Rescue

The forgotten requirement within the Standard

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Justin Brown
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“You Can’t Learn if you think you already know”
Epictetus

- It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so.”

- Maybe Mark Twain-

George Stallings

VP Sales- Sales Solutions Inc

- OSHA 500, QSSP, Competent Person Fall Protection Train the Trainer, Sprat 1, CPMR, 31 years Safety/Fall Protection

- Justin Brown
- Territory Manager AL/TN
- OSHA 500
- Comp Person Fall
- Comp Rescuer

Why are we here?

Falls happen!

- Key Fall Statistics

Total Fall Fatalities 865

120 from Same Working Surface

37% of all Falls to a Lower Level, were from 15’ or less

240,000 Fall Injuries

50% of all Fall Fatalities are from Traumatic Brain Injuries

Fall Fatalities Last 5 Years

2018-791
2019-880
2020-805
2021-850
2022-865
Total 4,191 People Killed From Falls

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"With those members here on the team, they had to utilize special equipment to be able to ascend to the height of roughly 160 to 180 feet," Baltimore City fire spokesperson Kevin Cartwright said.

Thirty to 40 special operations personnel responded, according to Baltimore City Fire Department.

"It was necessary for us to request additional main power and resources such as our special operations command unit that specializes in high-angle aerial rescue," Cartwright said. "They were able to secure him, put him into a stoke basket, strap him in and lower him to the ground level."

Misconceptions about rescue plans and execution

- Its difficult
- Its complex
- Its better left to highly trained rescue teams
- I can just call 911
- My local fire dept knows what to do
- My people will not fall
- Its never happened on my facility/job site

Reality- A rescue plan

- Can be Simple
- Can be get a ladder
- Can be get a lift
- Is the Law
- Must be Planned
- Must be Communicated
- Must Be Praticed

Law

- OSHA 1910.14(c) (21)
- The employer MUST provide for prompt rescue of each employee in the event of a fall.

- Appendix C 1910 Non-Mandatory Guidelines:
- (h) Rescue Considerations. When PFAS are used, special consideration must be given to rescuing an employee promptly should a fall occur. The availability of rescue personnel, ladders, or other rescue equipment needs to be evaluated since there may be instances in which employees cannot self-rescue (e.g., employee unconscious or seriously injured). In some situations, equipment allowing employees to rescue themselves after a fall has been arrested may be desirable, such as devices that have descent capability.

Law

- OSHA 1926.502 (d) (20)
- The employer shall provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves.

OSHA & ANSI Rescue Regs

Prompt Rescue… What does that mean?

Anchor PT Requirement for rescue- 3000 # or ?

Rescue Plan… Call 911 ?

ANSI

Rescue- 6 min

Anchor 3100

2 person 620 LBS

Components of Fall Protection Systems

1926.502(d) – Personal Fall Arrest Systems (PFAS)

H-Helmet
A - Anchorage/anchorage connector
B - Body wear
C – Connection /Device
R-Rescue

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Certified vs. Non-Certified Anchorages

- **Fall Arrest**
  - **Certified**: 2x Max Arrest Force (MAF) → generally simplified to 3,600 lbs.
  - **Non-Certified:** 5,000 lbs.
- **Work Positioning**
  - **Certified:** 2x Foreseeable Force
  - **Non-Certified:** 3,000 lbs.
- **Fall Restraint**
  - **Certified:** 2x Foreseeable Force
  - **Non-Certified:** 1,000 lbs.
- **Rescue**
  - **Certified:** 5x Applied Load
  - **Non-Certified:** 3,000 lbs.
- **Horizontal Lifeline**
  - **Certified only:** 2x MAF

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Suspension Trauma Relief Straps

- Device used to mitigate the effects of suspension trauma and dramatically increase allowable rescue time
- Can be added to other harnesses
- Only effective for conscious fall victims
  - Unconscious fall victim will not be able to deploy these devices
  - Not considered rescue

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Suspension Syndrome

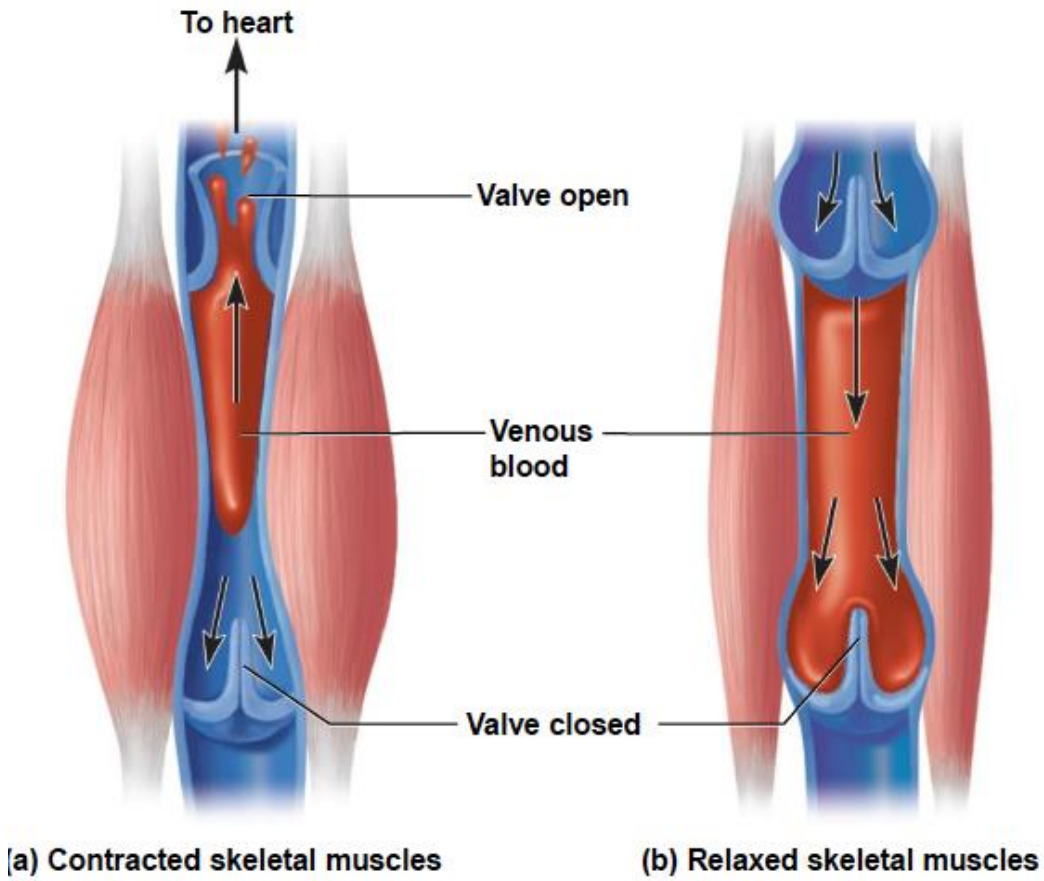
- Suspension Trauma
- Orthostatic Intolerance
- Rapid and unpredictable
- All those ‘working at height’ must be trained in how to recognize, manage and prevent suspension trauma
- Rescue Plan OSHA 1926.502 (d)(20):
  - “The employer shall provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves.”

Lower Extremities

- Average Human:
  - 10 Pints of Blood
  - 2 Pints normally in the lower extremities while standing
- The lower extremities can hold up to 60% of the total blood volume

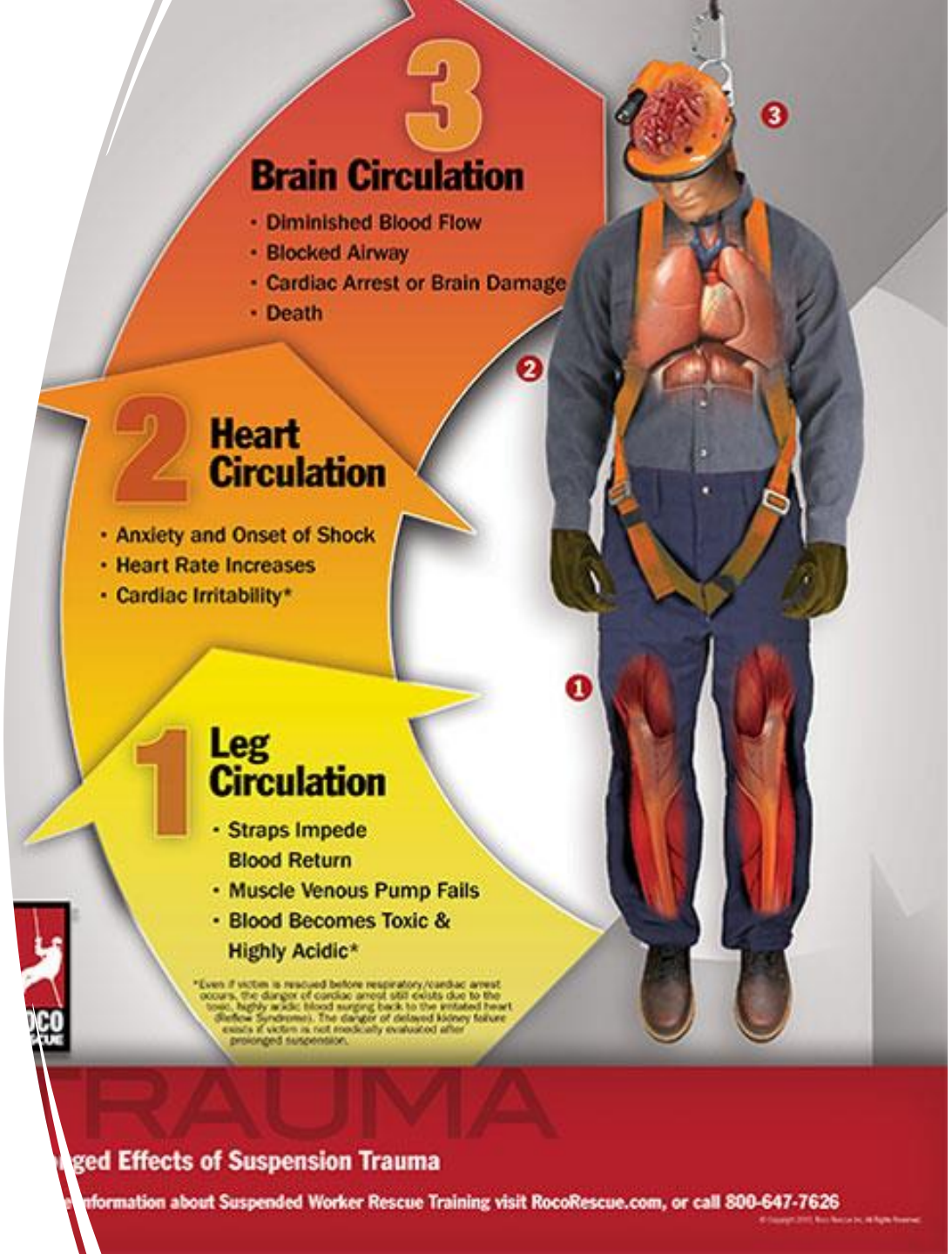
Muscular Pumps

The veins in your legs are entwined within the skeletal muscles, and when you move your legs, these muscles squeeze the veins, pushing the blood out forward (up)



But what if its not pumping?

- If the muscles are not pumping the blood upwards, it pools in your legs
  - You can ‘lose’ several pints and go into shock
- After a few minutes, it goes for the last-ditch method…



Suspension Trauma Effects

- Also called harness hang syndrome or suspended orthostatic shock
- Post-fall arrest concern
- Can lead to loss of consciousness
- Time and capacity to sustain varies between individuals
  - Prompt rescue time is critical
- OSHA technical bulletin states 30 min maximum suspend before fatal window after a fall event.

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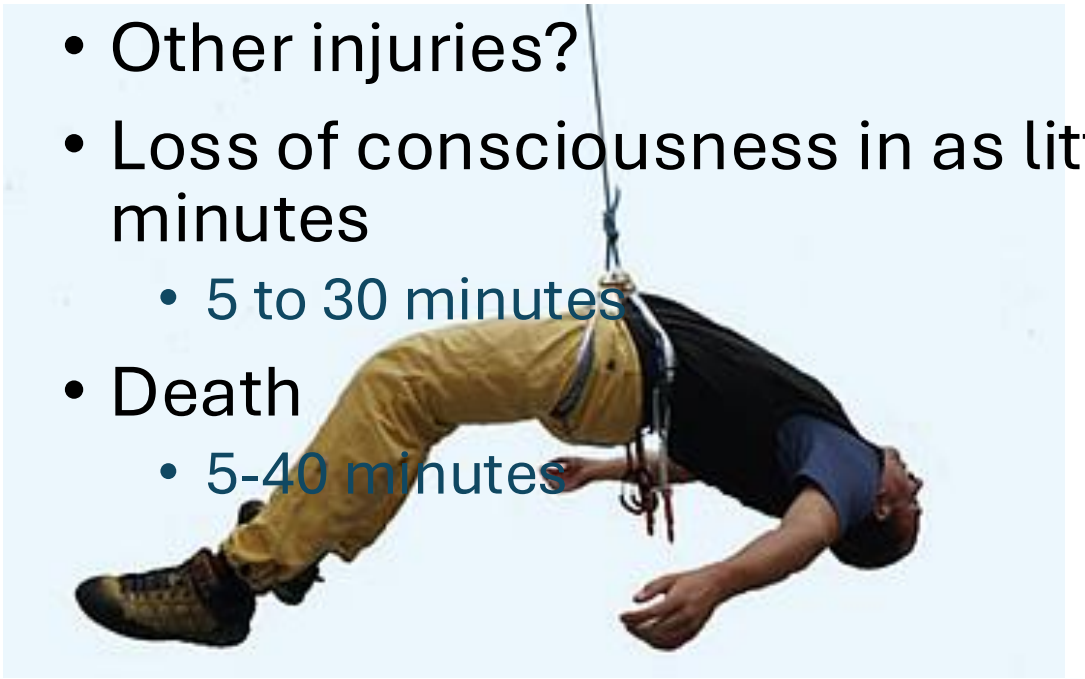
How long is too long?

- Uninjured volunteers felt dizzy in as little as 3 minutes
  - 5 to 20 minutes
- Other injuries?
- Loss of consciousness in as little as 5 minutes
  - 5 to 30 minutes
- Death
  - 5-40 minutes

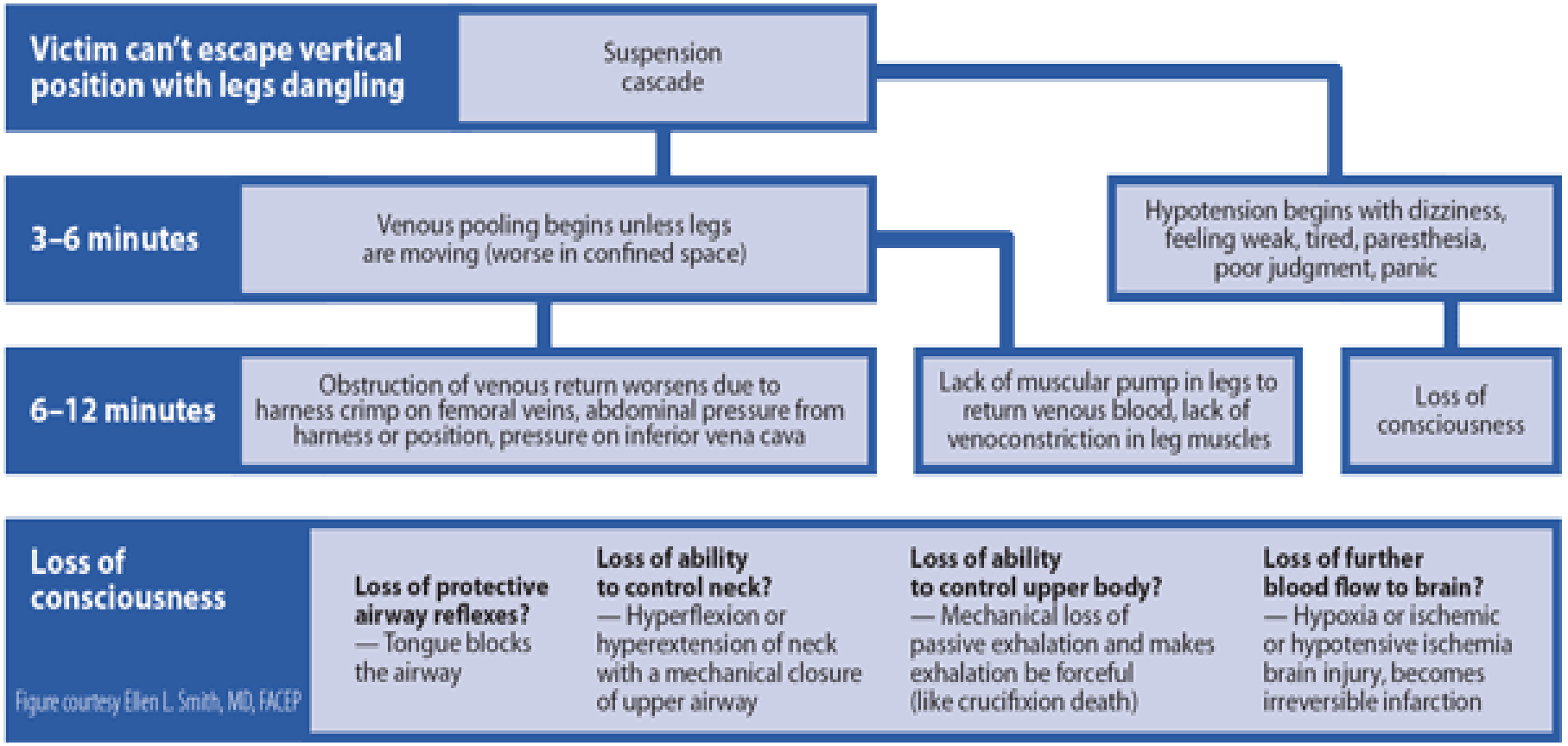


Rescue From Fall Protection

- If the patient is responsive, coach to exercise legs in an attempt to circulate the pooling blood
- Adjust angle of inclination
- Stand or deploy footloops if possible
- Lower rapidly

Human Response to Prolonged Suspension

Figure 1: Rapid cascade of events during suspension trauma



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Suspension Trauma Scenario: Crane Collapse

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Suspension Trauma Scenario: Crane Collapse

Suspension Trauma: Recovery Position

The onset of suspension trauma symptoms can occur in as little as three minutes.

A sitting or squatting recovery position is the recommended position to place a victim, after rescue from suspension trauma.

Recommended for at least 30 minutes

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Rescue Planning

What is your plan?

Did you communicate?

Did you Practice?

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Developing a Rescue Plan

- Implementing a program to arrest the fall is only half the job
- Effective plans do not need to be elaborate
- Effective plans DO need to be prompt! Time is critical. Prompt!
- Rescues are a team effort, so involve others. Predesignate roles

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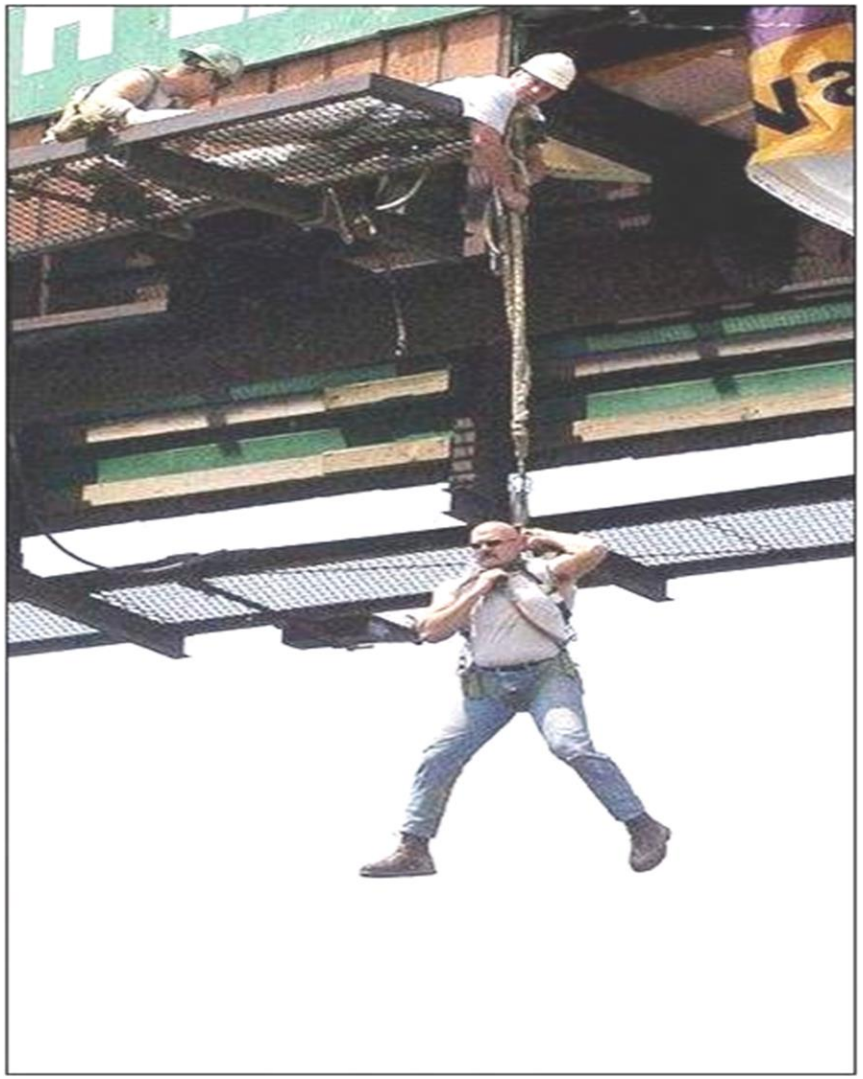
Developing a Rescue Plan



Identify the emergencies that could affect your site.
- Pre-Planning, JHA, continuously.

- Establish Roles and Responsibilities
  - Authorized, & Competent Rescuer

- Establish procedures
  - Who is doing What? When? How?

- Identify critical resources and rescue equipment.
  - Boom Lift, basket, decent device, others

- Training AND Practice the plan
  - Training required and practice the plan.

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Developing a Rescue Plan

Identify critical resources and rescue equipment.

Prompt rescue won't happen without trained responders, appropriate medical supplies, and the right equipment for the emergency.

- ✓ **First-aid supplies -** medical supplies for common injuries. Does your site have a first-aid kit for injuries that are likely to occur from a fall? Is anyone trained to administer first aid?

- ✓ **Rescue equipment.** Identify on-site equipment that responders can use to rescue a suspended worker. Extension ladders and mobile lifts are useful and available at most sites. Determine where and how each type of equipment would be most effective during a rescue. Make sure the equipment will permit rescuers to reach a fall victim, that it's available when rescuers need it, and that rescuers know how to use it.

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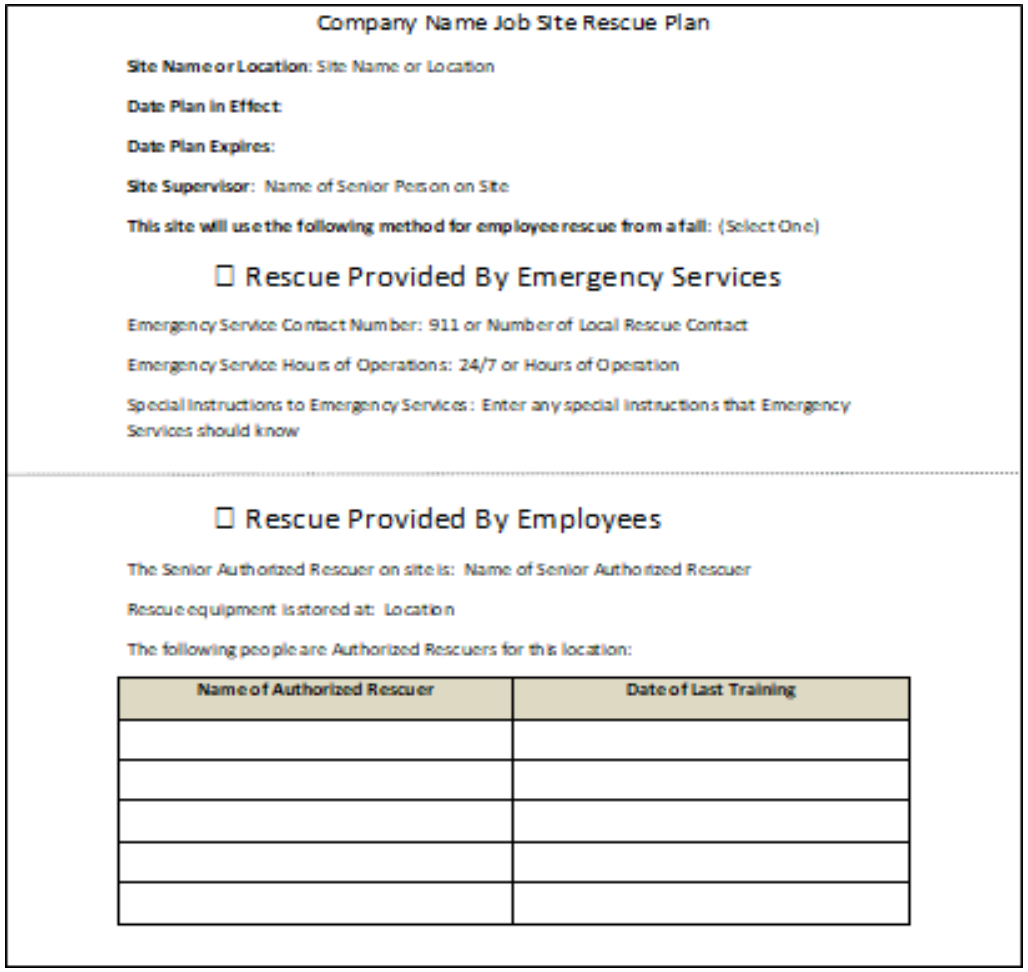
Developing a Rescue Plan

- Every job site must have a documented rescue plan before work begins
- Self-rescue isn't a guarantee in the event the victim loses consciousness in the fall
- If the employer relies on emergency services, they must ensure that:
  - They can be onsite quickly.
  - They are trained and have the equipment to perform rescue.
  - Discussed prior to use(availability, scope)



Company Name Job Site Rescue Plan

Site Name or Location: Site Name or Location

Date Plan in Effect:

Date Plan Expires:

Site Supervisor: Name of Senior Person on Site

This site will use the following method for employee rescue from a fall: (Select One)

☐ Rescue Provided By Emergency Services

Emergency Service Contact Number: 911 or Number of Local Rescue Contact

Emergency Service Hours of Operations: 24/7 or Hours of Operation

Special Instructions to Emergency Services: Enter any special instructions that Emergency Services should know

☐ Rescue Provided By Employees

The Senior Authorized Rescuer on site is: Name of Senior Authorized Rescuer

Rescue equipment is stored at: Location

The following people are Authorized Rescuers for this location:

Name of Authorized Rescuer	Date of Last Training

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Facilities Management
Occupational Health and Safety

FALL PROTECTION JHA and RESCUE PLAN

COMPETENT PERSON EVALUATION / PROJECT INFORMATION		
Evaluation Conducted by	Project	Date Issued
Subcontractor	Subcontractor Phone	End Date (1 week max)

SCOPE OF WORK / DESCRIPTION OF ACTIVITY
What tasks and work areas are associated with the hazards? Identify the equipment, materials, and processes addressed by this analysis.

HAZARDS AND CONTROLS
What is the fall distance/exposure to the next lower level? What controls have been established (guardrails, PPE, etc.)?

If the work cannot be performed as defined in this analysis, or if unexpected conditions are encountered, stop work and review with the competent person. Additional hazard controls may be warranted.

FALL HAZARD ANALYSIS AND BRIEFING CHECKLIST INSTRUCTIONS		
Use this checklist in your evaluation and as the talking points in the daily briefing to identify the controls established for the elevated work. The briefing and checklist requirements must be reviewed, verified and communicated to the workers on a daily basis, prior to the start of work daily. If the scope of work or location changes reevaluation by the Competent Person is required.		
1. Identify all fall hazards:		
□ Roof Work (within 15 feet of edge	□ Unprotected Stairways	□ Ladders (portable or fixed)
□ Roof penetration or Skylight (work within 15 ft of unprotected opening)	□ Wall or floor openings (work within 6 ft of unprotected wall or floor opening)	□ Aerial lifts, Scissor lifts and elevating work platforms
□ Scaffold erection / disassembly	□ Leading edge	□ Steel erection
□ Other Describe:		
2. Method of fall protection to be provided:		
□ Passive (guardrail or hole cover)	□ Fall Restraint	□ Ladder Safety Device
□ Positioning System	□ Personal Fall Arrest (PFAS)	□ Warning Lines
□ Comment:		
3. Fall Protection Equipment required (OSHA and ANSI compliant), if applicable:		
□ Anchorage Connector	□ Full Body Harness	□ Restraint Lanyard
□ Shock Absorbing Lanyard	□ Self Retracting Lanyard (SRL)	□ Leading Edge SRL
□ Twin Leg Lanyard	□ Rope Grab	□ Safety Nets
NOTE: The Competent Person must confirm systen selection and compatibility.		
4. What anchor are you using?, if applicable		
5. Identify the method of falling object protection below the elevated work:		
□ Guardrails / Barricades	□ Snow Fence or Mesh	□ Toeboards
□ Hard Hats Required	□ Warning Lines	□ Danger Tape
□ Caution Tape	□ Warning Signs	□ Attendant Posted
□ Tool Tethers or Lanyards	□ Other Describe:	

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Facilities Management
Occupational Health and Safety

FALL PROTECTION JHA and RESCUE PLAN

RESCUE PLAN

Contacts	Rescue Equipment	**Critical Rescue Factors**
Competent Rescuer(s):	□ Ladder □ Rescue Pole □ Rescue Rope □ Scaffold □ Crane	Where is an anchor point for rescue?
FOR EMERGENCY RESCUE CALL CHARLOTTESVILLE FIRE DEPARTMENT 911	□ Aerial Lift □ Alternative lifting & lowering device	Where is Landing Area?
Emergency Contact(s): **911 should be your 1st call!**	□ First Aid Kit □ Life Ring	Are there any Rescue Obstructions or Hazards?
Method of Contact □ PA □ Verbal / Face to Face □ Radio Channel _____ □ Phone _____ □ Other _____	**Location of Equipment** □ Jobsite □ Gang Box □ Tool Box □ Other	

Check for YES	Comments
□ Have alternatives to using fall arrest equipment been considered?	
□ Has rescue equipment been inspected and in good shape?	
□ Is equipment adequate for the rescue plan?	
□ Have communication devices been identified, located, and tested?	
□ Are all rescuers familiar with the use of the rescue equipment?	

Describe the tasks that will be done prior to work to prevent a fall and the step-by-step process to be followed in the event of a fall.

Pre-Work Tasks

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Response Procedure

1. Call 911
2. Rescue
3. Medical assessment of person
4. If possible have employee perform self rescue
5. _____
6. _____

Using Employees for Rescue

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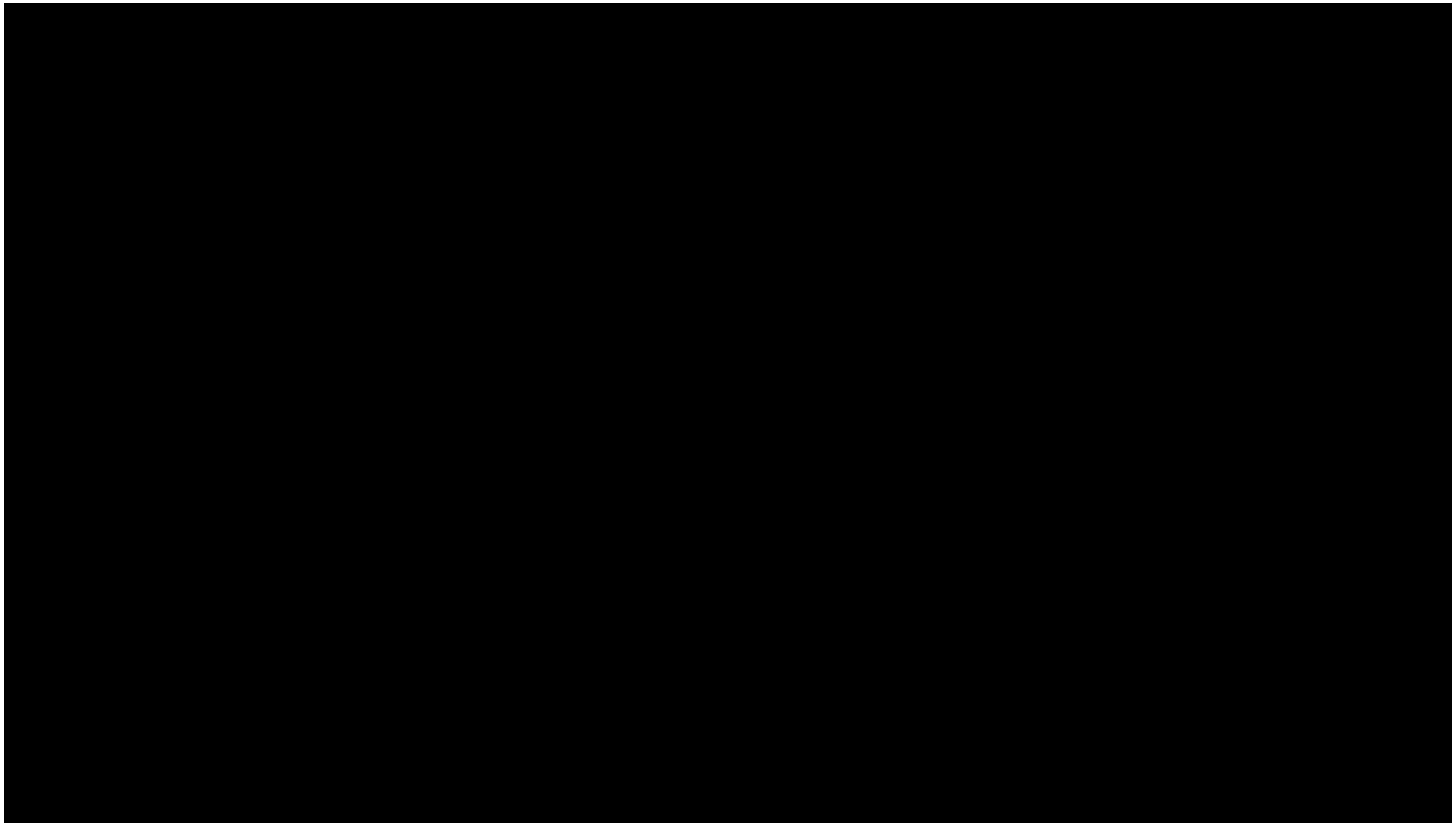
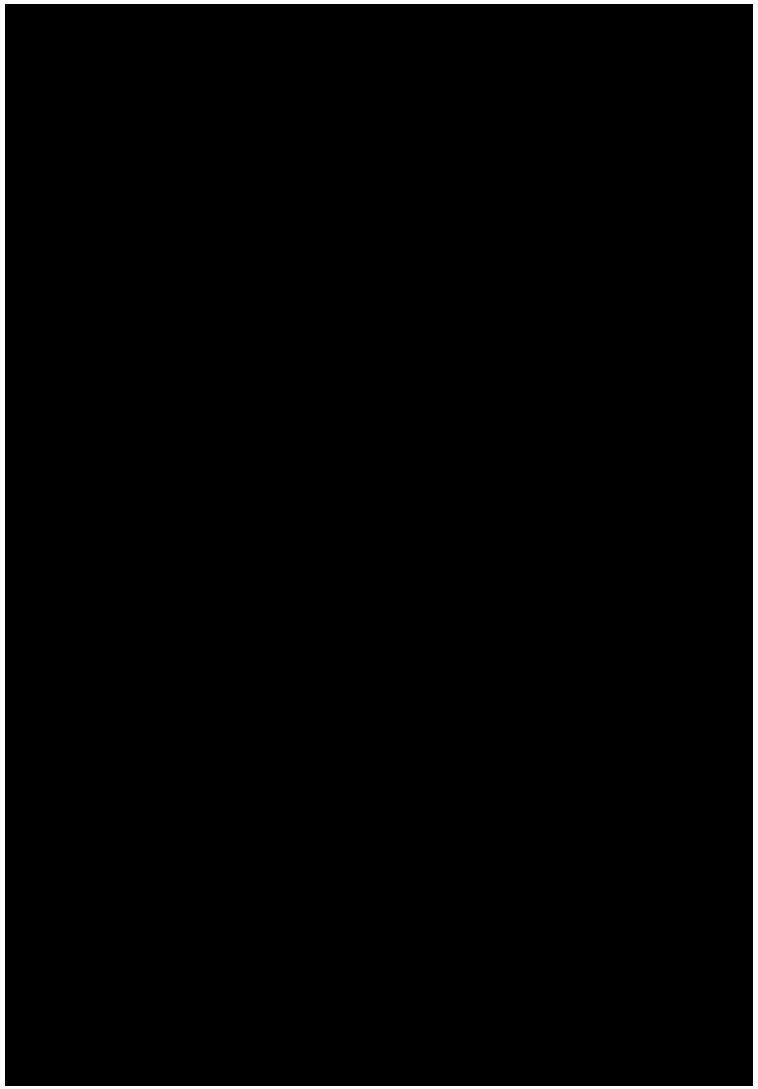
Rescue Equipment for your Plan


KASK





Rope Access

Using Employees for Rescue

If the company relies on employees to perform rescue, they should:

- Designate an experienced Competent Rescuer who is an individual designated by the employer who, by training, knowledge and experience is capable of the implementation, supervision and monitoring of the employer's fall protection rescue program.
- Designate Authorized Rescuers who have been trained by a Competent Rescuer on rescue equipment and procedures.

Using Emergency Services for Rescue

- In order to rely on emergency services for rescue, you should ensure they:
  - Can reach the location of the worker in a timely manner. (15 minutes or less)
  - Must be on duty and aware of their role the entire time work is being performed.
  - Must have the equipment and training required to reach the worker- Preplan
  - Have backup capacity to respond in the event another emergency is occurring.
  - Are informed of the hazards of suspension trauma..

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When an Emergency Occurs

- First responders should clear a path to the victim. Others should direct emergency personnel to the scene. You can use 911 for transport ambulance service; however, most 911 responders are not trained to rescue a worker suspended in a personal fall-arrest system. Make sure only trained responders attempt a technical rescue.

- Prohibit all nonessential personnel from the rescue site.

- Talk to the victim; determine the victim's condition, if possible

- If you can reach the victim, check for vital signs, administer CPR, attempt to stop bleeding, and make the victim comfortable

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After an Emergency Occurs

- Report injuries to OSHA in appropriate required times after an injury occurs.
- Identify equipment that may have contributed to the emergency and put it out of service. Have a competent person examine equipment. If the equipment is damaged, repair or replace it. If the equipment caused the accident, determine how and why.
- Review emergency procedures. Determine how the procedures could be changed to prevent similar events; revise the procedures accordingly.
- Fatalities are deemed a homicide and therefore nothing should be moved or removed from scene. Do not move or remove equipment involved in a fall until clear to do so. Document in detail who, where, what as soon as possible.

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RESCUE
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EMS

Questions

Thank you

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