Musculoskeletal hazards and controls

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.

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HOMEBUILDING: ROOFERS

Photocopy this profile and distribute it as widely as possible!

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### Homebuilding – Roofers

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<th>Tasks</th>
<th>What can happen (Hazards/Risks)</th>
<th>Potential Controls</th>
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| Strips and removes roofing materials from roof cavity | ► Low back and shoulder injuries  
► Overexertion injuries while manually handling old roofing materials and removing old battens or roof frames | ► Use upright scraping tools whenever possible. These tools give you mechanical leverage and reduce the need to bend forward.  
► Use mechanical dollies, wheelbarrows/carts, or buggies to carry roofing materials when possible.  
► Use mechanical lifting, cutting, and removal equipment when possible.  
► Use shovels to lift small items into a wheelbarrow or cart. |
| Applies built-up roofing components | ► Repetitive forward bending while using a screw gun or nail gun to secure battens, vapour barrier, protection board, and insulation  
► Knee and back injuries due to squatting and kneeling while working on the floor (e.g., while cutting roof materials such as battens, insulation, protection board, or barriers)  
► 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  
► Bending forward to install accessories | ► Consider using upright automatic-feeding screw guns. This mechanical tool allows workers to work in an upright standing position, reducing bent-back postures.  
► Avoid working on the floor whenever possible. For example, cut roof materials on a mobile table.  
► Use mechanical handling machines, such as powered buggies, when moving materials around the work area.  
► 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.  
► For roofing membranes greater than two metres, more than one person should lift long lengths of capping or other accessories.  
► Use proper lifting techniques. Lift materials with your legs (do not bend over to lift with your back) and keep the load close to your body. See the chapter on “Back Care” in IHSA’s Construction Health and Safety Manual.  
► Use mechanical devices to spread gravel when possible.  
► Use powered mechanical caulking equipment when possible. |
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| Applies built-up roofing components (cont’d) | | ▶ Arrange material to minimize the amount you have to twist and bend.  
▶ Allow workers to choose between various mop sizes.  
▶ Break up blocks into three or more pieces.  
▶ Roll asphalt kegs instead of lifting them from a pallet.  
▶ Purchase smaller asphalt blocks to reduce weight.  
▶ Use an asphalt tanker truck instead of a kettle. |
| Applies membranes | ▶ Manually handles propane and torches  
▶ Lifts and carries roofing membranes | ▶ 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.  
▶ Use proper lifting techniques. Lift materials with your legs (do not bend over to lift with your back) and keep the load close to your body. See the chapter on “Back Care” in IHSA’s Construction Health and Safety Manual. |
| ▶ Applies membranes using hot process  
▶ Applies membranes using torched-on method  
▶ Applies membranes using hot-air welding  
▶ Applies membranes using cold process  
▶ Applies membranes using mechanical fasteners  
▶ Applies loose-laid membranes  
▶ Installs membrane flashings  
▶ Installs liquid applied roofing membrane |