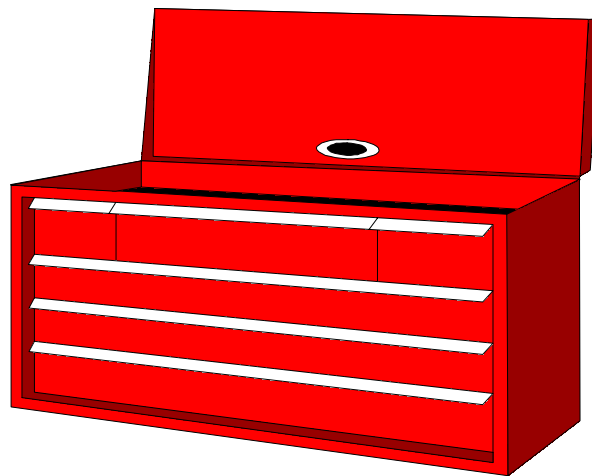


# INDUSTRIAL MUSCULOSKELETAL INJURY REDUCTION PROGRAM

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## Common Industry Jobs (CIJs) Assistant Shipper Tool Kit



**IMIRP** program coordinated by:

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Council of  
Forest  
Industries



Industrial  
Wood & Allied  
Workers of  
Canada



Advanced  
Ergonomics  
Inc.

In cooperation with the Workers' Compensation Board of British Columbia

# ASSISTANT SHIPPER TOOL KIT

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Assistant Shipper  
Tool Kit

## Overview

# Assistant Shipper

### Job Summary

An Assistant Shipper is responsible for the organisation and loading of lumber from the lumber yard. An Assistant Shipper will check inventory, tally loads, organise forklift work, work on paperwork or the computer, and band or cable loads for railcars. Refer to the Physical Demands Analysis for more detail.

### Physical Demands

The physical demands of the Assistant Shipper may include:

- a) Repetitive motions of the foot
- b) Awkward postures of the neck, shoulder, and wrist
- c) Static loading of the neck, shoulder, and low back
- d) Walking to take inventory, tally, organise the forklifts, and band or cable loads
- e) Sitting while working on paperwork or the computer
- f) Standing to take inventory
- g) Crouching to tally loads, take inventory, and band or cable loads

### Mental Demands

An Assistant Shipper may have to weigh different outcomes at the same time and determine the appropriate action to take (e.g., producing a loading diagram, organising the forklifts and processing local sales). This may be performed under time constraints (e.g., end of the month shipping requests are significantly higher than the beginning of the month).

**Major  
Variations**

With different mills, the following major variations may be found:

- 1) An Assistant Shipper may also perform other duties such as:
  - a) Hog Operator
  - b) Maintenance/clean-up
  - c) Shipper Co-ordinator

**Minor  
Variations**

With different mills, the following minor variations may be found:

- 1) To tally a load an Assistant Shipper may use a:
  - a) Scanner
  - b) Stapler
  
- 2) To perform office duties an Assistant Shipper may use a:
  - a) Computer
  - b) Paper and pen

# Physical Demands Analysis Assistant Shipper

## PDA General Instructions: Assistant Shipper

The purpose of this PDA is to familiarise healthcare professionals with the physical demands of an Assistant Shipper. This PDA can be used to gather information about an individual's job and to assist in developing a rehabilitation and return-to-work plan. It is not intended for use in claims adjudication.

Where applicable, common industry job data (e.g., hand tools, tasks) have been included in the tables of this document. The information reported was collected from a sample of Assistant Shipper(s) in the BC Sawmill Industry. However, the PDA requires completion by the healthcare professional, with input from the injured worker to highlight tasks that aggravate the injury or prevent the worker from returning to their job. The worker's supervisor may be contacted for further information or verification of tasks.

A PDA should be filled out for each individual worker following an injury. Subsequent changes in the work process may reduce the accuracy of any pre-existing physical demands assessments.

### **Disclaimer**

*The IMIRP Society accepts no responsibility for the use or misuse of the PDA,  
or the accuracy of the PDA as it applies to any specific workplace.*

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# Physical Demands Analysis Assistant Shipper

## Task List

For each of the tasks listed below, please indicate whether it occurs at the mill.

### **Inventory**

The Assistant Shipper may take inventory of the lumber in yard during the shift.

*Does this task occur at your mill?*

Yes       No



### **Organise forklift work**

An Assistant Shipper may co-ordinate the activity of the forklifts in the lumber yard during the shift.

*Does this task occur at your mill?*

Yes       No



## Tally loads

An Assistant Shipper may tally the load for the trucks or railcars by:

Designing the layout of the lumber on the truck/railcar from the order form.

*Does this task occur at your mill?*

Yes     No



Tagging or scanning the lumber in the yard for the forklift to load on the truck/railcar.

*Does this task occur at your mill?*

Yes     No



Checking over the layout of the truck/railcar before it leaves the lumber yard.

*Does this task occur at your mill?*

Yes     No



## Office work

An Assistant shipper may work at a:

Desk to process paperwork and local sales

*Does this task occur at your mill?*

Yes       No



Computer to process paperwork and local sales.

*Does this task occur at your mill?*

Yes       No



## Band/cable loads

An Assistant Shipper may band/cable loads for the railcars.

*Does this task occur at your mill?*

Yes       No



## **Other duties**

An Assistant Shipper may perform other duties such as monitoring the hog, fire watch, clean-up, maintenance, and Shipper Co-ordinator duties.

*Does this task occur at your mill?*

Yes

No

## Job Profile

Date: \_\_\_\_\_

Company Name: \_\_\_\_\_

Division: \_\_\_\_\_

Employee Name: \_\_\_\_\_

Supervisor: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Is a Return-to-Work (RTW) strategy in place?  Yes  No

If yes, check all that apply:  Modified Job  Modified Worksite  Graduated RTW

Describe:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Length of shift \_\_\_\_\_ hours

Formal breaks

- Two 10 minute breaks
- One 30 minute lunch break
- Other: \_\_\_\_\_

Informal breaks

- Yes, length of break varies
- Yes, \_\_\_\_\_ minutes/shift

Work pace control

- Self-paced
- Time pressure (e.g., completing a task during the 30 minute lunch break)
- Other: \_\_\_\_\_

Job rotation

Describe:

Yes  No

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Work Organisation

### Task Description

The table below contains a list of tasks performed by an Assistant Shipper. Use the left column to check off (✓) tasks that are present. Estimate the *Percent of Shift* each task is performed and place a check mark (✓) in the appropriate column. The *Comments* section may be used to include information related to duration, frequency, and cycle times. Additional tasks can also be included under *Other*.

Task	Percent of Shift				Comments
	Rarely 0 to 5%	Occasionally 6 to 33%	Frequently 34 to 66%	Constantly 67 to 100%	
<i>Inventory</i>					<ul style="list-style-type: none"> <li>• <i>Frequency may increase during the last two weeks of the month when sales increase</i></li> </ul>
<i>Organise forklift work</i>					<ul style="list-style-type: none"> <li>• <i>Frequency may increase during the last two weeks of the month when sales increase</i></li> <li>• <i>Frequency may increase when sales for the day increase beyond average levels</i></li> </ul>
<i>Tally loads</i>					<ul style="list-style-type: none"> <li>• <i>Frequency may increase during the last two weeks of the month when sales increase</i></li> <li>• <i>Frequency may increase when sales for the day increase beyond average levels</i></li> </ul>
<i>Office work</i>					<ul style="list-style-type: none"> <li>• <i>Frequency may increase during the last two weeks of the month when sales increase</i></li> <li>• <i>Frequency may increase when sales for the day increase beyond average levels</i></li> </ul>
<i>Band/cable loads</i>					<ul style="list-style-type: none"> <li>• <i>Frequency may increase during the last two weeks of the month when sales increase</i></li> <li>• <i>See Car Loader Tool Kit for more details</i></li> </ul>
<i>Other:</i>					

## **Workstation Characteristics**

### **Dimensions & Layout**

Sketch workstation(s) and indicate relevant measurements, such as working heights and reaches.

**Flooring, Displays & Seating**

The table below lists several components of a workstation. For *Flooring* and *Displays* there are several options provided. Please indicate all of the options that apply to the workstation. For the *Seating* section, describe and identify the features of the seat, if applicable. The *Comments* section may be used to include additional information, especially any workstation characteristics of concern.

Workstation Characteristics	Comments
<p><b>Flooring</b> (<i>Check all that apply</i>)</p> <p><input type="checkbox"/> Cement</p> <p><input type="checkbox"/> Wood</p> <p><input type="checkbox"/> Rubber matting</p> <p><input type="checkbox"/> Metal</p> <p><input type="checkbox"/> Other: _____</p>	
<p><b>Displays</b> (<i>Check all that apply</i>)</p> <p><input type="checkbox"/> Lights on console</p> <p><input type="checkbox"/> Mirrors</p> <p><input type="checkbox"/> Video monitors</p> <p><input type="checkbox"/> Computer monitors</p> <p><input type="checkbox"/> Scrolling display</p> <p><input type="checkbox"/> Signal lights</p> <p><input type="checkbox"/> Other: _____</p>	
<p><b>Seating</b> (<i>Check all that apply</i>)</p> <p><input type="checkbox"/> Armrests</p> <p><input type="checkbox"/> Backrest</p> <p><input type="checkbox"/> Swivel seat</p> <p><input type="checkbox"/> Slide track</p> <p><input type="checkbox"/> Lumbar support</p> <p><input type="checkbox"/> Foot rest</p> <p><input type="checkbox"/> Casters #: _____</p> <p><i>Indicate if adjustable:</i></p> <p><input type="checkbox"/> Height</p> <p><input type="checkbox"/> Armrests</p> <p><input type="checkbox"/> Backrest</p> <p><input type="checkbox"/> Forward tilt</p>	<p>Height of seat: _____ cm</p> <p>Depth of seat: _____ cm</p> <p>Width of seat: _____ cm</p> <p>Covering type: _____</p>

## Equipment & Machinery Controls

The table below contains a list of the types of controls used by an Assistant Shipper. Use the left column to check off (✓) controls that are present at the work site. Highlight controls that may aggravate the injury, or which the worker finds difficult to use. The *Comments* section may be used to include any additional information. Additional controls can be included under *Other*.

Type of Control		Function	Comments
	<i>Keyboard</i>	<ul style="list-style-type: none"> <li>• <i>Office work</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Frequency may vary depending on the type of computer use</i></li> </ul>
	<i>Mouse</i>	<ul style="list-style-type: none"> <li>• <i>Office work</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Frequency may vary depending on the type of computer use</i></li> </ul>
	<i>Calculator</i>	<ul style="list-style-type: none"> <li>• <i>Tally loads</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Frequency may increase during the last two weeks of the month when sales increase</i></li> </ul>
	<i>Trigger for scanner</i>	<ul style="list-style-type: none"> <li>• <i>Inventory</i></li> <li>• <i>Tally loads</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Frequency may increase during the last two weeks of the month when sales increase</i></li> </ul>
	<i>Other:</i>		

## Physical Demands





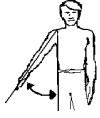

### Whole Body Physical Demands



Identify each of the physical demands required by an Assistant Shipper and list the corresponding tasks in the second column. Check off (✓) the estimated *Percent of Shift*, and use the *Comments* section to include information related to duration, frequency, and cycle times.

Physical Demands	Tasks or Activity	Percent of Shift				Comments
		Rarely 0 to 5%	Occasionally 6 to 33%	Frequently 34 to 66%	Constantly 67 to 100%	
<i>Example: Walking</i>	<ul style="list-style-type: none"> <li>• <i>Inventory</i></li> <li>• <i>Tally the load</i></li> <li>• <i>Organise forklifts</i></li> </ul>			✓		<ul style="list-style-type: none"> <li>• <i>Frequency may increase at the end of the month when sales increase</i></li> </ul>
<i>Walking</i>						
<i>Sitting</i>						
<i>Standing</i>						
<i>Climbing</i>						
<i>Balancing</i>						
<i>Kneeling/ Crouching</i>						
<i>Other:</i>						





## **Body Postures**





The table below outlines the body postures that may be adopted throughout the shift by an Assistant Shipper, related to tasks. Check off (✓) the estimated *Percent of Shift*, and use the *Comments* section to include information describing posture duration, frequency, cycle times, and hand used.

<b>Body Posture</b>	<b>Task(s)</b>	<b>Percent of Shift</b>				<b>Comments</b>
		Rarely 0 to 5%	Occasionally 6 to 33%	Frequently 34 to 66%	Constantly 67 to 100%	
<i>Example: Shoulder Flexion</i>	<ul style="list-style-type: none"> <li>• Inventory</li> <li>• Tally load</li> <li>• Office work</li> <li>• Band/cable load</li> </ul>			✓		<ul style="list-style-type: none"> <li>• Frequency may increase at the end of the month when sales increase</li> </ul>
<b>Neck</b>						
<i>Flexion</i> 						
<i>Extension</i> 						
<i>Twisting</i> 						
<b>Shoulder</b>						
<i>Flexion</i> 						
<i>Abduction/ adduction</i> 						
<i>Extension</i> 						

Body Posture	Task(s)	Percent of Shift				Comments
		Rarely 0 to 5%	Occasionally 6 to 33%	Frequently 34 to 66%	Constantly 67 to 100%	
<b>Forearm</b>						
Rotation 						
<b>Wrist</b>						
Wrist Movements 						
<b>Hand/Fingers</b>						
*Handling						
*Fingering						
*Gripping						

**Legend for Hand/Fingers**

Handling	Grasping, turning, holding, etc.			
Fingering	Picking, pinching, etc.			
Gripping	Power	Pinch	Hook	Precision
				

Body Posture	Task(s)	Percent of Shift				Comments
		Rarely 0 to 5%	Occasionally 6 to 33%	Frequently 34 to 66%	Constantly 67 to 100%	
<b>Back</b>						
<i>Flexion</i> 						
<i>Lateral Flexion</i> 						
<i>Twisting</i> 						
<i>Extension</i> 						

## Manual Material Handling

The table below contains a list of general manual material handling activities performed by an Assistant Shipper. Indicate tasks that require one or more of these activities, and fill in the weight of the objects, or the force required, for each action. Check off (✓) the estimated *Percent of Shift*, and use the *Comments* section to include information related to duration, frequency, cycle times, and characteristics of objects handled. If necessary, please refer to Appendix A to calculate the weight of the wood being handled.

Activity	Task Description	Weight (kg)	Percent of Shift				Comments
			Rarely 0 to 5%	Occasionally 6 to 33%	Frequently 34 to 66%	Constantly 67 to 100%	
<i>Pushing</i>							
<i>Pulling</i>							
<i>Lifting</i>							
<i>Lowering</i>							
<i>Carrying</i>							

## Hand Tools

Indicate the hand tools used by an Assistant Shipper by placing a check mark (✓) in the far left column. Determine the weight of the hand tool and enter it in the appropriate column. Check off (✓) the estimated *Percent of Shift*, and use the *Comments* section to include information related to duration, frequency, cycle times, and characteristics of objects handled.

Type of Tool	Task(s)	Weight (kg)	Percent of Shift				Comments
			Rarely 0 to 5%	Occasionally 6 to 33%	Frequently 34 to 66%	Constantly 67 to 100%	
Scanner	<ul style="list-style-type: none"> <li>Inventory</li> <li>Tally loads</li> </ul>	1.0 kg					<ul style="list-style-type: none"> <li>Frequency may increase during the last two weeks of the month when sales increase</li> </ul>
Stapler	<ul style="list-style-type: none"> <li>Tally loads</li> </ul>	0.8 kg					<ul style="list-style-type: none"> <li>Frequency may increase during the last two weeks of the month when sales increase</li> </ul>
Tape measure	<ul style="list-style-type: none"> <li>Tally loads</li> </ul>	0.2 kg					<ul style="list-style-type: none"> <li>Frequency may increase during the last two weeks of the month when sales increase</li> </ul>
Radio	<ul style="list-style-type: none"> <li>Organise forklifts</li> </ul>	0.8 kg					<ul style="list-style-type: none"> <li>Frequency may increase during the last two weeks of the month when sales increase</li> </ul>
Pry bar	<ul style="list-style-type: none"> <li>Band/cable loads</li> </ul>	0.8 kg					<ul style="list-style-type: none"> <li>Frequency may increase during the last two weeks of the month when sales increase</li> </ul>
Pneumatic strapper	<ul style="list-style-type: none"> <li>Band/cable loads</li> </ul>						<ul style="list-style-type: none"> <li>Frequency may increase during the last two weeks of the month when sales increase</li> </ul>
Other:							

## Environmental Conditions

### Work Environment

The table below contains a list of environmental conditions that may be of concern. If any of these factors aggravate the injury, describe in the *Comments* section.

Factor	Comments
<b>Vibration</b> ( <i>Indicate source</i> ) <input type="checkbox"/> Seat <input type="checkbox"/> Floor <input type="checkbox"/> Tool <input type="checkbox"/> Other: _____	
<b>Noise level</b>	
<b>Lighting level</b>	
<b>Other:</b>	

### Location of Workstation

The table below contains a list of potential work environments. Indicate with a check mark (✓) in the left column which of the work environments apply to the specific workstation. For example, the workstation may be inside a building with both a local fan and heater, exposed to the outside by a doorway that is always open. In this situation, 'Inside exposed', 'Heater present', and 'Fan present' would all be checked.

Work Environment	
	Outside uncovered
	Outside covered
	Inside enclosed
	Inside exposed
	Heater present
	Fan present

## Temperature

The table below contains a list of the geographical regions of British Columbia. Indicate the appropriate region with a check mark (✓) in the left column. Refer to the regional map in Appendix B of the PDA.

Region	Avg. Max July/Aug	Avg. Min Dec/Jan	Extreme Max.	Extreme Min.
Vancouver Island	22.5 °C	-0.6 °C	36.1 °C	-18.8 °C
Southwestern BC	22.9 °C	0.4 °C	35.6 °C	-18.3 °C
Cariboo Chilcotin Coast	22.2 °C	-11.6 °C	36.4 °C	-42.5 °C
High Country	26.3 °C	-9.9 °C	39.6 °C	-39.7 °C
Okanagan Similkameen	26.5 °C	-8.4 °C	36.0 °C	-36.3 °C
Kootenay Country	26.2 °C	-6.7 °C	38.5 °C	-32.0 °C
British Columbia Rockies	24.7 °C	-12.3 °C	37.5 °C	-42.2 °C
North by Northwest	19.5 °C	-11.7 °C	32.9 °C	-38.1 °C
Peace River Alaska Highway	20.0 °C	-20.2 °C	34.6 °C	-47.7 °C

## Personal Protective Equipment

The table below contains a list of the personal protective equipment (PPE). For the Assistant Shipper at your mill, indicate with a check mark (✓) which of the PPE items are required.

Gloves Type:	Hard Hat	Leather Apron
Glove Liners	Steel-toed Boots	Dust Mask
Eye Protection	Hearing Protection	Seat Belt
Face Shield/Helmet	Life Jacket	Harness
Knee Pads	Other:	Other:

## Appendix A – Weight of Wood Equation

### 1. Type of Wood Handled

The table below contains a list of the types of wood processed in British Columbia. The weight per board foot wet and dry is given for each species. This information will be used in the table in *Section 4* to calculate the weight of the wood handled. Please indicate all of the types of wood processed.

Wood Handled	Wet lb./ Board Foot	Dry lb./ Board Foot	Wood Handled	Wet lb./ Board Foot	Dry lb./ Board Foot
Douglas Fir	3.60	2.83	Larch	3.48	N/A
Hemlock	3.42	2.49	Spruce/Pine/Fir*	2.95	2.18
Red Cedar	2.42	2.00	Alpine Fir	2.67	2.00
Yellow Cedar	3.01	2.49	Lodge Pole Pine	3.26	2.41
Sitka Spruce	2.76	2.23	White Spruce	2.93	2.15

\*The Spruce/Pine/Fir values are an average of White Spruce, Lodge Pole Pine, and Alpine Fir.

### 2. Size of Wood\*

The table below contains a list of different sizes or dimensions of wood. The percentage next to the size of the wood is the multiple used to compare the size of the board to a board foot (1" by 12" by 12"). This multiple will be used in the table in *Section 4* to calculate the weight of wood handled. Please indicate all of the applicable sizes of wood handled at the workstation. Add any other sizes to the bottom of the table if your particular size of wood is not listed.

1" Sizes	Multiple	2" Sizes	Multiple	4" Sizes	Multiple	6" Sizes	Multiple	8" Sizes	Multiple
1 by 4	0.33	2 by 4	0.67	4 by 4	1.33	6 by 6	3.00	8 by 8	5.33
1 by 6	0.50	2 by 6	1.00	4 by 6	2.00	6 by 8	4.00	8 by 10	6.67
1 by 8	0.67	2 by 8	1.33	4 by 8	2.67	6 by 10	5.00	8 by 12	8.00
1 by 10	0.83	2 by 10	1.67	4 by 10	3.33	6 by 12	6.00		
1 by 12	1.00	2 by 12	2.00	4 by 12	4.00				

\* Conservative estimates of actual wood dimensions

*If the size of the board is different from those in this table, use this equation to find out the multiple value.*

$$[(\text{Dimensions of wood}) \times 12] / 144 = \text{Multiple}$$

**For example:** For a 5 by 5 piece of wood  $[(5 \times 5) \times 12] / 144 = 2.08$

### 3. Length of Wood

The table below contains a list of the common lengths of wood. Please indicate which of these lengths are being handled at this particular workstation. Add additional lengths to the table if necessary. This information will be used in the table in *Section 4*.

Length of Wood	
6 foot	12 foot
8 foot	14 foot
10 foot	16 foot
	18 foot
	20 foot
	22 foot
	24 foot
	Other:
	Other:

#### 4. Weight of Wood Equation\*

The table below is used to calculate the weight of the boards being handled. The weight is calculated by multiplying the species weight/board foot (*Section 1 value*) by the size of wood multiple (*Section 2 value*) and by the length of wood (*Section 3 value*).

**Example:** For a run of wet Spruce/Pine/Fir, 2" x 4", 16 feet long

$$2.95 \text{ (wet lb./ board foot)} \times 0.67 \text{ (size of wood multiple for 2" x 4")} \times 16 \text{ (length of board in feet)} = 32 \text{ lbs.}$$

For the heaviest species handled, enter the lb./board foot value, the multiple for the largest size of this wood, and the largest length of this wood. Multiply these values together to determine the weight of the board in pounds.

For the most common species handled, enter the lb./board foot value, the multiple for the most common size of wood, and the most common length of this wood. Multiply these values together to determine the weight of the board in pounds.

For the lightest species handled, enter the lb./board foot value, the multiple for the smallest size of wood, and the shortest length of this wood. Multiply these values together to determine the weight of the board in pounds.

*If required, divide the pound value by 2.2 to obtain the weight of the board in kilograms.*

Type of Wood Handled (lb./ board foot) <i>From Section 1</i>	x	Multiple (size of wood) <i>From Section 2</i>	x	Length of Wood <i>From Section 3</i>	=	Weight of the Board in pounds	Divide by 2.2 to calculate value in kilograms
<b>Heaviest Species Handled</b>	x		x		=		
<b>Most Common Species Handled</b>	x		x		=		
<b>Lightest Species Handled</b>	x		x		=		

\* Weight may vary from the above calculation depending on the cell moisture content of the wood, actual wood dimensions, and wood density.

## Appendix B – Regional Map



- |                                    |                                       |
|------------------------------------|---------------------------------------|
| <b>A</b> - Vancouver Island        | <b>F</b> - Kootenay Country           |
| <b>B</b> - High Country            | <b>G</b> - British Columbia Rockies   |
| <b>C</b> - Southwestern BC         | <b>H</b> - North by Northwest         |
| <b>D</b> - Cariboo Chilcotin Coast | <b>I</b> - Peace River Alaska Highway |
| <b>E</b> - Okanagan Similkameen    |                                       |

# Risk Factor Identification Checklist

## Assistant Shipper

### Purpose

The Risk Factor Identification Checklist for an Assistant Shipper is used to **identify** potential ergonomic risk factors. Keep in mind that the purpose of this checklist is only to **identify** potential ergonomic risk factors, **not** to assess them.

The checklist can be used as part of your ergonomic intervention process, when workers express concerns about their work environment, during regular workplace inspections and observations, or when conducting an accident or injury investigation. Ideally, management and worker representatives who have completed the IMIRP Occupational Health & Safety Committee and Supervisor Ergonomic Training Session should complete this checklist. Try to view different workers in the same occupation when completing the checklist. Some specific examples are given to help answer the questions.

### Instructions

#### **General**

Except for the first two questions, all remaining questions will require an answer with an implied frequency. For appropriate questions indicate with a check mark (✓) whether the answer to the question is 'No' or 'Yes'. This way you will have a record indicating that all risk factors have been considered in the identification process.

If you indicate 'No', please continue to the next question. If the question refers to a situation which does not exist (e.g., there is no seating available), please indicate 'No' in the appropriate box and continue to the next question.

If your answer is 'Yes', please check the appropriate box and then circle the frequency ('S' for 'Sometimes' or 'O' for 'Often'). If you answer 'Yes – Sometimes', then this risk factor **may be** a potential area of concern. If you answer 'Yes – Often' then there is an increased likelihood that this risk factor **is** an issue. Each mill will be responsible for defining what 'Sometimes' and 'Often' will mean to them. It is important that all people who complete the checklist are consistent in how they determine if a risk factor occurs 'Sometimes' or 'Often'. Use the 'Comments' section to indicate specific tasks, or to make other notes about the direct risk factors.

Since ergonomic risk factors frequently occur in combinations, you may find similar questions in different sections. Answering all questions will ensure that the situations that involve combinations of ergonomic risk factors are identified. It is very important to recognise all risk factors that occur in the work area.

Please note that for some of the questions it will be beneficial to ask the worker for their input. Please take the opportunity to include the operator in the risk factor identification process as much as possible. Videotaping the job of interest and reviewing the checklist in a quiet area with the worker may allow for more discussion.

### **Summary Tables**

At the end of each body part section, summarise your findings in the table provided. If any of the direct risk factor sections contain a 'Yes', indicate 'Yes' in the appropriate section of the summary table. Answer the questions referring to injury statistics and discomfort survey findings. If there are only 'No' answers in a direct risk factor section, indicate 'No' in the summary table for that section. Use the summary information to determine how you will use the Work Manual.

## Risk Factor Identification Checklist – Assistant Shipper

Management Representative \_\_\_\_\_

Risk Identification completed:

Worker Representative \_\_\_\_\_

Before implementation of solutions

Date \_\_\_\_\_

After implementation of solutions

Job History		No	Yes	Comments
1	Are there records of musculoskeletal injuries or accidents to indicate a risk of musculoskeletal injury? (refer to Worksheet 1 in Implementation Guide)			
2	Are there worker comments to indicate a risk of musculoskeletal injuries? (refer to Worksheet 2 in Implementation Guide)			

### Definitions

**Force:** Force is the amount of physical effort required by the person to do a task and/or maintain control of tools and equipment. The effort depends on the type of grip, object weight and dimensions, body posture, type of activity, surface of the object, temperature, vibration, duration of the task, and number of repetitions.

**Repetition:** Repetition is defined as similar or the same motions performed repeatedly. The severity of risk depends on the frequency of repetition, speed of the movement or action, the number of muscle groups involved, and the required force. Repetition is influenced by machine or line pacing, incentive programs, piecework, and deadlines.


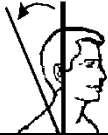
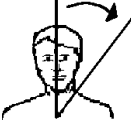
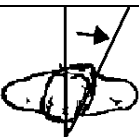
**Static Postures:** Static loading (sustained exertions) is physical effort (body postures) that is held, requiring muscle contraction for more than a short time.

**Contact Stress:** Contact stress is the contact of the body with a hard surface or edge. Contact stress can also result when using a part of the body as a hammer or striking instrument.

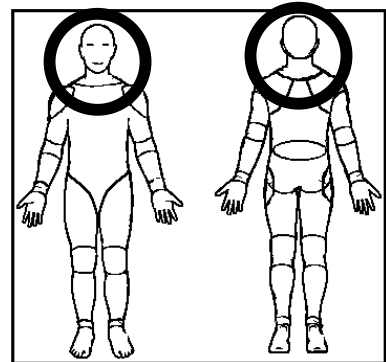
**Awkward Postures:** Awkward postures occur when there is a deviation from a power working posture. Some examples of awkward postures typically include reaching behind, twisting, working overhead, and forward or backward bending.

**Vibration:** Vibration is oscillation of a tool or surface. Vibration can be transmitted through the arm or through the whole body.

# NECK

Repetition		N	Y	Comments:
Are identical or similar motions performed over and over again? (e.g., looking up or down frequently)			S O	
Ask the worker: Do you spend a large percentage of the day performing one action or task? (e.g., looking up and down while tallying loads)			S O	
Static Posture				
Ask the worker: Do tasks require your neck or shoulders to be maintained in a fixed or static posture? (e.g., looking down at a computer screen for a long period)			S O	
Awkward Posture				
Flexion			S O	
Extension			S O	
Lateral Bending			S O	
Rotation			S O	



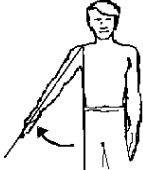
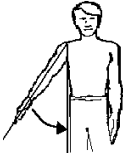
Please indicate whether the following direct risk factors were identified at the NECK.		
<b>Direct Risk Factors</b>	Repetition	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Static Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Awkward Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
In the <b>Injury Statistics</b> investigation, were there injury reports for the Neck or Head/Eye or Upper Back? (see Worksheet 1 in the Implementation Guide)		<input type="checkbox"/> Yes <input type="checkbox"/> No
In the <b>Discomfort Survey</b> investigation, were there reports of discomfort for the Neck or Head/Eye or Upper Back? (see Worksheet 2 in the Implementation Guide)		<input type="checkbox"/> Yes <input type="checkbox"/> No



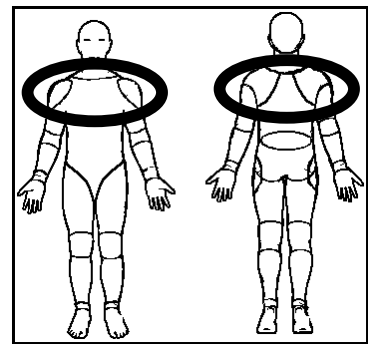
*Body parts within the circled area will be classified as NECK issues.*

## SHOULDER

<b>Force</b>	N	Y	Comments:
Is forceful physical handling performed? Such as: Lifting		S O	
Lowering		S O	
Pushing		S O	
Pulling		S O	
Carrying		S O	
<b>Repetition</b>			
Are identical or similar motions performed over and over again? (e.g., scanning labels on loads, stapling labels on loads)		S O	
Ask the worker: Do you spend a large percentage of the day performing one action or task? (e.g., scanning labels overhead)		S O	
<b>Static Posture</b>			
Ask the worker: Do tasks require your shoulders to be maintained in a fixed or static posture? (e.g., using a mouse while working at a computer)		S O	
Ask the worker: Do you hold parts, tools, or objects for long periods? (e.g., holding a clipboard while taking inventory)		S O	




Awkward Posture		N	Y	Comments:
Flexion			S O	
Extension			S O	
Abduction			S O	
Adduction			S O	

Please indicate whether the following direct risk factors were identified at the <b>SHOULDER</b> .			
<b>Direct Risk Factors</b>	Force	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	Repetition	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	Static Posture	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	Awkward Posture	<input type="checkbox"/> Yes	<input type="checkbox"/> No
In the <b>Injury Statistics</b> investigation, were there injury reports for the Shoulder or Neck or Upper Back? (see Worksheet 1 in the Implementation Guide)		<input type="checkbox"/> Yes	<input type="checkbox"/> No
In the <b>Discomfort Survey</b> investigation, were there reports of discomfort for the Shoulder or Neck or Upper Back? (see Worksheet 2 in the Implementation Guide)		<input type="checkbox"/> Yes	<input type="checkbox"/> No



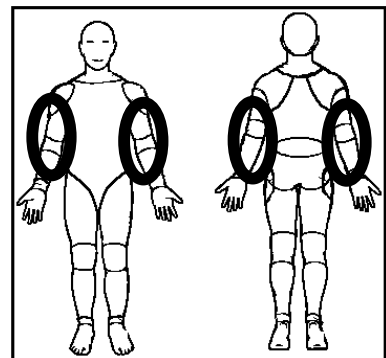
*Body parts within the circled area will be classified as SHOULDER issues.*

## ELBOW

Force		N	Y	Comments:
Is forceful physical handling performed? Such as:			S	
Lifting			O	
Lowering			S	
			O	
Pushing			S	
			O	
Pulling			S	
			O	
Carrying			S	
			O	
Turning materials			S	
			O	
Are objects handled in a power grip? (e.g., scanner)			S	
			O	
Are objects handled in a pinch grip? (e.g., clipboard, dunnage)			S	
			O	
Are objects handled in a hook grip? (e.g., oil cans, tire rims)			S	
			O	
Ask the worker: Do you wear gloves while performing your job? If the answer is <b>No</b> , check the <b>No</b> box and go to next section.			*	S
				O
*If the answer to the above question is <b>Yes</b> , ask the worker: Are the gloves too large/small?				S
				O
Does the thickness of the gloves cause problems with gripping?				S
				O
Repetition				
Are identical or similar motions performed over and over again? (e.g., stapling labels on loads)				S
				O
Ask the worker: Do you spend a large percentage of the day performing one action or task? (e.g., hammering)				S
				O




<b>Static Posture</b>		N	Y	Comments:
Ask the worker: Do tasks require your hand and arm to be maintained in a fixed or static posture? (e.g., scanning labels on loads)			S O	
Ask the worker: Do you apply constant pressure on controls/objects with your hand? (e.g., using the trigger on the scanner)			S O	
Ask the worker: Do you hold parts, tools, or objects for long periods? (e.g., clipboard)			S O	
<b>Contact Stress</b>				
Ask the worker: Do <b>any</b> objects, tools or parts of the workstation put pressure on <b>any</b> parts of your hand or arm, such as the backs or sides of fingers, palm or base of the hand, forearm, elbow? (e.g., hand tools that dig into the palm of the hand, edges of the workstation digging into elbow)			S O	
<b>Vibration</b>				
Ask the worker: Is vibration transmitted to your hand through a tool or piece of equipment? (e.g., pneumatic drill)			S O	





Please indicate whether the following direct risk factors were identified at the <b>ELBOW</b> .		
<b>Direct Risk Factors</b>	Force	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Repetition	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Static Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Contact Stress	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Vibration	<input type="checkbox"/> Yes <input type="checkbox"/> No
In the <b>Injury Statistics</b> investigation, were there injury reports for the Elbow or Forearm? (see Worksheet 1 in the Implementation Guide)		<input type="checkbox"/> Yes <input type="checkbox"/> No
In the <b>Discomfort Survey</b> investigation, were there reports of discomfort for the Elbow or Forearm? (see Worksheet 2 in the Implementation Guide)		<input type="checkbox"/> Yes <input type="checkbox"/> No



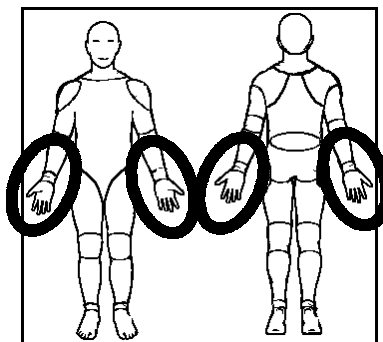
*Body parts within the circled area will be classified as ELBOW issues.*

## WRIST/HAND

Force		N	Y	Comments:
Is forceful physical handling performed? Such as:			S	
Lifting			O	
Lowering			S	
			O	
Pushing			S	
			O	
Pulling			S	
			O	
Carrying			S	
			O	
Turning materials			S	
			O	
Are objects handled in a power grip? (e.g., scanner)			S	
			O	
Are objects handled in a pinch grip? (e.g., clipboard, dunnage)			S	
			O	
Are objects handled in a hook grip? (e.g., oil cans, tire rims)			S	
			O	
Ask the worker: Do you wear gloves while performing your job? If the answer is <b>No</b> , check the <b>No</b> box and go to next section.			*	S
				O
*If the answer to the above question is <b>Yes</b> , ask the worker: Are the gloves too large/small?				S
				O
Does the thickness of the gloves cause problems with gripping?				S
				O
<b>Repetition</b>				
Are identical or similar motions performed over and over again? (e.g., typing on the computer)				S
				O
Ask the worker: Do you spend a large percentage of the day performing one action or task? (e.g., inputting information on the computer)				S
				O

<b>Static Posture</b>		N	Y	Comments:	
Ask the worker: Do tasks require any part of your arm or hand to be maintained in a fixed or static posture? (e.g., holding a scanner)				S	
				O	
Ask the worker: Do you apply constant pressure on controls/objects with your hand? (e.g., Assistant Shippers using a scanner)				S	
				O	
Ask the worker: Do you hold parts, tools, or objects for long periods? (e.g., clipboard)				S	
				O	
<b>Contact Stress</b>					
Ask the worker: Do <b>any</b> objects, tools or parts of the workstation put pressure on <b>any</b> parts of your hand or arm, such as the backs or sides of fingers, palm or base of the hand, forearm? (e.g., hand tools that dig into the palm of the hand)				S	
				O	
Ask the worker: Do you use your hand like a hammer for striking? (e.g., stapling a label on the load)				S	
				O	
<b>Awkward Posture</b>					
Flexion				S	
				O	
Extension				S	
				O	
Ulnar Deviation				S	
				O	
Radial Deviation				S	
				O	
<b>Vibration</b>					
Ask the worker: Is vibration transmitted to your hand through a tool or piece of equipment? (e.g., pneumatic drill)				S	
				O	





Please indicate whether the following direct risk factors were identified at the <b>WRIST/HAND</b> .		
<b>Direct Risk Factors</b>	Force	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Repetition	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Static Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Contact Stress	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Awkward Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Vibration	<input type="checkbox"/> Yes <input type="checkbox"/> No
In the <b>Injury Statistics</b> investigation, were there injury reports for the Wrist or Hand/Finger or Forearm? (see Worksheet 1 in the Implementation Guide)		<input type="checkbox"/> Yes <input type="checkbox"/> No
In the <b>Discomfort Survey</b> investigation, were there reports of discomfort for the Wrist or Hand/Finger or Forearm? (see Worksheet 2 in the Implementation Guide)		<input type="checkbox"/> Yes <input type="checkbox"/> No



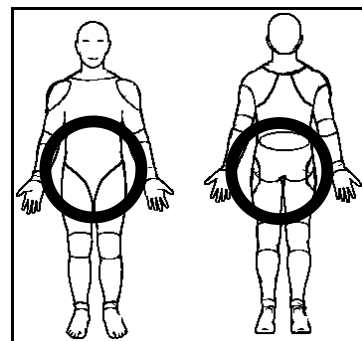
*Body parts within the circled area will be classified as WRIST issues.*

## LOW BACK OR HIP/THIGH

<b>Force</b>	N	Y	Comments:
Is forceful physical handling performed? Such as: Lifting			S O
Lowering			S O
Pushing			S O
Pulling			S O
Carrying			S O
<b>Repetition</b>			
Are identical or similar motions performed over and over again?			S O
Ask the worker: Do you spend a large percentage of the day performing one action or task? (e.g., bending staple or scan the labels on the load)			S O
<b>Static Posture</b>			
Ask the worker: Do tasks require your trunk and upper body to be maintained in a fixed or static posture? (e.g., bending to band or cable a load)			S O
Are workers required to sit or stand in a stationary position for long periods of time during the shift? (e.g., sitting at a computer or desk)			S O
<b>Contact Stress</b>			
Ask the worker: Do <b>any</b> objects, tools or parts of the workstation put pressure on <b>any</b> parts of your hip/thigh? (e.g., workstations that dig into the hip or thigh)			S O


Awkward Posture		N	Y	Comments:
Flexion			S O	
Extension			S O	
Lateral Bending			S O	
Twisting			S O	
<b>Vibration</b>				
Ask the worker: Is your whole body exposed to vibration for significant portions of the work shift? (e.g., standing on catwalks and machinery)			S O	

Please indicate whether the following direct risk factors were identified at the <b>LOW BACK or HIP/THIGH</b> .		
<b>Direct Risk Factors</b>	Force	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Repetition	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Static Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Contact Stress	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Awkward Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Vibration	<input type="checkbox"/> Yes <input type="checkbox"/> No
In the <b>Injury Statistics</b> investigation, were there injury reports for the Low Back or Hip/Thigh? (see Worksheet 1 in the Implementation Guide)		<input type="checkbox"/> Yes <input type="checkbox"/> No
In the <b>Discomfort Survey</b> investigation, were there reports of discomfort for the Low Back or Hip/Thigh? (see Worksheet 2 in the Implementation Guide)		<input type="checkbox"/> Yes <input type="checkbox"/> No

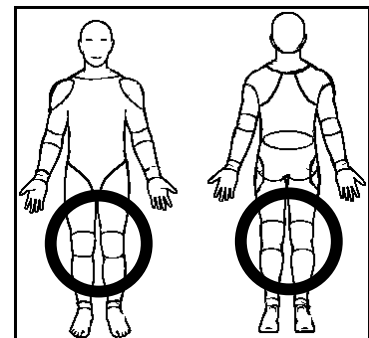


*Body parts within the circled area will be classified as LOW BACK issues.*

## KNEE


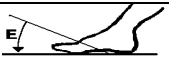
Repetition		N	Y	Comments:
Are identical or similar motions performed over and over again? (e.g., climbing stairs, crouching)			S O	
Static Posture				
Ask the worker: Do tasks require you to maintain your knee(s) in a fixed or static posture? (e.g., crouching to staple or scan labels)			S O	
Are workers required to sit or stand in a stationary position for long periods of time during the shift? (e.g., sitting at a computer or desk)			S O	
Do workers kneel (with one or both knees)?			S O	
Contact Stress				
Ask the worker: Do <b>any</b> objects or parts of the workstation put pressure on your knee(s)? (e.g., kneeling on the ground)			S O	
Awkward Posture				
Extreme Flexion			S O	

Please indicate whether the following direct risk factors were identified at the <b>KNEE</b> .		
<b>Direct Risk Factors</b>	Repetition	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Static Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Contact Stress	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Awkward Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
In the <b>Injury Statistics</b> investigation, were there injury reports for the Knee or Hip/Thigh? (see Worksheet 1 in the Implementation Guide)		<input type="checkbox"/> Yes <input type="checkbox"/> No
In the <b>Discomfort Survey</b> investigation, were there reports of discomfort for the Knee or Hip/Thigh? (see Worksheet 2 in the Implementation Guide)		<input type="checkbox"/> Yes <input type="checkbox"/> No

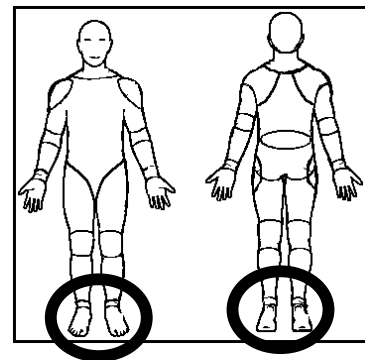


*Body parts within the circled area will be classified as KNEE issues.*

## ANKLE/FOOT

Repetition		N	Y	Comments:
Are identical or similar motions performed over and over again? (e.g., walking on uneven surfaces)			S O	
Static Posture				
Are workers required to stand in a stationary position for long periods of time during the shift? (e.g., standing for inventory)			S O	
Awkward Posture				
Flexion			S O	
Extension			S O	
Vibration				
Ask the worker: Is your whole body exposed to vibration for significant portions of the work shift? (e.g., standing on catwalks and machinery)			S O	

Please indicate whether the following direct risk factors were identified at the <b>ANKLE/FOOT</b> .		
<b>Direct Risk Factors</b>	Repetition	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Static Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Awkward Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Vibration	<input type="checkbox"/> Yes <input type="checkbox"/> No
In the <b>Injury Statistics</b> investigation, were there injury reports for the Ankle or Foot? (see Worksheet 1 in the Implementation Guide)		<input type="checkbox"/> Yes <input type="checkbox"/> No
In the <b>Discomfort Survey</b> investigation, were there reports of discomfort for the Ankle or Foot? (see Worksheet 2 in the Implementation Guide)		<input type="checkbox"/> Yes <input type="checkbox"/> No



*Body parts within the circled area will be classified as ANKLE/FOOT issues.*

## CHARACTERISTICS OF OBJECTS BEING HANDLED

	N	Y	Comments:
Are there problems handling a load due to its size or shape? (e.g., fallen boards, dunnage)			S O
Are there problems handling a load due to its fragile, unbalanced, or non-rigid conditions? (e.g., oil, chains)			S O
Ask the worker: Do you experience situations where mechanical aids or equipment are not readily available to assist with manipulating an object? (e.g., hoists)			S O
Are handles for tools and equipment inappropriate in terms of size or shape? (e.g., pneumatic tools, hand tools)			S O
Ask the worker: Do any objects that you work with (other than tools or equipment) have handles? If the answer is <b>No</b> , check the <b>No</b> box and go to the next section.			S O
If the answer to the above question is <b>Yes</b> , ask the worker: Are the handles an inappropriate size or shape for the characteristics of the object?			S O

## ENVIRONMENTAL CONDITIONS

<b>Temperature</b>			
Ask the worker: Are your hands or arms exposed to cold from exhaust air, cold liquids or solids? (e.g., snow build up)			S O
Ask the worker: Are you exposed directly to temperature extremes that may cause you to use more force or cause you to fatigue quicker than normal? (e.g., hot or cold, either by equipment or natural environment)			S O
<b>Lighting</b>			
Ask the worker: Do you assume awkward postures to overcome problems associated with glare, inadequate lighting, or poor visibility? (e.g., working at night or in poor weather)			S O

## ENVIRONMENTAL CONDITIONS [CONTINUED]

Noise	N	Y	Comments:
Have there been complaints on the level of noise in the work area?		S O	
Ask the worker: Are there any distracting or annoying noises at the workstation? (e.g., air hoses, forklifts)		S O	

## WORK ORGANISATION

	N	Y	Comments:
Is the work externally-paced or controlled by a machine or the process? (e.g., shipping orders)		S O	
Do peak workloads or sudden increases in pace occur with the tasks? (e.g., end of the month peak orders)		S O	
Ask the worker: Are there indications of excessive fatigue or pain, or symptoms of adverse health effects due to extended work days or overtime? (e.g., end of the month peak orders)		S O	
Ask the worker: Are there indications of excessive fatigue or adverse health effects due to shiftwork?		S O	
Ask the worker: Are rest periods or task variety insufficient to prevent the build-up of fatigue or the risk of adverse health effects? (e.g. working overhead)		S O	
Ask the worker: Are tasks in a job rotation program similar to one another, and therefore not providing a variation in movements?		S O	

# **Work Manual**

**Industrial  
Musculoskeletal  
Injury  
Reduction  
Program**



# **Assistant Shipper**

This Work Manual contains information about the body parts found to be at risk of musculoskeletal injury (MSI) for the Assistant Shipper (Injury Education), and how to reduce the risk of MSIs using various control measures (Injury Prevention). Each Work Manual is intended to help Occupational Health and Safety Committee members establish effective solutions to reduce MSIs, and as a resource for workers to understand the MSI risks that they may encounter on the job.

The Body Manual, referenced throughout the Work Manual, is a separate document that contains information on how to prevent common MSIs through exercise. Please note exercises described in the Body Manual should only be used after consulting a healthcare practitioner.

The General Risk Factor Solutions Manual, referenced throughout the Work Manual, is a separate document that contains general, preventative information on Environmental Conditions and Work Organisation issues.

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## Work Manual

# Assistant Shipper

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### **Disclaimer**

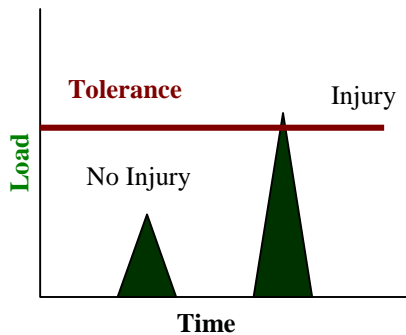
*The BC sawmill IMIRP documents were developed by Advanced Ergonomics Inc. (AEI) based on analyses conducted in a number of voluntary, participating sawmills in British Columbia and should be considered applicable only to the BC sawmill industry. Modification to these documents may reduce their usefulness and/or lead to hazardous situations. Individuals or committees wishing to make Physical Demands Analyses (PDAs) site-specific, or wishing to implement options from the Work Manuals, are advised to first complete the two-day OHSC and Supervisors Ergonomics Training Session. Modifications to a PDA must be within the scope of competence of those individuals making the changes and must be reported to any rehabilitation professional using the PDA. Neither AEI nor the IMIRP Society accepts any responsibility for the use or misuse of these documents.*

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# Injury Education

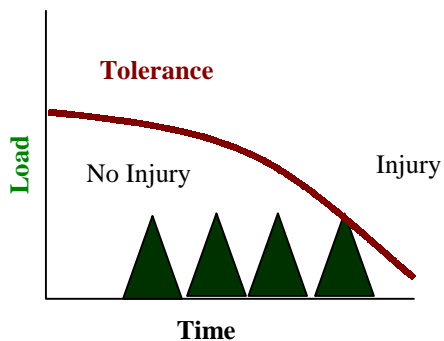
*Injuries occur when ...  
Loads exceed tissue tolerances*



## ***Excessive Force***

This type of injury occurs from a single event, where the loads or forces are so great they exceed tissue tolerances and cause an immediate injury. This type of injury is more common with trips and falls.

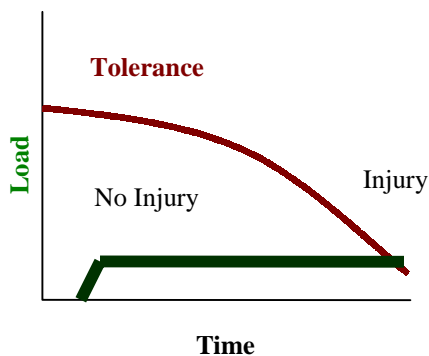
***Example – a worker going over on their ankle and spraining it.***



## ***Excessive Repetition***

This type of injury occurs from repeated loading weakening tissue to the point of failure. It progresses slowly to the point where a subfailure load can cause an injury. This type of injury is more common with repetitive tasks.

***Example – a worker pulling lumber off a chain developing a herniated disc.***



## ***Excessive Duration***

This type of injury occurs from constant loading weakening tissue to the point of failure. This type of injury is more common with tasks that require workers to adopt static or awkward postures for extended periods.

***Example – a Grader developing neck tension.***

## Body Parts at Risk

The previous page on injury education explains how injuries can occur. The Injury Education section of this Work Manual expands on these principles, relating them to the specific body parts at risk of being injured.

After all of the appropriate information is collected during the investigation of the Assistant Shipper job (i.e., injury statistics, discomfort surveys, results from the Identification Checklist), the next steps are to:

1. Match the body parts of concern from your investigation to those described in this section of the Work Manual.
2. Note the direct risk factors associated with each body part of concern.
3. Read the information on the page and try to understand why a body part, in combination with each of the direct risk factors, is of concern.
4. Discover which indirect risk factors are associated with a particular body part problem and the headings under which they are found in the Injury Prevention section of the Work Manual.
5. Note the consequences of the direct risk factor relative to a body part.
6. Note where the potential solutions can be found within the Injury Prevention section of the Work Manual. In addition, for many of the body parts, a reference may be provided to refer to specific sections of the Body Manual.

At the end of the Body Parts at Risk Section, there is a summary page of all the body parts of concern for the Assistant Shipper. In addition, a reference table, with a summary of the direct and indirect risk factors by body part, is provided.

In the last section on Injury Prevention, the Work Manual discusses specific solution options for each of the body parts at risk.

## Major Risk Identification

IMIRP ergonomists have assessed the Assistant Shipper position and found that the neck, shoulder, and low back are body parts of major concern while performing their duties. Focussing on solutions that target the areas of major concern will likely reduce the greatest risks associated with this job.

**Neck:** Major risks include static and awkward postures of the neck while performing inventory, tallying loads, and performing office work.

The following solutions are targeted at reducing the risk of injury to the neck:

1. Monitor positioning (page 76)
2. Phone options (page 77)
3. Stretches (page 78)

**Shoulder:** Major risks include repetition and awkward postures of the shoulder while taking inventory and tallying the loads. Labelling the loads may also contribute to the risk of discomfort or injury.

The following solutions are targeted at reducing the risk of injury to the shoulder:

1. Banding height (page 70)
2. Package height (page 70)
3. Sticker label system (page 72)

**Low Back:** Major risks static postures of the low back while performing office duties. Bending forward to scan or tally a load may also contribute to the risk of discomfort or injury.

The following solutions are targeted at reducing the risk of injury to the low back:

1. Adjustable seating (page 71)
2. Vary chair position (page 71)
3. Stretches (page 78)

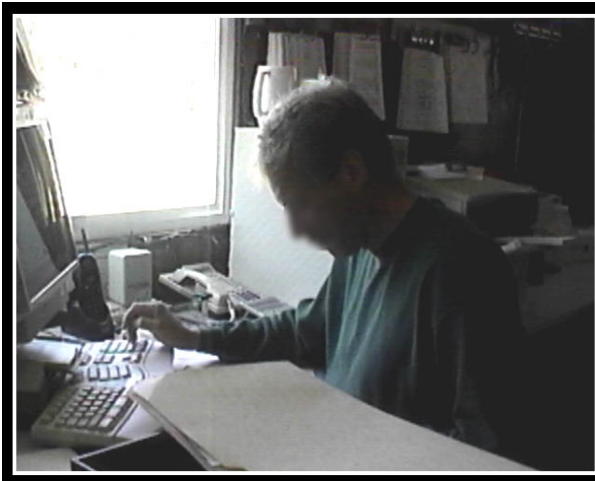
For additional stretching and strengthening exercises that would benefit an Assistant Shipper, refer to the Neck, Shoulder and Back sections of the Body Manual.

## NECK

**Direct Risk Factors:**  
Awkward Postures  
Static Postures



**An Assistant Shipper may hold the head forward or backward to take inventory, tally loads, and band and cable loads.**



**An Assistant Shipper may hold the head forward or to the side to perform office work.**

## BACKGROUND INFORMATION

- A number of smaller muscles around the neck produce the forces necessary to support and move the head. These muscles remain relatively relaxed when the head is balanced over the spine (neutral posture). The neutral posture occurs when the head is upright, and the ears and shoulders are aligned.

## DIRECT RISK FACTORS

### *Awkward Postures*

- Neck muscles are required to turn the head to the side. The further the head is turned to the side, the greater the load on the muscles and tendons.
- Neck muscles must support the weight of the head while in a forward bent position. The more the neck is bent, the greater the load on the muscles and tendons.

## ***Static Postures***

- When the neck is held still in a forward bent and/or twisted position, the muscles of the neck must remain tense to support the weight of the head. With no time allowed for recovery, the constant state of tension in the neck muscles may cause fatigue. If the constant stress is sufficient, and recovery is not adequate, the tissues may fatigue to the point of injury.

## **INDIRECT RISK FACTORS**

### ***Workstation Design***

#### **Working Heights**

- Loading on the neck muscles is increased because the head is held in a forward/back bent position when viewing the labels while tallying the load or checking the inventory.
- Loading on the neck muscles is increased because the head is held in a forward bent position when viewing or working at the computer or desk. This may be due to the layout of the desk/computer workstation.

#### **Additional Workstation Design Options**

- Loading on the neck muscles is increased when the head is held in a side bent position while talking on the phone. The Assistant Shipper may talk on the phone while typing on the computer or writing on invoice paper. This simultaneous work may cause the Assistant Shipper to cradle the phone between the ear and the shoulder in order to use both hands.

## **CONSEQUENCES**

- When the head is held in forward, backward, or side bent posture, muscles and soft tissues of the neck may fatigue. Fatigue leads to an accumulation of waste products and/or a decrease in the ability to tolerate additional stress.
- Signs and symptoms include pain, tenderness, muscle spasm in the neck area, and headaches.

## **SUGGESTED SOLUTIONS**

- For specific solutions that may prevent injuries to the Neck, please see the column labelled “Neck” in the Summary of Solutions on pages 83 to 85.
- For exercises that can help to prevent *neck* injuries, see the *Neck section of the Body Manual*.

## NECK/SHOULDER

<b>Direct Risk Factors:</b> Repetition Awkward Postures
---------------------------------------------------------------



**An Assistant Shipper frequently works with the arms away from the body in order to staple or scan labels on loads, and while banding and cabling loads.**

## BACKGROUND INFORMATION

- The neck and shoulder regions work together to produce certain movements, or to hold certain postures. The larger muscles of the neck and upper back (e.g., trapezius) elevate the shoulders, and the larger muscles of the shoulders (e.g., deltoids) raise the arms.

## DIRECT RISK FACTORS

### *Repetition*

- When the arms are repeatedly lifted, the muscles of the neck and shoulder are subjected to repeated stress with little or no time for recovery. If the repetitive stress is excessive, and recovery is not adequate, the tissues may fatigue to the point of injury.

### *Awkward Postures*

- Neck and shoulder muscles must support the weight of the arms when they are away from the body. The farther away the arms are from the body, the greater the load on the muscles and tendons.

## INDIRECT RISK FACTORS

### *Workstation Design*

#### **Working Heights**

- Loading on the neck/shoulder muscles is increased because the shoulder is raised away from the body when scanning, labelling, banding, and cabling loads.

## CONSEQUENCES

- When working with the arms away from the body, muscles and soft tissues of the neck and shoulder may fatigue. Fatigue leads to an accumulation of waste products and a decreased ability to tolerate additional stress.
- Signs and symptoms include pain, tenderness, muscle spasm in the neck and shoulder area, and headaches.

## SUGGESTED SOLUTIONS

- For specific solutions that may prevent injuries to the Neck/Shoulder, please see the column labelled “Neck/Shoulder” in the Summary of Solutions on pages 83 to 85.
- For exercises that can help to prevent *neck* and *shoulder* injuries, see the *Neck* and *Shoulder sections of the Body Manual*.

## WRIST

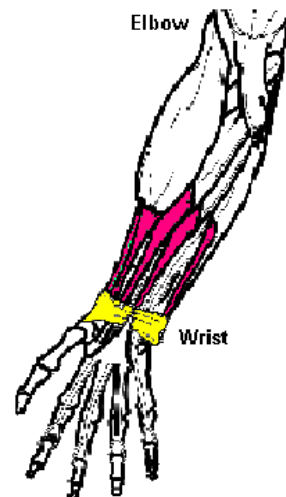
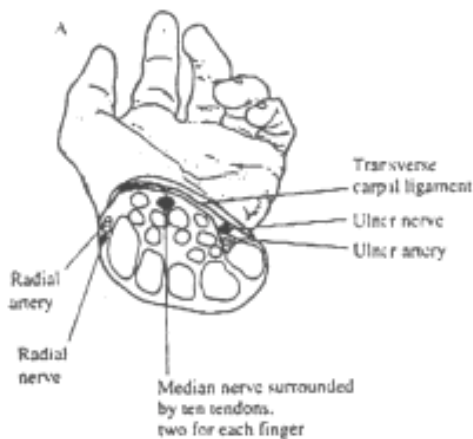
**Direct Risk Factors:**  
Awkward Postures  
Static Postures



**An Assistant Shipper may use a keyboard, mouse, hand scanner, or staple gun with the wrists bent.**

## BACKGROUND INFORMATION

- Most of the muscles involved in gripping and manoeuvring the hands are found in the forearms. These muscles attach at the elbow and their tendons (surrounded by a protective sheath) run down the forearm into the hand. At the wrist, the tendons and a nerve run under a thick band (see pictures below), which forms the roof of the carpal tunnel.



### The Carpal Tunnel

## **DIRECT RISK FACTORS**

### ***Awkward Postures***

- As the wrist is bent, the tendon sheaths rub against the walls of the carpal tunnel. The further the wrist is bent, the more friction experienced in the tendon sheaths.

### ***Static Postures***

- When the wrist is held in a bent position, the tendon sheaths are under constant stress. If the duration of constant stress is excessive, and recovery is not adequate, the tissues may fatigue to the point of injury.

## **INDIRECT RISK FACTORS**

### ***Workstation Design***

#### **Working Reaches**

- Loading on the muscles of the wrist is increased when the reach distance to the keyboard, mouse, or other devices on the desk causes awkward or static postures of the wrist.

#### **Working Heights**

- Loading on the muscles of the wrist increases when the keyboard is at the incorrect height. Having the keyboard in positions too low or too high for the worker can place the wrist in an awkward posture, putting additional stress on the tendons and other tissues of the wrist.

### ***Characteristics of Objects Being Handled***

#### **Size and Shape**

- The size and shape of the stapler or scanner can increase loading on the muscles of the wrist by forcing the worker to assume awkward wrist postures.

## **CONSEQUENCES**

- Holding the wrist in a bent position may lead to irritation and damage in the tendon sheaths.
- Signs and symptoms include pain, tenderness, and inflammation in the wrist area.

## **SUGGESTED SOLUTIONS**

- For specific solutions that may prevent injuries to the Wrist, please see the column labelled “Wrist” in the Summary of Solutions on pages 83 to 85.

## LOW BACK

**Direct Risk Factors:**  
Awkward Postures  
Static Postures

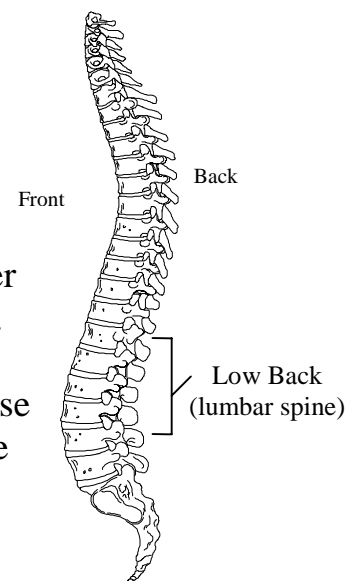


**An Assistant Shipper may sit for extended periods in order to perform office work and organise lumberyard activities.**

## BACKGROUND INFORMATION

- The spine is made up of 33 bones called vertebrae. Each of these vertebrae is specially designed to protect the spinal cord and provide support for the back. Between each of the vertebrae are discs. Discs have tough elastic walls that are filled with a watery gel-like substance. These discs are like jelly donuts; when they are pressed down on one side, the other side bulges and puts increased pressure on the wall of the disc. To maintain an even distribution of pressure across the discs, the spine has to be kept in the neutral posture. Sitting will cause the pelvis to rotate out of a neutral posture, as the lumbar spine will flatten.

*Neutral Spine*



## DIRECT RISK FACTORS

### *Awkward Postures*

### *Static Postures*

- Sitting increases the loading on the walls of the discs. If the duration of sitting is excessive, and the recovery is not adequate (e.g., spine not returned to neutral posture), the tissues may deform to the point of injury.

## INDIRECT RISK FACTORS

### *Workstation Design*

#### **Seating**

- Loading on the muscles of the back increases because of the lack of support from the seating of the Assistant Shipper. A non-supportive chair can increase your chances of poor posture and fatigue to the muscles of the back.

### *Work Organisation*

#### **Task Variability**

- Loading on the muscles of the back increases because the lack of task variability. An Assistant Shipper may spend a large percentage of the day in a seated posture, fatiguing the muscles of the low back and making them more susceptible to injury.

## CONSEQUENCES

- Continually sitting on a vibrating surface may lead to deformation in the disc walls and accelerated degeneration of the tissues.
- Signs and symptoms include muscle spasm and sharp or radiating pain in the back and/or lower extremities.

## SUGGESTED SOLUTIONS

- For specific solutions that may prevent injuries to the Back, please see the column labelled “Back” in the Summary of Solutions on pages 83 to 85.
- For exercises that can help to prevent *back* injuries, see the *Back section of the Body Manual*.

## FOOT

**Direct Risk Factors:**  
Repetition



**An Assistant Shipper may walk on hard surfaces in order to take inventory and tally loads.**

## BACKGROUND INFORMATION

- There are a number of small muscles in the base of the foot, as well as a tough band that attaches to the heel bone and runs down towards the toes. This band is called the plantar fascia, and it contributes to the arch in our feet.

## DIRECT RISK FACTORS

### *Repetition*

- During walking, impact between the ground and the feet loads the plantar fascia. If the duration of walking is excessive, and recovery is not adequate, the fascia may fatigue to the point of injury.

## **INDIRECT RISK FACTORS**

### ***Workstation Design***

#### **Floor Surfaces**

- Walking on uneven surfaces, such as rough ground in the yard or scrap lumber pieces, can put increased loading on the tissues of the feet.

#### **Additional Workstation Design Options**

- Loading on the muscles of the feet increases when the Assistant Shipper is wearing inappropriate or non-supportive footwear.

### ***Work Organisation***

- Loading on the feet increases when the yard is not well organised, forcing the Assistant Shipper to retrace steps to check inventory and tally loads.

## **CONSEQUENCES**

- Continual walking may cause damage to the plantar fascia.
- Signs and symptoms include pain and stiffness at the base of the heel, initially in the morning. As the problem progresses the pain may become chronic.

## **SUGGESTED SOLUTIONS**

- For specific solutions that may prevent injuries to the Foot, please see the column labelled “Foot” in the Summary of Solutions on pages 83 to 85.
- For exercises that can help to prevent *foot* injuries, see the ***Foot section of the Body Manual***.

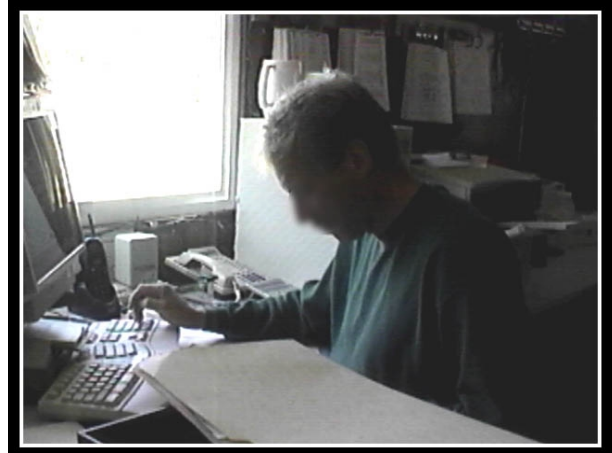
# Summary of Body Parts at Risk

## NECK

- An Assistant Shipper may hold the head forward or backward to take inventory, tally loads, and band and cable loads.



- An Assistant Shipper may hold the head forward or to the side to perform office work.



## NECK/SHOULDER

- An Assistant Shipper frequently works with the arms away from the body in order to staple or scan labels on loads, and while banding and cabling loads.



## WRIST

- An Assistant Shipper may use a keyboard, mouse, hand scanner, or staple gun with the wrists bent.



## LOW BACK

- An Assistant Shipper may sit for extended periods in order to perform office work and organise lumberyard activities.



## FOOT

- An Assistant Shipper may walk on hard surfaces in order to take inventory and tally loads.



# Risk Factors by Body Part

Direct Risk Factors	Neck	Neck/ Shoulder	Shoulder	Elbow/ Wrist	Wrist	Wrist/ Hand	Low Back	Hip	Knee	Ankle/ Foot	Foot
Force											
Repetition		✓									✓
Awkward Postures	✓	✓			✓		✓				
Static Postures	✓				✓		✓				
Contact Stress											
Vibration – Whole body*											
Vibration - Hand Transmitted*											

Indirect Risk Factors		Neck	Neck/ Shoulder	Shoulder	Elbow/ Wrist	Wrist	Wrist/ Hand	Low Back	Hip	Knee	Ankle/ Foot	Foot
<b>Duration*</b>	Duration	✓	✓			✓		✓				✓
<b>Workstation Design</b>	Working Reaches					✓						
	Working Heights	✓	✓			✓						
	Seating							✓				
	Floor Surfaces											✓
<b>Characteristics of Objects Being Handled</b>	Size and Shape					✓						
	Load Condition and Weight Distribution											
	Container, Tool and Equipment Handles											
<b>Environmental Conditions</b>	Heat Exposure	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Cold Exposure	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Lighting	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Noise	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Vibration**	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
<b>Work Organisation</b>	Work-Recovery Cycles	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Task Variability	◆	◆	◆	◆	◆	◆	✓◆	◆	◆	◆	◆
	Work Rate	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆

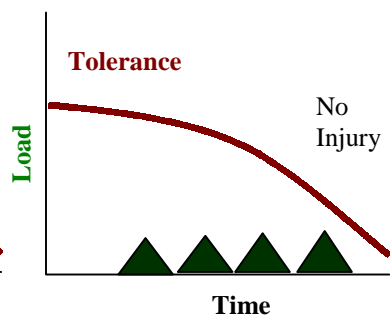
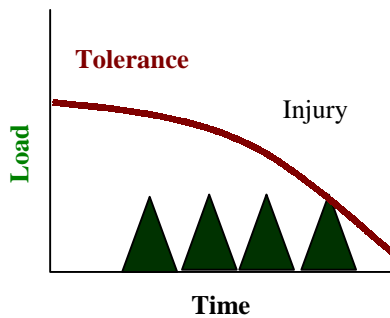
\* Extended exposure to any risk factor can increase the likelihood of injury. For solutions designed to decrease the duration of exposure to any risk factor please refer to the Work Organisation section of the General Risk Factor Solutions Manual

\*\* Vibration is categorised under both direct and indirect risk factors. Vibration can directly increase the likelihood of injury to the back and wrist as well as indirectly (environmental conditions) promote injuries in other parts of the body.

- = Indicates that the risk factor was assessed and was not found to be a contributor to the body part problem.
- ◆ = Indicates that the risk factor assessed is commonly found in sawmills, and may need to be addressed at your mill. See the appropriate section of the General Risk Factor Solutions Manual for more information.
- ✓ = Indicates that the risk factor was assessed as a contributor to the body part problem. Please see the Summary of Solutions Table on pages 83 to 85 for specific problem/solution information. Additional information on some risk factors can be found in the General Risk Factor Solutions Manual.

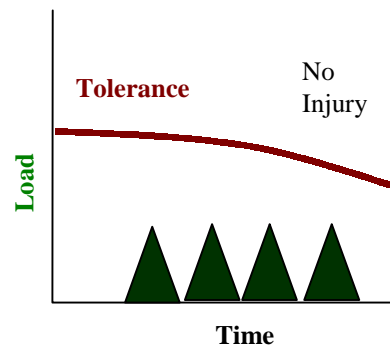
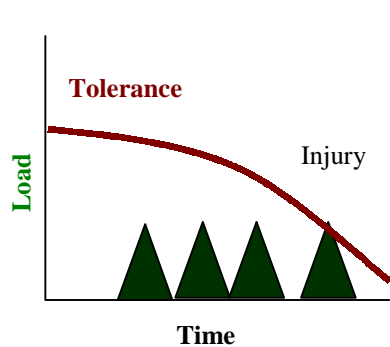
# Injury Prevention

*Injuries are prevented by ...  
Decreasing loads and increasing tissue tolerances*



Injuries may be avoided by decreasing the size of the loads on the tissue.

*Example – using a torque multiplier wrench to loosen bolts.*



Injuries may be avoided by increasing tissue tolerances, and allowing the body to endure more loading.

*Example – using maintenance exercises to strengthen tissues.*

## Suggested Solutions

The previous page explains how injuries may be prevented by decreasing the load on a tissue or by increasing the tissue tolerances. The Injury Prevention section of the Work Manual provides possible solutions that can be implemented to decrease the size of the loads on the tissues.

Each of the solutions described in the Work Manual has a risk control icon. The Risk Control Key provides guidelines on how to distinguish between different types of risk controls. Generally, engineering, administrative, and work practice controls are considered more effective than the use of personal protective equipment to decrease the risk of musculoskeletal injuries.

The focus of the Injury Prevention section is on solutions developed following the ergonomic investigation of the Assistant Shipper job. The solutions are presented under the headings of Workstation Design, Characteristics of Objects Being Handled, Environmental Conditions, and Work Organisation.

The Summary of Solutions table provides a quick reference guide to solutions for specific body part problems.

Please note that the information provided in the Body Manual addresses the issue of injury prevention in terms of increasing tissue tolerances through exercise. This information is not provided in the Work Manual.

# Risk Control Key

Risk control measures (solutions) are commonly grouped into four categories:

E

## **ENGINEERING CONTROLS**

These include physical changes to workstations, equipment, materials, production facilities, or any other relevant aspect of the work environment, that reduce or prevent exposure to risk factors.

A

## **ADMINISTRATIVE CONTROLS**

These include any change in procedure that significantly limits daily exposure to risk factors, by control or manipulation of the work schedule or manner in which work is performed. Administrative controls include, but are not limited to, job rotation, rest breaks, alternative tasks, job enlargement, redesign of work methods, and adjustment of work pace or output. Some models of risk control include work practice controls within this category.

WP

## **WORK PRACTICE CONTROLS**

These include techniques used to perform the tasks of a job, such as reaching, gripping, using tools and equipment, or discarding objects, etc. Education and training are an integral part of work practice controls.

PPE

## **PERSONAL PROTECTIVE EQUIPMENT**

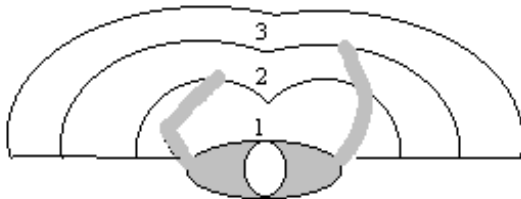
These are devices worn by a worker to reduce the risk of injury, including gloves, kneepads, hearing protection, and leather aprons.

**On the following pages, the icons next to the solution options indicate the type of risk control.**

# Workstation Design

## WORKING REACHES

A working reach that is too far for the worker will require stressful shoulder, elbow, wrist, and back postures. Reaching to the side, behind, or too far in front of the body can put stress on the smaller muscles. Ideally, working reaches should be within a normal reach envelope, as laid out below, with the controls and materials that are handled most often closest to the body. It is also ideal to have controls that perform similar or combined functions grouped together to decrease awkward postures that may otherwise occur.



- |                                          |
|------------------------------------------|
| 1 = Controls/items most frequently used  |
| 2 = Controls/items less frequently used  |
| 3 = Controls/items least frequently used |

Generally, the most frequently used items should be placed within a forearm's reach, with less frequently used items placed within a comfortable arm's reach, and infrequently used items placed within a fully extended arm's reach. For more specific recommendations on working reaches, please consult anthropometric tables or an ergonomist.

**FOR OFFICE-RELATED SOLUTIONS RELATING TO WORKING REACHES, SEE THE GUIDELINES FOR OFFICE WORK SECTION ON PAGE 73.**

## WORKING HEIGHTS

A working height that is too high for the worker will require stressful shoulder and arm postures, while a height that is too low will require stressful bending of the neck and trunk. The height of a work surface should allow room to change position and move the legs and feet (WCB Draft Ergonomic Regulations, 1994).

The ideal workstation is height adjustable, allowing a large percentage of the population to adjust the work surface height to suit their dimensions.

To determine the appropriate work height specific for the Assistant Shipper, identify the body part of most concern. If the main concern is the:

**Neck** - minimise forward bending of the neck by increasing working height.

**Shoulders** - minimise elevation of the arms by lowering working height.

**Low Back** - minimise forward bending of the back by increasing working height.

For more specific guidelines on matching the working heights with the tasks performed please consult anthropometric tables or an ergonomist.

### *Banding height*

E WP	In order to reduce awkward postures of the shoulders and low back, package or cable loads at working heights between knuckle and shoulder height. This positioning may require the package to be placed up on a short riser or a scissor hoist so that the worker can use the bander at an optimal height.
---------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

### *Package height*

A	In order to reduce awkward postures of the neck and shoulders when scanning or tallying loads, stack the loads 3 high instead of 4. This height will reduce awkward postures, as well as decreasing the glare when viewing or scanning the labels.
---	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

For office-related solutions relating to working heights, see the **Guidelines for Office Work** section on page 73.

## SEATING

### *Adjustable seating*

**E**  
**WP** To avoid awkward and static postures of the body, seating should have several adjustable features (see list below) to allow for continual postural adjustments. Workers should also be trained on how and why to use the adjustable features. Poor chairs can contribute to back stress, circulation problems, fatigue, and discomfort. A good chair should have the following:



- Adjustable height
- Adjustable backrest
- Adjustable backrest height
- Adjustable arm rests
- Adjustable seat tilt
- Waterfall front edge
- Five legs
- Swivel seat
- Durable/breathable fabric

### *Lumbar support*

**E** In order to reduce awkward postures in the low back while seated, adjustable lumbar support should be provided. Seats that wrap around the low back and allow the curve in the low back to be maintained are preferred. Padded lumbar cushions can also be added to existing seats.

### *Vary body posture*

**WP** In order to reduce awkward and static postures in the body, encourage the worker to get up from the seated posture throughout the day – at least once an hour is recommended. This alleviates the load on the spine, allows the discs to equalise, and allows ligaments to regain their stiffness after being stretched out from sitting.

### *Vary chair position*

**WP** Seated postures can contribute to fatigue and discomfort of the body, due to the awkward and static nature of the posture. A trunk to leg angle of  $110^{\circ}$  to  $120^{\circ}$  is needed for minimum compression of the spine. Adjust chair features, such as seat pan tilt and back tilt, 2 to 3 times a day to allow muscles a chance to recover from static postures. It is also important to occasionally get up and stretch for a few minutes. This will help reduce the risk of injury by restoring tissue tolerances.

## FLOOR SURFACES

### *Anti-fatigue insoles*

PPE

If a worker must stand in several different areas for long periods of time, in order to minimise fatigue in the lower extremities, use anti-fatigue insoles in work boots. The cushioned surface of the insole can absorb repeated impact from walking.

### *Appropriate footwear*

PPE

In order to ensure healthy foot alignment, purchase appropriate footwear. See the guidelines for footwear in the Foot Section of the Body Manual.

## ADDITIONAL WORKSTATION DESIGN OPTIONS

### *Sticker label system*

E  
A

In order to reduce awkward and repetitive neck/shoulder postures, a sticker label system could be chosen over stapling the label to the load. A computerised system will print labels on sticker paper, and the labels can be attached by peeling the backing off the label and sticking it to the load. This system greatly reduces the repetitive force of stapling a paper label to the load.

### *Scanner*

E

In order to decrease awkward postures of the wrist associated with stapling labels on loads, investigate the use of a scanner/label system to record the load information.

### *Accessible loads*

A

In order to reduce awkward postures of the neck and shoulders when scanning or tallying loads, loads should be stacked so that labels are showing and there is enough walking space between the stacks.

# Guidelines for Office Work

The following office work guidelines are recommended for workers who have office duties in addition to their tasks throughout the sawmill.

## WORKSTATION LAYOUT

### *Computer workstation layout*

**E**  
**WP** In order to reduce awkward postures of the neck/shoulder, orient the workstation so that the computer can be accessed straight on (Figure 1). This positioning will reduce the need for the worker to twist while working at the computer (Figure 2), which causes awkward postures of the neck and upper body.



*Figure 1 – computer in front of worker*



*Figure 2 – computer off to the side*

### *Keyboard placement*

**E**  
**WP** Place the keyboard in the appropriate position based on use. If the lettered section is used most frequently, centre the middle of the letter keys in front of the worker, leaving the numeric pad out to the right-hand side. If the numeric pad is used more frequently, move the keyboard so that it is in line with the right shoulder. This positioning will reduce awkward postures of the neck/shoulder and low back.

### ***Adjustable keyboard and mouse trays***

E  
WP

An adjustable keyboard and mouse tray may help to decrease awkward postures of the wrists and shoulders by allowing the operator to adjust the keyboard and/or mouse to the most comfortable height and reach distance. Ideally the keyboard will be at a height where the wrists are straight when the fingers are on the middle row of keys. This is also a good position for “hunt-and-peck” typists.

If the work surface does not adjust up or down, raise or lower the chair to a height where the worker can maintain neutral wrist postures. Keeping the wrists neutral will reduce the risk of wrist discomfort or injury.



### ***Wrist support***

E

In order to minimise awkward postures of the wrists while typing or mousing, use a wrist support to help keep the wrists in a neutral position. A wrist support made of a soft material such as foam or gel will also reduce contact stress of the wrist.

### ***Armrests***

E  
WP

To reduce static postures of the shoulder when mousing, use armrests to support the weight of the arm. It is important that armrests are adjustable, or at a height that allows the worker to mouse with a relaxed shoulder (e.g., using the armrest does not cause the shoulder to be elevated/shrugged, or depressed/lowered).

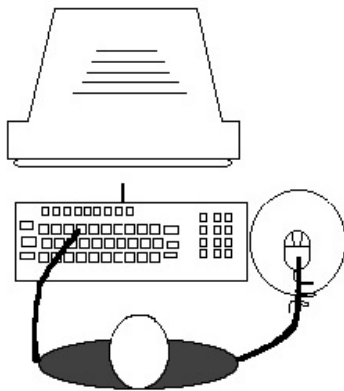
If armrests are not available or not at the appropriate height, an alternative is to move the keyboard and mouse back on the desk, and rest the forearms on the desk for support. However, with this workstation configuration, it is important to consider the following points:

- Proper monitor positioning (refer to page 76)
- Ensure enough space on the desk so that the whole forearm can be supported without placing contact stress on any soft tissues

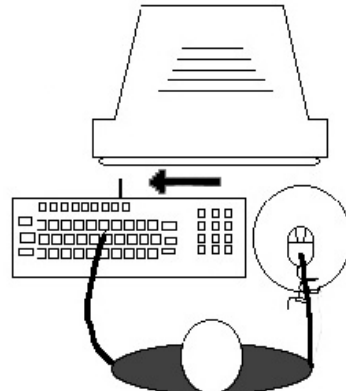
### ***Mouse placement***

E  
WP

In order to reduce awkward and/or static postures of the shoulder, position the mouse so that it is close to, and at the same height as, the keyboard. If the mouse is used more frequently than the keyboard, position the mouse so that it is on the desk directly in front of the arm that uses the mouse.



*Position for mainly keyboard use*



*Position for mainly mouse use*

### ***Desk workstation layout***

E

In order to reduce awkward postures of the upper body, organise items on the desk to correspond with the frequency of daily tasks. The most frequently used items (e.g., keyboard and mouse) should be placed within forearm's reach. Less frequently used items (e.g., phone) should be placed within a comfortable arm's reach, and infrequently used items (e.g., reference books, papers used once per month) can be placed further away. See Working Reaches on page 20 for more information.

### ***Monitor positioning***

Proper positioning of the monitor can reduce several ergonomic risk factors:

**E**  
**WP** To reduce eyestrain and awkward postures of the neck, position the monitor so that it is approximately an arm's length distance from the worker.

**Note:** Larger monitors may need to be positioned farther away from the worker for proper viewing.

**E**  
**WP** In order to reduce awkward postures of the neck, adjust the monitor height so that the top line of text, or the top of the screen is at eye level.

**Note:** Bifocal wearers may want to position the screen lower so that it is more easily viewed through the bottom of the lenses.

Suggestions for lowering the monitor:

- Take it off the central processing unit and place it directly on the desk
- Raise the height of the chair

Suggestions for raising the monitor:

- Put a book or other flat object under the screen
- Place the monitor on an adjustable arm

**WP** To minimise glare on the monitor due to overhead lights, tilt the monitor downward and locate it perpendicular to windows. Minimising glare helps to reduce eyestrain.

### ***Phone placement***

**E** In order to reduce awkward postures of the upper body, place the phone on the non-dominant side. For example, a right-handed worker should place the phone on the left side of the workstation. This positioning allows the worker to write while on the phone without the phone cord getting in the way.

### ***Phone options***

E

In order to minimise awkward postures of the neck while talking on the phone, consider investing in a headset for the phone, or a phone that has speakerphone options.

Headsets will eliminate the need for awkward postures of the neck while talking on the phone. Before considering a purchase, evaluate several types of headsets and consider the amount of time it may be worn.

Speakerphones will also eliminate the need for awkward postures of the neck and wrist, but are not ideal for environments where background noises may prevent clear communication.

### ***Footrest***

E

WP

A footrest may prevent awkward postures of the back, and contact stress in the legs, if the chair and work surfaces are too high. Supporting the feet on the ground or on a footrest helps a worker to maintain proper postures while seated.

## **OTHER CONSIDERATIONS**

### ***Focus eyes***

WP

In order to minimise eyestrain from computer use, look up from the monitor every 20 minutes and focus on something in the distance. Focusing on a distant object causes the eye muscles to change position, relaxing the muscles that have been focussed on the computer for long periods.

### ***Colour of computer screen***

E

To minimise awkward neck postures due to glare, use a light background with darker lettering on computer screens to reduce glare. Monitor settings to avoid include:

- Using too many colours on your screen at once. This can be confusing.
- Extreme colour contrasts such as red and blue. These extreme contrasts may make your eyes fatigue more quickly.
- Colours with minimal contrast, such as white on yellow.
- The combination of yellow on green can create a vibrating effect on the screen.

# Additional Work Practices

## Stretches

**WP** In order to minimise awkward and static postures of the body related to warehouse work, use these stretches throughout the day to enhance tissue tolerance for those muscle groups. For additional stretches see *The Body Manual*.

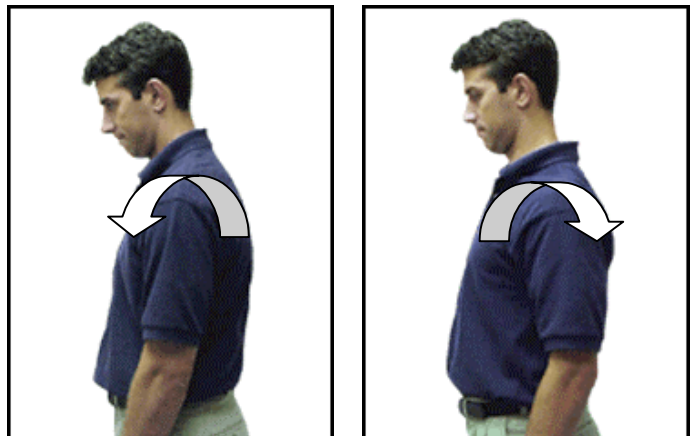
### Chin Tuck

With your head upright, tuck chin in. You should feel a gentle stretch, in the back of the neck. Hold for 20 seconds and then relax. Repeat 3 times.



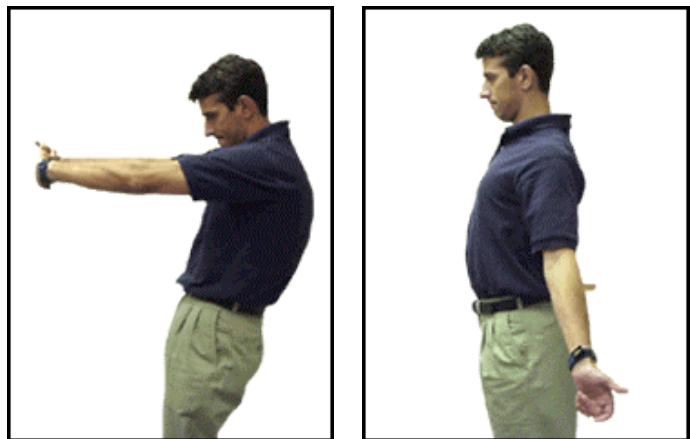
### Shoulder Circles

Rotate the shoulders in forward circles for 5 rotations. Repeat rotating the shoulders backward.



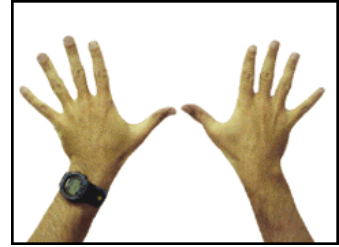
### Upper Back & Chest Stretch

Place the hands together in front of the body and push them outwards. Bring the arms behind the body and squeeze the shoulder blades together while pressing the shoulders down and keeping the chin tucked in. Repeat 5 times.



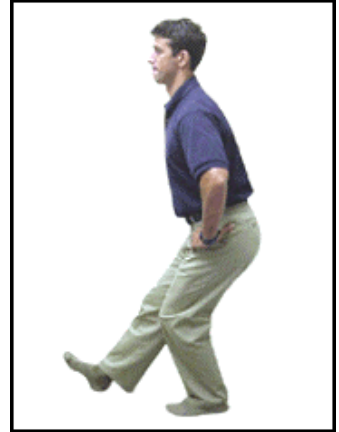
### **Hands and Fingers Stretch**

Clench both fists and hold for 3 seconds. Then open your hands and spread fingers apart. Hold for 3 seconds. Repeat.



### **Hamstring Stretch**

Place one foot in front of the other and squat down. Hold for 5 seconds. Repeat 3 times with each leg.



# Characteristics of Objects Being Handled

## *Manual material handling*

WP

The following work practices refer specifically to manual material handling tasks. These tasks include lifting, lowering, pushing, pulling, carrying, and holding objects.

- Use the entire body, especially the large muscle groups of the lower body, to perform a movement.
- To reduce loading on the soft tissues of the back, lift heavy objects with a neutral back posture while maintaining the 3-point curve (the natural “S” shaped curve of the back – see the Injury Education section for more information). Do not use pelvic tilt to position the trunk for lifting.
- Do not twist while holding or moving a load. This twisting places the back in a weaker posture that can lead to injury.
- When possible, balance loads being carried on each side of the body. This minimises loading on the soft tissues of the back and hips.
- When lifting, carrying, or holding objects, keep them as close to the body as possible. The farther the load is away from the body, the more stress it puts on the back.

## SIZE AND SHAPE

### *Scanner or stapler shape*

E

In order to decrease awkward postures of the wrist while scanning or stapling labels on loads, use scanners or staplers that have a handle that is easy to grip. A grip that is too large or too small may cause the operator to use extra force or awkward postures.

## Environmental Conditions

### *Sunglasses*

**PPE** To minimise awkward neck postures due to glare, operators may wear sunglasses while tallying loads in the yard.

Please refer to the General Risk Factor Solutions Manual for solutions regarding environmental conditions.

## Work Organisation

### *Task variability*

**WP** In order to reduce exposure to risk factors associated with Assistant Shippers, workers should vary tasks throughout their shift. Taking short breaks to get up and stand will help to re-align the spine.

### *Job rotation*

**A** To reduce loading on the body parts of concern listed in this Work Manual, the Assistant Shipper can be rotated to other job positions that require different physical and mental demands. By rotating to jobs that require different physical demands the working muscles get a chance to recover and repair, decreasing the risk of injury. Job rotation is more effective if it occurs intermittently throughout the shift, for example, every hour or every two hours. The duration of exposure to risk has a large effect on the amount of time required for the tissue to recover.

### *Lumberyard layout*

**A** To reduce loading on the lower extremities and reduce time needed to perform inventory and tally the loads, layout the lumberyard in a logical manner. Organisation should be based on size, species, etc., allowing room for extra lumber. Making the layout easy to follow, well lit, and properly labelled allows easy reference by forklift drivers and Assistant Shippers.

### ***Organisation of paperwork***

A To reduce stress on the body, recognise and plan for peak work cycles. The last two weeks of the month are the busiest in the shipping department, causing an increased stress level on the Assistant Shipper. This time of the month often calls for more overtime and in effect a longer exposure to risk factors. To help with this peak work cycle, prepare shipping ahead of time when possible.

### ***Design for loading spaces***

A To reduce stress on the body, recognise and plan for peak work cycles. The last two weeks of the month are the busiest in the shipping department, causing an increased stress level on the Assistant Shipper. To make the loading of local and non-local trucks more efficient, plan two or more loading stations that can accommodate the number of trucks coming into the yard. Having an order stack available ahead of time at a station will also allow for more efficient loading of the trucks.

Please refer to the General Risk Factor Solutions Manual for solutions regarding work organisation risk factors.

## Summary of Solutions

Refer to the table below to help determine which solution alternatives will aid in addressing risk factors in the particular body parts of concern.

		<b>Injury Prevention Potential</b>										
<b>SOLUTIONS</b>	<b>Page</b>	Neck	Neck/ Shoulder	Shoulder	Elbow/Wrist	Wrist	Wrist/Hand	Low Back	Hip	Knee	Ankle	Foot
<b>Banding height</b>	<b>70</b>		<b>A</b>					<b>A</b>				
<b>Package height</b>	<b>70</b>	<b>A</b>	<b>A</b>									
<b>Adjustable seating</b>	<b>71</b>	<b>A</b>	<b>A</b>					<b>A</b>				
<b>Lumbar support</b>	<b>71</b>							<b>A</b>				
<b>Vary body posture</b>	<b>71</b>	<b>A S</b>	<b>A</b>			<b>A S</b>		<b>A S</b>				
<b>Vary chair position</b>	<b>71</b>		<b>A</b>					<b>A</b>				
<b>Anti-fatigue insoles</b>	<b>72</b>											<b>R</b>
<b>Appropriate footwear</b>	<b>72</b>											<b>R</b>
<b>Sticker label system</b>	<b>72</b>		<b>R A</b>									
<b>Scanner</b>	<b>72</b>					<b>A</b>						
<b>Accessible loads</b>	<b>72</b>	<b>A S</b>	<b>R A</b>									
<b>Computer workstation layout</b>	<b>73</b>		<b>A</b>									
<b>Keyboard placement</b>	<b>73</b>		<b>A</b>			<b>A</b>						

### Direct Risk Factors

**F** = Force

**S** = Static Postures

**R** = Repetition

**C** = Contact Stress

**A** = Awkward Postures

**V** = Vibration

## Summary of Solutions

Refer to the table below to help determine which solution alternatives will aid in addressing risk factors in the particular body parts of concern.

		<b>Injury Prevention Potential</b>										
<b>SOLUTIONS</b>	<b>Page</b>	Neck	Neck/ Shoulder	Shoulder	Elbow/Wrist	Wrist	Wrist/ Hand	Low Back	Hip	Knee	Ankle	Foot
<b>Adjustable keyboard and mouse trays</b>	<b>74</b>		<b>A</b>			<b>A</b>						
<b>Wrist support</b>	<b>74</b>					<b>A</b>						
<b>Armrests</b>	<b>75</b>		<b>A</b>			<b>A</b>						
<b>Mouse placement</b>	<b>75</b>		<b>A S</b>			<b>A S</b>						
<b>Desk workstation layout</b>	<b>75</b>	<b>A</b>	<b>A</b>			<b>A</b>						
<b>Monitor positioning</b>	<b>76</b>	<b>A</b>										
<b>Phone placement</b>	<b>76</b>	<b>A</b>	<b>A</b>			<b>A</b>						
<b>Phone options</b>	<b>77</b>	<b>A</b>	<b>A</b>									
<b>Footrest</b>	<b>77</b>							<b>A</b>				
<b>Focus eyes</b>	<b>77</b>	<b>S</b>										
<b>Colour of computer screen</b>	<b>77</b>	<b>A</b>										
<b>Stretches</b>	<b>78</b>	directly reduces risk of injury to the body										
<b>Manual material handling</b>	<b>80</b>							<b>A</b>				

### Direct Risk Factors

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## Summary of Solutions

Refer to the table below to help determine which solution alternatives will aid in addressing risk factors in the particular body parts of concern.

		<b>Injury Prevention Potential</b>										
<b>SOLUTIONS</b>	<b>Page</b>	Neck	Neck/ Shoulder	Shoulder	Elbow/Wrist	Wrist	Wrist/Hand	Low Back	Hip	Knee	Ankle	Foot
Scanner or stapler shape	80					A						
Sunglasses	81	A										
Task variability	81 ♦	indirectly reduces risk of injury to the body										
Job rotation	81 ♦	indirectly reduces risk of injury to the body										
Lumberyard layout	81											R
Organisation of paperwork	82		R									
Design for loading spaces	82	A S	R A			A S		A S				
Heat Exposure	♦	indirectly reduces risk of injury to the body										
Cold Exposure	♦	indirectly reduces risk of injury to the body										
Lighting	♦	indirectly reduces risk of injury to the body										
Noise	♦	indirectly reduces risk of injury to the body										
Vibration	♦	directly reduces risk of injury to the back and wrist										
Rest breaks	♦	indirectly reduces risk of injury to the body										
Work Pace	♦	indirectly reduces risk of injury to the body										
Scheduling	♦	indirectly reduces risk of injury to the body										

### Direct Risk Factors

**F** = Force

**R** = Repetition

**A** = Awkward Postures

**S** = Static Postures

**C** = Contact Stress

**V** = Vibration

♦ = See General Risk Factor Solutions Manual





CHECK IF THIS APPLIES	ACTIVITY OF RISK	DIRECT RISK FACTOR(S)	POTENTIAL HAZARDS	SUGGESTED SOLUTIONS
	<p><b>Wrist</b></p> <p>An Assistant Shipper may use a keyboard, mouse, hand scanner, or staple gun with the wrists bent.</p>	<p><b>Awkward Postures</b></p> <p><b>Static Postures</b></p>	<ul style="list-style-type: none"> <li>• As the wrist is bent, the tendon sheaths will rub up against the walls of the carpal tunnel. The further the wrist is bent, the more friction experienced in the tendon sheaths.</li> <li>• When the wrist is held in a bent position, the tendon sheaths are under constant stress. If the duration of constant stress is excessive, and recovery is not adequate, the tissues may fatigue to the point of injury.</li> </ul>	<ul style="list-style-type: none"> <li>• Alternate hands when using the mouse, do this by adjusting the mouse controls, under “control panel”, to be a left-handed mouse. This will decrease the exposure to one hand by half.</li> <li>• For exercises that can help prevent <b>Wrist</b> injuries, <i>see the Wrist section of the Body Manual.</i></li> </ul>

CHECK IF THIS APPLIES	ACTIVITY OF RISK	DIRECT RISK FACTOR(S)	POTENTIAL HAZARDS	SUGGESTED SOLUTIONS
	<p><b>Low Back</b></p> <p>An Assistant Shipper may sit for extended periods in order to perform office work and organise lumberyard activities.</p>	<p><b>Static Postures</b></p>	<ul style="list-style-type: none"> <li>• Sitting increases the loading on the walls of the discs. If the duration of sitting is excessive, and the recovery is not adequate (e.g., spine not returned to neutral posture), the tissues may deform to the point of injury.</li> </ul>	<ul style="list-style-type: none"> <li>• Get up from the seated posture throughout the day. This alleviates the load on the spine, allows the discs to equalise, and allows ligaments to regain their stiffness after being stretched out from sitting.</li> <li>• Adjust chair features, such as seat pan tilt and back tilt, 2 to 3 times a day to allow muscles a chance to recover from held postures.</li> <li>• Lumbar support in the chair should be adjusted to maintain the curve in the low back while sitting.</li> <li>• For exercises that can help prevent <b>Low Back</b> injuries, <i>see the Back section of the Body Manual.</i></li> </ul>

CHECK IF THIS APPLIES	ACTIVITY OF RISK	DIRECT RISK FACTOR(S)	POTENTIAL HAZARDS	SUGGESTED SOLUTIONS
	<p><b>Foot</b></p> <p>An Assistant Shipper may walk on hard surfaces in order to take inventory and tally loads.</p>	<p><b>Repetition</b></p>	<ul style="list-style-type: none"> <li>• During walking, impact between the ground and the feet loads the plantar fascia. If the duration of walking is excessive, and recovery is not adequate, the fascia may fatigue to the point of injury.</li> </ul>	<ul style="list-style-type: none"> <li>• Purchase appropriate footwear. See the guidelines for footwear in the Foot section of the Body Manual.</li> <li>• Try anti-fatigue insoles in work boots. The cushioned surface of the insole can absorb repeated impact from walking.</li> <li>• For exercises that can help prevent <i>Foot</i> injuries, <i>see the Foot section of the Body Manual.</i></li> </ul>