ARE YOU IN THE "LINE OF FIRE?"

Hand Injury Prevention Activity Package

SETTING THE STANDARD IN OIL AND GAS SAFETY

ENERGY SAFETY CANADA

HAND CRUSH – ARE YOU IN THE "LINE OF FIRE?" INJURY REDUCTION CAMPAIGN

You are in the line of fire when you are at risk of coming into contact with a force your body cannot endure.

Pressure release awareness is:

Stored Energy

Contact with stored energy
Includes pressure releases

Striking Hazards

Struck by or striking against an object
Includes dropped objects

Crushing Hazards

Caught in, on or between an object
Includes hand injuries

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CRUSHING HAZARDS

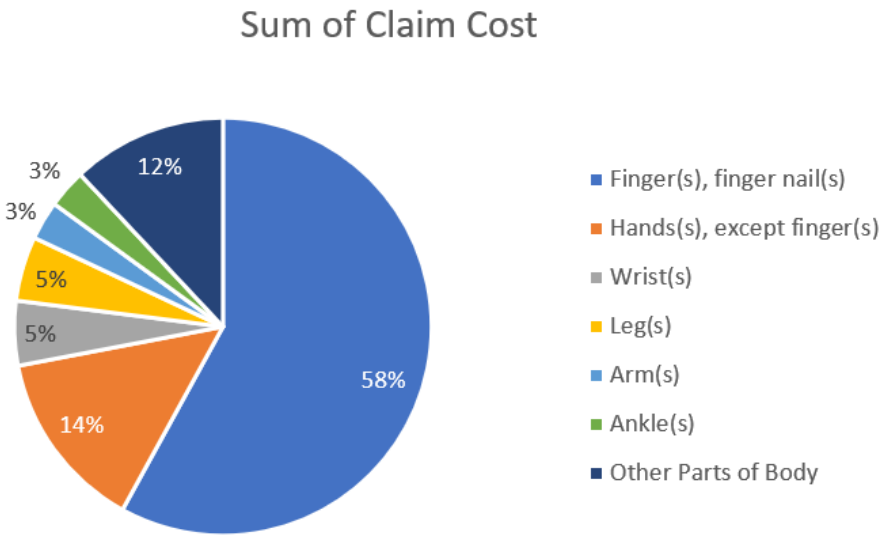
What is a Crushing Hazard?

- Crushing hazards that cause injuries when body parts get caught in, on or between objects. These hazards are also referred to as “pinch points”.

- The physical forces applied to a body part caught in a pinch point can cause injuries ranging from bruises and cuts to amputated body parts and even death.

NOT LIFE-ENDING, BUT COSTLY

In the last five years within the Oil and Gas WCB Funding Codes, crushing injuries cost over $14 million in claim costs. Over 77% of these costs involved finger, hand and wrist injuries, predominately when working with building materials, equipment and hand tools.



WCB Data (2014-2018, Oil and Gas Funding Codes, Western Provinces)

HOW CAN WE PREVENT HAND CRUSHING INJURIES?

Primary defenses include:

- Completing a field level hazard assessment (FLHA).
- Properly planning each task.
- Checking material/equipment for rough or sharp edges before handling.
- Ensuring moving machinery is guarded.
- Maintaining an effective barrier between hands and hazards by using tools or other aids.
- Good housekeeping.

Gloves:

- Gloves are considered a secondary defense. If something is missed during the primary hazard assessment, a pair of gloves may protect your hand from injury.
- Choose the right glove for the right situation and never rely solely on gloves for protection.
- In some situations, gloves may create additional hazards through entanglement or creating a catch point.

CRUSHING HAZARDS

How can you protect yourself?

- Look for possible pinch points before you start a task.
- Plan your actions and determine the necessary steps to work safely.
- Give your work your full attention, most accidents occur when workers are distracted.
- Read and follow warning signs posted on equipment.
- Never reach into a moving machine.
  - Properly maintain and use guarding provided with your equipment; they act as a barrier between the moving parts and your body.
  - Do not reach around, under or through a guard and always report missing or broken barriers to your supervisor.

HAND POSITION

One of the most effective means of hand protection is good hand positioning.

- Identify hazards before starting work.
- Identify and discuss safe hand placement zones.
- Keep hands clear of moving machinery or tools.
- Avoid contact injuries - chemical, electrical, thermal.
- Do not put hands or fingers where you cannot see them.
- Be aware of pinch points and avoid sharp or jagged edges.
- Do not put fingers between flanges or through bolt holes.

HAND POSITION

The best safety device for your hands is your mind. By being alert and aware you can avoid poor hand positioning. Other ways of staying protected include:

- Follow related safe work practices and procedures.
- Wear gloves as part of your base protection.
- Look for opportunities to wear gloves, instead of excuses for not wearing them.
- Wear gloves and act as if your hands are actually unprotected.
- Remove rings and other jewelry while working.
- Remove or replace gloves when they become contaminated.
- Replace worn or torn gloves.

RETHINK HAND RISKS

The next time you decide to grab materials or a tool or put your hand in between equipment or materials ask yourself this. . . .

Would you think differently if

it was a child's hand?

If yes, then your hand shouldn't be there!

HAND PROTECTION SELECTION

No single glove provides protection against all hazards. The following factors should be considered when selecting gloves:

Hazards Present:

- Chemical
- Biological
- Physical
- Mechanical

Task:

- Dexterity requirements
- Cuff length
- Grip requirements and working conditions (e.g. oil or wet conditions)
- Abrasion, puncture, tear, and cut resistance requirements

Workplace Conditions:

- Temperature
- Wet work
- Repetitive motions

TYPES OF GLOVES

Gloves have been grouped into categories consistent with the ANSI / ISEA and EN Standards*:

- General protection
- Mechanical protection
- Heat and flame protection
- Anti-vibration
- Chemical resistance

Contact your local EH&S for support with:

- Gloves currently approved for use at site.
- Selection of gloves for a specific task.
- Site PPE approval process (where applicable).

*American National Standards Institute (ANSI); International Safety Equipment Association and (ISEA) and European Standards (EN)

GENERAL PURPOSE GLOVES

Example of a General-Purpose Glove (sewn driver gloves)

Description:

- Grain cowhide offers superb protection against abrasion but no protection against cuts.
- Out-sewn for reduced rubbing and chafing.
- Backs are elasticized, while leather conforms to the hand, for the best in comfort.
- Leather is inherently flame resistant.

Potential Applications:

- Materials handling
- Construction
- General maintenance

MECHANICAL PROTECTION

Gloves provide protection against physical and mechanical aggressions caused by abrasion, blade cut, punctures, and tearing.

Mechanical Protection - Glove Classification

Hazard	Standard	Rating
(Blade) Cut Resistance	ANSI / ISEA 105	0 to 5
	EN 388	0 to 4
Tear Resistance	ANSI / ISEA 105	N / A
	EN 388	0 to 5
Puncture Resistance	ANSI / ISEA 105	0 to 5
	EN 388	0 to 5
Abrasion Resistance	ANSI / ISEA 105	0 to 6
	EN 388	0 to 4

MECHANICAL PROTECTION

Example of a Mechanical Protection Glove

Specially created to deliver the right balance of mechanical protection, performance, ergonomic handling and comfort for medium-duty jobs.

Description:

- Made with DuPont™ Kevlar Stretch Armor®.
- Nitrile foam coating to enhance grip in light oil conditions.
- Knitwrist cuff – snug fit to prevent dirt from getting inside the glove.

Potential Applications:

- Forming, machining and bending of sharp parts.
- Handling utility knifes.
- Handling smooth, slippery or sharp-edged materials.

ANSI / ISEA 105:

- Abrasion Resistance – 3
- Cut Resistance - 4

EN 388:

- Abrasion Resistance – 3
- Blade Cut Resistance – 4
- Tear Resistance – 4
- Puncture Resistance - 1

MECHANICAL PROTECTION

Example of a Mechanical Protection Glove

Description:

- Dual density thermal plastic rubber (TPR) disperses forceful impact to the knuckles and metacarpals.
- Pinch point protection to the tip of each finger.
- Foam insert absorbs and disperses impact to the top of the hand.
- PVC bonded dots disperse liquids, enhance grip, and reduce abrasion to the entire palm.
- Slip-on cuff and stretch neoprene wrist panels create an unrestrictive fit.

Potential Applications:

- Heavy equipment maintenance
- Machinery maintenance
- Carpentry/scaffolding
- Equipment assembly.
- Pipe installation and repair

EN 388:

- Abrasion Resistance – 4
- Blade Cut Resistance – 1
- Tear Resistance – 4
- Puncture Resistance - 2

WHY DO HAND INJURIES CONTINUE TO OCCUR?

Understand the context of why incidents occur at your work site. Discuss the following within the group:

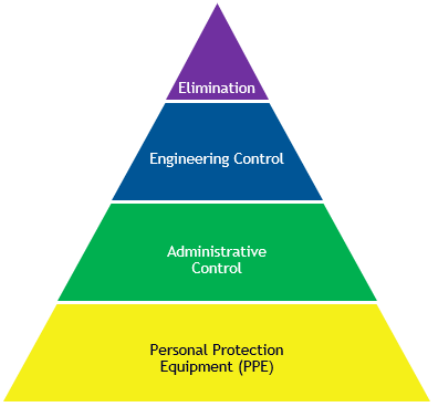
- Why and under what conditions do crushing injuries to hands and fingers occur?
- Where or during what task is it difficult to protect your hands and fingers from injury?
- Have we established safe hand-placement zones?
- How can work be done differently to obtain a better outcome?

WHAT CAN EACH OF US DO?

- Rethink hand positioning and ensure your mind is on task.
- Wear gloves as a secondary defense to reduce the severity of an injury.

REMEMBER

Follow the hierarchy of controls…



to prevent crushing injuries

Let’s work together and reduce crushing hand injuries.

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