



## Soft Tissue Injury Prevention Tool

### Tip Sheets

**Trade:** Concrete Work

**Job Task:** Concrete Placement - Shotcrete-Air Placed Concrete

<p><b>General Tasks</b></p> <ul style="list-style-type: none"> <li>➤ Spray concrete onto wall using air hose and pump.</li> <li>➤ Shoveling and removing excess slump/concrete that falls from wall into wheelbarrows.</li> <li>➤ Hand trowel walls to finish concrete.</li> </ul>	<p><b>Common Tools</b></p> <ul style="list-style-type: none"> <li>➤ Concrete Pump</li> <li>➤ Air Hose</li> <li>➤ Hand Trowels</li> <li>➤ Shovels</li> <li>➤ Wheelbarrows</li> </ul>
<p><b>Potential Risk Factors</b> <i>Risk Factors can lead to increased risk for Work Related Musculoskeletal Disorders (WMSD's)</i> This primarily a risk factor if frequent task rotation does not occur.</p> <p><b>Working With Hands Overhead or Elbows Above Shoulders</b></p> <ul style="list-style-type: none"> <li>• Moderate Risk when holding air hose at shoulder level and occasionally above shoulders while applying shotcrete.</li> </ul> <p><b>Extreme Forward Back Bending</b></p> <ul style="list-style-type: none"> <li>• Moderate Risk when laborers frequently shoveling excess slump into wheelbarrows.</li> </ul> <p><b>High Hand Grip Force with Awkward Wrist Posture</b></p> <ul style="list-style-type: none"> <li>• Moderate Risk when statically holding air hose when applying shotcrete and when sanding.</li> </ul> <p><b>Heavy Lifting</b></p> <ul style="list-style-type: none"> <li>• Moderate Risk only if shoveling concrete for extended periods without rotating to other shotcrete tasks.</li> </ul> <p><b>High Hand/Arm and Whole Body Vibration</b></p> <ul style="list-style-type: none"> <li>• Moderate Risk only if running air hose for extended periods without rotating to other shotcrete tasks.</li> </ul>	<p><b>Possible Solutions</b></p> <p><b>Awkward Posture Solutions, Heavy Gripping &amp; Vibration Solutions:</b></p> <ul style="list-style-type: none"> <li>• Minimize sustained awkward postures by rotating to other shotcrete tasks at least every 20-30 minutes.</li> <li>• Utilize pocket hand warmers to intermittently warm the hands particularly when performing air hose work in cold damp weather.</li> <li>• Develop and evaluate the use of handles that can be attached to the hose and positioned as desired to create comfortable hand-holds and reduce grip diameter and high hand force.</li> <li>• Evaluate the use of mortar carts or debris bins when working at ground level to directly catch shotcrete and reduce manual shoveling requirements.</li> <li>• Change hand/arm and back positions frequently when holding the hose during sustained shotcrete work.</li> <li>• Evaluate the use of alternative handles that attach to shovel handle shaft and promote upright shoveling postures, improve leverage and reduce back and leg fatigue.</li> </ul> <p><b>Potential Benefits</b></p> <ul style="list-style-type: none"> <li>✓ Increases productivity.</li> <li>✓ Increases blood flow and reduce muscle tension.</li> <li>✓ Reduces strain on hand and arm muscles.</li> <li>✓ Reduces exertion of lower back.</li> </ul>
	
<p><b>Feasibility</b></p> <ul style="list-style-type: none"> <li>• Engineer Control Grip Tool Wrap????????????????</li> <li>• Administrative Control</li> <li>• Work Practice Control</li> </ul> <p><b>Estimated Cost of Intervention</b></p> <ul style="list-style-type: none"> <li>• \$22.00 for Grip Tool Wrap</li> </ul>	