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## Background

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Hand injuries, including skin disorders, are serious and far too common in the construction industry. Each year, there are thousands of work-related hand injuries. In 2010, for example, roughly 1 out of every 5 construction workers experienced a hand/wrist or finger injury that resulted in days away from work.\* The annual cost of hand injuries to the construction industry is estimated in the hundreds of millions of dollars.\*\* Such injuries are also a leading reason why workers end up in the emergency room.\*\*\* One study, based on a review of the causes of nonfatal injuries among construction workers who were seen at the George Washington University Emergency Department over a 7-year period, found that fingers and hands were the most-injured body parts, accounting for one-third of emergency room visits. About 15 percent of these injuries were amputations, partial amputations, crushes and fractures.\*\*\*\*

Common types of hand injuries include:

- ⇒ Fractures, crushed injuries and amputations
- ⇒ Lacerations, cuts and punctures
- ⇒ Skin disorders caused by contact with chemicals and burns
- ⇒ Work-related musculoskeletal disorders (MSD) caused by using a forceful grip, awkward hand and wrist positions, and/or excessive hand vibration.

A hand injury, such as the loss of a finger, a broken bone, nerve damage, MSD, or skin disorder, can interfere with a worker's job performance and quality of life – and even end a career. Work-related hand injuries are also costly to the employer, in terms of lost work time and productivity, and higher insurance rates.

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## Hand injuries can be prevented with planning and training

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### Employers should

1. **Plan.** Conduct a job hazard analysis to identify the 1) operations, tools, and tasks that could present a hand-related hazard, and 2) corrective measures that need to be taken to protect the workers. Questions to ask:

- ⇒ What tasks will be performed and which crafts and workers will perform each task?
- ⇒ Which tools, equipment, chemicals and materials create a potential risk for a hand injury (including skin disorders -- dermatitis, chemical burn, etc.)?
  - ◇ Which tools and equipment will be used? Are they appropriate for the tasks and in proper working order?
  - ◇ Are chemicals and products properly stored and labeled? Have employees been trained on the chemical hazard(s) and appropriate selection and use of PPE (particularly gloves)?
- ⇒ For each potential hazard, what preventive measures can be taken:
  - ◇ Are there substitute products or materials?
  - ◇ Is there a way to prevent hands from coming in contact with the hazard, such as a guard or device to create a barrier between the worker's hand and the hazard?
  - ◇ Are their engineering controls available (e.g., lifting points, tools with cushioned grips, anti-slam devices, anti-vibration handles, etc.)?
  - ◇ Are there administrative controls in place – rules and signage to remind workers to remove rings, not wear loose clothing near rotating equipment, lock-out/tag-out procedures, etc.)
- ⇒ Is personal protective equipment required? If yes:
  - ◇ What types of gloves are required for the material/ products/ chemicals?
  - ◇ Are the right gloves available in the sizes needed?
  - ◇ Where will they be stored on the job site? Who will be responsible for making sure the supply is stocked with the right gloves and sizes?
  - ◇ How will workers be informed about which gloves to use, when to use them, where to go to get the gloves on the job site, and when to replace them?

2. **Train** all employees on the project, including project managers, foremen, superintendents, and workers before work begins on:
  - ⇒ The hand-related hazards present on the job and the potential health (skin related) and safety risks (cuts, amputation, crush, etc.) —
    - ◇ Include specific job site examples
    - ◇ Include examples of injuries and skin disorders that could occur (or have occurred on other jobs) if precautions are not taken.
  - ⇒ The company's plan and methods to protect workers from the hazards, including the proper selection of hand tools and use of equipment, appropriate protective clothing (e.g., gloves), proper hygiene practices (e.g., hand washing), and other requirements (e.g., don't wear rings, etc.). If gloves are required, the training should include:
    - ◇ Information on the gloves to be used for specific task -chemical-material combinations
    - ◇ The hazard(s) the gloves will protect against (explaining that not all gloves will protect against all hazards – so no glove substitutions)
    - ◇ The importance of wearing gloves that fit
    - ◇ How to put on and take off the gloves
    - ◇ How to inspect the gloves for damage to ensure they are still protective
    - ◇ How frequently to replace gloves, and
    - ◇ Where to find, or who to go to for, for gloves on the job site.
- ⇒ Supervisors and others responsible for safety should also receive training on how to implement the employer's plan to ensure safe hand practices.
3. **Track Progress.** Improving hand safety is not a one-time activity. It requires an on-going employer commitment and continuous monitoring to ensure the training and preventive measures are understood and making a difference. There are several ways to track progress including:
  - ◇ **On-site monitoring** – are workers wearing gloves, using guards, and aware of preventive measures to avoid hand injuries?
  - ◇ **Follow-up training** -- to reinforce hand safety, **find gaps in awareness and knowledge**, and keep workers, supervisors and other employees up-to-date on the latest ways to prevent hand injuries.
  - ◇ Injury data – are there fewer hand injuries?
4. **Choose Hand Safety.** There are resources available to help employers reinforce the need for hand safety. The website [www.choosehandsafety.org](http://www.choosehandsafety.org) includes information for workers and contractors on:
  - ◇ Hand-related safety and health risks and preventive measures;
  - ◇ How to select and find hand tools and gloves to reduce the risk for a hand injury, work-related MDSs, dermatitis, and other skin disorders; and
  - ◇ Related training materials.

\*The Construction Chart Book; CPWR; Fifth Edition; Chart 48(a)

\*\* A case-crossover study of transient risk factors for occupational acute hand injury; G S Sorock, D A Lombardi, R Hauser, E A Eisen, R F Herrick, M A Mittleman; Occup Environ Med 2004;61:305-311. doi: 10.1136/oem.2002.004028

\*\*\* PPE Basics – Hand Protection; NECA/IBEW Electrical Training Center

\*\*\*\*Occupational injuries among construction workers treated in a major metropolitan emergency department in the United States; by Welch LS, Hunting KL, Anderson Murawski J; Scand J Work Environ Health 2005;31 suppl 2:11-21