

The *BSO Plus Safety Topic* is a review designed from the BSO Plus agenda. This safety topic is your way to stay current on the safety information over the 3 years between BSO Plus and BSR.

## DROPPED OBJECTS

### Overview

A host of factors can contribute to a dropped object incident. It is important to consider these during worksite hazard identification. Energy sources such as gravity, wind and mechanical motion can instigate a sequence of events that result in something falling. Add corrosion, lack of awareness and inadequate inspection or maintenance and you can almost guarantee a dropped object incident will occur.

“Struck-by” is the term that Ontario’s prevention system uses for the various injuries that occur when workers are hit—or struck—by tools, materials, equipment, or vehicles. The objects that commonly fall range from large items such as roof trusses and steel beams to small items such as fasteners and small hand tools.

The most common injuries workers suffer from falling objects are bruises, fractures, lacerations, strains, and sprains, however, it is possible for these incidents to result in fatalities.



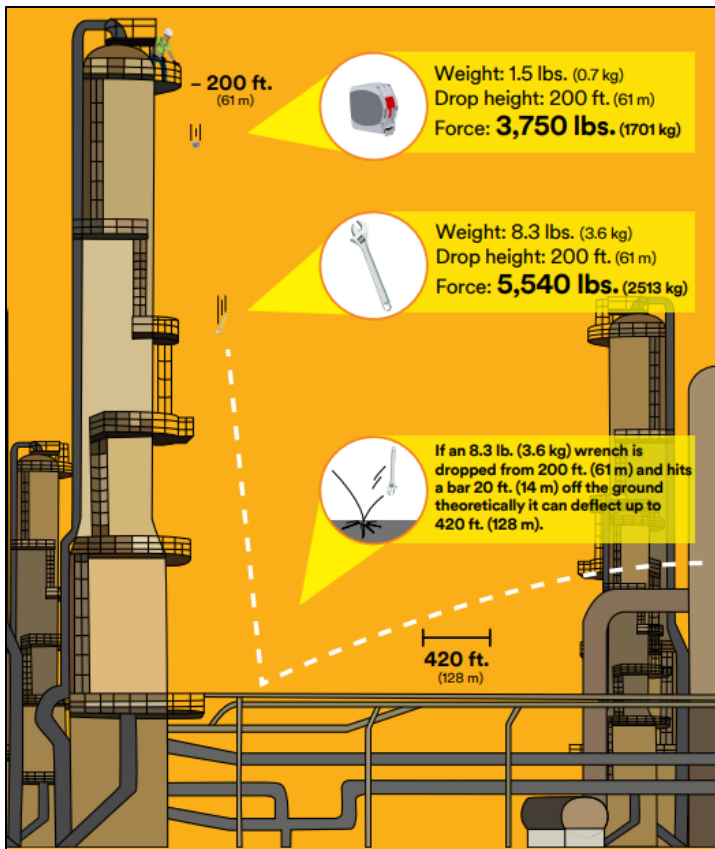
According to the 2016 WSIB Statistical Report, *By the Numbers*, behind only Motor-Vehicle Incidents (36%) and Falls (18%), Struck By/Caught in Objects has accounted for 13% of all workplace fatalities in Ontario over the last ten years (2007–2016). It's the third-highest cause of work-related deaths.

There are the two types of falling objects:

**Static Dropped Object:** Any object that falls from its previous position under its own weight (gravity) without any applied force. For example, failure caused by corrosion or vibration.

**Dynamic Dropped Object:** Any object that falls from its previous position due to applied force. For example, collisions involving moving equipment or loads, snagging on machinery or stacked items, dislodged tools or equipment.

When establishing a Drop Zone, the distance a falling object may travel can be easily underestimated. Objects do not just fall straight down! Under-built facilities and other obstructions can cause a dropped object to deflect and travel in an unexpected direction. Where possible it is good practice for a Drop Zone to assume a cone shape and extend in all directions.



Source: 3M “The Science of Fighting Gravity”

**2** primary types of incidents =



## Top ten reasons why objects get dropped when working at heights



- 1. Inadequate risk assessment**  
Failure to identify dropped object hazard.



- 2. Human factors**  
Operator error, poor behaviour complacency, neglect.



- 3. Inadequately stored or secured tools and equipment**  
No tool lanyards or tethers being used. No containment of loose items.



- 4. Inadequate procedures**  
Bad planning, no management of changing workplace hazards



- 5. Failed fixtures and fittings**  
Corrosion, vibration, poor design, selection or improper installation.



- 6. Poor housekeeping**  
Pre-existing hazards from previous tasks.



- 7. Collisions and snagging**  
Lifting, traveling equipment, tag lines, service loops.



- 8. Inadequate inspection, repair and maintenance**  
Ignoring unsafe conditions.



- 9. Redundant, neglected and home made tools and equipment**  
These should be eliminated.



- 10. Environmental factors**  
Wind, sea motion, ice, snow, extreme conditions.

### Controls for Dropped Objects

**Physical controls** physically stop objects from falling (or from falling very far). These may include:

- **Tool lanyards and tethers:** these attach tools directly to the worker's harness or tool belt. If used properly, they will prevent tools from dropping to a lower level.
- **Lifting Bags:** when lifting, make sure the load is balanced and secured. Check for small or loose pieces before you lift. Otherwise, a shift in the load or the wind could cause objects to fall.
- **Storage buckets, Belt straps, and Backpacks:** There are many buckets, bags and pouches available on the market with closure systems to dramatically reduce the likelihood of items falling out. Some even close automatically when turned upside down.



**Procedural controls** refer to changing the way you work so that objects can't fall. These may include:

- **Good hoisting practices:** never lift, lower, or swing a load over someone's head. Use barricades to block off areas where loads are being lifted or lowered. If the operator's view is impeded in any way, use a signaller to assist the operator. Always use proper rigging procedures and ensure the rigging equipment is in good condition.
- **Good housekeeping:** keep tools and other materials away from edges, railings, and other elevated surfaces. Always stack materials on flat surfaces and secure them, if necessary, to avoid movement.
- **Stay in the moment:** When working, be aware of your surroundings and watch that you don't inadvertently knock or hit something off the level you are work on down to the level below. Be aware of work taking place above you, do not ignore barricades and stay out of the line of fire.