

EMPLOYER - PHYSICAL DEMANDS ANALYSIS

Pulp Mill Pipefitter

Job Title:	Pulp Mill Pipefitter	Video Link:	http://youtu.be/9-07aTxaycA (YouTube) http://albertaforestproducts.ca/our-industry/health-safety/physical-demands-analyses-pda (Website)
Work Schedule:	10-12-hour shifts Regular breaks are self-directed and spaced throughout the workday: Usually two 15-minute coffee breaks and one 30-minute lunch break per shift.		
General Description and Job Function:	<p>Responsible for the monitoring/maintenance/repair of pipe unions/coupling/threading throughout the site through regular preventative maintenance rounds and scheduled maintenance duties in order to keep the site machinery at its optimal production rate.</p> <p>A Pipefitter may be part of a crew performing certain tasks for several days/weeks before rotating to other tasks</p> <ul style="list-style-type: none"> ➤ Compressor Inspection ➤ Rotary steam joint re-builds ➤ Maintenance/repair of plumbing, water lines, toilets, sinks, faucets ➤ Sandblasting ➤ Painting ➤ Fire hydrant inspection – 1x/3 months ➤ Testing fire system - Yearly 		
Equipment used to perform the job: (may include, but not limited to)	Tools		
	<ul style="list-style-type: none"> ➤ Grinders, impact/air tools, air wand ➤ Tape measure, screwdrivers, ➤ Wrenches, come-alongs, ➤ Hammers, sledgehammers, ➤ Broom, 		
Recommended Personal Protective Equipment: (may include, but not limited to)	<ul style="list-style-type: none"> ➤ Safety Glasses ➤ Hearing Protection ➤ Steel Toed Boots ➤ Gloves (Task-specific) ➤ Fall Protection Equipment (Task-specific) ➤ Face shield (Task-specific) ➤ Respiratory Protection Equipment (Where required) ➤ Overalls (Optional) ➤ Knee Pads (Optional) 		
Environmental Conditions:			
Inside/Outside:	Inside: 90% Outside: 10%		
Working Temperature:	May involve exposure to hot or cold weather conditions/temperatures (very humid when working in/around Dryers)		
Walking Surfaces :	Inside: Concrete, metal grating Outside: Mud, snow, ice, grass (terrain may be uneven)		
Dust:	Mild-moderate if utilizing air wand		
Lighting:	Adequate indoor lighting in most areas. Natural lighting may vary with season &/or weather conditions		
Vapour/Fumes:	Mild – Exhaust fumes from mobile equipment, solvent vapours from other trades		
Noise Levels:	Can exceed 100 dBA if mobile equipment, power tools or hammers are being utilized nearby		
Vibration:	Mild-Moderate: Drills, hammers		
Moving Objects:	Mobile equipment, moving machine parts		
Risks/Hazards: (may include, but not limited to)	<ul style="list-style-type: none"> ➤ Slipping, tripping, falling ➤ Skin punctures ➤ Pinch and nip ➤ Muscle strains and soreness 		

	➤ Cuts and abrasions		
Size of Work Space:	Usually adequate, may have to maneuver into tight spots in order to complete task on the rare occasion – <i>replacing Dryer Can internals requires Confined Space Entry</i>		
Sensory Requirements:			
Hearing: Conversation or sounds	Vision: Near/Far, Colour, and Depth	Feeling: Tactile sensory discrimination	
Reading: English	Speech/Comprehension: English		
Other Work Factors:			
Travelling:	Seldom: Leaving work site for materials/supplies	Working Alone:	Rare: May have to perform tasks at a work site without colleagues or other trades people present
Working Independently/In Group:	Task-dependent: Generally required to work independently for the majority of the shift, although may be asked to assist a co-worker or request assistance when required		
Work Pace (self/machine directed):	Self-Motivated – Responsible for maintaining site as per work orders		
Interaction with Others:	Required to work with colleagues and other trades people		
Operation of Equipment: (may include, but not limited to)	Aerial work platform, mobile crane, scissor lift, forklift, work truck		

Assessment Criteria Used

Frequency Key		
Frequency	% of Workday	Hours of 12 Hour Workday
Not Required (N/R)	0%	0
Seldom (S)	0-5%	Not performed on a daily basis
Rare (R)	1-5%	<37 min/day
Occasional (O)	6-33%	37 min to 3 hours 58 min/day or 1 rep/30 min
Frequent (F)	34-66%	3 hours 59 min to 7 hours 55 min/day or 1 rep/2 min
Constant (C)	67-100%	7 hours 56 min to 12 hours/day or 1 rep/30 sec

Force Level (FL)	Weight Handled (WH)
Sedentary (SD)	0-10 lbs
Light (L)	Less than 20 lbs
Medium (M)	20-49 lbs
Heavy (H)	50-99 lbs
Very Heavy (VH)	100+ lbs

Critical Job Demands Weight/force (lb)	Comments <i>Examples listed are for illustrative purposes (i.e. weight generalities)</i>	MEASURE		FREQUENCY OF WORKDAY					
		FL	WH	N/R	S	R	O	F	C
Manual Handling Tasks									
Lift:									
Floor to Waist		SD	0-10	X					
	Tools, smaller metallic mechanical components	L	<20			X			
	Ladder (up to 12 feet), larger metallic mechanical components	M	20-49			X			
	12+ foot ladder, larger metallic mechanical components	H	50-99			X			
		VH	100+	X					
Waist Level		SD	0-10	X					
	Tools, smaller metallic mechanical components	L	<20					X	
	Ladder (up to 12 feet), larger metallic mechanical components	M	20-49					X	
	12+ foot ladder, larger metallic mechanical components	H	50-99					X	
		VH	100+	X					

Critical Job Demands Weight/force (lb)	Comments <i>Examples listed are for illustrative purposes (i.e. weight generalities)</i>	MEASURE		FREQUENCY OF WORKDAY					
		FL	WH	N/R	S	R	O	F	C
Waist to Chest		SD	0-10	X					
	Tools, smaller metallic mechanical components	L	<20			X			
	Ladder (up to 12 feet), larger metallic mechanical components	M	20-49			X			
	12+ foot ladder	H	50-99			X			
Waist to Overhead		VH	100+	X					
		SD	0-10	X					
	Tools, smaller metallic mechanical components	L	<20			X			
		M	20-49	X					
Front Carry		H	50-99	X					
		VH	100+	X					
	Tools, smaller metallic mechanical components	L	<20				X		
	Larger metallic mechanical components	M	20-49				X		
Side Carry Right Hand	Larger metallic mechanical components	H	50-99				X		
		VH	100+	X					
		SD	0-10	X					
	Tools, smaller metallic mechanical components	L	<20				X		
Left Hand	Ladder (up to 12 feet), larger metallic mechanical components	M	20-49				X		
	12+ foot ladder	H	50-99				X		
		VH	100+	X					
		SD	0-10	X					
Pushing (<i>tools/objects</i>) Static		L	<20				X		
	Repairing/replacing unions/coupling/threading in small metallic pipes, replacing Dryer Can internals	M	20-49				X		
	Repairing/replacing unions/coupling/threading in larger metallic pipes, replacing Dryer Can internals	H	50-99	X					
		VH	100+	X					
Dynamic		SD	0-10	X					
	Repairing/replacing unions/coupling/threading in small metallic pipes, replacing Dryer Can internals	L	<20				X		
	Repairing/replacing unions/coupling/threading in larger metallic pipes, replacing Dryer Can internals, moving mobile scaffolding	M	20-49				X		
		H	50-99	X					
	VH	100+	X						

Critical Job Demands Weight/force (lb)	Comments <i>Examples listed are for illustrative purposes (i.e. weight generalities)</i>	MEASURE		FREQUENCY OF WORKDAY						
		FL	WH	N/R	S	R	O	F	C	
Pulling (tools/objects) Static		SD	0-10	X						
		L	<20	X						
	Repairing/replacing unions/coupling/threading in small metallic pipes, replacing Dryer Can internals	M	20-49				X			
	Repairing/replacing unions/coupling/threading in larger metallic pipes, replacing Dryer Can internals	H	50-99				X			
		VH	100+	X						
	Dynamic		SD	0-10	X					
		Repairing/replacing unions/coupling/threading in small metallic pipes, replacing Dryer Can internals	L	<20				X		
		Repairing/replacing unions/coupling/threading in larger metallic pipes, replacing Dryer Can internals, moving mobile scaffolding	M	20-49				X		
			H	50-99	X					
			VH	100+	X					
Grip Strength/Coordination										
Repetitive Use of Hands										
Bilateral	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals, operating mobile equipment/work truck, working on computer							X		
Dominant Hand	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals, operating mobile equipment/work truck, working on computer								X	
Non-Dominant Hand	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals, operating mobile equipment/work truck, working on computer						X			
Power Grip										
Bilateral		SD	0-10	X						
		L	<20	X						
	Ladder (up to 12 feet), larger metallic mechanical components	M	20-49			X				
	12+ foot ladder, larger metallic mechanical components	H	50-99		X					
		VH	100+	X						
	Dominant Hand		SD	0-10	X					
		Tools, smaller metallic mechanical components	L	<20					X	
		Ladder (up to 12 feet), larger metallic mechanical components	M	20-49					X	
		12+ foot ladder	H	50-99					X	
			VH	100+	X					
Non-Dominant Hand		SD	0-10	X						
	Tools, smaller metallic mechanical components	L	<20				X			
	Ladder (up to 12 feet), larger metallic mechanical components	M	20-49				X			
	12+ foot ladder	H	50-99				X			
		VH	100+	X						

Critical Job Demands Weight/force (lb)	Comments <i>Examples listed are for illustrative purposes (i.e. weight generalities)</i>	MEASURE		FREQUENCY OF WORKDAY					
		FL	WH	N/R	S	R	O	F	C
Fine Hand Dexterity									
Bilateral	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals, working on computer							X	
Dominant hand	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals, working on computer								X
Non-Dominant Hand	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals, working on computer							X	
Manual Handling									
Bilateral		SD	0-10	X					
	Tools, smaller metallic mechanical components	L	<20				X		
	Ladder (up to 12 feet), larger metallic mechanical components	M	20-49				X		
	12+ foot ladder, larger metallic mechanical components	H	50-99				X		
Dominant hand		VH	100+	X					
		SD	0-10	X					
	Tools, smaller metallic mechanical components	L	<20					X	
	Ladder (up to 12 feet), larger metallic mechanical components	M	20-49					X	
Non-Dominant Hand	12+ foot ladder	H	50-99					X	
		VH	100+	X					
		SD	0-10	X					
	Tools, smaller metallic mechanical components	L	<20				X		
	Ladder (up to 12 feet), larger metallic mechanical components	M	20-49				X		
	12+ foot ladder	H	50-99				X		
		VH	100+	X					
		SD	0-10	X					
Tool Usage									
Both Hands		SD	0-10	X					
	Shovel, broom, air wand, water hoses, Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals	L	<20			X			
	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals	M	20-49			X			
		H	50-99	X					
Dominant hand		VH	100+	X					
		SD	0-10	X					
	Shovel, broom, air wand, water hoses, Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals	L	<20						X
	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals	M	20-49						X
Non-Dominant Hand		H	50-99	X					
		VH	100+	X					
		SD	0-10	X					
	Shovel, broom, air wand, water hoses, Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals	L	<20				X		
	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals	M	20-49				X		
		H	50-99	X					
		VH	100+	X					
		SD	0-10	X					

Critical Job Demands Weight/force (lb)	Comments <i>(Examples listed are for illustrative purposes)</i>	FREQUENCY OF WORKDAY					
		N/R	S	R	O	F	C
Positional Mobility							
Sitting/Standing/Driving							
Sitting	Working on computer, operating mobile equipment/work truck			X			
Standing	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals					X	
Driving (Car and Truck)	N/R	X					
Walking							
Level Surfaces	Preventative maintenance inspections, work orders, troubleshooting					X	
Rough Surfaces	Work site terrain (outbuildings)		X				
Slopes	Work site terrain (outbuildings)		X				
Climbing							
Stair	Accessing designated work areas					X	
Ladder	Accessing designated work areas				X		
Other (stools/equipment/etc.)	Mobile scaffolding			X			
Jumping	N/R	X					
Running	N/R	X					
Balancing	Work site terrain, environmental conditions, working on ladders				X		
Bending							
Static	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals			X			
Variable	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals					X	
Trunk Rotation							
Static Twisting	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals			X			
Variable Twisting	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals					X	
Crouching Squatting							
Crouching	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals						
Repetitive Squatting	Repairing/replacing unions/coupling/threading in metallic pipes						
Kneeling/Crawling							
Kneeling	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals			X			
Crawling	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals			X			
Reaching							
Above Shoulder Level	Repairing/replacing unions/coupling/threading in metallic pipes		X				
Below Shoulder Level	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals					X	
Neck Postures/Movements	All neck positions required (180°, up, down, side to side)					X	
Throwing	N/R	X					
Foot Action	Light: Operating vehicle pedals			X			
Forceful/Jerky Movements	Repairing/replacing unions/coupling/threading in metallic pipes, replacing Dryer Can internals			X			

Psychosocial Demands:	REQUIREMENTS					
	N/R	S	R	O	F	C
A. Understanding and Memory						
Remember locations and routine procedures						X
Understand and remember short and simple instructions						X
Understand and remember detailed instructions				X		
B. Sustained Concentration & Persistence						
Carry out short and simple instructions						X
Carry out detailed instructions				X		
Maintain attention and concentration for extended periods						X
Perform activities within a schedule						X
Sustain an ordinary routine without supervision						X
Make simple decisions						X
Solve simple straightforward problems						X
Solve complex problems			X			
C. Social Interaction						
Interact with the general public		X				
Ask questions or request assistance				X		
Accept instructions and feedback				X		
Get along well with others without distracting them						X
Get along well with others without being distracted by them						X
D. Adaptation						
Respond to changes in the environment or tasks						X
Aware of normal hazards and take appropriate precautions						X
Travel in unfamiliar places or use public transportation		X				
Set realistic goals or make plans independently of others				X		
Juggle tasks and prioritize				X		
E. Responsibility & Accountability		Yes		No		
Does the work involve occasional pressure to meet deadlines?		X				
Does the work involve significant pressures?				X		
F. Language Requirements		Yes		No		
Is English required for safety purposes?		X				
Is English required for professional purposes?		X				

Injury Prevention Recommendations	
1.	Stretch-regularly used muscles throughout the shift
2.	Neck, back, upper and lower extremity warm-up exercises recommended before undertaking manual handling tasks to reduce the chance of soft tissue injuries
3.	To help prevent low back strain/sprain from incorrect manual handling techniques – incorporate proper manual handling techniques at all times; utilize dolly, cart, hoist or forklift for all items over 50 lbs or of awkward shape whenever possible; maintain physical conditioning to a Medium-Heavy manual handling level
4.	To help prevent lower extremity joint/muscle pain due to general de-conditioning, poor cushioning in footwear and spending extended periods weight bearing on concrete surfaces – ensure proper fitting footwear with adequate cushioning; take regular stretch breaks hourly
5.	When wearing a tool belt for prolonged periods, it is recommended that workers utilize tool belts with shoulder straps/suspenders to better distribute/carry the weight
6.	To prevent knee injuries, knee pads should be utilized when kneeling on hard or rough surfaces.

Technical data provided by: Jason Shepherd Physical Therapy