



# Bock Consulting

## Job Analysis

Job Title	<u>Sprinkler Fitter (MM)</u>	Worker	_____
DOT Number	<u>862.684-030 and 862.281-022</u>	Claim Number	_____
Employer	<u>Port of Seattle</u>	Employer Phone #	<u>(206) 787-3000</u>
Employer Contact	<u>George Washington</u>	Date of Analysis	<u>5/3/11; 11/22/16</u>

Job of Injury   
 Transferable   
 New Job   
 10 Hours Per Day   
 4 Days Per Week  
Skills Job

### 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. The Maritime Division employs a maintenance staff, which is responsible for general facility upkeep, pier and moorage system repairs, and utility maintenance.

This job analysis is for an individual working as a Sprinkler Fitter for Marine Maintenance.

### Essential Functions:

Sprinkler Fitters working for Marine Maintenance deal with fire systems, and are responsible for installation, maintenance and repair of all fire suppression systems and inspection/maintenance/testing of backflow assemblies located on Seaport and Real Estate Division properties. This includes any and all applicable systems routing water from the water mains at the edge of Port of Seattle properties, to installing and maintaining fire hydrants, to ensuring proper water flow to warehouses, office buildings and under dock areas. It includes installing and maintaining systems above and below ground plus in buildings. It includes testing, inspecting and certification of applicable systems. Sprinkler Fitters must document and maintain pertinent reports and records based upon State, City, and Port of Seattle guidelines.



Sprinkler Fitters are also responsible for monthly fire extinguisher



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inspections, testing and maintenance. The Marine Maintenance Sprinkler Fitters over see the inspections, certifications and maintenance of 1,000-1,200 fire extinguishers.

Work is generally performed on the day shift, Monday through Friday. One Sprinkler Fitter is on on-call, 24 hours per day, 7 days per week. The “on-call” responsibility rotates between Sprinkler Fitters (including the Crew Chief) every two weeks.

Tasks Assigned to a Sprinkler Fitter

- Meet/connect with Crew Chief on a daily basis.
- Obtain assignment(s) to complete from Crew Chief.
- Potentially review drawings or blueprints for reference.
- Identify and gather parts and items needed to complete the assigned task(s). Identify the type and size of pipe required and the other system components needed on the project. Load and unload equipment and materials from truck as needed.
- Prepare and or review job hazard analysis for each project. Review job plan. Ensure work is performed in a safe manner.
- Arrange piping and other system components needed for installation or repair. Install clamps, brackets and hangers to support piping system plus sprinkler and fire protection equipment.
- Drive work truck to various sites to complete tasks.
- Perform installation, maintenance, and or repair to fire suppression systems, including wet and dry systems. These tasks include installing, repairing, and or replacing valves, pipes, fittings, sprinkler heads, hydrants, and other system components. This may include measuring items and operating a variety of power tools and cutting equipment in order to prepare thread, bend and solder pipes, fixtures, and other items for installation or replacement.
- Troubleshoot and diagnose issues related to fire suppression systems. Develop plans of action to address specific issues, and implement applicable solutions.
- Perform cyclical inspections and operational checks on sprinklers and fire protection systems as required. Document completed inspections. Sprinkler Fitters test sprinklers and fire protection systems with air and liquid pressure.
- Perform cyclical inspections and operational checks on fire extinguishers. Document completed inspections on extinguisher-specific tag. Gather fire extinguishers to empty, refill, and recharge





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(generally performed in the shop).

- Enter time by work order on a daily basis into job tracking system (Maximo).
- Enter description of work completed in work log.
- Send and respond to electronic mails.
- Attend periodic meetings during which training is provided and important safety issues are discussed.
- Assist other crafts as requested.
- Potentially supervise apprentices or mentor students.
- Complete all required forms and documents.



Worker's Skills and Traits

- Must have knowledge of sprinkler systems, and the technical expertise to inspect, maintain, repair, and replace components of various fire suppression systems.
- Must have good attention to detail to ensure systems are installed or repaired properly to eliminate/mitigate future issues.
- 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 possess mechanical aptitudes.
- Must be able to prepare requisitions and reports related to materials and equipment needed to implement assigned installations and repairs.
- Working knowledge of Windows-based computers, related accessories, time tracking software, keyboarding, data input skills, and electronic mail software.

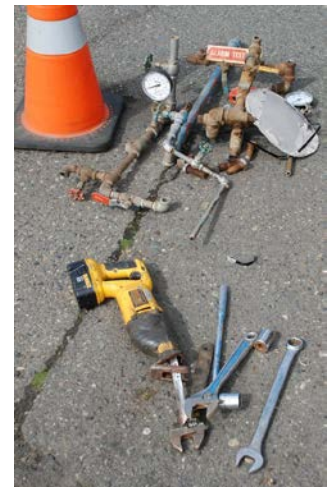




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Machinery, Tools, Equipment, Personal Protective Equipment

- Hand tools including but not limited to pipe wrenches, strap wrench, sprinkler head wrench, pliers (Channel Locks), tape measure, adjustable wrench, plumb bob, levels, chalk line, socket set, hacksaw, wire cutters, screwdrivers, hammers, squares, utility knife, and others.
- Power tools, including hydraulic pipe cutter, pipe threading machine, pneumatic and gas powered cut-off saw, and reciprocating saw.
- Tool box/bucket.
- Air compressor. Hoses.
- Generator.
- Work truck. Davit lift. Chains, slings, and ropes.
- Forklift.
- Flashlights and work lights.
- Ladders. Manlifts. Comealongs.
- Backflow test kit/apparatus.
- Pipe pigs (inflatable – keep dirt and debris out of pipes).
- Work skiffs/boats (14 and 16 foot boats) with outboard engines. Floating platforms (approx. 4’x8’ on Styrofoam billets/floats).
- Scaffolding.
- Confined space testing equipment.
- 2-way radio. Cellular phone.
- Computer, computer accessories, and project management software (Maximo). General office equipment, such as fax machine and telephones. General office supplies, such as pens/pencils, notepads, binders, and copy paper.
- Personal protective equipment includes: Safety vest, steel-toed boots, safety glasses, and ear protection. Hard hat. Face shield. When working on or within 6 feet of an edge of the water, must wear personal floatation device (“PFD”).





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Education / Training

The Sprinkler Fitters are represented by the Sprinkler Fitter Local 699. Sprinkler Fitters complete a five-year apprenticeship program to reach Journeyman-level status. To participate in the apprenticeship program, individuals must be at least 18 years old, have a high school diploma or equivalent, have negative results on drug screening test, and undergo a physical exam to verify good health and physical condition. Training topics include working with architectural drawings/blueprints, basic mathematics, backflow prevention and cross-connection control, fire pumps, hydraulics, installation of sprinkler systems, introduction to automatic sprinklers, review of applicable standards and guidelines, different types of pipe, fittings, valves, supports and fasteners, soldering and brazing, sprinkler system calculations, system water supplies, and other topics.

This position requires workers have or obtain Seattle Fire Department licenses (AS-1 and FEX-1; STP, FACT are required) a Backflow Prevention Certification, a Haz-Mat Handling Permit, Forklift Certification, Boater's Education card, and TWIC card.

Must have a valid Washington State driver's license.

Training and or enough hands-on experience with computers to have a working knowledge of Windows-based computers, related accessories, time tracking software, keyboarding, data entry, and electronic mail software.

**Per the Dictionary of Occupational Titles (DOT):**

**862.684-030 Water Regulator and Valve Repairer** Specific Vocational Preparation (SVP): 5 (Six months to one year)

**862.281-022 Pipe Fitter, Fire Sprinkler Systems** SVP: 7 (From two to four years)



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**COGNITIVE AND BEHAVIORAL ELEMENTS/DEMANDS**

Frequency Definitions:	
<b>Continuously</b> = Occurs 66-100% of the time.	<b>Occasionally</b> = Occurs 1-33% of the time
<b>Frequently</b> = Occurs 33-66% of the time.	<b>Rarely</b> = May occur less than 1% of the time.
<b>Never</b> = 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.	Occasionally
Remembering	
Remembering spoken instructions.	Continuously
Remembering written instructions.	Frequently
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.	Frequently
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.	Occasionally
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.	Frequently
Planning, prioritizing, and structuring daily activities.	Rarely



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<b>Use Appropriate Behavior for Professional Work Environment</b>	
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.	Occasionally

Frequency Designations: <b>Required</b> <b>Beneficial</b> <b>Not Necessary</b>	
<b>Maintaining Attendance and An Assigned Work Schedule</b>	
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.	Beneficial
Adjusting to a flexible schedule of work days and or shifts.	Not Necessary



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**PHYSICAL DEMANDS**

**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	<b>O</b>	While driving to job sites, attending meetings, or for short periods of time while working in the field.
Standing	<b>F</b>	Interchange with walking. Frequency depends on assigned tasks. May include standing on a ladder or in a boat.
Walking	<b>F</b>	Interchange with standing. Frequency depends on assigned tasks. Walking may be over concrete, asphalt, carpet, tile, or over uneven or slippery surfaces (including mud and wet wooden docks). May walk for a significant amount of time if inspecting entire building systems or gathering extinguishers.
Lifting (up to 10 pounds)	<b>F</b>	Tools, fittings, short lengths of pipe, smaller valves, sprinkler heads, paperwork, supplies, 1 or 2 traffic cones, smaller 5 lb fire extinguishers (6 lbs), clipboard, 2-way radio, and cellular phone.
Lifting (10 to 25 pounds)	<b>O</b>	Larger tools (portable cut-off saw), tool boxes/buckets, lengths of pipe, medium size fire extinguishers (10 lb extinguishers weigh 13 lbs; 20 lb extinguishers weigh est. 25 lbs), stack of traffic cones, valves, and other system components and materials.
Lifting (25 to 60 pounds)	<b>S</b>	Lengths of pipe, valves, large 50 lb fire extinguishers, manhole covers, portable compressors and generators. Note: Heavier items are lifted by two workers, and machinery/equipment is used as much as possible to lift heavier items.
Carrying (up to 10 pounds)	<b>F</b>	Tools, fittings, short lengths of pipe, smaller valves, sprinkler heads, paperwork, supplies, 1 or 2 traffic cones, smaller 5 lb fire extinguishers (6 lbs), clipboard, 2-way radio, and cellular phone.
Carrying (10 to 25 pounds)	<b>O</b>	Larger tools (portable cut-off saw), tool boxes/buckets, lengths of pipe, medium size fire extinguishers (10 lb extinguishers weigh 13 lbs; 20 lb extinguishers weigh est. 25 lbs), stack of traffic cones, valves, and other system components and materials.
Carrying (25 to 60 pounds)	<b>S</b>	Lengths of pipe, valves, large 50 lb fire extinguishers, portable compressors and generators. Note: Heavier items are carried by two workers, and machinery/equipment is used as much as possible to transport heavier items.
Bending Neck	<b>C</b>	All assigned tasks include neck movement.
Pushing/Pulling (up to 20 pounds of force)	<b>O</b>	Using wrenches and other tools, fitting pipe and other system components into place, inserting pigs in pipes, opening doors/compartments on work truck, opening doors into/out of buildings, and
Pushing/Pulling (20 to 50 pounds of force)	<b>S</b>	Opening vault doors, levering and moving manhole covers, and moving pipe and other system components into place.
Climbing Stairs/Ladders	<b>O</b>	Installing and repairing components overhead, performing inspections. May encounter stairs in the field and in the shop building.





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Working at Heights/Balancing	<b>S-O</b>	Frequency depends on assigned tasks. Working on a ladder or manlift, working near a trench, open manhole, or near the edge of a dock.			
Bending at Waist	<b>F</b>	Frequency depends on assigned tasks. Workers try to place work as much as possible between waist and shoulder levels; however, this is not always possible.			
Crouching/Kneeling	<b>O</b>	Depending on assigned tasks.			
Twisting	<b>S-O</b>	Depending on assigned tasks and situation in which worker is performing tasks.			
Reaching (Up to Shoulder)	<b>F</b>	Gathering supplies and materials for project, loading work truck with items, installing and repairing components, removing components, using Davit lift, levering manhole covers, and performing inspections.			
Reaching (Over the Shoulder)	<b>O</b>	Depending on assigned tasks. Installing and repairing components overhead, reaching items on edge of a trench, performing inspections, and while working under a dock.			
Repetitive Motion	<b>S</b>	The broad scope of generally work eliminates repetitive motion.			
Keyboarding	<b>S</b>	Entering time in time tracking system, and receiving/sending emails.			
Handling/Grasping	<b>F</b>	<b>40</b>	% Pinch Grasp	<b>60</b>	% Whole Hand Grasp
Fine Finger Manipulation	<b>F</b>	Using tools, pulling triggers on power tools, placing fittings on pipes, writing, using 2-way radio and cellular phone, using keys, and placing bolts and gaskets as required.			
Driving	<b>O</b>	Driving work vehicles to project sites.			
Operating Foot Controls	<b>O</b>	While driving, using pipe threading machine, and potentially operating manlifts.			
Talking	<b>F</b>	Communicating with supervisors, co-workers, and public.			
Hearing	<b>C</b>	Communicating with supervisors, co-workers, and public. Listening for sounds of alarms and potential hazards.			
Seeing	<b>C</b>	Visual abilities would be considered important in this position.			
Writing	<b>S</b>	Taking notes and or documenting completion of inspection tasks.			
Normal Job Site Hazards	<b>C</b>	Carrying heavy objects, falling objects, working in trenches, working in confined spaces, working at heights (ladders and manlifts), driving vehicle, working near moving vehicles, exposure to electricity, slippery walking surfaces, sharp tools, fumes, dust, noise, vibrations, and capsizing while working in a boat.			
Expected Environmental Conditions	<b>C</b>	A majority of work is performed outside or in non-temperature controlled environments. While working in these settings, workers will be exposed to external outside weather conditions and temperatures reflecting the outside temperature. Some work is completed in temperature controlled environments.			



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Claimant:  
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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: Tom Berg and George Washington

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

Date November 22, 2016

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**