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Physical Demands Analysis

Sprinkler Systems Installer

Prepared for:
Alberta Construction Association

Job Title:	Sprinkler Systems Installer	Assessment Location:	Edmonton, AB	Data Collection Date:	October 27, 2020
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Completed By:	Joanna Taets Von Amerongen, BKin	Submitted on:	January 29, 2021
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Disclaimer:	The Physical Demands noted in this report may vary depending on company and location. Please contact the company directly to confirm this physical demands analysis is an accurate representation of the specific job title for the specific location.
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Work Schedule:	Shift Duration: 5 days/week, 9 hours/day Monday-Thursday, 5 hours/day Friday Break Schedule: Total of 1 hour break per day / 2-15 minute breaks, 1-30 minute breaks Shift Rotation: Not applicable On call is required: No Overtime required: No; but may be available depending on work volume and project deadlines
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Education / Experience:	Education required: 4 year apprenticeship program with 8 weeks of technical training in school Hours required for position: 1,600 hours for years 1-3, 1,800 hours for year 4 Tickets that may be required (not limited to): Elevated Work Platform (EWP), First Aid, WHMIS, Construction Safety Training Systems (CSTS) and Basic Safety Orientation (BSO).
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Labour Provider:	N/A
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Job Overview:	As a Sprinkler Systems Installer the worker is required to install and complete maintenance on sprinkler system in new and pre-existing buildings.		
	% of shift	Job Task	Task Description
	5%	Safety meeting	<ul style="list-style-type: none">Reviewing previous progress on site and plan outlined for the shift, identifying safety hazards on site and communicating with crew.
	5%	Preparing work area	<ul style="list-style-type: none">Retrieving equipment, tools and material from work vehicle to work area on site.
	25%	Installing drill hangers	<ul style="list-style-type: none">Drilling hangers (often in ceiling) in preparation for pipe installation.Requires frequent overhead reaching and ladder climbing.
	30%	Preparing pipe for install	<ul style="list-style-type: none">Cutting and threading pipe for preparation to install in pre-designated areas.

	30%	Installing pipe and sprinkler heads	<ul style="list-style-type: none"> Installing pipe in the hangers, gluing pipe together and installing sprinkler systems as designated according to plan.
	5%	Work area clean up	<ul style="list-style-type: none"> Cleaning and organizing equipment, tools and materials as well as the work area.

Equipment/ Tools:	<ul style="list-style-type: none"> Impact drill (2 lbs.) Drills Glue for piping Sozo drill (2 lbs.) Tape measure 6' ladder (80 lbs.) Power kruger Threading machine (107 lbs.) Box of hangers (8 lbs.) Sprinkler head with pipe (35 lbs.) 4" pipe (105 lbs.) Power machine (170 lbs.)
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Exposures / Environment:	<ul style="list-style-type: none"> Outside elements (cold, heat, wind, etc.) Glue fumes Noise exposure
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Personal Protective Equipment Required:	<ul style="list-style-type: none"> Hard hat Steel toed boots Gloves Safety glasses Safety vest or high visibility stripes 6" sleeves and pants
Personal Protective Equipment as Required:	<ul style="list-style-type: none"> Hearing protection

NOC STRENGTH LEVEL KEY	
Strength Level	Definition
Limited (Lim)	Up to 5 kg (11 pounds)
Light (L)	5 kg to 10 kg (11 – 22 pounds)
Medium (M)	10 kg to 20 kg (22 – 44 pounds)
Heavy (H)	Greater than 20 kg (44 pounds plus)

**Strength Level Key based on the National Occupational Classification*

FREQUENCY KEY		
Frequency	% of Workday	Hours – Based on 8 hour Workday
Not Required (N/R)	0%	0
Rarely (R)	1 – 5%	<25 min/day
Occasionally (O)	6 – 33%	25 min to 2 hours 40 min/day
Frequently (F)	34 – 66%	2 hours 41 min to 5 hours 17 min/day
Constantly (C)	67 – 100%	5 hours 18 min to 8 hours/day

**Frequency Key based on WCB Alberta Recommendations*

Job Demand	Frequency / NOC Strength Level					Details/ Measurements
	N/R	R	O	F	C	
Material Handling:						
Floor to Waist Level Lifting			H*	Lim		Lifting tools (drills), box of hangers (8 lbs.), various sizes of pipes (up to 105 lbs.), sprinkler head with pipe (35 lbs.). Threading machine (107 lbs.), power machine (170 lbs.), ladder (80 lbs.) during work area preparation and cleaning.
Knee to Waist Level Lifting			H*	Lim		Lifting tools (drills), box of hangers (8 lbs.), various sizes of pipes (up to 105 lbs.), sprinkler head with pipe (35 lbs.). Threading machine (107 lbs.), power machine (170 lbs.) during work area preparation and cleaning.
Waist to Waist Level Lifting			H*	Lim		Lifting tools (drills), box of hangers (8 lbs.), various sizes of pipes (up to 105 lbs.), sprinkler head with pipe (35 lbs.). Threading machine (107 lbs.), power machine (170 lbs.), ladder (80 lbs.) during work area preparation and cleaning.
Waist to Chest Level Lifting			H*	Lim		Lifting tools (drills), various sizes of pipes (up to 105 lbs.), sprinkler head with pipe (35 lbs.) during preparation, installation; work area preparation and clean up.
Waist to Shoulder Level Lifting			H*	Lim		Lifting tools (drills), various sizes of pipes (up to 105 lbs.), sprinkler head with pipe (35 lbs.) during preparation, installation; work area preparation and clean up.
Waist to Overhead Level Lifting			H*	Lim		Lifting tools (drills), various sizes of pipes (up to 105 lbs.), sprinkler head with pipe (35 lbs.) during preparation, installation; work area preparation and clean up.

Front Carry			H*	Lim		Carrying box of hangers (8 lbs.), various sizes of pipes (up to 105 lbs.), sprinkler head with pipe (35 lbs.). Threading machine (107 lbs.), power machine (170 lbs.) during work area preparation and cleaning.
Right / Left-handed Carry (Dominant Hand)			H*	Lim		Carrying tools (drills), various sizes of pipes (up to 105 lbs.), sprinkler head with pipe (35 lbs.). Threading machine (107 lbs.), power machine (170 lbs.), ladder (80 lbs.) during work area preparation and cleaning.
Shoulder Carry			H*			Carrying pipe around site and during installation.
Static Pushing/Pulling (Force)	X					Not required
Dynamic Pushing/Pulling (Force)				Heavy NOC level		Moving ladder around site, pushing/pulling pipe through threading machine and using dye for threading machine, on hangers during installation, etc.

*For manual handling tasks above 50 lbs., it is recommended that the worker uses either a 2 person lift or assistive equipment (e.g. crane, forklift, etc.).

Job Demand	Frequency					Details/Measurements
	N/R	R	O	F	C	
Upper Extremity Work:						
Hand Gripping					X	Gripping equipment, tools, pipes, hangers and sprinkler heads, ladders, threading machine and power machine, during work area set up, pipe preparation, installation and work area clean up.
Pinch Gripping			X			Installing hangers into frame of building (wood).
Upper Extremity Coordination						Using tools, pipes, hangers and sprinkler heads, ladders, threading machine and power machine, during work area set up, pipe preparation, installation and work area clean up.
Reaching Forward				X		During installation of dryer hangers and pipes with sprinkler heads.
Overhead Shoulder Level Reaching					X	During installation of dryer hangers and pipes with sprinkler heads.
Below Shoulder Level Reaching			X			Preparing dryer hangers and pipe, using threading machine.
Throwing	X					Not required

Job Demand	Frequency					Details/Measurements
	N/R	R	O	F	C	
Positional Work:						
Trunk Flexion (Bending)			X			While using the threading machine.
Trunk Rotation (Twisting)			X			During installation of dryer hangers and pipes with sprinkler heads.
Kneeling		X				Required during lower level work including installing sprinkler systems in crawl spaces.
Crawling		X				Required during lower level work including installing sprinkler systems in crawl spaces.
Crouching		X				Required during lower level work including installing sprinkler systems in crawl spaces.
Squatting	X					Not required
Neck Flexion				X		Checking surroundings on site, during preparation of dryer hangers, pipe and using threading machine.
Neck Extension				X		Checking surroundings on site, during installation of dryer hangers and pipe.
Neck Rotation				X		Checking surroundings on site, during preparation and installation of dryer hangers and pipe.

Job Demand	Frequency					Details/Measurements
	N/R	R	O	F	C	
Static Work:						
Sitting			X			During breaks
Static Standing					X	During preparation and installation of dryer hangers and pipe, using threading machine.
Balancing					X	Throughout site, on ladders during installation phases.

Job Demand	Frequency					Details/Measurements
	N/R	R	O	F	C	
Ambulation:						
Walking: Level Surfaces					X	Walking throughout site (dependent on site).
Walking: Uneven Surfaces			X			Throughout site (dependent on site).
Walking: Slopes		X				Dependent on site.
Jumping	X					Not required
Running	X					Not required

Job Demand	Frequency					Details/Measurements
	N/R	R	O	F	C	
Climbing:						
Stairs			X			To access various floors throughout site.
Ladder				X		During installation of dryer hangers and pipe.
Other	X					Not required

PHOTOS OF TASKS AND WORK ENVIRONMENT

Figure 1: Adjusting sizing and threading of pipe during installation phase.



Figure 2: Installing fitting for pipe while on 6' ladder.



Figure 3: Sprinkler system installed under stair case.



Physical Demands Analysis
Job Title: Sprinkler Systems Installer
Date Prepared: January 5, 2020
Prepared for: Alberta Construction Association



If you have any questions, and/or would like to discuss this assessment and report further, I can be reached at (780) 429-4761.

Sincerely,

Joanna Taets Von Amerongen, BKin
Kinesiologist

SITE SPECIFIC JOB DEMAND ADDITIONS:

Job Demand	Frequency					Details/Measurements
	N/R	R	O	F	C	
Site Specific Job Demand:						

Validation Agreement

Job Title:	Sprinkler Systems Installer
Data Collection Date:	October 27, 2020

We the undersigned have reviewed the Physical Demands Analysis for this position and agree that the physical demands documented in this report are representative of the true demands of the tasks associated with the job title as assessed on the date listed above.

Completed by:	Joanna Taets Von Amerongen, BKin	Lifemark Clinician Name and Credentials
Approved by:	Bryan Kondo, Superintendent	Management Representative
Approved by:		Worker Representative
Approved by:		Labour Provider Representative