



School District No. 54  
(Bulkley Valley)

# **HAZARD IDENTIFICATION PROCESS**

## **APPENDIX 3**

**No. of Pages 20**

### **MUSCULOSKELETAL INJURY RISK ASSESSMENT WORKSHEETS**

# MUSCULOSKELETAL INJURY RISK ASSESSMENT WORKSHEETS

## INTRODUCTION & PURPOSE

The *Musculoskeletal Injury Risk Assessment Worksheets* can be used to help achieve compliance with Section 4.48 of the Ergonomics (MSI) Requirements in the Occupational Health & Safety Regulation.

For each risk factor identified, these worksheets will help you determine if the likelihood of injury is low, moderate, or high. You may select and fill out one or more worksheets for each task, depending on which risk factors were identified.

There are eight worksheets, one for each risk factor to be considered as required in *Section 4.49 of the Occupational Health & Safety Regulation*:

1. Force Required-Grip Force
2. Force Required-Lifts, Lowers or Carries Objects
3. Force Required-Pushes or Pulls Objects
4. Work Postures
5. Aspect of Layout & Condition of Workplace or Workstation
6. Local Contact Stress
7. Environmental Conditions
8. Work Organization

There are no distinct worksheets for the risk factors Repetition, Duration, and Objects Handled. Instead these factors were incorporated into other worksheets where appropriate.

For each risk factor parameter, scenarios are described under the Low Risk, Moderate Risk, or High Risk columns. Corresponding scores reflect the risk i.e. a score of '1' represents low risk, a score of '2' represents moderate risk, and a score of '3' represents high risk.

You can use these worksheets to determine appropriate risk controls. Where observations fall into a high risk category, look to see what the lower risk category requires to determine if it is practicable for your particular situation.

For each worksheet, a subtotal score can be determined. The subtotal for a particular worksheet can be compared before and after ergonomics improvements are made as evidence of risk reduction.

For all worksheets filled out for a particular task, a total score can be determined. The total score can be compared between tasks for prioritizing tasks for risk control (those with the highest total score have the highest risk).

## **ASSESSMENT INSTRUCTIONS**

- STEP 1** Fill out the Task Analysis Worksheet.
- STEP 2** Select the applicable MSI Risk Assessment Worksheets to reflect the risk factors identified.
- STEP 3** Read down the first column to determine which risk factor parameters are applicable (Not all parameters may be pertinent. For example, under Grip Force, vibration may not be present in a hand tool, therefore, skip ‘vibration’ and go to the next parameter).
- STEP 4** For each pertinent parameter, circle the descriptor or parts thereof which best apply and enter the corresponding score in the far right column.
- Note: When observations fit between the High and Low Risk categories, but a blank box exists for Moderate Risk, write in your specific scenario and enter a corresponding score of ‘2’.*
- If a parameter is not present or observed, do not enter a score, and go to the next parameter.*
- If there are 2 or more observations for a particular parameter, the highest score (highest risk category) should be recorded.*
- STEP 5** Add the corresponding scores and enter the subtotal in the space provided at the bottom of the worksheet.
- STEP 6** Once all applicable worksheets have been filled out, transfer the subtotals from the individual worksheets to the summary sheet in the column labeled *Before*.
- STEP 7** Parameters which were described as high or moderate risk (corresponding scores of 2 or 3) need to be targeted for risk control. The goal is to implement changes to reduce the overall risk which will be reflected in reduced subtotals on one or more worksheets or a reduced total score for a task.
- STEP 8** After controls have been implemented, go through STEPS 2 to 5 and enter the total score on the Summary Worksheet in the column labeled *After*.

# **TASK ANALYSIS**

**Date of Assessment:** \_\_\_\_\_

**Job Title:** \_\_\_\_\_

**List tasks in the job and specify the relative percentage of a shift spent performing each task:**

	<b>TASK LIST</b>	<b>% OF SHIFT</b>
<b>1.</b>		
<b>2.</b>		
<b>3.</b>		
<b>4.</b>		
<b>5.</b>		

**Task observed for this assessment:** \_\_\_\_\_

**List activities involved in task:**

**Include worker comments about task (i.e. discomfort, effort required):**

**Assessment Completed By:** \_\_\_\_\_

**Name(s) of worker(s) observed/interviewed:** \_\_\_\_\_

\_\_\_\_\_

## **FORCE REQUIRED - GRIP FORCE**

<b>RISK FACTOR PARAMETERS</b>	<b>LOW RISK</b> <i>Score = 1</i>	<b>MODERATE RISK</b> <i>Score = 2</i>	<b>HIGH RISK</b> <i>Score = 3</i>	<b>SCORES</b>
<b>Wrist Posture</b>	Neutral or straight wrist position.	Wrist in partial flexion or extension.	Grasping while wrist in extreme range of motion.	
<b>Gloves</b>	Good fitting, high friction	Good fitting, poor friction	Poor fitting or increased slipperiness between hand & object.	
<b>Hand-Arm Vibration</b> <i>(OH&amp;S Regulation Section 7.25)</i>	Dampened, acceleration < 4 m/s/s.	Acceleration > 4 & < 12 m/s/s.	Acceleration > 12 m/s/s, above <b>ISO</b> ( <i>Standard 5349-1986</i> ), or above <b>ANSI</b> ( <i>Standard S3.34-1986</i> ).	
<b>Grip Type</b>	Power grip: thumb & forefinger slightly overlap.	Pinch grip, but with palmar contact or partial power grip.	Pinch grip or no overlap of thumb & forefinger.	
<b>Grip Span</b>	Thumb & forefinger slightly overlap around a closed grip, or 3.7 cm diameter grip size.	Thumb & forefinger overlap greatly.	Requires a wide span grip.	
<b>Grip Effort</b>	Holds object weighing 10 lb. or < in power grip, holds object weighing 2 lb. or < in pinch grip, or low worker effort.	Medium worker effort.	Holds object weighing 10 lb. or > in power grip, holds object weighing 2 lb. or > in pinch grip, or high worker effort.	
<b>Object Temperature</b>	Comfortably warm object.		Very cold object or cold exhaust on hands.	
<b>Object Surface</b>	High friction surface to allow worker to gain comfortable & efficient grip.		Slippery object requiring increased grip force to hold.	

## **FORCE REQUIRED - GRIP FORCE**

*(Continued.....)*

<b>RISK FACTOR PARAMETERS</b>	<b>LOW RISK Score = 1</b>	<b>MODERATE RISK Score = 2</b>	<b>HIGH RISK Score = 3</b>	<b>SCORES</b>
<b>Frequency</b>	<ul style="list-style-type: none"> <li>• Hands idle most of time, or consistent conspicuous pauses.</li> <li>• &lt; than 10 repetitions per minute when performed for at least 60 minutes continuously.</li> <li>• Gripping for &lt; than 5 seconds at once.</li> </ul>	<ul style="list-style-type: none"> <li>• Slow or steady gripping, but with frequent pauses.</li> <li>• Gripping for &gt; than 5 seconds but &lt; than 30 seconds at any one time.</li> <li>• &gt; than 10 repetitions per minute, but &lt; than 60 minutes continuous.</li> </ul>	<ul style="list-style-type: none"> <li>• Rapid, steady gripping.</li> <li>• No opportunity for pauses.</li> <li>• Difficulty keeping up.</li> <li>• &gt; than 10 repetitions per minute when performed for at least 60 minutes continuously.</li> <li>• Gripping for 30 seconds or &gt; at once.</li> </ul>	
<b>Duration</b>	Up to 25% of shift.	26% - 50% of shift.	51% – 100% of shift.	
<b>Exposure Pattern</b>	Occasional (Not daily).	Daily – Intermittent.	Daily – Continuous.	

## **FORCE REQUIRED - LIFTS, LOWERS, OR CARRIES OBJECTS**

<b>RISK FACTOR PARAMETERS</b>	<b>LOW RISK Score = 1</b>	<b>MODERATE RISK Score = 2</b>	<b>HIGH RISK Score = 3</b>	<b>SCORES</b>
<b>Weight of Object</b>	< than 8 kg. (17 lb.)	8 - 23 kg. (17-51 lb.)	> than 23 kg. (51 lb.)	
<b>Distance Load is Away from Body</b>	0 - 10 cm. (0-4 in.)	> than 10 cm. (4 in.), up to 25 cm. (10 in.)	> than 25 cm. (10 in.)	
<b>Location of Load at Start or End of Lift</b>	Between hip & shoulder height.	Between knee & hip height.	Below knee level or above shoulder height.	
<b>Asymmetry</b>	Shoulders turned up to 20°, uses 2 hands.	Shoulders turned 20° - 45°.	Shoulders turned > than 45°, uses 1 hand.	

## **FORCE REQUIRED - LIFTS, LOWERS, OR CARRIES OBJECTS**

*(Continued.....)*

<b>RISK FACTOR PARAMETERS</b>	<b>LOW RISK <i>Score = 1</i></b>	<b>MODERATE RISK <i>Score = 2</i></b>	<b>HIGH RISK <i>Score = 3</i></b>	<b>SCORES</b>
<b>Size and Shape of Object</b>	Small compact load.		Object > 50 cm. (20 in.) wide, > 30 cm. (12 in.) long, or has any 2 dimensions (Height, width, or depth), = up to > 75 cm. (30 in.).	
<b>Load Condition</b>	Dry, predictable, moderate temperature.		Slippery, wet, extremes of temperature (cold/hot), unpredictable.	
<b>Weight Distribution of Load</b>	Stable, solid load.		Top-heavy load, liquid, shifting centre of gravity, or unbalanced.	
<b>Hand Coupling</b>	Hand wraps easily around object, hand holds are optimal in location & size.	Hand is able to flex 90° around object, handles or hand holds are less than optimal.	No handles, surface of load is non-rigid, irregular in shape, or sharp, resulting in poor grip.	
<b>Seated Lifting or Lowering</b>	< than 1 kg. (2 lb.)	1-5 kg. (2-11 lb.)	> than 5 kg. (11 lb.)	
<b>Carry</b>	Carries 8 kg. or > less than 3 m. (10 ft.)	Carries 8 kg. or > 3-9 m. (10-30 ft.)	Carries 8 kg. or > , greater than 9 m. (30 ft.)	
<b>Frequency</b>	< than 1 lift, lower or carry per minute.	1-5 lifts, lowers, or carries per minute.	> than 5 lifts, lowers, or carries per minute.	
<b>Duration</b>	Up to 25% of shift.	26 - 50% of shift.	51 - 100% of shift.	
<b>Exposure Pattern</b>	Occasional (Not daily).	Daily – Intermittent.	Daily – Continuous.	
			<b>SUBTOTAL</b>	

\* NIOSH, Snook tables or Mital tables can also be used for a more detailed assessment.

## **FORCE REQUIRED - PUSHES OR PULLS OBJECTS**

<b>RISK FACTOR PARAMETERS</b>	<b>LOW RISK <i>Score = 1</i></b>	<b>MODERATE RISK <i>Score = 2</i></b>	<b>HIGH RISK <i>Score = 3</i></b>	<b>SCORES</b>
<b>Distance Travelled</b>	Pushes or pulls 9 kg. or more < than 2 m. (7 ft.)	Pushes or pulls 9 kg or > 2 - 60 m. (7 - 197 ft.)	Pushes or pulls 9 kg or more more than 60 m. (197 ft.)	
<b>Force</b>	Less than 9 kg. (20 lb.) of force required, no difficulty initiating movement.	9 - 23 kg. (20 - 50 lb.) of force required such as moving a shopping cart loaded with 200 lb. of groceries.	More than 23 kg. (50 lb.) of force required, difficult to initiate movement, such as moving a 2 drawer, full, file cabinet across carpeted floor.	
<b>Handle Height</b>	Variable height with respect to user. Worker able to keep elbow bent between 80° - 100°.		Height too high - worker's arms elevated, or height too low – worker stooped or twisted.	
<b>Floor Surface</b>	Smooth, < than 10% slope.		Uneven, cluttered surface, > 10% slope.	
<b>Asymmetry</b>	Arms in front of body, uses 2 hands.	Uses 1 hand in front of body, but body is not twisted	<ul style="list-style-type: none"> <li>• reaches behind body.</li> <li>• is twisted.</li> <li>• uses 1 hand.</li> <li>• pushes/pulls across the front of the body.</li> </ul>	
<b>Condition of Equipment</b>	Well maintained equipment, such as well lubricated castors.		Poorly maintained.	
<b>Stability of Load</b>	Stable & well balanced.		Unstable, unpredictable, shifting centre of gravity.	
<b>Design of Equipment</b>	Suitable for the task including size and weight of load, travel distance, etc..		Equipment not suitable for task.	

**FORCE REQUIRED - PUSHES OR PULLS OBJECTS**  
**(Continued.....)**

<b>RISK FACTOR PARAMETERS</b>	<b>LOW RISK <i>Score = 1</i></b>	<b>MODERATE RISK <i>Score = 2</i></b>	<b>HIGH RISK <i>Score = 3</i></b>	<b>SCORES</b>
<b>Space considerations</b>	Open space - no restriction.		Small space, standing close to load, difficult for worker to get enough leverage to start the load moving.	
<b>Frequency</b>	1 push or pull every 8 hours.		1 push or pull every 6 seconds.	
<b>Duration</b>	Up to 25% of shift.	26% - 50% of shift.	51% - 100% of shift.	
<b>Exposure Pattern</b>	Occasional (Not daily).	Daily – Intermittent.	Daily – Continuous.	
<b>SUBTOTAL</b>				

**WORK POSTURES**

Risk Factor Parameters	Low Risk	Moderate Risk	High Risk	<i>Enter corresponding scores below</i>
	1	2	3	
<p><b>Neck Posture</b>  <i>Also refer to Aspects of the Layout and Condition of the Workplace or Workstation and Environment worksheets</i></p>	<ul style="list-style-type: none"> <li>• Bent forward 0-10°</li> <li>• Bent back 0-10°</li> <li>• Side bending 0-10°</li> <li>• Twisting 0-10°</li> </ul>	<ul style="list-style-type: none"> <li>• Bent forward 10-30°</li> <li>• Bent back 10-20°</li> <li>• Side bending 10-30°</li> <li>• Twisting 10-20°</li> </ul>	<ul style="list-style-type: none"> <li>• Bent forward more than 30°</li> <li>• Bent back more than 20°</li> <li>• Side bending more than 30°</li> <li>• Twisting more than 20°</li> </ul>	
<p><b>Trunk Posture</b>  <i>Also refer to Aspects of the Layout and Condition of the Workplace or Workstation worksheets</i></p>	<ul style="list-style-type: none"> <li>• Forward bending 0-20°</li> <li>• Backward bending 0-10°</li> <li>• Twisting 0-20°</li> <li>• Side bending 0-10°</li> </ul>	<ul style="list-style-type: none"> <li>• Forward bending 20-45°</li> <li>• Backward bending 10-20°</li> <li>• Twisting 20-45°</li> <li>• Side bending 10-20°</li> </ul>	<ul style="list-style-type: none"> <li>• Forward bending more than 45°</li> <li>• Backward bending more than 20°</li> <li>• Twisting more than 45°</li> <li>• Side bending more than 20°</li> <li>• Squatting or kneeling</li> </ul>	
<p><b>Shoulder Posture</b>  <i>Also refer to Aspects of the Layout and Condition of the Workplace or Workstation worksheets</i></p>	<ul style="list-style-type: none"> <li>• Arm raised from shoulder in front of body 0-45°</li> <li>• Arm raised to side of body 0-45°</li> <li>• Arm behind body 0-10°</li> </ul>	<ul style="list-style-type: none"> <li>• Arm raised from shoulder in front of body 45-90°</li> <li>• Arm raised to side of body 45-90°</li> <li>• Arm behind body 10-20°</li> </ul>	<ul style="list-style-type: none"> <li>• Arm raised from shoulder in front of body more than 90°</li> <li>• Arm raised to side of body more than 90°</li> <li>• Arm behind body more than 20°</li> </ul>	

Risk Factor Parameters	Low Risk	Moderate Risk	High Risk	<i>Enter corresponding scores below</i>
	1	2	3	
<p><b>Wrist Posture</b>  <i>Also refer to Aspects of the Layout and Condition of the Workplace or Workstation worksheets</i></p>	<ul style="list-style-type: none"> <li>• Wrist bent towards palm 0-15°</li> <li>• Wrist bent backwards 0-25°</li> <li>• Wrist bent towards pinkie 0-15°</li> <li>• Wrist bent towards thumb 0-5°</li> </ul>	<ul style="list-style-type: none"> <li>• Wrist bent towards palm 15-30°</li> <li>• Wrist bent backwards 25-40°</li> <li>• Wrist bent towards pinkie 15-20°</li> <li>• Wrist bent towards thumb 5-10°</li> </ul>	<ul style="list-style-type: none"> <li>• Wrist bent towards palm more than 30°</li> <li>• Wrist bent backwards more than 40°</li> <li>• Wrist bent towards pinkie more than 20°</li> <li>• Wrist bent towards thumb more than 10°</li> </ul>	
<b>Subtotal</b>				

**WORK POSTURES (Continued.....)**

<b>Risk Factor Parameters</b>	<b>Low Risk Score = 1</b>	<b>Moderate Risk Score = 2</b>	<b>High Risk Score = 3</b>	<i>Enter corresponding scores below</i>
<b>Forearm Posture</b>	Forearm not rotated or forearm turned so palms face inwards		Forearm rotation or forearms turned so palms face all the way up or down	

<b>Fingers</b>	In line with hand	Bent somewhat backwards	Bent extremely backwards	
<b>Seated Knee Posture</b>	Knee angle between 95 and 120° when seated		Knee angle < 95° or > 120°s when seated or kneeling	
<b>Ankle Posture</b>	Ankle posture between 85° and 95°		Ankle posture <85° or >95°	
<b>Frequency</b>	<p><b>Shoulder:</b> less than 2.5 repetitions per minute if performed for 60 minutes continuously</p> <p><b>Elbow, Forearm and Wrist:</b> less than 10 repetitions per minute if performed for 60 minutes continuously</p> <p><b>Fingers:</b> less than 100 repetitions per minute if performed for 60 minutes continuously</p> <p><b>Any:</b> posture held less than 5 seconds at once</p> <p><b>Any:</b> repeated less than 60 minutes continuously</p>	<p><b>Shoulder:</b> more than 2.5 repetitions per minute performed less than 60 minutes continuously</p> <p><b>Elbow, Forearm and Wrist:</b> more than 10 repetitions per minute performed less than 60 minutes continuously</p> <p><b>Fingers:</b> more than 100 repetitions per minute performed less than 60 minutes continuously</p> <p><b>Any:</b> posture held for more than 5 seconds but less than 30 seconds at once</p>	<p><b>Shoulder:</b> more than 2.5 repetitions per minute if performed for 60 minutes or more continuously</p> <p><b>Elbow, Forearm and Wrist:</b> more than 10 repetitions per minute if performed for 60 minutes or more continuously</p> <p><b>Fingers:</b> more than 100 repetitions per minute performed for 60 minutes or more continuously</p> <p><b>Any:</b> posture held for more than 30 seconds at once</p>	
<b>Duration</b>	Up to 25% of shift	26-50% of shift	51-100% of shift	
<b>Exposure Pattern</b>	Occasional (not daily)	Daily – intermittent	Daily - continuous	
<b>Subtotal</b>				

**ASPECT OF LAYOUT & CONDITION OF WORKPLACE OR WORKSTATION**

Risk Factor Parameters	Low Risk	Moderate Risk	High Risk	<i>Enter corresponding scores below</i>
	Score = 1	Score = 2	Score = 3	
<p><b>Standing Work Height</b></p> <p><i>Also determine neck, shoulder, or trunk posture</i></p>	<ul style="list-style-type: none"> <li>Precision task: 95-120 cm. or 4-6 cm above worker's elbow height</li> <li>Light work (e.g. assembly) 85-110 cm or 5-10 cm below worker's elbow height</li> <li>Heavy work (downward force) task: 65-95 cm. or 20-40 cm below worker's elbow height.</li> </ul>	<ul style="list-style-type: none"> <li>Work heights are within guidelines (left) but awkward postures of the neck, shoulder or trunk still occur.</li> <li>Work heights are not within guidelines (right) but awkward postures of the neck, shoulder, or trunk do not occur.</li> </ul>	<ul style="list-style-type: none"> <li>Precision task: &lt; 95 or &gt;120 cm.</li> <li>Light work &lt;85 or &gt;110 cm.</li> <li>Heavy work task: &lt;65 or &gt;95cm.</li> </ul>	
<p><b>Seated Work Height</b></p> <p><i>Also determine neck, shoulder, or trunk posture</i></p>	<ul style="list-style-type: none"> <li>Precision work (highly visual): 80-110 cm.</li> <li>Light work (e.g. assembly) 63-76 cm.</li> <li>Computer work: 55-75 cm.                             <ul style="list-style-type: none"> <li>Heavy work (downward force) task: 66-72 cm.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Work heights are within guidelines (left) but awkward postures of the neck, shoulder or trunk still occur.</li> <li>Work heights are not within guidelines (right) but awkward postures of the neck, shoulder, or trunk do not occur.</li> </ul>	<ul style="list-style-type: none"> <li>Precision work (highly visual): &lt;80 or &gt;110 cm.</li> <li>Light work (e.g. assembly): &lt;63 or &gt;76 cm.</li> <li>Computer work: &lt;55 or &gt;75 cm.</li> <li>Heavy work (downward force) task: &lt;66 or &gt;72 cm.</li> </ul>	
<p><b>Standing Horizontal</b></p>	<ul style="list-style-type: none"> <li>One hand reach &lt;46 cm.</li> </ul>	<ul style="list-style-type: none"> <li>Horizontal reach distance</li> </ul>	<ul style="list-style-type: none"> <li>One hand reach &gt;46 cm.</li> </ul>	

Risk Factor Parameters	Low Risk	Moderate Risk	High Risk	Enter corresponding scores below
	Score = 1	Score = 2	Score = 3	
<b>Reach</b>  <i>Also determine shoulder, wrist or trunk posture</i>	<ul style="list-style-type: none"> <li>Two hand reach &lt;36 cm.</li> <li>Side reach &lt;46 cm.</li> <li>No reaching behind the body</li> </ul>	<ul style="list-style-type: none"> <li>within guidelines (left) but awkward posture of the neck, shoulder or posture occurs</li> <li>Horizontal reach distances not within guidelines (right) but no awkward neck, shoulder or trunk postures</li> </ul>	<ul style="list-style-type: none"> <li>Two hand reach &gt;36 cm.</li> <li>Side reach &gt;46 cm.</li> <li>Any reaching behind the body</li> </ul>	
<b>Sitting Horizontal Reach</b>  <i>Also determine shoulder, wrist or trunk posture</i>	<ul style="list-style-type: none"> <li>Frequent forward reach &lt;30 cm.</li> <li>Frequent side reach &lt;40 cm.</li> <li>Occasional forward reach &lt;75 cm.</li> <li>Occasional side reach &lt;80 cm</li> <li>Infrequent forward reach &lt;50 cm.</li> <li>Infrequent side reach &lt;60 cm.</li> </ul>	<ul style="list-style-type: none"> <li>Horizontal reaches within guidelines (left) but awkward trunk or shoulder postures occur.</li> <li>Horizontal reaches not within guidelines (right) but no awkward trunk or shoulder postures occur.</li> </ul>	<ul style="list-style-type: none"> <li>Frequent forward reach &gt;30 cm.</li> <li>Frequent side reach &gt;40 cm.</li> <li>Occasional forward reach &gt;75 cm.</li> <li>Occasional side reach &gt;80 cm</li> <li>Infrequent forward reach &gt;50 cm.</li> <li>Infrequent side reach &gt;60 cm.</li> </ul>	

**ASPECT OF LAYOUT & CONDITION OF WORKPLACE OR WORKSTATION**

*(Continued.....)*

Risk Factor	Low Risk Score = 1	Moderate Risk Score = 2	High Risk Score = 3	Enter corresponding scores
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Parameter s				<i>below</i>
<b>Chair or Seating</b>	<ul style="list-style-type: none"> <li>• Lumbar support is adjustable and tilts.</li> <li>• Seat pan tilts, has a waterfall design and is covered with breathable material.</li> <li>• Easily height adjustable and has a 5-star base.</li> </ul>	<ul style="list-style-type: none"> <li>• Lumbar support is not adjustable and backrest does not tilt.</li> <li>• Seat pan is covered with breathable material but does not tilt.</li> <li>• Height adjustable with tools with 5-star base.</li> </ul>	<ul style="list-style-type: none"> <li>• No lumbar support.</li> <li>• Seat pan is hard and does not tilt.</li> <li>• Not height adjustable or does not have 5-star base support.</li> </ul>	
<b>Work Area Characteristics</b>	<ul style="list-style-type: none"> <li>• Open area</li> <li>• Work postures are not confined</li> </ul>	<ul style="list-style-type: none"> <li>• Moderately sized work pace with minimal clutter.</li> <li>• Worker occasionally needs to accommodate posture due to restriction in work space.</li> </ul>	<ul style="list-style-type: none"> <li>• Small tight work space.</li> <li>• Worker needs to get into awkward posture to perform task.</li> <li>• Highly cluttered area, worker needs to work around or over obstacle.</li> </ul>	
<b>Floor Surfaces</b>	<ul style="list-style-type: none"> <li>• Stands/walks on anti-fatigue mat.</li> <li>• Stands using footrests regularly</li> </ul>	<ul style="list-style-type: none"> <li>• Stands with foot-rest occasionally.</li> <li>• Stands/walk on mat (not anti-fatigue) occasionally</li> </ul>	<ul style="list-style-type: none"> <li>• Stands or walks on non-resilient floor, no foot-rest</li> </ul>	
<b>Pedals or Knee/Foot Controls</b>	<ul style="list-style-type: none"> <li>• Ankle remains between 85 and 95°</li> <li>• No exertion required to actuate</li> </ul>	<ul style="list-style-type: none"> <li>• Ankle posture less than 85° or more than 95° but not near extreme joint range of motion</li> <li>• Some exertion</li> </ul>	<ul style="list-style-type: none"> <li>• Ankle posture near extreme joint range of motion</li> <li>• Requires standing on one leg to</li> </ul>	

		to actuate	operate. <ul style="list-style-type: none"> <li>• Ankle inverted (foot turned in to actuate)</li> <li>• Noticeable exertion to actuate</li> </ul>	
<b>Duration</b>	Up to 25% of shift	26-50% of shift	51-100% of shift	
<b>Exposure Pattern</b>	Occasional (not daily)	Daily – intermittent	Daily - continuous	
<b>Subtotal</b>				

**LOCAL CONTACT STRESS**

	Low Risk	Moderate Risk	High Risk	
Risk Factor Parameters	Score = 1	Score = 2	Score = 3	<i>Enter scores below</i>
<b>From an object</b>	<ul style="list-style-type: none"> <li>• Workers report little pressure is exerted on the skin</li> <li>• Tool has rounded handle</li> </ul>	<ul style="list-style-type: none"> <li>• Workers report some pressure is exerted on the skin</li> <li>• Tool has contoured handle</li> </ul>	<ul style="list-style-type: none"> <li>• Marks or depressions left on the skin, or high pressure/force is exerted</li> <li>• Tool has sharp edges</li> <li>• Tool butts into base of hand</li> <li>• Tool has ringed handles (scissors)</li> </ul>	
<b>Uses hand or body part to impact</b>	Hand or body part impacts soft or rounded object		Hand or body part impacts hard object	
<b>From kneeling or resting body weight</b>	Cushioning used regularly	Leaning on semi-hard surface without cushioning	Leans on hard surface without cushioning	
<b>Frequency</b>	Occurs infrequently (more than 60 minutes passes)	Occurs occasionally (every 10 to 60 minutes)	Occurs frequently (every 10 minutes or less)	
<b>Duration</b>	Up to 25% of shift	26 - 50% of shift	51 – 100% of shift	
<b>Exposure Pattern</b>	Occasional – not daily	Daily – intermittent	Daily - continuous	
<b>Subtotal</b>				

**ENVIRONMENTAL CONDITIONS**

	<b>Low Risk</b>	<b>Moderate Risk</b>	<b>High Risk</b>	
<b>Risk Factor Parameters</b>	<b>Score = 1</b>	<b>Score = 2</b>	<b>Score = 3</b>	<i>Enter score below</i>
<b>Lighting conditions</b>	Appropriate lighting for task. Worker can assume comfortable position to see task.	Occasional lighting changes result in worker using awkward posture.	Low light level, worker hunching over OR high light level, worker avoiding glare by changing work position.	
<b>Ambient temperature</b>	Working temperature is comfortable and unnoticeable	Working temperature is occasionally uncomfortable	Working temperature is frequently uncomfortable	
<b>Temperature of objects handled</b>	Comfortably warm objects are handled and hands are not exposed to uncomfortably cold temperatures	Object temperature and hand temperature are between those described for 1 and 3	The object is very cold or there is cold exhaust on hands	
<b>Noise level under usual conditions (i.e. with hearing protection if usually worn)</b>	Noise level is comfortable and unnoticeable	Noise levels are occasionally uncomfortable and distracting	Noise levels are frequently annoying, distracting or producing hearing loss	
<b>Stands or sits on a vibrating surface (ISO 2631/1985)</b>	Vibration dampened or comfortable	Vibration is present and noticeable	Vibration is measured as excessive, is annoying or uncomfortable	
<b>Exposure Pattern</b>	Occasional – not daily	Daily – intermittent	Daily – continuous	
<b>Shift Duration</b>	Up to 25% of shift	26-50% of shift	More than 50% of shift	
<b>Subtotal</b>				

## WORK ORGANIZATION

	Low Risk	Moderate Risk	High Risk	
Risk Factor Parameters	Score = 1	Score = 2	Score = 3	<i>Enter scores below</i>
<b>Work-recovery cycles</b>	Consistent, conspicuous pauses	Frequent pauses	No regular pauses	
<b>Task variability</b>	Variety of tasks performed allowing for use of different body parts/muscle groups	Tasks are repetitive for short periods and somewhat variable throughout the entire workday	Monotonous or repetitive use of the same body parts using the same muscle groups for long periods of time	
<b>Work rate</b>	<ul style="list-style-type: none"> <li>• No difficulty keeping pace</li> <li>• Self paced</li> </ul>	<ul style="list-style-type: none"> <li>• Slow or steady motions</li> </ul>	<ul style="list-style-type: none"> <li>• Rapid steady motion and/or difficulty keeping up</li> <li>• Incentive pay or fast marching pacing</li> </ul>	
<b>Exposure Pattern</b>	Occurs infrequently (more than 60 minutes passes)	Occurs occasionally (every 10 to 60 minutes)	Occurs frequently (every 10 minutes or less)	
<b>Duration</b>	Up to 25% of shift	26 - 50% of shift	51 - 100% of shift	
<b>Subtotal</b>				

## SUMMARY

<b>Worksheet</b>	<b>Subtotal <i>Before Change</i></b>	<b>Subtotal <i>After Change</i></b>
1. Force Required-Grip Force		
2. Force Required-Lift, Lower or Carries Objects		
3. Force Required-Pushes or Pulls Objects		
4. Work Postures		
5. Local Contact Stresses		
6. Aspect of layout and Condition of Workplace or Workstation		
7. Environmental Conditions		
8. Work Organization		
<b>Total Score</b>		