vs. Urgent Transmissions

- Mayday
  - Demands radio silence, firefighters in immediate area can try to assist, activation of RIT required.
    - Lost FF on SCBA low-air alarm
    - Difficult entanglement
    - Complete loss of SCBA air
    - Lost FF due to confusing room configuration, vast room size, or collapse cutting off the exit

Self-Rescue Scenarios

- **Entanglement**
- **Wall Breach**
- **Think, not only forcible entry, but *FORCIBLE EXIT!***
- ***Rope slide***
- ***Hose slide***
- ***Think and work on getting yourself out!***
- ***Ladder Bail-Out***

Firefighter Removal Methods

- **Conscious**
- **Unconscious**

Rescue Scenarios

- Floor Collapse
- Confined Space
- Above Ground
- Below Ground Level

Commanding RIT Operations

- Extra companies needed
- Different channel for suppression operations
  - Keep rescue ops on original channel
- Don't abandon the firefight
- Have fresh crews ready

Tools & Equipment

- RIT Staging List-1 Officer & 3 Firefighters Min.
  - RIT Tarp (tool placement)
  - S.C.B.A./face-piece (each member)
  - S.C.B.A.-complete w/face piece or RIT bag
  - Search Rope 200-ft. Team Search, Kevlar rope with tag lines & strobes
  - Thermal Imager
  - Attic Ladder
  - Hand Line (Separate water source?)
  - Spare bottles
  - Irons (Flat-Head Axe/Halligan)
  - Hand Lights
  - Stokes Basket
  - Portable Radios
  - RIT Rope Rescue bag (Through the floor/window & ladder scenario)
  - Defibrillator
  - Get clipboard (stopwatch, reference sheets, graph paper)

Items to know!

- PASS Device
- Buddy System
- Exiting with a hose line
  - Coupling direction
- Operating without a hose line
  - VES?
- Search Lines
- Emergency Breathing Procedures
- Personal Escape
- Wall Breach

THE T.E.A.R PRINCIPLE

- T-Team Leader
- E-Extrication
- A-Air
- R-Rope

TEAM LEADER

- Communicates progress and receives orders from command.
- Provides guidance to the team members including the way out to the ffs dragging the downed ff.

EXTRICATION

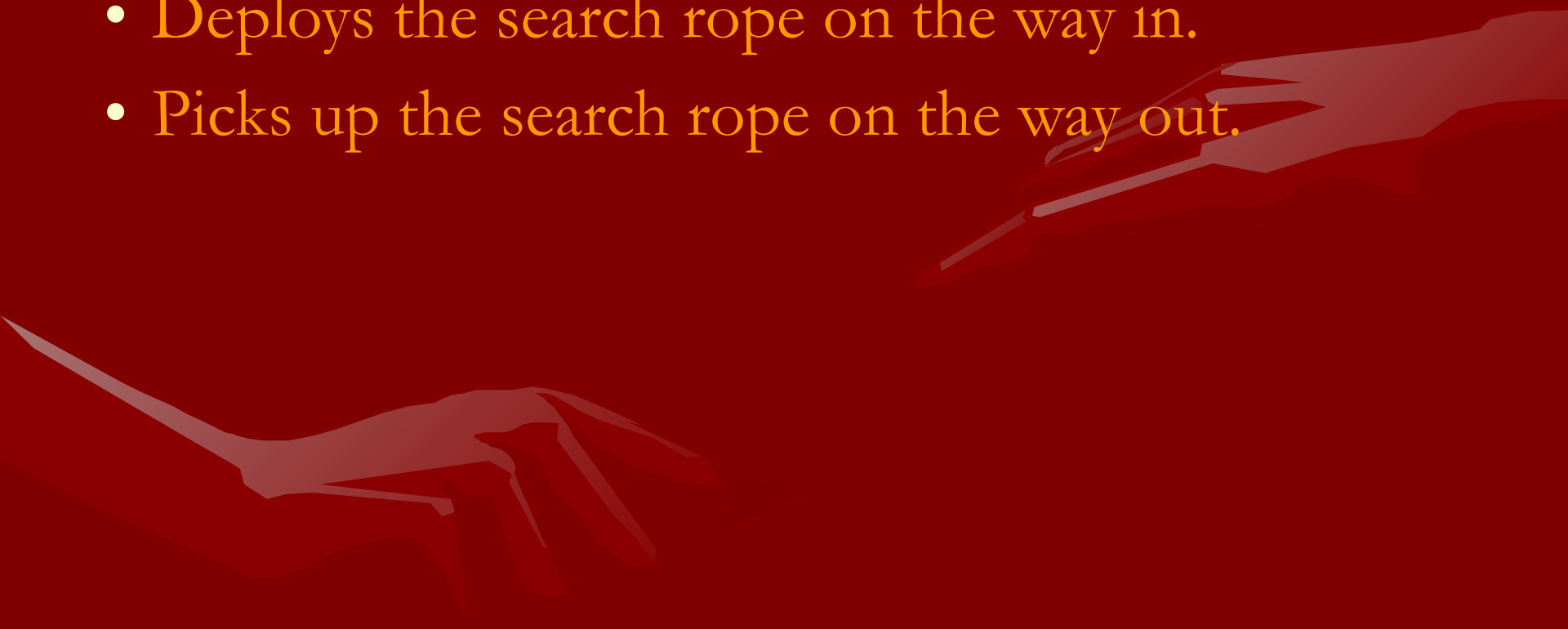
- Carries irons or other tools suspected to be of need.
- Carries wire cutters.
- Frees the downed ff from obstructions and restrictions.
- Assists with the air bottle switch over and ff removal.

AIR

- Carries an extra air supply, pack or air bag (depending on the department).
- Ensures the downed ff has an adequate air supply and switches the air supply if needed.
- Helps remove the downed ff.

ROPE

- Carries the search rope.
- Deploys the search rope on the way in.
- Picks up the search rope on the way out.



Commercial/High-Rise Structures

- Multiple teams
- Staging areas within the structure
- Multiple companies operating
- Greater potential for getting lost or disoriented

Questions/Comments

Remember safety isn't just for the fireground.