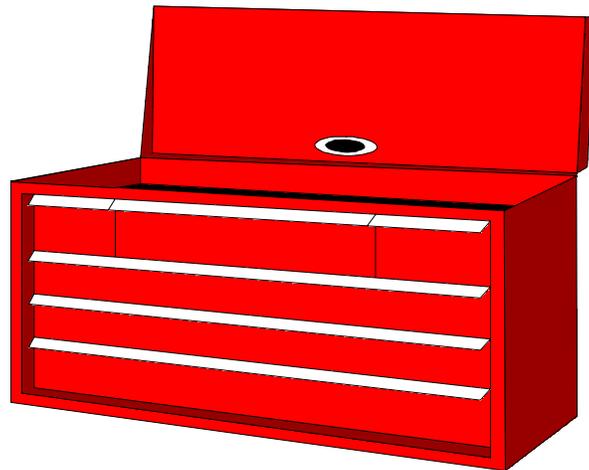


# INDUSTRIAL MUSCULOSKELETAL INJURY REDUCTION PROGRAM

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## Common Industry Jobs (CIJs) Security Guard/ Clock Watchman 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

# SECURITY GUARD/CLOCK WATCHMAN TOOL KIT

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Security Guard/  
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*Security Guard/  
Clock Watchman  
Tool Kit*

# Overview

## Security Guard/Clock Watchman

### Job Summary

A Security Guard/Clock Watchman is responsible for the security of the mill, including fire watch. A Security Guard/Clock Watchman will drive and/or walk to various check points, monitor the gate and/or road leading to the mill, provide fire watch while Millwrights or Welders are working, check fire extinguishers, extinguish fires as needed, and write reports detailing any unusual occurrences at the mill. Because a Security Guard/Clock Watchman generally works when the rest of the employees are not at the mill, he or she may be assigned to other duties as required (e.g., loading/unloading kilns, providing first aid if qualified). Refer to the Physical Demands Analysis for more detail.

### Physical Demands

The physical demands of the Security Guard/Clock Watchman may include:

- a) Frequent walking
- b) Occasional to frequent stair-climbing
- c) Driving a truck between checkpoints
- d) Pulling water hoses to extinguish fires
- e) Manual handling of fire extinguishers

### Mental Demands

A Security Guard/Clock Watchman must be mentally alert when performing rounds, to be aware of anything unusual in the mill. Mental alertness and rapid decision-making are also important while providing fire watch for Millwrights and Welders.

## **Major Variations**

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

- 1) “Other duties as required” vary from mill to mill, therefore MSI risk factors vary depending on the physical demands of the tasks involved in those duties.

## **Minor Variations**

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

- 1) While performing rounds, checkpoints may be recorded using:
  - a) A Morse Watchman (scanner)
  - b) A key-activated clock
- 2) Walking distance and number of stairs climbed per shift vary depending on the physical layout of the mill.

# Physical Demands Analysis

## Security Guard/Clock Watchman

### PDA General Instructions: Security Guard/Clock Watchman

The purpose of this PDA is to familiarise healthcare professionals with the physical demands of a Security Guard/Clock Watchman. 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 Security Guard/Clock Watchman(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. The IMIRP Society accepts no responsibility for the use or misuse of this Physical Demands Analysis, or for the accuracy of the PDA as it applies to any specific workplace.

#### **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

## Security Guard/Clock Watchman

### Task List

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

#### **Operate truck**

A Security Guard/Clock Watchman drives from one area of the mill to another (or from mill to mill, for multiple sites) to record a checkpoint, inspect a site, or other tasks.

*Does this task occur at your mill?*

Yes       No

#### **Conduct rounds and/or key station checks**

A Security Guard/Clock Watchman walks to different areas of the mill to check for potential fires and other unusual activity. A tracking device is used to record the time of each station check.

Sub-tasks may include checking dry valves and water barrels, inspecting compressor rooms and kiln instrumentation, distributing and collecting mail, recording licenses of suspicious vehicles, evicting trespassers, turning off machinery, and closing and locking gates.

*Does this task occur at your mill?*

Yes       No



## Monitor gates and road to mill

A Security Guard/Clock Watchman monitors vehicles entering and exiting mill property. This monitoring is usually done from a booth or shack.

*Does this task occur at your mill?*

- Yes       No



## Spark watch/Hot work permits

A Security Guard/Clock Watchman checks for fires in areas where Millwrights or Welders have been working, and provides water and/or fire extinguisher for hot work permits.

*Does this task occur at your mill?*

- Yes       No



## Extinguish fires

A Security Guard/Clock Watchman may be required to extinguish a fire using a fire hose or fire extinguisher.

*Does this task occur at your mill?*

- Yes       No



## Check fire extinguishers

A Security Guard/Clock Watchman regularly checks and refills fire extinguishers (e.g., once a month).

*Does this task occur at your mill?*

- Yes       No

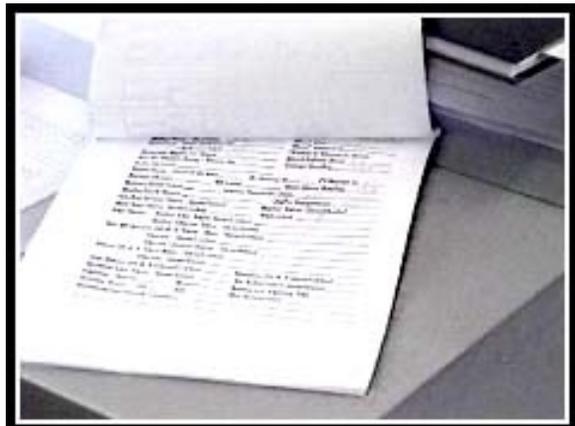


## Write shift report

A Security Guard/Clock Watchman keeps a log of any occurrences during the shift.

*Does this task occur at your mill?*

- Yes       No



## **Other duties as required:**

Because a Security Guard/Clock Watchman generally works when the rest of the employees are not at the mill, he or she may be assigned to other duties as required. These duties may include:

- Loading/unloading kilns
- Providing first aid
- Yard maintenance
- Supervising the unloading of supplies

*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 a Security Guard/Clock Watchman. 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>Operate truck</i>					<ul style="list-style-type: none"> <li>• <i>May be from one area of the mill to another, or from mill to mill</i></li> <li>• <i>Frequent stops made to record a check point, inspect a site, etc.</i></li> </ul>
<i>Conduct rounds and/or key station checks</i>					<ul style="list-style-type: none"> <li>• <i>Distance of walking and number of checkpoints/key stations varies from mill to mill</i></li> <li>• <i>Frequency of rounds varies from mill to mill, from “occasionally” to “constantly”</i></li> <li>• <i>While doing rounds, a variety of different areas in the mill are checked. For sub-tasks, see previous Task List</i></li> </ul>
<i>Monitor gates and road to mill</i>					<ul style="list-style-type: none"> <li>• <i>Observations made from a booth or shack</i></li> <li>• <i>Performed between rounds and other duties</i></li> <li>• <i>Observe vehicle entering/exiting</i></li> </ul>
<i>Spark watch/Hot work permits</i>					<ul style="list-style-type: none"> <li>• <i>Checking Millwright/Welding areas for potential fire, providing water or fire extinguisher for hot work permits</i></li> <li>• <i>Performed as needed</i></li> </ul>
<i>Extinguish fires</i>					<ul style="list-style-type: none"> <li>• <i>Pulling/handling a water hose and/or lifting/carrying a fire extinguisher</i></li> </ul>
<i>Check fire extinguishers</i>					<ul style="list-style-type: none"> <li>• <i>Done periodically (e.g. monthly)</i></li> <li>• <i>May include refilling extinguishers with powder chemical</i></li> </ul>

Task	Percent of Shift				Comments
	Rarely 0 to 5%	Occasionally 6 to 33%	Frequently 34 to 66%	Constantly 67 to 100%	
<i>Other duties as required:</i>					
<i>Write shift report</i>					<ul style="list-style-type: none"> <li>• <i>Generally once per shift</i></li> <li>• <i>Usually brief - 2 pages or less</i></li> </ul>
<i>Load and unload kilns</i>					<ul style="list-style-type: none"> <li>• <i>Performed as needed – refer to the Kiln Operator Tool Kit</i></li> </ul>
<i>First aid</i>					<ul style="list-style-type: none"> <li>• <i>Provided as required, if qualified</i></li> </ul>
<i>Yard maintenance</i>					<ul style="list-style-type: none"> <li>• <i>Examples include weed eating in the summer, snow removal in the winter</i></li> </ul>
<i>Supervise unloading of supplies</i>					<ul style="list-style-type: none"> <li>• <i>As required</i></li> </ul>
<i>Other:</i>					
<i>Other:</i>					

## **Workstation Characteristics**

### **Dimensions & Layout**

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

**Flooring, Displays and 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 a Security Guard/Clock Watchman. 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	
<input type="checkbox"/>	<i>Levers</i>	<ul style="list-style-type: none"> <li>• <i>Operate fire extinguishers</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Used as needed</i></li> </ul>
<input type="checkbox"/>	<i>Finger push buttons</i>	<ul style="list-style-type: none"> <li>• <i>Enter data into Morse Watchman</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>A code is entered before every round</i></li> </ul>
<input type="checkbox"/>	<i>Other:</i>		
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			

## Physical Demands

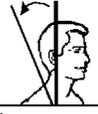
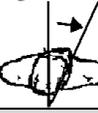
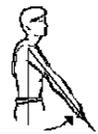
### Whole Body Physical Demands

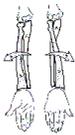
Identify each of the physical demands required by a Security Guard/Clock Watchman and list the corresponding tasks in the second column. Check off (✓) the estimated *Percent of Shift*, and use the *Comments* section to include information related to duration, frequency, and cycle times.

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>Conduct rounds and/or key station checks</li> </ul>		✓			<ul style="list-style-type: none"> <li>2 hours of total walking time per 8 hour shift (4 rounds per shift, approximately 30 minutes per round)</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 a Security Guard/Clock Watchman, 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.

Body Posture	Task(s)	Percent of Shift				Comments
		Rarely 0 to 5%	Occasionally 6 to 33%	Frequently 34 to 66%	Constantly 67 to 100%	
<i>Example:</i> <i>Back Flexion</i>	<ul style="list-style-type: none"> <li>Operate truck</li> <li>Conduct rounds and/or key station checks</li> <li>Check fire extinguishers</li> <li>Yard maintenance</li> </ul>		✓			<ul style="list-style-type: none"> <li>Sitting while driving</li> <li>Bend to check areas under machinery</li> <li>Bend to pick up fire extinguishers</li> <li>Shovel snow</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>						
<i>Rotation</i> 						
<b>Wrist</b>						
<i>Wrist Movements</i> 						
<b>Hand/Fingers</b>						
<i>*Handling</i>						
<i>*Fingering</i>						
<i>*Gripping</i>						

### Legend for Hand/Fingers

<i>Handling</i>	<i>grasping, turning, holding, etc.</i>			
<i>Fingering</i>	<i>picking, pinching, etc.</i>			
<i>Gripping</i>	<i>Power</i> 	<i>Pinch</i> 	<i>Hook</i> 	<i>Precision</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>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 a Security Guard/Clock Watchman. 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 a Security Guard/Clock Watchman 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%	
Key-activated clock		1.5					<ul style="list-style-type: none"> <li>Used at each key check station</li> <li>Number of stations varies from mill to mill</li> </ul>
Morse Watchman		0.1 to 0.3					<ul style="list-style-type: none"> <li>Used at each key check station</li> <li>Number of stations varies from mill to mill</li> </ul>
Radio		0.2					
Dry chemical fire extinguisher		17.5 to 21.1					<ul style="list-style-type: none"> <li>Used as needed</li> </ul>
Shovel		1.4 to 1.7					
Rake		1.4					
Pitchfork		1.2					
Broom		1.7					
Picaroon		2.0					
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 A of the PDA.

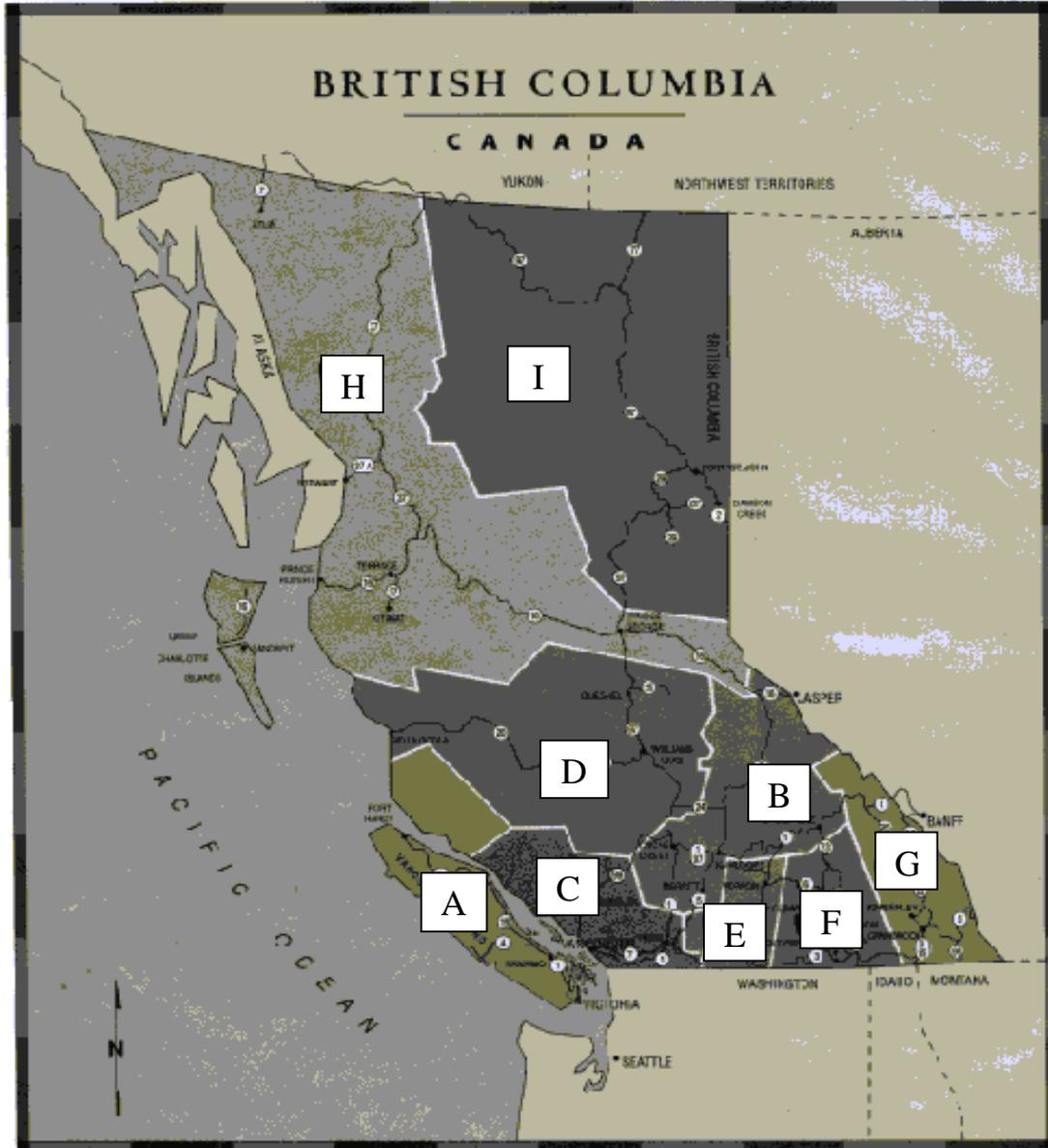
Region	Avg. Max July/Aug	Avg. Min Dec/Jan	Extreme Max.	Extreme Min.
<input type="checkbox"/> Vancouver Island	22.5 °C	-0.6 °C	36.1 °C	-18.8 °C
<input type="checkbox"/> Southwestern BC	22.9 °C	0.4 °C	35.6 °C	-18.3 °C
<input type="checkbox"/> Cariboo Chilcotin Coast	22.2 °C	-11.6 °C	36.4 °C	-42.5 °C
<input type="checkbox"/> High Country	26.3 °C	-9.9 °C	39.6 °C	-39.7 °C
<input type="checkbox"/> Okanagan Similkameen	26.5 °C	-8.4 °C	36.0 °C	-36.3 °C
<input type="checkbox"/> Kootenay Country	26.2 °C	-6.7 °C	38.5 °C	-32.0 °C
<input type="checkbox"/> British Columbia Rockies	24.7 °C	-12.3 °C	37.5 °C	-42.2 °C
<input type="checkbox"/> North by Northwest	19.5 °C	-11.7 °C	32.9 °C	-38.1 °C
<input type="checkbox"/> 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 Security Guard/Clock Watchman job at your mill, indicate with a check mark (✓) which of the PPE items are required.

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

## Appendix A – Regional Map



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

# Risk Factor Identification Checklist

## Security Guard/Clock Watchman

### Purpose

The Risk Factor Identification Checklist for a Security Guard/Clock Watchman 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 Security Guard/Clock Watchman

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

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

Date \_\_\_\_\_

Risk Identification completed:

Before implementation of solutions

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.

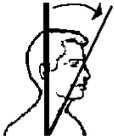
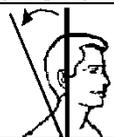
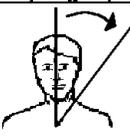
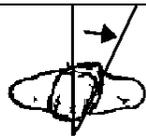
**Static Postures:** Static loading (sustained exertions) is physical effort (body postures) that is held, requiring muscle contraction for more than a short time.

**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.

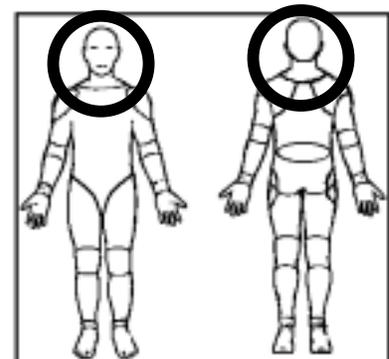
**Awkward Postures:** Awkward postures occur when there is a deviation from a power working posture. Some examples of awkward postures typically include reaching behind, twisting, working overhead, and forward or backward bending.

**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?			S O	
Static Posture				
Ask the worker: Do tasks require your neck or shoulders to be maintained in a fixed or static posture?			S O	
Awkward Posture				
Flexion			S O	
Extension			S O	
Lateral Bending			S O	
Rotation			S O	

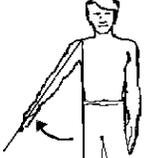
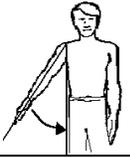
Please indicate whether the following direct risk factors were identified at the <b>NECK</b> .		
<b>Direct Risk Factors</b>	Repetition	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Static Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Awkward Posture	<input type="checkbox"/> Yes <input type="checkbox"/> No
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



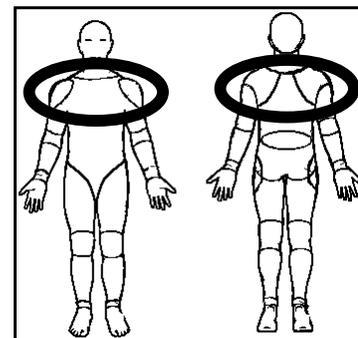
*Body parts within the circled area will be classified as NECK issues.*

## SHOULDER

<b>Force</b>	<b>N</b>	<b>Y</b>	<b>Comments:</b>
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., hammering)		S O	
Ask the worker: Do you spend a large percentage of the day performing one action or task?		S O	
<b>Static Posture</b>			
Ask the worker: Do tasks require your shoulders to be maintained in a fixed or static posture?		S O	
Ask the worker: Do you hold parts, tools, or objects for long periods? (e.g., holding a fire hose to extinguish a fire)		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



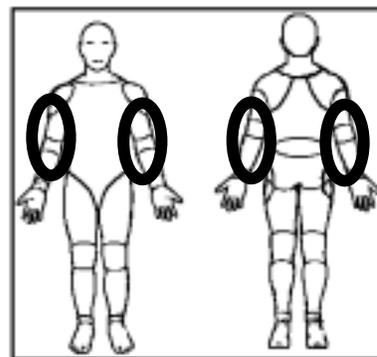
*Body parts within the circled area will be classified as SHOULDER issues.*

## 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., shovel)			S	
			O	
Are objects handled in a pinch grip? (e.g., lumber)			S	
			O	
Are objects handled in a hook grip? (e.g., fire extinguishers)			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?				S
				O
Ask the worker: Do you spend a large percentage of the day performing one action or task?				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., holding a fire hose to extinguish a fire)			S O	
Ask the worker: Do you apply constant pressure on controls/objects with your hand?			S O	
Ask the worker: Do you hold parts, tools, or objects for long periods? (e.g., holding a fire hose to extinguish a fire)			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)			S O	
<b>Vibration</b>				
Ask the worker: Is vibration transmitted to your hand through a tool or piece of equipment?			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	



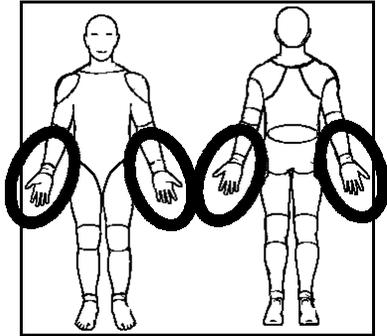
*Body parts within the circled area will be classified as ELBOW issues.*

## WRIST/HAND

Force		N	Y	Comments:
Is forceful physical handling performed? Such as: Lifting			S	
			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., shovel)			S	
			O	
Are objects handled in a pinch grip? (e.g., lumber)			S	
			O	
Are objects handled in a hook grip? (e.g., fire extinguishers)			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?				S
				O
Ask the worker: Do you spend a large percentage of the day performing one action or task?				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?			S O	
Ask the worker: Do you apply constant pressure on controls/objects with your hand?			S O	
Ask the worker: Do you hold parts, tools, or objects for long periods? (e.g., holding a fire hose to extinguish a fire)			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?			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?			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



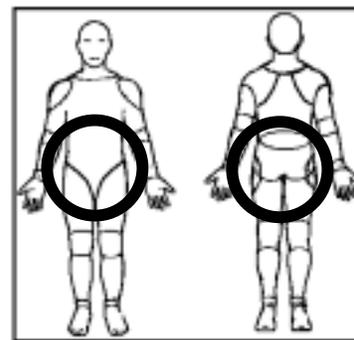
*Body parts within the circled area will be classified as WRIST issues.*

## 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?		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?		S O	
Are workers required to sit or stand in a stationary position for long periods of time during the shift?		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., equipment that digs into the hip or thigh while reaching key stations in awkward places)		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

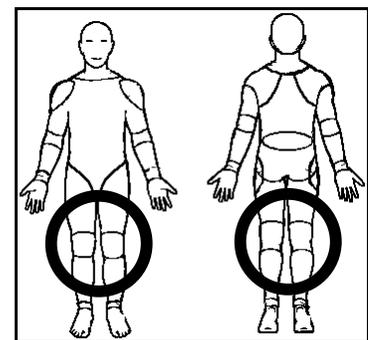


*Body parts within the circled area will be classified as LOW BACK issues.*

## 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?			S O	
Are workers required to sit or stand in a stationary position for long periods of time during the shift?			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 a catwalk)			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

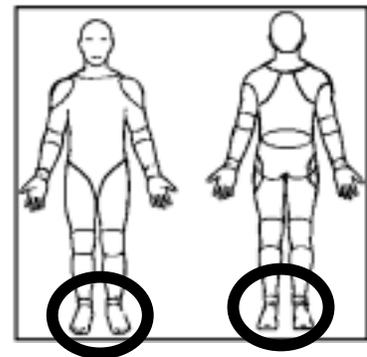


*Body parts within the circled area will be classified as KNEE issues.*

## 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?			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., fire hose)			S O
Are there problems handling a load due to its fragile, unbalanced, or non-rigid conditions? (e.g., fire hose)			S O
Ask the worker: Do you experience situations where mechanical aids or equipment are not readily available to assist with manipulating an object?			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?			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 under equipment)			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?		S O	

## WORK ORGANISATION

	N	Y	Comments:
Is the work externally-paced or controlled by a machine or the process?		S O	
Do peak workloads or sudden increases in pace occur with the tasks? (e.g., extinguishing fires)		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., extended weekend duties)		S O	
Ask the worker: Are there indications of excessive fatigue or adverse health effects due to shiftwork? (e.g., graveyard shifts)		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?		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**



# **Security Guard/ Clock Watchman**

This Work Manual contains information about the body parts found to be at risk of musculoskeletal injury (MSI) for the Security Guard/Clock Watchman (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

# Security Guard/ Clock Watchman

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### **Disclaimer**

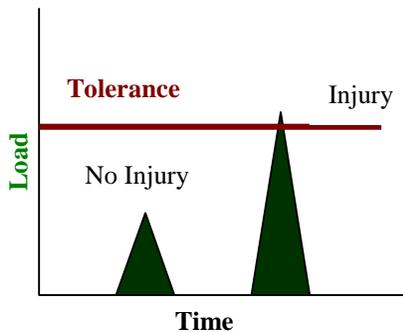
*The BC sawmill IMIRP documents were developed by Advanced Ergonomics Inc. (AEI) based on analyses conducted in a number of voluntary, participating sawmills in British Columbia and should be considered applicable only to the BC sawmill industry. Modification to these documents may reduce their usefulness 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

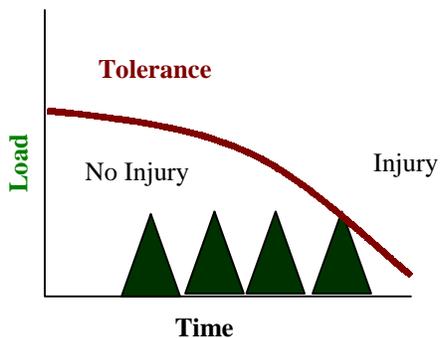
*Injuries occur when ...  
Loads exceed tissue tolerances*



## ***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.

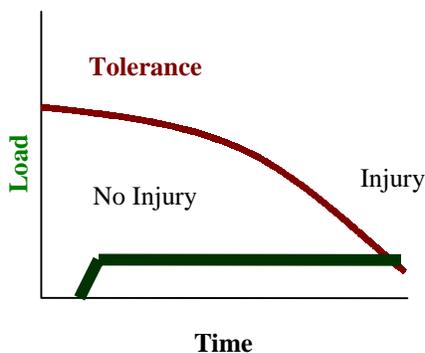
***Example – a worker going over on their ankle and spraining it.***



## ***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. From the sample of Security Guard/Clock Watchman that were observed and interviewed, as well as the available injury statistics and discomfort surveys, it was determined that there was no *significant* risk of ergonomics-related injury for this job.

Although injuries have been recorded for this position, they were accidents such as trips and falls. The following characteristics of the Security Guard/Clock Watchman job make it an ergonomically safe job:

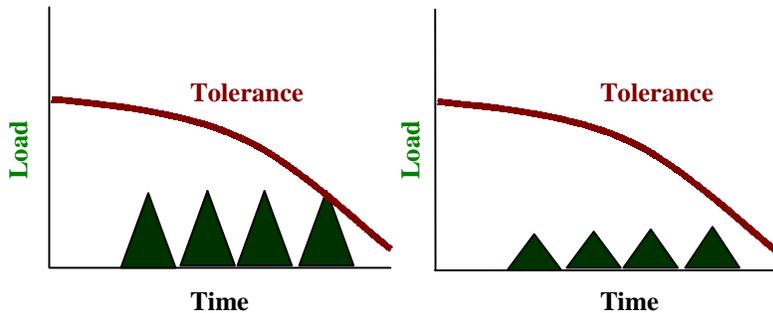
1. Generally no forceful exertions (e.g., heavy lifting) are involved in the regular duties of the job.
2. Work is self-paced, and movements are not repetitive.
3. No awkward or static postures are maintained for a significant length of time. Although sitting in the shack may be static the worker has the opportunity to change postures when needed.
4. Frequent opportunities for stretch breaks.
5. Alternating physical demands (walking, sitting, standing).
6. Little or no exposure to contact stress.

Although there were no significant risk factors observed with the Security Guard/Clock Watchman's regular tasks, he/she may occasionally be assigned to other tasks and job duties as required (e.g. Kiln Operator duties, Clean up duties.) If these duties make up a significant portion of the shift, refer to the appropriate Work Manual for that job to find risk factors and solutions.

General comments on injury prevention at work are presented in the next section of this manual.

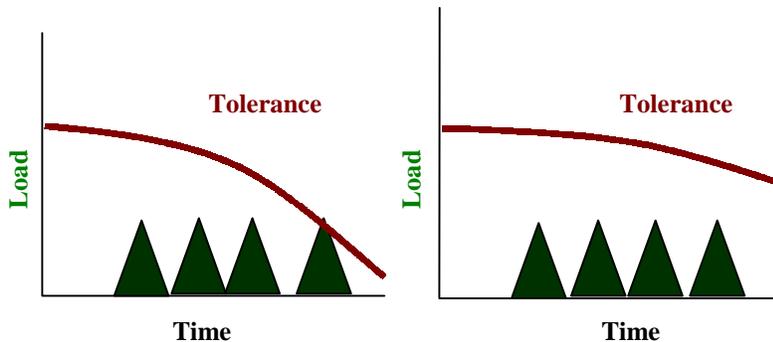
# Injury Prevention

*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.*

## **Suggestions for the Security Guard/Clock Watchman**

The previous page explains how injuries may be prevented by decreasing the load on a tissue or by increasing the tissue tolerances. Although the job does not put excessive loads on the body, a Security Guard/ Clock Watchman should still be conscious of increasing and/or maintaining tissue tolerances through exercise and stretching. The need for physical conditioning is based on the amount of walking required as part of the regular tasks.

The Security Guard/Clock Watchman may also be required to perform a variety of job tasks that may be assigned in addition to regular tasks. For example, a Security Guard/Clock Watchman may be required to extinguish fires, resulting in manual handling of fire extinguishers and/or hoses, or clean-up in and around machinery. An improvement in physical conditioning enables an individual to perform additional tasks with a decreased likelihood of injury to the body.

The person performing the duties of a Security Guard/Clock Watchman generally works alone with little or no contact with others, as such, some sort of personal monitoring system should be in place. This may be accomplished by providing medical panic alert devices, or developing a buddy system with one of the other workers on shift (i.e., regularly checking in with someone specific during each tour of the facility).

Security Guards/Clock Watchman may have adverse health effects due to working continuous graveyard/night shifts. It is important for them to get adequate sleep during off-hours and weekends, as well as proper nourishment before and during the shift to maintain optimal health and alertness.

The Security Guard/Clock Watchman should be given a Body Manual, which addresses the issue of injury prevention in terms of increasing tissue tolerances through exercise. This information is not provided in the Work Manual.

Also, please refer to the General Risk Factor Solutions Manual for solutions that address risk factors common to many jobs in the sawmill industry.

## SECURITY GUARD/CLOCK WATCHMAN MSI SAFETY GUIDE

From the sample of Security Guards/Clock Watchmen that were observed and interviewed, as well as the available injury statistics and discomfort surveys, it was determined that there was no *significant* risk of ergonomics-related injury for this job. However, if a Security Guard/Clock Watchman is assigned to other tasks and job duties (e.g. Kiln Operator duties, Clean up), refer to the appropriate MSI Safety Guide for that job to find corresponding risk factors and solutions.

Although the regular duties of a Security Guard/Clock Watchman the job does not put excessive loads on the body, he or she should still be conscious of varying work postures throughout the shift (e.g. sitting, standing, walking), and increasing and/or maintaining tissue tolerances through exercise and stretching. The need for physical conditioning is due to the variety of job tasks that may be assigned in addition to regular tasks. Also, a Security Guard/Clock Watchman may be required to extinguish fires, which requires manual handling of fire extinguishers and/or hoses.

Security Guards/Clock Watchmen may have adverse health effects due to working continuous graveyard/night shifts. It is important for them to get adequate sleep during off-hours and weekends, as well as proper nourishment before and during the shift to maintain optimal health and alertness.

It is recommended that the Security Guard/Clock Watchman read the **Body Manual**, which addresses the issue of injury prevention in terms of increasing tissue tolerances through exercise.