

# HOMEBUILDING: SLOPED ROOFING

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Musculoskeletal disorders (MSDs), such as chronic back pain or shoulder problems, often take time to develop. Forceful exertion, awkward positions, hand-arm and whole-body vibration, contact stress, and repetitive tasks can add up over time to produce an MSD.

This profile can help you identify and control MSD hazards in your job. We recommend that you add the best practices outlined here to your company's health and safety program. The hazards in a particular job, however, may be different than the ones on this profile, so evaluate the risks of your particular activities.

In general, when implementing controls, consider the following ergonomic principles:

- 1. Use handling equipment when possible.** The most effective intervention to control the risk of developing an MSD is to eliminate or reduce the frequency of lifting, carrying, pushing, and pulling. Use material-handling equipment such as carts, dollies, pallet jacks, or manual forklifts.
- 2. Don't lift a load from the floor.** Lifting from the floor or below standing knuckle height can expose your back to significant stresses and reduce your lifting capacity. Avoid this procedure by storing objects above standing knuckle height and below standing shoulder height.
- 3. Avoid working on the floor.** Constantly working on the floor can result in injuries to your back, hips, and knees because it usually requires kneeling and bending your back forward. When possible, raise the work height by using a workbench.
- 4. Minimize work above your shoulder.** High lifting or constant reaching above the shoulder level is harmful for three reasons.
  1. Your muscle strength is reduced because most of the muscle work is performed by your shoulders and arms instead of by the bigger muscles in your back and legs.
  2. Your shoulder and arm muscles fatigue more quickly than your back and leg muscles because of reduced blood flow.
  3. Lifting or removing an object from a high shelf can be dangerous because you could drop the object.
- 5. Move smaller weights often or get help.** Smaller weights put less stress on your back than larger weights, even if the frequency of lifting is increased.
- 6. Exercise programs.** Consider exercise programs. They help to prevent MSDs and promote general good health.

## Homebuilding – Sloped Roofing

Tasks	What can happen (Hazards/Risks)	Potential Controls
<p><b>Old roofing</b></p> <ul style="list-style-type: none"> <li>▶ Removes old roofing materials</li> </ul>	<ul style="list-style-type: none"> <li>▶ Overexertion from heavy, frequent, and awkward lifting</li> <li>▶ Forceful hand exertion with awkward postures and repetitive motion</li> </ul>	<ul style="list-style-type: none"> <li>▶ If possible, when removing old shingles, use a lifting tool (e.g., the “Shingle Eater”) that allows you to maintain an upright posture.</li> <li>▶ On the ground, use wheelbarrows or carts to move old roofing materials when possible.</li> <li>▶ Set up tarps around the building to collect small debris. Doing so will reduce the amount of repeated bending over when you pick up waste materials.</li> <li>▶ If possible, rotate workers among various tasks to decrease repetitive stress.</li> <li>▶ Train workers on proper lifting, stretching, and exercise techniques. See the chapter on “Back Care” in IHSA’s <i>Construction Health and Safety Manual</i>.</li> </ul>
<p><b>Loads roofing materials</b></p> <ul style="list-style-type: none"> <li>▶ Lifts and carries shingles and equipment from the ground to the roof</li> </ul>	<ul style="list-style-type: none"> <li>▶ Overexertion injuries due to heavy, frequent, and awkward lifting</li> </ul>	<ul style="list-style-type: none"> <li>▶ Use mechanical devices (ladder hoists or boom trucks) to get the shingles to the roof. Have the mechanical device place them as close to the work area as possible. Do not carry shingles up a ladder; you can’t maintain three-point contact while doing so.</li> <li>▶ If possible, order shingles in packages of less than 50 lbs (23 kg).</li> <li>▶ Ensure good housekeeping. Remove waste materials and provide clear walkways before moving roofing materials.</li> <li>▶ Organize the material so that you don’t have to twist or bend over.</li> <li>▶ Workers should not spend a long time doing lifting work. Rotate workers among various tasks if possible.</li> <li>▶ Train workers on proper lifting and shovelling techniques.</li> <li>▶ It’s difficult to maintain a comfortable posture when placing shingles on a sloped roof. Your ankles, knees, and lower back suffer the most. Straighten up, stretch, and adjust your posture often. See the chapter on “Back Care” in IHSA’s <i>Construction Health and Safety Manual</i>.</li> </ul>

Tasks	What can happen (Hazards/Risks)	Potential Controls
<p><b>Installs new roofing</b></p> <ul style="list-style-type: none"> <li>▶ Installs roof shingles</li> <li>▶ Loads/places roof materials at the work area</li> </ul>	<ul style="list-style-type: none"> <li>▶ Overexertion injuries from lifting and carrying bundles of shingle</li> <li>▶ Back injuries from prolonged bending at the waist while installing shingles</li> </ul>	<ul style="list-style-type: none"> <li>▶ It's difficult to maintain a comfortable posture when placing shingles on a sloped roof. Your ankles, knees, and lower back suffer the most. Straighten up, stretch, and adjust your posture often. See the chapter on "Back Care" in IHSA's <i>Construction Health and Safety Manual</i>.</li> <li>▶ Ensure that knives and other tools are sharp and in good shape to reduce strain on your hands and arms.</li> <li>▶ Use ergonomically designed knives to reduce strain on your hands and wrists when cutting roofing materials.</li> <li>▶ Use a mechanical metal cutter for sheet metal.</li> <li>▶ Use kneepads to reduce contact stress on the knees.</li> <li>▶ Use low-vibration tools or tool handle wrap—a cushioned tape that wraps around your tool handle.</li> <li>▶ If possible, rotate workers among a variety of tasks.</li> <li>▶ Organize the material so that you don't have to twist or bend over.</li> <li>▶ Purchase light, comfortable, and well-fitting safety footwear with ankle support.</li> <li>▶ Lighten up your tool pouch by carrying only the tools you need for the job.</li> <li>▶ Install runners (made from 2x4s) on the roof. They provide workers with stability and support.</li> <li>▶ Split up a bundle of shingles instead of carrying them all at once.</li> </ul>

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