



## Common Sense Technical Rescue

Qz`1`

The key takeaway concept from the Common Sense Technical Rescue Program is simple:

We risk a lot to save a life. If a life is in the balance and we can take immediate action in a manner that is safe for the rescuer and the patient, then we must perform a risk assessment and take proper action.

**USE COMMON SENSE**

**TAKE ACTION**

**MAKE A DIFFERENCE**

Many rescuers believe that they must hold a particular set of certifications and use a particular set of equipment to perform any technical rescue. To be certain, **a person must be trained in the skill they are attempting** and have practiced it in a controlled training environment previously. However, with training and limited equipment, common sense can be applied to many technical rescue scenarios. A common sense approach can be used to immediately make a rescue when the alternative of waiting for extended response deployments of a full technical rescue response will result in death.



Remember, your department's SOPs are there for a reason. We are not suggesting you should violate department policy or do anything that would put you in grave danger or risk of death. If we don't keep ourselves safe, we can't help anyone else. Again, the common sense approach is the best.

### Key Factors to consider:

- How long is the delayed response of the additional technical resources?
- Is the patient in an immediate life-threatening situation?
- Will the patient likely die if you do not take action?
- What is the risk to you or other rescuers if you do take action?
- What is your rescue action plan, and do you have the resources to support it?

- Full response time delay?
- Immediate life threat?
- Rescue Action Plan?
- Can you support the plan?
- Risk / Benefit?

Using the factors above, evaluate your risk benefit and decide on the best course of action.



## Common Sense Technical Rescue

### Car Into a Building

In many places, a car into a building is declared a building collapse. Initial actions are often limited to utilities and access control. Just as every fire is unique, so too is any vehicle into a building call. A quick look at social media will show us hundreds of different variables in this type of incident. In fact, a good way to test your on-scene assessment and rescue action plan development is to practice on these similar calls that others have faced.

Factor	Wait for the Response	Tough Call – Safety First	Use Common Sense and Make a Difference
<b>Victim</b>	Stable, Conscious and Alert – Or – Obviously deceased  (Triaged Green or Black)	Unknown  Unable to clearly identify condition or injuries	Clearly life-threatening injuries  Unconscious or wavering consciousness  (Triaged Red)
<b>Building</b>	Clearly unstable, actively collapsing  Concrete or other heavy material that could exceed available shoring capacity	Unfamiliar construction  Moderate weight, multiple floors involved	Lightweight, wood frame  Minor structural damage  Clear structural connection points to shore
<b>Vehicle</b>	Deeply embedded in unstable area	Potential fire conditions	Accessible with minor shoring
<b>Training</b>	No prior training in collapse of any kind	Some classes / experience with collapse	Certified in 1006 Collapse Operations
<b>Resources</b>	No shoring options at all	Some timber  Lightweight struts	Paratech Interstate kit  Moderate vehicle struts
<b>Policy</b>	Clearly a violation of department SOPs	Uncertain	Will not violate policy

A common sense approach to this scenario will rely on the past training and experience of crew members in collapse, building construction, extrication, and EMS. If the patient is critical or declining, then action is required. Capturing structure movement with appropriate stabilization resources will allow crews to move into the collapse zone and effect extrication or rescue of the patient(s). Remember, there are often victims trapped under the vehicle or wreckage, depending on key factors (time of day and function of area involved). This scene will require familiarity and comfort with stabilization equipment and airbags or other lifting options.



## Victim Suspended in Fall Protection

Most agencies don't have a specific policy or guideline for a victim suspended in fall protection. However, every agency has a high potential for this type of call. Any construction or maintenance worker more than four feet off the ground (six feet in construction) is required to have fall protection in place. As such, the opportunity to have someone suspended in their fall pro harness exists almost anywhere.

Factor	Wait for the Response	Tough Call – Safety First	Use Common Sense and Make a Difference
<b>Victim</b>	Conscious and alert, able to move legs and follow commands  No obvious injuries, simply suspended	Potential injuries that could cause a downward trend in condition  Conscious but not alert or able to follow commands	Obviously unconscious and unable to follow commands  Clear life-threatening injuries
<b>Access</b>	Beyond the reach of ground ladders available  Beyond the lowering span of available rope options	Within reach of rope available but hazardous climb or access route	Safe reach of ground ladders  Within the distance of life safety / bailout rope on hand
<b>Training</b>	No training in rope rescue or personal bailout system utilization	Limited training in ropes  Trained but uncomfortable with the scene as presented	Trained in NFPA 1006 Rope Rescue Operations
<b>Resources</b>	No rope equipment other than non-life safety utility rope	Rope available but no hardware options for lowering control (though ladder rungs can be an option)	Bailout bag / Personal escape systems with some hardware for decent control
<b>Policy</b>	Clearly a violation of department SOPs	Uncertain	Will not violate policy

A common sense look at a victim in fall protection is really focused on their level of consciousness. If the victim is unable to move, or specifically, move their legs, then they are truly in imminent danger and must be moved to a non-suspended state to avoid the effects of harness syndrome. This may mean moving them up to a landing or down to the ground. Access is the key component to developing a successful rescue action plan, which may require waiting for the additional resources. Don't make the simple mistake of missing the forest for the trees on this call, if you can reach the victim with a fire service aerial ladder or lift equipment on site, that's almost always going to be the best option. If not, ground ladder access and use of bail out systems are completely appropriate options to save a life.



## Common Sense Technical Rescue

### Victim Trapped / Heavy Lift

A victim trapped by a heavy object is treated differently from agency to agency. Some view this as a heavy lift and rigging situation that requires a heavy rescue response while others will rely on first due or light extrication companies to handle this call. One of the critical factors on this call will be the weight of the object causing the entrapment. Second to that will be the available lifting options on scene.

Factor	Wait for the Response	Tough Call – Safety First	Use Common Sense and Make a Difference
<b>Victim</b>	Stable, Conscious and Alert – Or – Obviously deceased  (Triaged Green or Black)	Unknown  Unable to clearly identify condition or injuries	Clearly life-threatening injuries  Unconscious or wavering consciousness  (Triaged Red)
<b>Load</b>	Very heavy or very unstable  No clear lift points or options to make positive contact	Light but unstable  Stable but heavier	Light to moderate load  Stable and clear lift point options
<b>Training</b>	No training in lifting or stabilization	Some classes / experience	Certified in 1006 Vehicle Machinery Extrication Operations
<b>Resources</b>	No options (struts, airbags, leverage tools, ground ladders)	Ground ladders  Short levers	Good options: airbags, stabilization struts, lifting struts, lever options, hydraulic spreaders, hilit jacks
<b>Policy</b>	Clearly a violation of department SOPs	Uncertain	Will not violate policy

In situations where heavy equipment or crane resources are available, common sense tells us to consider that in our rescue action plan development. A risk benefit analysis will include the operator's experience and state of mind, ability to have clear communications, and ability to make a controlled and safe lift. Aside from a heavy lifting option, companies should be familiar with any options in their cache. Specifically, rescuers should be skilled in the use of airbags, hydraulics, and rigging solutions. If extrication equipment isn't available, then leverage is the only option. A long lever on a proper fulcrum will provide the mechanical advantage to lift a great many things. Be aware of the lever's stability and where the object may move to unintentionally. Always consider the dangers of compartment syndrome and crush effects.



## Common Sense Technical Rescue

### Shelving / Scaffolding Collapse

While not high on the list of discussion topics yet, high rack shelving collapse is quickly becoming a very real concern in almost every metro hub in America. Warehousing has exploded with the growth of online fulfillment and with warehousing comes rows and rows of high rack shelving. When one of these shelves is damaged, overloaded, or compromised they fail in spectacular ways, entrapping anyone in the area.

Factor	Wait for the Response	Tough Call – Safety First	Use Common Sense and Make a Difference
<b>Victim</b>	Unable to locate No video footage or witnesses to pinpoint	Injured Heavily Entrapped	Known location Good communication
<b>Collapsed Shelving</b>	Multiple rows, heavy contents Additional utilities within shelving Sprinklers damaged and adding weight to entrapment	Difficulty delayering or tunneling access Heavy materials	Limited number of shelves involved Ability to delayer pile manually or safely tunnel and shore to victim
<b>Remaining Shelving</b>	Multiple units in danger of collapse Structural damage	Addition shelves in potential danger	Ability to access / shore additional shelving No signs of additional collapse threat
<b>Training</b>	No prior training in stabilization, shoring, or collapse	Some classes / experience with shoring / stabilization	Certified in collapse, stabilization, lifting, or combination of
<b>Resources</b>	No shoring options at all	Some timber Lightweight struts	Paratech Interstate kit Moderate vehicle struts
<b>Policy</b>	Clearly a violation of department SOPs	Uncertain	Will not violate policy

The first time you see a video of high rack shelving collapse, it can be hard to comprehend how to approach the rescue action plan for anyone trapped. In some cases, though, the shelving components fall in a way that spares a life. However, the victim will likely be injured and entrapped. In these incidents, the full technical rescue response will likely make it to the scene regardless because of the amount of work to be done. While the equipment will be needed, it's the manpower that will really be critical. The common sense approach here is focused on the rescue officers and command team. This type of incident can be overwhelming and will likely require significant command and control throughout the duration.



## Common Sense Technical Rescue

### Confined Space

Confined space should be considered a technical rescue requirement in any jurisdiction. Too many rescuers have been killed by entering dangerous confined spaces without proper equipment or training. In any event where the victim is not clearly accessible and in line of sight, the only choice is to wait for a technical response.

Factor	Wait for the Response	Tough Call – Safety First	Use Common Sense and Make a Difference
<b>Victim</b>	Stable, Conscious and Alert – Or – Obviously deceased  (Triaged Green or Black)	Unknown  Unable to clearly identify condition or injuries	Clearly life-threatening injuries  Unconscious or wavering consciousness  (Triaged Red)
<b>Cause</b>	Unknown  Atmospheric	Injury as a result of the features or equipment within the space	Injury from clear cause (fall, etc)
<b>Space</b>	Permit required	Non-permit but complex features	Simple space, Victim can be seen and accessed in direct route vertically or horizontally
<b>Training</b>	No prior training in confined space	Some classes / experience with confined space	Certified in 1006 Confined Space Rescue Operations
<b>Resources</b>	No airpaks  No utility or life safety rope  No -gas meter	Some combination of needed equipment but not all	Airpack (if needed) and clear understanding of rule of 1/3's  Rope for tagline / retrieval line  Device to remotely connect hauling system to victim  Calibrated 4-gas meter
<b>Policy</b>	Clearly a violation of department SOPs	Uncertain	Will not violate policy

Confined spaces can be deadly. Generally, this is an issue with atmospheric quality and a lack of monitoring. To be completely clear, if the air can't be monitored and confirmed safe, any entry would be an extreme risk. In addition, any permit space entry would be too dangerous for an operations level entry. In the case of an easily packaged or moved victim in a space with clear access, direct line of sight, and air monitoring in place, an operations entry can be safely made in compliance with both OSHA and NFPA. Even if the patient can't be rigged for a mechanical advantage removal, EMS care can be started while additional resources are put in place.



## Common Sense Technical Rescue

### Rooftop Rescue

In recent years OSHA has placed more strict requirements on fall protection in rooftop construction work. Nevertheless, people can be injured or have medical conditions while on a rooftop that require removal for treatment and transport. As before, a fire service aerial is likely the best option, if access allows. In other cases, there are several options for removal that do not require a full rope rescue team deployment. That said, complexities on the scene may dictate additional resources.

Factor	Wait for the Response	Tough Call – Safety First	Use Common Sense and Make a Difference
<b>Victim</b>	Stable, Conscious and Alert – Or – Obviously deceased  (Triaged Green or Black)	Unknown  Unable to clearly identify condition or injuries	Clearly life-threatening injuries  Unconscious or wavering consciousness  (Triaged Red)
<b>Building</b>	Greater than two stories	Two stories or less but other complexities complicate the operation	Two-stories or less with clear and free access
<b>Training</b>	No rope experience, never attempted ladder pivot or lower	Strong understanding of the principals but no previous experience or practice	Certified in 1006 Rope Operations -OR- Practical experience with the chosen operation
<b>Resources</b>	Ladder not long enough to reach  No rope options	No litter  Questionable angle on ladder or access concerns	Ground ladder of sufficient length for operation  Stokes or litter available  Utility or life safety rope available
<b>Policy</b>	Clearly a violation of department SOPs	Uncertain	Will not violate policy

Simple ladder pivots are a quick, safe, and very effective way to lower a person from a one- or two-story roof if aerial access is limited. A first due ladder will likely have a stokes stretcher or similar device to use for patient packaging. It is critical that proper packaging equipment be utilized as a standard plastic backboard is not designed for the forces that may be placed on the connection points in a pivot lower. If a litter is not available, a backboard lower may be possible if the ladder is long enough to allow for a good angle and tag lines are available to securely lower the patient.





## Tactical Medicine Quick Sheet

### SUSPENSION TRAUMA

#### Orthostatic Intolerance (Suspension Trauma)

**Common Incident Types:** Tower, High Angle, Fall Pro

**Summary:**

When a victim hangs motionless in a harness, the blood flow is restricted at the femoral arteries. This creates two issues. First, blood volume is progressively reduced, leading to hypovolemic shock. Second, the blood pooling in the lower limbs becomes increasingly acidic due to lactic acidosis.



**Signs & Symptoms:**

Shock-like symptoms (weakness, dizziness, unconsciousness)  
Pale / Clammy skin  
Weakness / Numbness in legs

**Treatment:**

If victim is conscious, have them move the lower legs (pump back and forth) a few times to reduce and relieve symptoms.

If victim is unconscious, **time is critical**. Patient must be removed from the restrictive environment within 5-15 minutes. Once lowered, treat for shock and hyperkalemia. Be prepared for unexpected cardiac arrest.

### BLEEDING CONTROL

Apply Direct Pressure (HARD pressure)



Pack Wound and Apply Pressure to Dressing



Apply Tourniquet and mark time



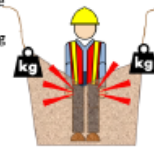
### CRUSH SYNDROME

#### Crush Syndrome

**Common Incident Types:** Trench, Collapse

**Summary:**

A victim with crushing pressure on the lower body or extremities for more than 20 minutes will likely be suffering from both hypovolemic shock and hyperkalemia due to restricted blood return from the extremities.



**Signs & Symptoms:**

Shock-like symptoms (weakness, dizziness, unconsciousness)  
Pale / Clammy skin  
Weakness / Numbness in extremities  
Extended entrapment under pressure

**Treatment:**

Prior to release of entrapment, IV NS wide open to promote diuresis and elimination of lactic acidosis.

If possible, consider applying tourniquet to effected extremity.

Treat for hyperkalemia if 12 lead ECG reveals wide QRS, peaked T-waves, arrythmias.