

EMPLOYER - PHYSICAL DEMANDS ANALYSIS

Pulp Mill Electrician

Job Title:	Pulp Mill Electrician	Video Link:	http://youtu.be/B8EEbkaUax0 (YouTube) http://albertaforestproducts.ca/our-industry/health-safety/physical-demands-analyses-pda (Website)
Work Schedule:	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:	Responsible for the monitoring/maintenance/repair of the machinery as it pertains to their electrical/electronic equipment and components.		
Marginal Job Functions: (may include, but not limited to)	N/R		
Equipment used to perform the job: (may include, but not limited to)	Tools: ➤ Drills (cordless/electric), pliers, hilti gun, wire cutters, knives, hammers, level, screwdrivers, wrenches, ➤ Measuring tape, flashlight, crowbar, sledgehammer, grinder, Allen keys, tool belt, tool pouch, ➤ Shovel, EZ reach, light bulb pole, air wand, water hose, 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 (Regular & Hi-Voltage) (Task-specific) ➤ Hi-Voltage (Calorie) Suit (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, gases from department processes, 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 ➤ Electric shock 		
Size of Work Space:	Usually adequate, although maneuvering into tight spots in order to complete tasks (<i>on the rare occasion</i>) may be required		

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 others present
Working Independently/In Group:	Task dependent: Generally required to work independently for the majority of the shift, may be asked to assist a co-worker or request assistance when required		
Work Pace (self/machine directed):	Self-Motivated – Responsible for maintaining site electrical 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, lift truck, 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 electrical components	L	<20			X			
	Ladder (up to 12 feet), larger electrical components	M	20-49			X			
	12+ foot ladder, larger electrical components	H	50-99			X			
Waist Level		VH	100+	X					
		SD	0-10	X					
	Tools, smaller electrical components	L	<20					X	
	Ladder (up to 12 feet), larger electrical components	M	20-49					X	
Waist to Chest	12+ foot ladder, larger electrical components	H	50-99					X	
		VH	100+	X					
		SD	0-10	X					
	Tools, smaller electrical components	L	<20					X	
Waist to Chest	Ladder (up to 12 feet), larger electrical 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
Waist to Overhead		SD	0-10	X					
	Tools, smaller electrical components	L	<20			X			
		M	20-49	X					
		H	50-99	X					
		VH	100+	X					
Front Carry		SD	0-10	X					
	Tools, smaller electrical components	L	<20				X		
	Larger electrical components	M	20-49				X		
	Larger electrical components	H	50-99				X		
Side Carry	Right Hand		SD	0-10	X				
		Tools, smaller electrical components	L	<20				X	
		Ladder (up to 12 feet), larger electrical components	M	20-49				X	
		12+ foot ladder	H	50-99				X	
			VH	100+	X				
	Left Hand		SD	0-10	X				
		Tools, smaller electrical components	L	<20				X	
		Ladder (up to 12 feet), larger electrical components	M	20-49				X	
		12+ foot ladder	H	50-99				X	
			VH	100+	X				
Pushing (tools/objects)	Static		SD	0-10	X				
		Servicing/repairing electric motor components, changing light bulbs with pole	L	<20				X	
		Servicing/repairing electric motor components	M	20-49				X	
			H	50-99					
			VH	100+					
	Dynamic		SD	0-10					
		Servicing/repairing electric motor components	L	<20				X	
		Servicing/repairing electric motor components	M	20-49				X	
			H	50-99	X				
			VH	100+	X				
Pulling (tools/objects)	Static		SD	0-10	X				
		Servicing/repairing electric motor components	L	<20				X	
		Servicing/repairing electric motor components	M	20-49				X	
			H	50-99	X				
			VH	100+	X				
	Dynamic		SD	0-10	X				
		Servicing/repairing electric motor components	L	<20				X	
		Servicing/repairing electric motor components	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
Grip Strength/Coordination									
Repetitive Use of Hands									
Bilateral	Servicing/repairing electric motor components, operating mobile equipment/work truck, working on computer, changing light bulbs							X	
Dominant Hand	Servicing/repairing electric motor components, operating mobile equipment/work truck, working on computer, changing light bulbs								X
Non-Dominant Hand	Servicing/repairing electric motor components, operating mobile equipment/work truck, working on computer, changing light bulbs							X	
Power Grip									
Bilateral		SD	0-10	X					
	Utilizing light-bulb pole	L	<20			X			
	Ladder (up to 12 feet), larger electrical components	M	20-49			X			
	12+ foot ladder, larger electrical components	H	50-99			X			
Dominant Hand		VH	100+	X					
		SD	0-10	X					
	Tools, smaller electrical components	L	<20					X	
	Ladder (up to 12 feet), larger electrical components	M	20-49					X	
Non-Dominant Hand	12+ foot ladder	H	50-99					X	
		VH	100+	X					
		SD	0-10	X					
	Tools, smaller electrical components	L	<20				X		
	Ladder (up to 12 feet), larger electrical components	M	20-49				X		
	12+ foot ladder	H	50-99				X		
		VH	100+	X					
Fine Hand Dexterity									
Bilateral	Servicing/repairing electric motor components, working on computer, changing light bulbs							X	
Dominant hand	Servicing/repairing electric motor components, working on computer, changing light bulbs								X
Non-Dominant Hand	Servicing/repairing electric motor components, working on computer, changing light bulbs							X	
Manual Handling									
Bilateral		SD	0-10	X					
	Tools, smaller electrical components	L	<20				X		
	Ladder (up to 12 feet), larger electrical components	M	20-49				X		
	12+ foot ladder, larger electrical components	H	50-99				X		
Dominant hand		VH	100+	X					
		SD	0-10	X					
	Tools, smaller electrical components	L	<20					X	
	Ladder (up to 12 feet), larger electrical components	M	20-49					X	
Non-Dominant Hand	12+ foot ladder	H	50-99					X	
		VH	100+	X					
		SD	0-10	X					
	Tools, smaller electrical components	L	<20				X		
	Ladder (up to 12 feet), larger electrical 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
Tool Usage									
Both Hands		SD	0-10	X					
	Shovel, broom, air wand, water hoses, light bulb pole, servicing/repairing electric motor components	L	<20			X			
	Servicing/repairing electric motor components	M	20-49			X			
		H	50-99	X					
		VH	100+	X					
Dominant hand		SD	0-10	X					
	Servicing/repairing electric motor components	L	<20						X
	Servicing/repairing electric motor components	M	20-49						X
		H	50-99	X					
		VH	100+	X					
Non-Dominant Hand		SD	0-10	X					
	Servicing/repairing electric motor components	L	<20				X		
	Servicing/repairing electric motor components	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>	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	Servicing/repairing electric motor components					X	
Driving (Car and Truck)	Crew truck			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.)	N/R	X					
Jumping	N/R	X					
Running	N/R	X					
Balancing	Work site terrain, environmental conditions, working on ladders				X		
Bending							
Static	Servicing/repairing electric motor components			X			
Variable	Servicing/repairing electric motor components					X	
Trunk Rotation							
Static Twisting	Servicing/repairing electric motor components			X			
Variable Twisting	Servicing/repairing electric motor components					X	
Crouching Squatting							
Crouching	Servicing/repairing electric motor components			X			
Repetitive Squatting	Servicing/repairing electric motor components		X				

Critical Job Demands Weight/force (lb)	Comments (Examples listed are for illustrative purposes)	FREQUENCY OF WORKDAY					
		N/R	S	R	O	F	C
Kneeling/Crawling							
Kneeling	Servicing/repairing electric motor components			X			
Crawling	Servicing/repairing electric motor components			X			
Reaching							
Above Shoulder Level	Servicing/repairing electric motor components, changing light bulbs		X				
Below Shoulder Level	Servicing/repairing electric motor components					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	Servicing/repairing electric motor components			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		

Psychosocial Demands:	REQUIREMENTS					
	N/R	S	R	O	F	C
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
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