

ERGONOMIC SURVIVAL GUIDE FOR SHEET METAL WORKERS

This SURVIVAL GUIDE is designed to promote awareness of safe work practices for SHEET METAL WORKERS. To order this guide and other trade-specific publications, please call 1-800-963-9424 or download a pdf or html version from our Web site (<http://www.dir.ca.gov/dosh/puborder.asp>).



What will happen to your family and your lifestyle if you get injured and can't work?
What will you lose if you get injured?

- **Your salary**
- **Your quality of life**
- **Your job advancement**
- **Future opportunities**

WHAT CAN YOU DO TO AVOID AN INJURY?

What can Make You Hurt?

There are certain things in your job that can lead to fatigue, discomfort, or pain when you do them **repeatedly or without breaks**.

These include:

- Exerting force to perform a task or to use a tool.
- Working in positions such as bending, kneeling, stooping, twisting, and overhead reaching.
- Using awkward hand, wrist, elbow, or shoulder postures.
- Remaining in the same position for a long time with little or no movement.
- Continuous pressure from a hard surface or edge on any part of the body.
- Working in very hot or very cold temperatures produced by climate, equipment, or machines.
- Sitting on, standing on, or holding equipment or tools that vibrate.

In addition, stressful work situations can increase muscle tension and reduce awareness of proper work technique.

Most common injuries:

- Back
- Wrists and Hands
- Knees
- Neck and Shoulders

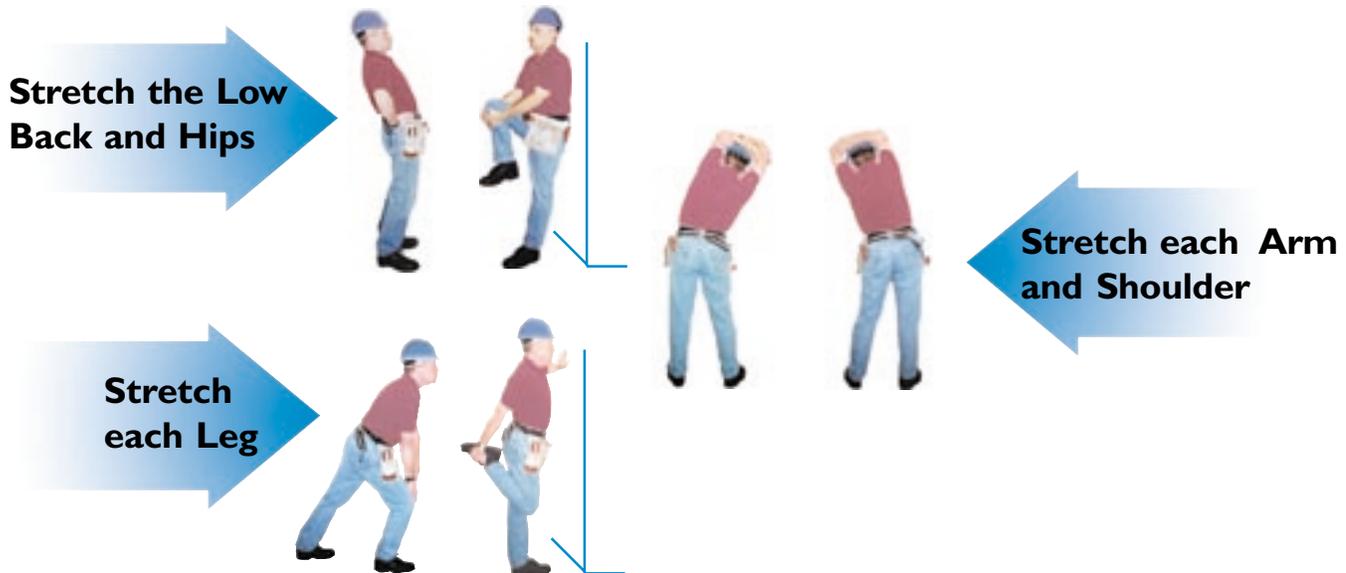


Prepare Yourself for Work

Just as a runner prepares for a race event by warming up, prepare for work by warming up and stretching. Warm up by walking, marching in place, or moving your arms in circles. Once your muscles are warm:

- Stretch S-L-O-W-L-Y and hold each stretch 3-5 seconds.
- Stretch a few minutes before and during your workday.

Caution: Check with your doctor before exercising. If you feel discomfort while exercising, stop immediately!



While you are off work, keep yourself physically ready for returning to work, whether it's the next day or later.

Be Aware

If you experience symptoms, you must change the way you work or the tools you use. If you don't change, your symptoms may get worse and may keep you from working at all.

You may have a problem if you have any of these symptoms:

- Constant fatigue
- Cold hands
- Swelling
- Numbness
- Tingling
- Lack of energy
- Changes in skin color
- Weakness
- Loss of sensation
- Aching, burning, or shooting pain

Where?

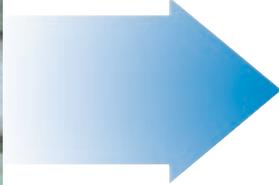
- Back
- Neck
- Shoulders
- Arms
- Hands
- Fingers
- Knees

If you develop any symptoms:

- Talk with your supervisor about your symptoms right away.
- Work with your supervisor to identify the cause of the problem.
- Follow your company's ergonomics program and its Injury and Illness Prevention Program.
- Always look for better ways to do your job.

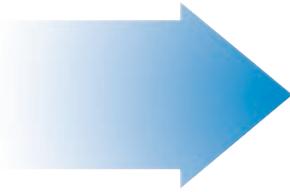
A TYPICAL WAY

A SAFER WAY



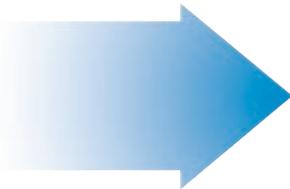
Bending your wrist when using a hand tool may cause hand fatigue. Over time, you could develop numbness or pain in your hand and fingers.

Keep your wrist straight by using an angled tool or repositioning the material. When your wrist is straight, you have better grip strength, and your hand will not fatigue as easily.



Kneeling while working can cause awkward arm postures and put pressure on your knees. This work posture may cause pain and discomfort.

- Make your work easier by working in comfortable postures.
- Use existing equipment to create a stable “work bench” that allows you to stand upright while keeping your arms close to your side.
- Keep cutting tools sharp to reduce the force required.
- If you do a lot of cutting, use a power saw.



Working overhead and reaching out with a tool for long periods of time may lead to lower back, arm, shoulder, and neck injuries.

- Move closer and center yourself to the work area.
- If available, use a scissor lift or other work platform.
- Use lighter-weight tools.
- Wear a hard hat and eye protection.

Make It Easy on Yourself

SELECT THE RIGHT TOOL.

Choose tools that fit your hand comfortably. Whenever possible, use power tools or tools that require less force. Let your supervisor know if you need training on a new tool or process.



PRACTICE GOOD HOUSEKEEPING.

Pick up debris and scrap material to prevent slips, trips, and falls. Keep pathways clear for carts, wheelbarrows, and dollies.

CHANGE WORK POSITIONS.

Working overhead or in cramped spaces forces the body into awkward postures. To relieve muscle tension and improve circulation, change body positions, alternate tasks, and stretch throughout the day.



USE A MORE COMFORTABLE HANDLE.

When lifting a bucket, you will use less grip force if you increase the diameter of the handle by adding padding or by using a handle that has a bigger diameter.

Lifting Tips

- Use teamwork and mechanical aids such as a cart whenever possible.

General lifting tips for heavy and light loads:

- Face the load and keep your waist straight.
- Bring the load close to your body.
- Breathe out and tighten your stomach as you lift.



3-Point Lift:

- Use a 3-point lift when handling heavy material by yourself.



1. Squat



2. Tilt on end



3. Lift

KEEP THE LOAD OR TOOL CLOSE TO YOUR BODY



Lifting, or carrying a **10-pound** object that is **25 inches** from your spine is equal to **250 pounds** of force on your lower back.

Lifting, or carrying a **10-pound** object that is **10 inches** from your spine is equal to **100 pounds** of force on your lower back.



Cal/OSHA CONSULTATION SERVICE RESEARCH & EDUCATION UNIT

WRITERS AND EDITORS

Zin Cheung
Rick Hight
Fran Hurley
Kristy Schultz

PAGE LAYOUT AND DESIGN

Jitan Patel

ACKNOWLEDGEMENTS

We thank the following people for their support and assistance in the research and development of this guide:

Jim Albers – NIOSH
Joanette Alpert – Alpert, Woodward & Associates
Michael Alvarez – Cal/OSHA Consultation Service
Dave Bare – Cal/OSHA Consultation Service
Gary Batykefer – The Sheet Metal Occupational Health Institute Trust
Myron Brown – Beutler Heating & Air Conditioning
Bob Bunyard – Eagle Grip Handle, Co.
Helen L. Chandler – State Compensation Insurance Fund
Mario Feletto – Cal/OSHA Research & Education Unit
John Howard – NIOSH
Wyatt Jones – AIRCO Mechanical
Kathy Pyle – Lawson Mechanical
Scott Schneider – Laborers' Health & Safety Fund of N.America
Larry Sinor – Sacramento Valley Sheet Metal Workers Apprenticeship & Training
Augie Sotelo – Sacramento Valley Sheet Metal Workers Apprenticeship & Training

Cal/OSHA CONSULTATION PROGRAMS

Toll-Free 1-800-963-9424

Internet – <http://www.dir.ca.gov/dosh>

Your call will in no way trigger an inspection by Cal/OSHA Enforcement.

FRESNO – CENTRAL VALLEY

(559) 454-1295

OAKLAND – SAN FRANCISCO BAY AREA

(512) 622-2891

SACRAMENTO – NORTHERN CALIFORNIA

(916) 263-0704

SAN DIEGO & IMPERIAL COUNTIES

(619) 767-2060

SAN FERNANDO VALLEY – SANTA BARBARA & NORTH WEST LA. COUNTY

(818) 901-5754

SANTA FE SPRINGS – LA. METRO AREA & ORANGE COUNTY

(562) 944-9366