

# INDUSTRIAL, COMMERCIAL, INSTITUTIONAL LOW-SLOPE ROOFING

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 from the ones on this profile, so evaluate the risks of your specific work activities.

When putting MSD controls in place, consider the following ergonomic principles:

1. **Use handling equipment when possible.** The best way to prevent 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 lift trucks.
2. **Don't lift a load from the floor.** Lifting from the floor or from below standing knuckle height can put severe stress on your back and reduce your lifting capacity. To avoid this, store objects above standing knuckle level and below standing shoulder level.
3. **Avoid working on the floor.** Constantly working on the floor can result in injuries to your back, hips, and knees because you usually have to kneel and bend forward. When possible, raise the work height by using a workbench.
4. **Minimize work above your shoulder.** High lifting or constantly reaching above your shoulders can be harmful. Most of the work is being done by the smaller muscles in your shoulders and arms instead of by the larger muscles in your back and legs. When your arms are raised, the muscles fatigue more quickly because there is less blood flow and there is a greater chance you could drop the object.
5. **Get help with large loads or split them into smaller loads.** Get help from a co-worker if a load is too heavy to handle on your own. If possible, split the load into smaller loads. Making more trips with small loads puts less stress on your back than making fewer trips with large loads.
6. **Practise good housekeeping.** Pick up debris and garbage to prevent trips, slips, and falls. A clean worksite also allows you to get closer to your work and equipment.
7. **Conduct a Job Safety Analysis (JSA).** Actively assess the job tasks and implement MSD controls before starting work to avoid overexertion and awkward positions.
8. **Perform stretching and warm-up exercises before starting work.** This not only prevents MSDs but also promotes general good health. Use *Before You Start Work Exercises Card* (V012).

Photocopy this profile and distribute it as widely as possible!

Tasks	What Can Happen (Hazards/Risks)	Potential Controls
<b>Strips and removes roofing materials from roof cavity</b>	<ul style="list-style-type: none"> <li>• Lower back and shoulder injuries</li> <li>• Overexertion injuries from manually handling old roofing materials and removing old battens or roof frames</li> </ul>	<ul style="list-style-type: none"> <li>• Use upright scraping tools whenever possible. These tools give you mechanical leverage and reduce the need to bend forward.</li> <li>• Use mechanical dollies, wheelbarrows/carts, or buggies to carry roofing materials when possible.</li> <li>• Use mechanical lifting, cutting, and removal equipment when possible.</li> <li>• Use shovels to lift small items into a wheelbarrow or cart.</li> </ul>
<b>Applies built-up roofing components</b> <ul style="list-style-type: none"> <li>• Applies vapour barriers and air barriers</li> <li>• Installs insulation</li> <li>• Installs protection board</li> <li>• Installs drains, vents, and roof fixtures</li> <li>• Applies ballast and protective surfaces</li> <li>• Fits roof accessories, (e.g., barge and ridge caps)</li> </ul>	<ul style="list-style-type: none"> <li>• Repetitive forward bending from using a screw gun or nail gun to secure battens, vapour barrier, protection board, and insulation</li> <li>• Knee and back injuries due to squatting and kneeling while working on the roof (e.g., while cutting roof materials such as battens, insulation, protection board, or barriers)</li> <li>• Overexertion due to manually placing materials onto the roof such as lifting roof sheets into position, moving vapour barriers, handling long metal roof battens, and lifting accessories into position</li> <li>• Bending forward to install accessories</li> </ul>	<ul style="list-style-type: none"> <li>• Consider using upright automatic-feeding screw guns. This mechanical tool allows workers to stand upright instead of having to bend forward.</li> <li>• Avoid working on the roof surface whenever possible. For example, cut roof materials on a mobile table.</li> <li>• Use mechanical handling machines, such as powered buggies, when moving materials around the work area.</li> <li>• Use mechanical equipment or get help from another worker if one piece of material is greater than what you can safely handle. Consider the weight of the item, the lifting location, and your posture.</li> <li>• For roofing membranes greater than two metres, more than one person should lift long lengths of capping or other accessories.</li> <li>• Use the proper lifting techniques:             <ul style="list-style-type: none"> <li>- Lift materials with your legs (do not bend over and lift with your back).</li> <li>- Keep the load close to your body.</li> </ul> </li> <li>• Use mechanical devices to spread gravel when possible.</li> <li>• Use powered mechanical caulking equipment when possible.</li> <li>• Arrange material to minimize the amount you have to twist and bend.</li> <li>• Allow workers to choose between various mop sizes.</li> <li>• Break up blocks into three or more pieces.</li> <li>• Roll asphalt kegs instead of lifting them from a pallet.</li> <li>• Purchase smaller asphalt blocks to reduce weight.</li> <li>• Use an asphalt tanker truck instead of a kettle.</li> </ul>

Tasks	What Can Happen (Hazards/Risks)	Potential Controls
<p><b>Applies membranes</b></p> <ul style="list-style-type: none"> <li>• Applies membranes using hot process</li> <li>• Applies membranes using torched-on method</li> <li>• Applies membranes using hot-air welding</li> <li>• Applies membranes using cold process</li> <li>• Applies membranes using mechanical fasteners</li> <li>• Applies loose-laid membranes</li> <li>• Installs membrane flashings</li> <li>• Installs liquid applied roofing membrane</li> </ul>	<ul style="list-style-type: none"> <li>• Overexertion injuries from manually handling propane and torches</li> <li>• Lower back and shoulder injuries from lifting and carrying roofing membranes</li> </ul>	<ul style="list-style-type: none"> <li>• Use mechanical equipment or get help from another worker if one piece of material is greater than what you can safely handle. Consider the weight of the item, the lifting location, and your posture.</li> <li>• Use the proper lifting techniques:             <ul style="list-style-type: none"> <li>- Lift materials with your legs (do not bend over and lift with your back).</li> <li>- Keep the load close to your body.</li> </ul> </li> </ul> <p>See the chapter on “Back Care” in IHSA’s <i>Construction Health and Safety Manual</i> (M029).</p>

**NOTE:** The hazards and controls described in this chart are examples and do not cover all possible situations.

**Don’t forget about other hazards at your workplace. For more information, visit [ihsa.ca](http://ihsa.ca)**

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