



Bock Consulting

Job Analysis

Job Title	Millwright Crew Chief– Marine Maintenance	Worker	
DOT Number	638.281-018, 638.131-030	Claim Number	
Employer	Port of Seattle	Employer Phone #	(206) 728-3000
Employer Contact	Corbin Purnhagen	Date of Analysis	7/6/2006; 2/5/2019

- Job of Injury
 Transferable Skills Job
 New Job
 40 Hours Per Week
 5 Days Per Week

Job Description, Essential Functions, Tasks and Skills:



The Port of Seattle is a municipal corporation created on September 5, 1911 by the voters of King County. The Port of Seattle is divided into operating divisions, plus other departments that support the divisions and the broad mission of the Port: 1) Aviation Division, 2) Maritime Division, and 3) Economic Development Division.

The Maritime Division owns and operates approximately 1,200 acres of moorage, cargo-related, and cruise ship facilities. In addition, terminals operated by the Maritime Division are home to the North Pacific fishing fleet. The Maritime Division employs a maintenance staff, which is responsible for tasks such as facility upkeep, pier and moorage system repair, utility maintenance, parks maintenance, and snow and ice removal.

This job analysis is for a Millwright Crew Chief position in Marine Maintenance. The Millwright Crew Chief is responsible for supervising and directing the daily work activities of the Millwrights that provide services to all of the various business groups within the Maritime Division.

Essential Functions:

The Millwright Crew Chief is responsible for the supervision and organization of the Marine Maintenance Millwrights who complete a wide variety of tasks, generally related to welding and metal fabrication. The Crew Chief is also expected to periodically perform trade-related tasks, which in general relates to welding and metal fabrication.





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The work performed by the Millwright Crew Chief can be categorized as follows:

Work Category	Estimated Time
Office/desk/administrative work (including meetings)	60%
Supervising work and personnel and providing assistance in and around shop	5-10%
Supervising work and personnel and providing assistance in the field	5-15%
Performing trade-specific work	15-20%
Total	100%

Tasks assigned to Millwright Crew Chief may include:

- Receive notifications of new work orders/requests (via telephone, email, or job tracking system). Develop plans for completing requested projects. Plan for material, equipment, PPE, and staffing needs.
- Order parts, supplies, and or materials needed for projects. Work with Purchasing to ensure correct products and items are ordered and available when needed. Periodically work with vendors related to parts, supplies, and or materials needed.
- Prepare and or review site specific safety plan for each project/work task. Prepare job plans and supporting documentation as needed.
- Prepare personnel schedules and assign work tasks.
- Meet/connect with crew daily to manage workflow, address issues, and reassign personnel based on work demands.
- Assist crew in choosing tools, equipment and materials
- Coordinate scheduling with other trades to ensure materials, equipment, and workers from other trades are available as needed to complete assigned work orders/projects. Coordinate with outside vendors/contractors/entities. Coordinate scheduling with Port Facility Maintenance Managers and tenants.
- Cut, bend, or shape required parts and pieces from metal stock. Some metal stock comes in 4'x8' or 4'x12' sheets. A 4'x8' sheet of 1/4 inch thick steel weighs approximately 320 lbs. A 4'x8' sheet of 1 inch thick steel weighs over 1,200 lbs. The sheets can be moved using two workers, a forklift, or an overhead hoist (a special magnet was purchased to assist in moving the metal sheets). Some metal stock comes in lengths. A length of steel measuring 4" wide by 1" thick by 20' long weighs approximately 260 lbs. The sheets and lengths of metal may be lifted by a Millwright, two workers, a forklift, or an overhead hoist (a special





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magnet was purchased to assist in moving the metal sheets).

- Tack and/or weld metal components together.
- Repair damaged or broken items either in the shop, or on-site at one of the Port properties.
- Read blueprints and/or diagrams to determine the best method for producing a requested item.
- Perform periodic preventative maintenance (“PM”) inspections of Port properties to identify potential/necessary repairs. Document needed repairs and create work orders.
- Enter time by work order on a daily basis into job tracking system (Maximo). Review daily time entered by crew and approve.
- Ensure description of work completed is available and or correct in work log.
- Send and respond to electronic mails.
- Provide training to one or more crew members to cover duties of Crew Chief when Crew Chief is not working/available.
- Visit project sites and oversee/inspect completed work. Ensure work is being performed in a safe manner.
- Lead periodic meetings to provide training and discuss important safety issues.
- Attend periodic meetings with supervisors and other entities.
- Coordinate work priorities with supervisors.
- Assist crew members with technical input, answer questions from crew, and provide troubleshooting advice as needed.
- Respond to requests for bids. Review work scope, materials, equipment, and staffing needs, and prepare an estimate related to the requested work.
- Ensure crew has current certifications and or training as required by law or ordinance.
- Potentially supervise apprentices or mentor students.
- Reviewing drawings, plans, and schematics for potential projects.
- Complete all required forms and documents.





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The Crew Chief may work in the Millwright Shop (located at 25 S. Horton St. in Seattle), or may work in the field at one of the Port properties. While in the field, work may be performed on the land, or potentially from a boat.

NOTE: Some of the parts needed for maintenance performed by Port of Seattle tenants (for instance parts needed to maintain the Port's cranes) may be fabricated by the Millwrights.

Sample Tasks Completed by Millwrights

- Fabricate bollards/cleats used to tie up vessels ranging from kayaks to cruise ships (cleats may weigh up to 1,200 lbs.).
- Repair or modify the metal walkways used at the marinas to reach the floating docks.
- Respond to emergency repair requests on Port property (work trucks have portable welding machines), or work on-site when the item being modified or repaired cannot be brought back to the shop.
- Test constructed items and structures to ensure the items and structures meet the safe load requirements.
- When working on-site at a Port property, it may be necessary for a Millwright to obtain a “hot permit,” which is essentially used as a tool to alert the Seattle Fire Department to work being done that could have fire-related issues.

Necessary skills and abilities may include:

- Must have technical knowledge and expertise in metal fabrication, repair, and replacement techniques. Must possess mechanical aptitudes.
- Ability to work independently, but also within a team as required.
- Ability to follow directions closely and be detailed oriented while working.
- Have the skills to identify the best way to accomplish a task, and complete the assigned task(s) in a timely and efficient manner.
- Have the physical abilities to accomplish all of the tasks assigned to a Millwright.
- Must be able to communicate effectively in English with co-workers, supervisors, vendors, and the public.
- Must be able to work closely with other trades while working to accomplish assigned tasks.
- Must be able to prepare requisitions and reports related to materials and equipment needed to implement assigned installations and repairs.





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- Working knowledge of Windows-based computers and related accessories. Working knowledge of time tracking software, keyboarding and data input skills, and knowledge of electronic mail software.

Machinery, Tools, Equipment, Personal Protective Equipment:

A Crew Chief uses a variety of tools and equipment to accomplish assigned tasks:

- Computer, computer accessories, and project management software (Maximo).
- General office equipment, such as desk, chair, fax machine, telephones, and calculator.
- General office supplies, such as pens/pencils, notepads, binders, file folders, and copy paper.
- Work benches/tables.
- Welding equipment (MIG and stick).
- Portable generators.
- Cutting torches. Propane torches.
- Metal cutting machines and presses (shear).
- Chop and band saws.
- Drill presses. Grinders.
- Wrenches, pliers, hammers, and other hand tools.
- Roto-hammer.
- Hardware, including bolts and nuts.
- Burk bars. Pry bars.
- Chains, straps, and ropes.
- Portable chain block hoists and other hoisting devices.
- Hydraulic rams.
- Overhead hoist. Forklift.
- Work trucks with storage boxes and hoists.
- Hand truck. Wheeled carts.
- Racks used to store raw materials.
- Scissor lifts and boom lifts.
- Brooms.
- 2-way radios. Traffic cones.
- Fire extinguishers.
- Work skiffs/boats (14 and 16 foot boats) with outboard engines (larger boat has center console steering).



Personal protective equipment: Workers are required to wear a safety vest, approved safety boots, eye and



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ear protection at all times. Respirators and hard hats are required as necessary. Millwrights may also wear gloves, rain gear, and kneepads. Welding goggles or a welding hood/mask is required while welding.

Fall arrest harnesses are worn when working at heights (generally when working at an elevation of 6 feet or more). When working on or within 6 feet of an edge of the water, Millwrights must wear personal floatation devices (“PFDs”).





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Education / Training:

The Millwrights at the Port of Seattle, including the Crew Chief, are represented by a Union, and are generally dispatched out of Local 204 (Millwright Local), or Local 2396 (Piledriver Local). Both the Local 204 and Local 2396 are organized under The United Brotherhood of Carpenters.

The Millwright Crew Chief would be a Journeyman level Millwright with significant experience in the tasks and duties of the trade.

Crew Chiefs must also complete the Front Line Supervisor Training as a Port of Seattle Requirement. This training is offered once a year and must be completed during the first year as a Crew Chief.

A Boater's Education Card is required for all employees who perform work while in a boat or standing on a work float.

Per the Dictionary of Occupational Titles (DOT):

638.281-018 Millwright Specific Vocational Preparation (SVP): 7 (From two to four years)

638.131-030 Millwright Supervisor SVP: 8 (From four to ten years)



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COGNITIVE AND BEHAVIORAL ELEMENTS/DEMANDS

The psychological and cognitive demands of this position vary depending on assignments and duties.

Frequency Definitions:		
Continuously = Occurs 66-100% of the time.	Occasionally = Occurs 1-33% of the time	
Frequently = Occurs 33-66% of the time.	Rarely = May occur less than 1% of the time.	
Never = Does not ever occur.		
Comprehension		
Articulating and comprehending information in conversations.		Continuously
Reading, comprehending, and using written materials.		Occasionally
Understanding and solving problems involving math and using the results.		Occasionally
Using technology/instruments/tools & information systems.		Continuously
Working with two and three dimensional formats.		Rarely
Remembering		
Remembering spoken instructions.		Continuously
Remembering written instructions.		Continuously
Remembering visual information.		Continuously
Recalling information incidental to task at hand.		Continuously
Memorizing facts or sequences.		Frequently
Remembering simple instructions.		Continuously
Remembering detailed instructions.		Continuously
Learning & Processing		
Effectively learning and mastering information from classroom training.		Occasionally
Effectively learning and mastering information from on-the-job training.		Continuously
Learning from past directions, observations, and/or mistakes.		Continuously
Using common sense in routine decision making.		Continuously
Recognizing and anticipating potential hazards and taking precautions.		Continuously
Thinking critically and making sound decisions.		Continuously
Integrating ideas and data for complex decisions.		Occasionally
Determining and following precise sequences.		Frequently
Coordinating and compiling data and information.		Occasionally
Analyzing, synthesizing data and information.		Rarely
Tasking and Planning		
Performing repetitive or short-cycle work.		Continuously
Working under specific instructions.		Continuously
Completing complex tasks.		Occasionally
Directing, controlling, or planning for others as necessary for basic tasks.		Rarely
Directing, controlling, or planning for others as necessary for complex tasks.		Rarely
Multi-tasking.		Continuously
Planning, prioritizing, and structuring daily activities.		Continuously



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Use Appropriate Behavior for Professional Work Environment	
Receiving criticism and accepting limits appropriately.	Frequently
Maintaining emotional control and organization under increased stress.	Continuously
Maintaining socially appropriate affect, temperament, and behavior.	Continuously
Monitoring own quality of performance and altering behaviors to correct mistakes or improve outcome.	Continuously
Working independently and/or unsupervised.	Continuously
Adapting to frequent interruptions, changes in priorities, or changes in work location.	Frequently
Responding effectively to emergency situations.	Rarely

Frequency Designations: Required Beneficial Not Necessary	
Maintaining Attendance and An Assigned Work Schedule	
Maintaining predictable and reliable attendance each work shift.	Beneficial
Being punctual.	Beneficial
Taking rest periods at set times or only at times determined by breaks in job responsibilities.	Not Necessary
Adjusting to a flexible schedule of work days and or shifts.	Beneficial



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N/A: Not Applicable

S: Seldom (1-10% of the time)

O: Occasional (10-30% of the time)

STRENGTH: Sedentary Light

F: Frequent (30%-70% of the time)

C: Constant (Over 70% of the time)

WNL: Within Normal Limits (talking, hearing, etc.)

Medium Heavy Very Heavy

Frequency

Comments

Sitting	F	Performing administrative duties, driving to job sites, attending meetings, or for short periods of time while working in the field.
Standing	S	Interchange with walking. A majority of the work completed by Millwrights is performed while standing (although frequency will depend on assigned tasks). Work tables and other work surfaces are generally 34 inches high. Standing may also include standing in a boat while working.
Walking	S	Interchange with standing. Frequency will depend on assigned tasks. Walking between work areas, gathering parts and pieces to fabricate or install, and carrying metal to machines to cut pieces to size. Walking may be over concrete, asphalt, or grating, or over uneven or slippery surfaces (including dirt, mud, and wet wooden docks).
Lifting (up to 10 pounds)	F	Lifting phones, radios, office supplies.
Lifting (10 to 50 pounds)	O	Lifting welding guns (with attached wires/hoses/accessories), cutting torches, hand tools, smaller parts and components, bolts nuts.
Lifting (50 to 150 pounds)	S	Lifting metal stock for cutting, medium sized parts and components, and portable welding machines (est. 90 pounds), large sheets of metal stock, and long pieces of metal stock. Heavy items are generally lifted by two workers, a forklift, or a hoist.
Carrying (up to 10 pounds)	F	Carrying phone, radios, office supplies. welding guns (with attached wires/hoses/accessories), cutting torches, hand tools, smaller parts and components, and bolts and nuts.
Carrying (10 to 150 pounds)	O	Carrying welding guns (with attached wires/hoses/accessories), cutting torches, hand tools, smaller parts and components, bolts nuts. Carrying metal stock for cutting, medium sized parts and components, and portable welding machines (est. 90 pounds), large sheets of metal stock, and long pieces of metal stock. Heavier items would be moved using an overhead hoist, hand truck, wheeled cart or work table, or forklift.
Pushing/Pulling (Up to est. 50 lbs. of force).	S	Positioning metal stock on shear, saw, or other metal cutting machine, using wrenches to tighten or loosen bolts/nuts, using a drill press to drill holes in parts, and using a hammer, maul, or sledgehammer.
Pushing/Pulling (est. 50 pounds to 100 lbs. of force).	S	Positioning larger pieces of metal stock on shear, saw, or other metal cutting machine, or maneuvering heavy and/or large assemblies on work tables or ground.
Climbing Stairs/Ladders	S	Workers may encounter stairs in the shop facilities, when working in the field, climbing in/out of a forklift, and in/out of the back of a work truck. Millwrights climb ladders as needed (ladders can range from stepstools to extension ladders to fixed ladders attached to the Port's container cranes – 50 ft. in the air).



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Working at Heights/ Balancing	S	Frequency depends on assigned tasks. Millwrights work on the cranes used to load and unload container ships, therefore Millwrights climb ladders to reach work areas, or use man lifts when applicable. Workers may also work while standing on staging constructed under a dock, or while standing in a boat, which can take a significant amount of balancing.			
Bending at Waist	S	Fabricating, repairing and/or installing items below waist level. Performing assessments and inspections. Gathering materials and supplies.			
Bending Neck	C	Within normal limits.			
Twisting at Waist	S	Positioning metal stock for cutting, welding and grinding parts, maneuvering into and out of tight work areas, positioning and installing parts, driving forklift, and gathering supplies.			
Crouching/Kneeling	S	Working below waist level. NOTE: Workers may wear kneepads while working.			
Crawling	S	Limited. NOTE: Workers may wear kneepads while working.			
Stooping	S	Entering/exiting work truck cab and entering/exiting back of truck, and maneuvering into and out of tight work areas.			
Reaching	S	Reaching for telephone or gathering office supplies. Cutting parts from sheets or metal stock, welding on larger assemblies, removing and placing assemblies on site, using overhead hoists or manual winches, climbing ladders, and gathering supplies and materials. NOTE: Efforts are made to position work between knee and shoulder level, however Millwrights need to be able to work at levels from the floor to over the shoulder heights.			
Driving	O	Driving work trucks and forklifts.			
Foot Controls	O	Driving work trucks, forklifts, and using foot safety switches on metal fabrication tools and man lifts.			
Repetitive Motion	S	Millwrights may be tasked with cutting or stamping parts out of metal stock, punching or drilling holes in metal pieces (typically with a drill press), grinding metal parts, or welding a series of similar parts/pieces which may increase the level of repetitive motion experienced by a Millwright.			
Handling/Grasping	S	30	% Pinch Grasp	70	% Whole Hand Grasp
Fine Finger Manipulation	F	Writing and Processing paperwork. Using keys to start truck and forklift, adjusting control knobs on welding machine and cutting torch, guiding welding gun and cutting torch, using wrenches, triggers on power tools, gathering and fastening bolts and nuts, and operating two-way radio.			
Keyboarding	F	Entering time and work performed on a daily basis, creating and responding to electronic mails. Researching items, and placing orders for materials. Potentially while documenting inspections and writing reports.			
Talking	F	Communicating with supervisors and other co-workers.			
Hearing	C	Communicating with supervisors and other co-workers. Listening for hazards.			
Seeing	C	Visual abilities would be considered important in this position.			
Writing	F	While documenting completed tasks and inspections, and marking measurements.			



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Normal Job Site Hazards	S	Smoke, fumes, dust, hot welding wire, burns from torches/fire, sparks, carrying heavy objects, working at heights (ladders, man lifts, or catwalks), falling objects, striking head on overhead objects, working near moving vehicles, slippery walking surfaces, sharp tools, noise, odors, vibrations, and potentially capsizing while working in a boat.
Expected Environmental Conditions	C	Work may be performed inside a shop office, shop environment, immediately outside the shop in a covered area, or outside completely exposed to the weather. Worker may be exposed to noisy environments, dust, and fumes.

The above job analysis represents the requirements of a specific job based on personal observations, discussions with employer representatives, and/or workers. On occasion, practicality and feasibility prevent the direct observation and/or gathering of objective quantifiable data. For this reason, a "best estimate" may have been used when reporting physical demand frequencies.

Analysis was done on the job site? Yes No

Job Analysis Reviewed By: Corbin Purnhagen

Completed by Vocational Provider Brice York, B.A., VRC

Date February 5, 2019 Signature of Vocational Provider 



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FOR PHYSICIAN’S/EVALUATOR’S USE ONLY

- The injured worker can perform the physical activities described in the job analysis and can return to work on _____
- The injured worker can perform the physical activities described in the job analysis on a part-time basis for _____ hours per day. The worker can be expected to progress to regular duties in _____ weeks/months.
- The injured worker can perform the described job, but only with the modifications/ restrictions in the attached report and/or listed below. These modifications/restrictions are (check one):
 - Temporary for _____ weeks _____ months
 - Permanent
- The injured worker cannot perform the physical activities described in the job analysis based on the physical limitations in the attached report and/or listed below. These limitations are (check one):
 - Temporary for _____ weeks _____ months
 - Permanent

COMMENTS:

Date _____ Physician’s/Evaluator’s Signature _____

Physician’s/Evaluator’s Name Printed _____

PLEASE RETURN COMPLETED FORM VIA FACSIMILE TO:

Port of Seattle Employee Health & Safety Department at (206) 787-3406