

2 EMERGENCY PROCEDURES



An emergency is an unplanned event that has the potential to harm the life, health, or safety of a person, or to damage the environment or public property.

Emergency Response Plan and Procedures

Every construction project needs an emergency response plan before work begins so that everyone is prepared in case of an emergency. Section 17 of the Construction Projects regulation (213/91) states:

17. (1) *A constructor shall establish for a project written procedures to be followed in the event of an emergency and shall ensure that the procedures are followed at the project.*
- (2) *The constructor shall review the emergency procedures with the joint health and safety committee or the health and safety representative for the project, if any.*
- (3) *The constructor shall ensure that the emergency procedures are posted in a conspicuous place at the project.*

Because the size and complexity of a project differs from site to site, the planning necessary for emergencies will also differ. An effective plan must take into consideration the items listed below.

1. Assessment/Hazard Identification

Identify hazards and assess potential risk by answering these questions:

- What can go wrong?
- What are the consequences?

2. Emergency Resources

Determine what resources are available for the hazards identified and assessed. Verify that 911 operates in area. If not, make alternate arrangements.

Maintain on-site resources such as fire extinguishers, spills containment equipment, and first aid kits. Outside help may be so far away that on-site resources are necessary, such as fire protection or ambulance and medical resources in remote areas.

3. Communication Systems

To relay accurate information quickly, use reliable communications equipment, develop procedures, and train personnel. A backup system is a good idea in case the emergency destroys phone lines, for example.

The type and location of emergency communication systems must be posted on the project. Emergency phone numbers and the site address/location should be posted beside all site phones. IHSA's *Emergency Response Poster* (P103) can be used to record this and other information (Figure 2-1).



Figure 2-1: Emergency Response Poster

4. Administration of the Plan

The person in charge of administering and organizing the plan must ensure the following:

- Everyone clearly understands their roles and responsibilities within the plan.
- Adequate emergency resources are available for each stage of the project.
- The plan is reviewed regularly and always after an emergency to correct any shortcomings.

5. Emergency Response Procedures

Before you begin work on a jobsite, make sure you are familiar with the emergency response procedures for that site. The Emergency Procedures chart (Figure 2-2) outlines standard emergency response procedures.

STOP and ASSESS the situation before performing any of the tasks. Stay calm to provide an example to others.

The site supervisor should be able to provide information about:

- Emergency warning alarms and codes
- Emergency telephone numbers
- Nearest hospital
- Rescue procedures
- Meeting or muster points
- Names of persons capable of administering first aid
- Location of emergency equipment such as fire extinguishers.

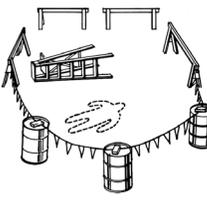
Emergency Procedures	
<p>1</p> 	<p>STAY CALM DO NOT PANIC. Your behaviour can influence others so staying calm will help the emergency response.</p>
<p>2</p> 	<p>TAKE COMMAND Call—or delegate someone to call—emergency services (911) immediately and explain the situation. Assign someone to meet and direct the ambulance to the location.</p>
<p>3</p> 	<p>ASSESS THE SITUATION Use extreme caution when approaching the scene to avoid being injured yourself. Try to determine what happened and what the emergency is. Try to eliminate or control the cause of the emergency to prevent further danger to the injured worker, to others, or to the property. Give first aid as soon as possible.</p>
<p>4</p> 	<p>PROVIDE PROTECTION Safeguard the area to protect others from being injured and prevent further losses. You may be called upon to help divert traffic, suppress a fire, prevent objects from falling, or shut down equipment or utilities.</p>
<p>5</p> 	<p>PRESERVE THE SCENE Do not disturb anything except to save a life, relieve suffering, or prevent immediate or further losses. Barricade, rope off, or post a guard at the scene to make sure that nothing is moved until the authorities have completed their investigation.</p>
<p>6</p> 	<p>FOLLOW PROCEDURES Follow the procedures outlined in your company's emergency response plan. Ensure that senior management is informed. They can contact the proper authorities, notify relatives, and begin the procedures for reporting and investigating the incident.</p>

Figure 2-2: Emergency Procedures

6. Communication of the Procedures

- Review the procedures with workers, subcontractors, and suppliers to ensure that it covers their activities.
- Review it with owner/client in operating plants to ensure that hazards are identified and covered.
- Review it regularly with JHSC or Health and Safety Representative to address new hazards or significant changes in site conditions.
- Post the procedures in a conspicuous location at the project (Figure 2-3).

When developing your plan, make sure it always reflects current conditions on the jobsite.

For more detailed information on developing emergency response plans, refer to the *Emergency Response Planning* booklet (B030) available from IHSA and the **Emergency Response Planning Checklist** at the end of this chapter.

For additional resources, visit the Emergency Preparedness web page in the **Policy and Program Templates** section of the ihsa.ca website:

ihsa.ca/resources/emergency_preparedness.aspx

Remember: Calling 911 by itself is not an emergency response plan. A plan should involve reducing the risk of further injuries and taking into consideration such things as:

- Proper access for emergency responders and vehicles
- The need to move a worker, if necessary, to a place where they can be attended to by emergency responders
- Designating a person to be in charge of the situation during an emergency.



Figure 2-3: Post the Emergency Response Plan at the Jobsite

Emergency Procedures for Fall Rescue

If a worker is involved in a fall that has been arrested, it is important to get them to a safe place as quickly as possible without causing further injury or putting the rescuers at risk.

The Construction Projects regulation (O. Reg. 213/91, s.26.1(4)) requires that before workers use any fall arrest system or safety net on a project, the employer must develop written procedures for the rescue of a worker whose fall has been arrested.

Some of the reasons why a suspended worker should be rescued quickly are listed below

- The worker may have been injured during the fall and may need medical attention.
- The worker may panic if they are left hanging for a long time.
- The event that led to the fall may have created additional dangers that need to be dealt with right away.
- The worker may develop suspension trauma if they are hanging in a safety harness for too long. Suspension trauma causes the blood to pool in the lower body, depriving the brain of oxygen.

In many cases, the rescue plan can be simple. A ladder or elevated work platform can be used to reach suspended workers and get them down safely. In other cases, it makes more sense to haul the worker back up to the level from which they fell or pull the worker in through a nearby window or other opening.

For some projects, the rescue procedures may be more complicated. You may need specially trained and equipped rescue workers from the local fire department. Aerial ladder trucks or other high-reach equipment may be necessary. In extreme cases, the fire department may use rappelling techniques to reach trapped workers and lift or lower them to a safe place.

Create a rescue plan that is specific to your jobsite and that covers the different types of fall-related rescues that may be necessary. The plan should cover the on-site equipment that you will use, the personnel who will use it, and the procedures for different types of rescue.

Any off-site rescue services that might be needed should be contacted in advance to make sure that they have the proper resources available (equipment, specially trained personnel, etc). The constructor should make arrangements to familiarize rescue services with the project and any hazards that they may encounter.



Once the written rescue plan has been developed, make sure everyone on the site is familiar with it. That's especially important for any worker who will be using fall protection equipment.

Sample Fall Rescue Procedures

Here are some examples of general fall rescue procedures that your plan should include.

A. If an elevating work platform (EWP) is available on site:

1. Take it to the location of the suspended worker.
2. Make sure that rescue workers using the EWP are protected against falling.
3. Be sure the EWP has the load capacity for both the rescuer(s) and the victim.
4. Use the EWP to reach the suspended worker.
5. Position the EWP platform below the worker.
6. Disconnect the suspended worker from their lanyard or lifeline when it is safe to do so. If the worker is unconscious or can't help with the rescue, two rescuers may be needed to handle the worker safely.
7. Treat the worker for suspension trauma and any other injuries.
8. Arrange to take the worker to the nearest hospital.

B. If an elevating work platform is not available:

1. Where possible, use a ladder (or ladders) to reach the suspended worker.
2. If the suspended worker is not in an area that rescuers can reach by ladders, move the suspended worker by their lifeline to an area that can be safely reached by ladder (if possible).
3. Rig a separate lifeline for each rescuer to use while carrying out the rescue.
4. Position the ladder(s) so that the rescuers can get beneath the suspended worker.
5. Securely attach a separate lowering line to the suspended worker's harness.
6. Rescuers on the ground will lower the worker while the rescuers on the ladders will guide the worker. If the suspended worker is unconscious or can't help with their own rescue, two rescuers may be needed to handle the worker.
7. Once the worker has been taken to a safe location, administer first aid for suspension trauma and any other injuries.
8. Arrange to take the worker to the nearest hospital.

C. If the injured person is suspended near the work area and can be reached safely from the floor below or from the place from which the worker fell:

1. Make sure that all rescuers are protected against falling (such as by travel restraint or fall arrest).
2. If possible, attach a second line securely to the worker's harness to help pull him or her to a safe place. At least two strong workers will probably be needed to pull someone up.
3. Eliminate slack in the retrieving line to avoid slippage.
4. Once the worker has been taken to a safe place, administer first aid for suspension trauma and any other injuries.
5. Arrange to take the worker to the nearest hospital.

D. If a person has fallen and is suspended in an inaccessible place (e.g., on a tower, against a building, or in a structure that has no openings):

1. You may need trained personnel and specialized rescue techniques to rescue the worker. For example, the rescuer may have to lower themselves down to the suspended worker or use a lifeline to retrieve them.
2. Because of the inherent risk in this type of rescue, only people with specialized training should do it.

NOTE: There are differences in equipment from different manufacturers as well as from different product lines in the same company. Therefore emergency training must cover the *same* harness, lanyard, energy absorber, rope grab, lifeline, and anchorage that each worker will rely on, as well as the ways in which each will be used.

Emergency Rescue in Challenging Situations

Certain circumstances on a jobsite can present a challenge for rescue personnel who may need to remove an unconscious or immobile worker from an area that is difficult to get to or hard to find. An assessment must be carried out on the various types of emergencies that may present themselves on each jobsite. Emergency procedures must then be developed to account for these challenges.

For example, special considerations must be planned for any emergency that requires the rescue of a worker from the uppermost work level of a suspended slab at night.

Often, a ladder is the only way to access this type of work area. In addition, there may be few, if any, workers in the area during that time to provide assistance to rescuers. The injured worker also may not be able to help rescuers due to the nature of the emergency, which could include:

- A personal medical complication such as a heart attack, asthma attack, or allergic reaction
- A workplace injury from a traumatic incident such as being struck by equipment or a tool
- Illness from exposure to a hazardous product or agent.

Any delay in response time for rescuing an injured worker can have severe consequences. It could cause the outcome of an incident to be more serious than it otherwise would have been.

Sample Rescue Procedures for the Uppermost Work Level of a Suspended Slab at Night

A. Installing stairs to the uppermost work level

Planning the job to ensure that stairs are installed to the upper most level of a suspended floor can help the process of rescuing a worker. Temporary stairs can allow for easy access to the uppermost work level from a level where permanent stairs or an elevator exists. As work levels proceed, these stairs could be hoisted up into place to ensure that there is always non-obstructed access in the event a rescue is needed.



Figure 2-4: Using Temporary Stairs Can Provide Easy Access

Stairs must be designed in accordance with sections 75 to 77 of the construction regulation (213/91). While a ladder may be acceptable for accessing a single form, temporary or permanent stairs may be more appropriate where a whole slab is in place, which constitutes the uppermost work level.

Know the Law

75. (2) As the construction of a building or structure progresses, permanent or temporary stairs shall be installed up to,

(a) the uppermost work level; or

(b) if stairs would interfere with work on the uppermost work level, no more than two storeys or nine metres below the uppermost work level, whichever distance is shorter.

- O. Reg. 213/91

B. Basket rescue with a crane

In some cases a worker can be rescued using a basket and crane. Consult section 153 of the construction regulation before using this option to rescue a worker.

Also, consider the following factors:

- A crane operator must be readily available to operate the crane.
- The basket used must be designed by a professional engineer in accordance with good manufacturing processes to withstand all loads to which it may be subjected.
- The basket must be kept on site at all times in an accessible location where it is clear of material or other equipment.
- The rescue basket must be equipped with appropriate rigging for quick hookup by the crane operator.
- The maximum number of people the basket may hold must be adhered to, as indicated on the nameplate of the basket.
- A competent worker must inspect the crane and equipment prior to lifting rescuers.
- The crane must be equipped with a fail-safe mechanism to prevent the boom from descending in the event of a power source or system failure.
- An adequate means of communication must be maintained between the rescuers in the basket and the crane operator at all times.
- Workers in the rescue basket must wear full-body harnesses attached to a lanyard and anchored to appropriate points in the basket at all times.
- All rigging used to attach the rescue basket to the hook of a load line must have a safety factor of 10 against failure. A safety line must be attached to the load line directly from the basket.
- Environmental factors that could impact the safety of workers in the basket must be taken into consideration, such as high winds, snow, ice, or sleet.

NOTE: Basket rescue with a crane may not be possible in circumstances where the deck advances over floors.

C. Using an elevating work platform

In some cases an elevating work platform (EWP) could be to rescue a worker from the uppermost work level. The EWP must be positioned on the floor below the uppermost work level and in an area above which an opening exists that is large enough to accommodate its platform when raised into position.

In the event that a worker needs to be rescued, the platform can be raised to the opening and the worker can be moved onto its platform. The platform is lowered to a position where rescue personnel can safely remove the worker from the workplace.

Before using this rescue method, consult sections 143–149 of the construction regulation (213/91). Also, be aware that the EWP must be continuously hoisted to the floor below the uppermost work level.

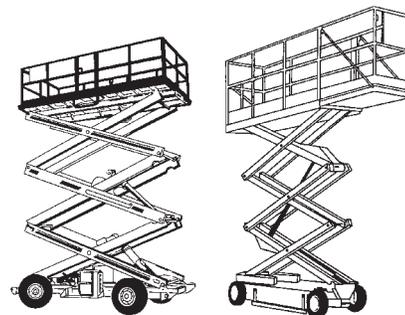


Figure 2-5: EWPs Can Be Used During Rescue

D. Using a mechanical rescue/descent device

Mechanically assisted rescue devices can be used to lower a worker from the uppermost level of a suspended slab to a lower level where rescue personnel can get to the worker and provide medical aid as necessary. These systems typically require workers on the uppermost level to wear a full-body harness.

Rescue personnel attach the device's lifeline from an anchor point to the D-ring on the worker's full-body harness. The worker is then lowered to a more accessible work platform.

Always consult the manufacturer's instructions before using this type of equipment.

E. Using a steel basket stretcher

A steel basket (i.e., litter) stretcher is designed to be used where there are obstacles to moving a person in need of rescue. The injured worker lies in the stretcher face up and is strapped in to prevent them from falling out or moving.

There is typically a collar around the stretcher that protects the injured person against bumping into objects. An injured worker should be moved only after speaking with emergency rescue personnel (e.g., 911).

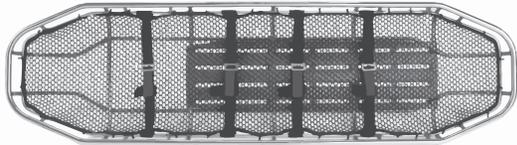


Figure 2-5: A Steel Basket (Litter) Stretcher Can Be Used to Rescue an Injured Worker

Other Considerations

Before starting any rescue from heights, the employer and contactors must contact the local Fire Department to find out the following:

- What type of support can be expected from a local Fire Department?
- What support limitations may exist with Local Fire Departments?
- What contingencies should the contractor/ employer may establish if a local fire department cannot respond (either other response requirements or due to support limitations)?
- What emergency response equipment would a local fire department want the contractor/ employer to have on site?
- If a local Fire Department rescue teams will only use equipment they supply, analyze what support gaps may exist and how the employer/contractor can help to fill these gaps.

In addition to contacting the local Fire Department, all rescue procedures should also address the following issues:

- The need for rescue in good time
- Working alone issues and procedures
- Communication requirements
- How often the changing site conditions will require revisions to the emergency plan
- The safety of the persons carrying out or assisting with the rescue
- The best way for rescuers to get access to the casualty
- Any first aider on site who can provide the medical needs that the casualty may have due to their injury or the effects of suspension trauma
- The anchor points to be used for any rescue equipment
- The suitability of using the fall arrest equipment that has already been deployed (e.g., anchors, harnesses, attachments and connectors) during the rescue procedure
- Showing rescuers the actual anchor points on the site crane(s) and familiarizing them with the rescue techniques to be used on these cranes
- The method that will be used to attach the casualty to the recovery system
- The direction that the casualty needs to be moved to get them to the point of safety (i.e., raising, lowering, or moving them laterally)
- The potential for a casualty to be located over an edge and other possible obstructions that can occur.

NOTE: Recovery over an edge can interfere with the operation of rescue equipment and can also increase the risk of equipment such as ropes, slings and harnesses being cut or abraded.

Emergency Response Planning Checklist

Use the checklist on the next page as a guide to help you develop the emergency response plan for your workplace. Remember that the plan must be specific to the location where you are working.

When the plan is complete, make sure that everyone involved knows their role.

Emergency Response Planning Checklist

Company:	Date:
Completed by:	Site:
Program Administration: (Who's responsible for implementing the plan?)	

	In Progress	Date Completed
Develop an Emergency Response Standard.	<input type="checkbox"/>	
Develop a Site Emergency Plan.	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Identify emergency access routes. 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Indicate location of first aid stations/boxes and fire extinguishers. 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Indicate job office(s) and storage facilities (storage for blankets and special rescue equipment). 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Ensure specialized PPE equipment is on site. (Indicate location.) 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Ensure sufficient medical aid supplies are available on site (splints, stretchers, etc.) and indicate location. 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Locate other firefighting equipment (standpipes, Siamese connections, and hydrants). 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Locate main power supply to the project. 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Identify the location of emergency phones. (Post emergency list.) 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Identify nearest hospital or medical centre. 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Identify worker evacuation route(s) and assembly area(s). 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Contact local fire, police, and ambulance and provide them with your site plan and list of potential emergencies. 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Locate services to the project (both above ground and underground). 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Develop on-site traffic routes. 	<input type="checkbox"/>	
<ul style="list-style-type: none"> • Locate outside materials storage and fabricating areas. 	<input type="checkbox"/>	

Emergency Response Planning Checklist (continued)

	In Progress	Date Completed
• Locate cranes man/material hoists and unloading docks.	<input type="checkbox"/>	
• Locate flammable/combustible materials and cylinder storage.	<input type="checkbox"/>	
• Locate garbage dumpsters and recycling bins.	<input type="checkbox"/>	
• Complete Hazard Identification and Risk Assessment Form*	<input type="checkbox"/>	
• Determine if "high-level" rescue is a possibility.	<input type="checkbox"/>	
• Develop Emergency Response procedures for items identified in your hazard assessment.	<input type="checkbox"/>	
• Ensure that all trades on site keep daily personnel lists. (In the event of a major emergency, check names against personnel gathered in the assembly area.)	<input type="checkbox"/>	
• Include requirements for written notices. (What's required? When? Completed by whom? Who does it go to?) See legal obligations.	<input type="checkbox"/>	
• Identify the emergency response (ER) team and alternates. (Post names.)	<input type="checkbox"/>	
• Provide specialized training for ER team members.	<input type="checkbox"/>	
• Designate a contact person to call necessary emergency services and MOL, MOEE, etc.	<input type="checkbox"/>	
• Select member of ER team to meet and direct emergency services vehicles to incident scene.	<input type="checkbox"/>	
• Select team member to deal with media, MOL, MOEE, etc.	<input type="checkbox"/>	
• Ensure all required rescue equipment/materials are readily available on site.	<input type="checkbox"/>	
• Provide for emergency traffic control person (properly trained).	<input type="checkbox"/>	
• Make provisions for cordoning off the accident scene to protect workers.	<input type="checkbox"/>	
• Ensure someone on the ER team documents where the injured worker has been taken (hospital, medical centre, etc.).	<input type="checkbox"/>	
• Set out method of communicating the plan.	<input type="checkbox"/>	

*This form can be downloaded from: ihsa.ca/resources/hazard_assessment_analysis_control.aspx
 The entire checklist can be downloaded from: ihsa.ca/resources/emergency_preparedness.aspx