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| COAA Logo New | **Physical Demands Analysis****Electrician****Prepared for:** **Construction Owners Association of Alberta** |

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| **Job Title:** | Electrician | **Assessment Location:** |  | **Data Collection Date:** |  |

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| **Completed By:** |  | **Submitted on:** |  |

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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:** 12 hours/day; may vary**Break Schedule:** Total of 1 hour break per day**Shift Rotation:** 14 days on, 14 days off**On call is required:** Yes; during the evening**Overtime required:** No; but is often available |

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| **Education / Experience:** | **Education required:** Journeyman Electrician Certificate. To obtain this, they must complete a 4-year apprenticeship program. The in-class portion is 8 weeks for the first 3 years; and 12 weeks in the fourth year.**Hours required for position:** ~1500 hours**Tickets that may be required (not limited to):** Wildlife awareness, Confined Space, 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:** | The Electrician is responsible for maintaining and repairing machines and electrical components throughout the building. They perform routine maintenances and troubleshoot/repair electrical issues. Tasks are generated and logged through Electronically Generated Services (EGS). The Electrician is trained in Field Level Hazard Assessments (FLHA), and may work alongside laborers or other maintenance staff. Their days are unpredictable because mechanical issues and troubleshooting may take priority over other tasks. |
| % of shift | Job Task | Task Description |
| 10% | Safety/meetings | * Toolbox talk – Safety topics are discussed during the toolbox talk. The Electrician will receive additional information such as:
	+ Tasks for the day
	+ Important events from previous shifts
* A FLHA is completed and signed before starting any work where hazards are present.
	+ The FLHA is updated when there are changes to the tasks.
 |
| 90% | On site work | * Daily checks – The Electrician will follow a checklist and perform inspections on heat tracing, meters, and pumps.
	+ Some walking outside may be required.
	+ Values are recorded and filed electronically.
* Selecting Electronic Generated Services (EGS) – EGS are accessed on the computer.
	+ EGS are selected and printed.
	+ Some EGS may take priority over others.
	+ Some EGS may require several days to complete due to the ordering of parts.
* Completing EGS
	+ EGS may need to be completed indoors and/or outdoors.
		- Indoors – staff, guest, and common areas.
		- Outdoors – building exterior such as on the roof or the side of the building.
* The Electrician will need to collect necessary tools and parts to complete the EGS.
* The Electrician may need to climb stairs, ladders, or drive to access the work area.
* The Electrician will repair the issue, or install new equipment indicated by the EGS.
	+ They may need to repair or install power lines, heating units, air conditioning units, light fixtures, pumps, etc.
* High voltage areas (>24V) will require the specific personal protective equipment.
* Preventative maintenances (PM) are performed when possible.
	+ When performing a PM, the Electrician may work alongside other maintenance staff.
	+ A checklist is followed when performing the maintenance.
	+ A PM may consist of the following:
		- Ensuring power is cut off.
		- Gaining access to motors, machines, and heat tracing.
		- Checking the condition of motors, machines and heat tracing.
		- Cleaning debris and dust using compressed air, a rag, and/or a vacuum.
		- Testing the operation of the motors, machines, and heat tracing.
* Completing paperwork – paperwork for daily checks, EGS, PMs, orders, and hours.
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| **Equipment/****Tools:** | * Small hand tools, such as pliers and screwdrivers (~1 lbs)
* Wire connectors (<1 lbs)
* Voltmeters (~1 lbs)
* Power drill (~4-5 lbs)
* Tool bag (~25 lbs when full)
* Step ladder (~7 lbs)
* 10 foot ladder (~30 lbs)
* Rags
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| **Exposures / Environment:** | * High voltage equipment
* Arc flashes
* Hot temperatures
* Cold temperatures
* Working from heights
* Pinch points
* Rain
* Snow
* Ice
* Wind
* Overhead hazards
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| **Personal Protective** **Equipment Required:** | * Steel toed boots
* Foam safety eyewear (fectoggle)
* Long sleeves and pants
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| **Personal Protective** **Equipment as Required:** | * Hard hat
* Gloves
* Safety vest or high visibility stripes
* Arc flash resistant coveralls
* Arc flash resistant face shield
* Arc flash resistant gloves
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| **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***

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| **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***

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| Job Demand | **Frequency / NOC Strength Level** | Details/ Measurements |
|  | **N/R** | **R** | **O** | **F** | **C** |  |
| Material Handling: |
| **Floor to Waist Level Lifting** |  | H | M | Lim |  | * Heavy lifting may occur with machinery and appliances such as washing machines and dryers (>44 lbs).
	+ A laborer or another maintenance staff member can assist with heavy lifting.
* Light to medium level lifting may occur with (but not limited to):
	+ Tool bag (25 lbs when full)
	+ 10 foot ladder (30 lbs)
	+ Machine parts, such as a motor (~15 lbs)
* Limited level lifting may occur with (but not limited to):
	+ Small hand tools (~1 lbs)
	+ Voltmeter (~1 lbs)
	+ Power drill (4-5 lbs)
	+ Rags (< 1 lbs)
 |
| **Knee to Waist Level Lifting** |  | H | M | Lim |  | * As above
 |
| **Waist to Waist Level Lifting** |  | H | M | Lim |  | * As above
 |
| **Waist to Chest Level Lifting** |  |  |  | Lim |  | * Limited level lifting may occur with (but not limited to):
	+ Small hand tools (~1 lbs)
	+ Voltmeter (~1 lbs)
	+ Power drill (4-5 lbs)
	+ Rags (< 1 lbs)
	+ Small light fixtures (4-5 lbs)
 |
| **Waist to Shoulder Level Lifting** |  |  | Lim |  |  | * As above
 |
| **Waist to Overhead Level Lifting** |  |  | Lim |  |  | * As above
 |
| **Front Carry** |  | H | M |  |  | * Heavy level carrying may occur with machinery and appliances such as washing machines and dryers (>44 lbs)
	+ A laborer or another maintenance staff member can assist with heavy carrying.
* Limited to medium level carrying may occur with (but not limited to):
	+ Small hand tools (~1 lbs)
	+ 10 foot ladder (30 lbs)
	+ Machine parts, such as a motor (~15 lbs)
 |
| **Right / Left-handed Carry (Dominant Hand)** |  |  |  | Lim |  | * Limited level carrying may occur with (but not limited to):
	+ Small hand tools (~1 lbs)
	+ Voltmeter (~1 lbs)
	+ Power drill (4-5 lbs)
	+ Rags (< 1 lbs)
 |
| **Shoulder Carry** |  | M |  |  |  | * Medium level carrying may occur when using a shoulder strap to carry a tool bag (up to 25 lbs).
 |
| **Static****Pushing/Pulling (Force)** |  |  | L |  |  | * Holding fixtures and parts in place during installation.
 |
| **Dynamic****Pushing/Pulling (Force)** |  |  | H |  |  | * Pushing and pulling appliances and machines to access power lines and electrical components.
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| Job Demand | **Frequency** | Details/Measurements |
|  | **N/R** | **R** | **O** | **F** | **C** |  |
| Upper Extremity Work: |
| **Hand Gripping** |  |  |  | X |  | * When lifting and carrying.
* When using tools to install and repair electrical components.
* When driving.
 |
| **Pinch Gripping** |  |  |  | X |  | * Gripping small parts when performing installations or repairs.
* When using a pen to complete paperwork.
 |
| **Upper Extremity Coordination** |  |  |  | X |  | * When lifting and carrying.
* When using tools to install and repair electrical components.
* When driving.
 |
| **Reaching Forward** |  |  |  | X |  | * As above
 |
| **Overhead Shoulder Level Reaching** |  |  | X |  |  | * When using tools to install and repair electrical components.
 |
| **Below Shoulder Level Reaching** |  |  |  | X |  | * When lifting and carrying.
* When using tools to install and repair electrical components.
 |
| **Throwing** | X |  |  |  |  |  |

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| Job Demand | **Frequency** | Details/Measurements |
|  | **N/R** | **R** | **O** | **F** | **C** |  |
| **Positional Work:** |
| **Trunk Flexion (Bending)**  |  |  |  | X |  | * When lifting.
* When working on low-level equipment and cables, such as air-conditioning units and heat tracing.
* Depending on the EGS or PM, the Electrician may need to spend time in many different positions.
 |
| **Trunk Rotation (Twisting)** |  |  | X |  |  | * When working behind equipment and in tight spaces.
 |
| **Kneeling** |  |  | X |  |  | * When working on low-level equipment and cables, such as air-conditioning units and heat tracing.
 |
| **Crawling** |  | X |  |  |  | * When completing EGS underneath the building or at low levels.
	+ Heat tracing may be present under the building.
 |
| **Crouching** |  |  | X |  |  | * When working on low-level equipment and cables, such as air-conditioning units and heat tracing.
 |
| **Squatting** |  |  |  | X |  | * When lifting.
 |
| **Neck Flexion** |  |  |  | X |  | * When working on low-level equipment and cables, such as air-conditioning units and heat tracing.
 |
| **Neck Extension** |  |  | X |  |  | * When working on overhead cables and light fixtures.
 |
| **Neck Rotation** |  |  | X |  |  | * When working behind equipment and in tight spaces.
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| Job Demand | **Frequency** | Details/Measurements |
|  | **N/R** | **R** | **O** | **F** | **C** |  |
| **Static Work:** |
| **Sitting** |  |  | X |  |  | * When completing paperwork and/or driving.
 |
| **Static Standing** |  |  |  | X |  | * When completing various EGS or PMs.
 |
| **Balancing** |  |  | X |  |  | * When using a ladder.
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| Job Demand | **Frequency** | Details/Measurements |
|  | **N/R** | **R** | **O** | **F** | **C** |  |
| **Ambulation:**  |
| **Walking: Level Surfaces** |  |  |  |  | X | * Walking indoors.
 |
| **Walking: Uneven Surfaces** |  |  | X |  |  | * Walking outside.
* There may be snow, ice, mud, and gravel present.
 |
| **Walking: Slopes** |  |  | X |  |  | * As above
 |
| **Jumping** | X |  |  |  |  |  |
| **Running** | X |  |  |  |  |  |

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| **Job Demand** | **Frequency** | **Details/Measurements** |
|  | **N/R** | **R** | **O** | **F** | **C** |  |
| **Climbing:** |
| **Stairs** |  |  |  | X |  | * Stairs indoors and outdoors.
 |
| **Ladder** |  |  | X |  |  | * Ladders indoors and outdoors.
 |
| **Other** | X |  |  |  |  |  |

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**Richard Huynh, BScKin**

**Kinesiologist**

**SITE SPECIFIC JOB DEMAND ADDITIONS:**

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| Job Demand | **Frequency** | Details/Measurements |
|  | **N/R** | **R** | **O** | **F** | **C** |  |
| **Site Specific Job Demand:** |
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**Validation Agreement**

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| **Job Title:** | Electrician |
| **Data Collection Date:** | February 28, 2018 |

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.

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| **Completed by:** |  | Richard Huynh, Kinesiologist |
| **Approved by:** |  | Management Representative |
| **Approved by:** |  | Worker Representative |
| **Approved by:** |  | Labour Provider Representative |