

**SEATTLE HUMAN RESOURCES
2023 EXAMINATION BIBLIOGRAPHY FOR FIREBOAT ENGINEER**

Final: March 20, 2023

The written examination for Fireboat Engineer will be held on Tuesday, June 20, 2023 at location to be determined.

Candidates who pass the written examination will be scheduled for the practical examination, tentatively scheduled for September 11 -15, 2023 (times and locations to be announced). Candidates be required to attend more than one day during this period. The practical examination exercises will be based on the 1) skills and abilities identified by the job analysis as critical for successful job performance as a Fireboat Engineer, 2) information from the Promotion Development Committee who serve as subject matter experts, and 3) reading materials in the bibliography.

Dates are tentative as exam administration may be changed due to COVID-19 public health guidelines.

Please view the Classification Specification for Fireboat Engineer for the general scope of job duties and required knowledge, skills, and abilities.

GENERAL SCOPE: Boat handling, piloting, seamanship, standard and electronic navigation, bridge resource management, local knowledge, fireboat equipment, electronics, marine radios and their usage, emergency operations including search and rescue operations, marine firefighting, and salvage. Verbal and written communication, supervision of fireboat crew, interaction with personnel and members of the public, and compliance with Citywide policies. Maritime rules and regulations. Vessel characteristics of the SFD fireboats.

Please contact the Seattle Department of Human Resources Fire and Police Exams Unit at Yoshiko.gracematsui@seattle.gov or (206) 615-0581 if you have any questions on the exam process.

A bibliography of study materials on which the written examination, charting exercise will be based includes the following:

SOURCE TITLE	CONTENTS
Allied Systems Tech Manual Telescopic Crane TC 20-55	Chapters 1 -5 (excluding schematics)
AutoNav Electro Hydraulic Steering Operations and Service Manual	Chapters 1, 2, 4, 5
Caterpillar C18 Operation and Maintenance Manual SEBU8245-04	All (excluding 42-52, 72, 81-96, 133-149)
Caterpillar C18 Marine Power Display Operators Guide	Pages 4-9
CBRNE Crew Protection System Operation and Maintenance Manual Doc. #104086-511-11	Pages 1-10
Champion Air Compressor Model R15B Operation and Maintenance Manual	All
Detroit Diesel Filter 75/900MAX and 75/1000MAX	All

Detroit Diesel Installation Instructions 18SP541 – Installation of Sea Pro 600	All
Durst Hydraulic Pump Drive Service Manual	Pages 1-5, 8-12, 14, 19
Electro Guard Cathodic Protection System Installation and Operation Manual	All
Fire Fighting Systems Operations Manual Doc. # FFS003-41-070	All (excluding pages 21-23)
Foam Pro System 3012 Installation and Operation Manual	Chapters 1-7, 8 (pages 17, 18, 20 only), 9 (page 26 only), 11-14
Hamilton Jet Installation and Service Manual HJ364-3 Jet unit Manual R1A23	Chapters 2,3,4,7,8
Is Everyone Really Equal? 2nd Edition by Sensoy, DiAngelo, and Banks (2017)	Chapters 3, 4, 5, 7, 12 (Excluding “Discussion Questions” and “Extension Activities”)
Kaeser Screw Compressor Model SX Service Manual	Chapters 2-5, 8-10, and 11.0 to 11.5
Key Power KP 22/16 Hydraulic Thruster and Installation and Operation	All
Leschi Switch Board Sequence of Operation 940748 Revision A 4/25/06	All
“Making US Fire Departments More Diverse and Inclusive” by Corinne Bendersky	All (Click the link to open this article)
MTU Series 10V 2000 Series M92, M93 Operating Instructions	All
MTU V 2000 M93 Maintenance Schedule	All
MTU Series 8V 4000 M71 Operating Instructions M015412/02E	Pages 2-1 to 2-14, 4-1 to 4-2, 5-01 to 5-03, 8-28 to 6-29, 6-46, 6-48 to 6-51
MTU Series V 4000 Maintenance Schedule M050486/04E	All
Northern Lights Luger OM2-2 Operators Manual for M1066T, M1064T	All, (excluding pages 31-45)
PMC Omni Chief Series 8003-1000 Instruction Manual	All, (excluding chapter 3)
Policies and Operating Guidelines , SFD REV: Nov. 2022	All Operating Guidelines listed below and all Policies that relate to them.
	P 1007 – Code of Conduct 3004 – Ethics 3017 – RSJI pages 3017-1 – 3
Sexual Harassment Prevention Training Manual for Managers and Supervisors, 3rd Edition, by Paul Gibson, J.D., S.P.H.R. and Marjorie A. Johnson, J.D	All A pdf of this material is available on the Fire Exams page on SFD Sharepoint .
Vessel Characteristics, Seattle Fireboats	Listed below
A Leaders Guide to Unconscious Bias: How To Reframe Bias, Cultivate Connection, and Create High-Performing Teams Pamela Fuller, Mark Murphy, Anne Chow, Simon & Schuster (2020)	Chapters 1- 8
Workboat Engineer, Revised Edition “D”/Marine Education Textbooks	Books #1 Chapters 2, 4, 5, 7 (Excluding Book #1, chapter

	7 - Parts 2, 3, 5, 6, 7, 9 and Question banks 2, 3, 5, 6, 7) Book #2 Chapter 9, 13, 14 (Excluding Book #2, chapter 13, part OSI 10- OSI 90)
ZF Marine Gear Operating Instructions 350, 500, 3000, BW 460	All
Form 9 – “Engineering Maintenance Record”	All boats
Best practices (binder)	<ul style="list-style-type: none"> • Blackwater Pumpout • Cold weather procedures for Fireboats • Cold weather for station 5 float • “Discharge of Oil Prohibited” placard • Fire pump clutch temp readings • Fueling • Handlines from large platform boats • Small boat cold weather storage • Tankage sheets from Leschi and Chief (Yellow laminated on clip board)

Vessel Characteristics of the Seattle Fireboats:

Fireboat Chief Seattle: Length – 96’ 6”; Beam – 23’; Draft – 7’; Speed – 22 Knots; Fuel 1508 gallons; Water 2 – 50 gallon tanks; Foam Concentrate 950 gallons Novacool; Semi-displacement hull with a gross tonnage of 108, Propulsion - Conventional Twin Screw; Main Engines: 2 - MTU 10V2000, M93 1500 hp at 2450 RPM, ZF 3000 gears with 42 inch 5 blade propellers; Thrusters: Key Power Hydraulic (2 - 50 hp Bow only); Electrical: 2 - 65 KW Northern Lights Generators 480VAC 3-phase; Firefighting: 4 - 2500 GPM Fire Pumps driven by 2 C18 Caterpillar 715 hp at 2100 RPM, Pump Capacity 10,000 GPM supplying 6 monitors (5 foam capable), 10 - 4 inch discharges, and stern jets. (LIST UPDATED 2/12/2021)

Fireboat Leschi: Length – 108’; Beam - 27’ ; Draft – 10’; Speed - 14 Knots; Capacities: Fuel 21,940 gallons, potable water 1,190 gallons, Foam Concentrate 6,004 gallons Novacool; Propulsion - Conventional Twin Screw; Main Engines: 2 - MTU 8V4000, M71 1556 hp at 2,000 RPM, ZF W4610 gears with 72 inch 4 blade propellers; Thrusters: Key Power Hydraulic (200 hp Bow , 100 hp Stern); Electrical: 2 - 99 KW Northern Lights Generators 480VAC 3-phase; Firefighting: 4 - 5,000 GPM Fire Pumps driven by 2 MTU 8V 4000 M71 1,556hp at 2000 RPM, Pump Capacity 20,000 GPM supplying 8 - foam capable monitors, 12- 4 inch and 4- 2 1/2 inch discharges; Crane Ladder: 55 feet with pre-plumbed waterway; CBRN crew protection and decon. (LIST UPDATED 2/8/2023)

Fireboat 1: Length - 50’; Beam – 16’ 6”; Draft – 30”; Speed - 30 Knots; Capacities: Fuel - 486 gallons, Water - 42 gallons, Foam Concentrate - 204 gallons Novacool; Propulsion - Twin 364 Hamilton jets; Main Engines - 2 - C-18 Caterpillar 715 hp at 2300 RPM; Electrical: 2 - 270 amp engine driven alternators and 1 - 10 KW northern Lights Generator; Firefighting: 2 - 3,000 GPM Hale BG8 centrifugal pumps driven off front of main engines, 6,000 GPM total pumping capacity, 2 - 2,000 GPM Elkhart remote operated monitors, 4 - 4" discharge ports, 4 - 2 1/2" discharge ports, Bow Monitor and forward discharge ports are foam capable, CBRN crew protection and decon.

Fireboat 2: Length - 50'; Beam – 16' 9"; Draft – 30"; Speed - 42 Knots; Capacities: Fuel - 600 gallons, Water - 45 gallons, Foam Concentrate - 200 gallons Novacool; Propulsion - Twin 364 Hamilton jets; Main Engines - 2 - C-18 Caterpillar 1001 hp ; Electrical: 2 – 105 amp engine driven alternators and 1 - 9 KW northern Lights Generator; Firefighting: 2 - 3,000 GPM Hale centrifugal pumps driven off front of main engines, 6,000 GPM total capacity, 2 - 2,000 GPM Elkhart remote operated monitors, 4 - 4" discharge ports, 4 - 2 1/2" discharge ports, Bow Monitor and forward discharge ports are foam capable, CBRN crew protection and decon.

Please contact the Seattle Department of Human Resources Fire & Police Exams Unit at 615-0581 or yoshiko.gracematsui@seattle.gov if you have any questions on the bibliography or the exam process.

Fireboat Engineer - 90.46 Hrs

City of Seattle

Class Code:
67280

Bargaining Unit: Fire Fighters, IAFF Local 27

CITY OF SEATTLE
Established Date: Sep 18, 1969
Revision Date: Nov 7, 2022

SALARY RANGE

\$52.74 - \$55.14 Hourly

DESCRIPTION:

Class Summary:

Positions in this rank are responsible to maintain mechanical and electrical systems of all City fireboats in a condition of general readiness during an assigned shift; and to be in charge of a fireboat engine room while underway and during emergency conditions.

Distinguishing Characteristics of the Class:

Positions in this class require knowledge of the theory and operation of marine engines, particularly of the type used in the fireboats; auxiliary equipment such as piping, pumps, and compressors; firefighting equipment; basic laws of hydraulics and mechanics involved in operation; fuels and lubricants; and the operations and maintenance of marine electrical motors, generators, control systems, and other components.

The work requires the ability to plan, supervise, and participate in major and minor repair and maintenance overhaul of all installed machinery, systems, and equipment; supervise and train engine room personnel, maintain necessary records, and propose requisitions and reports; and establish and maintain effective relationships with other employees and the general public.

The difference between Fireboat Engineer titles is in the hours worked.

EXAMPLES OF DUTIES:

- Maintains all mechanical and electrical equipment on City fireboats in a condition of readiness during an assigned shift.
- Operates fire pumps to support fire suppression measures.
- Provides working supervision over staff of the ready fireboat in port, underway, and during emergency conditions, and over the engine room crew of the standby fireboat while in port.
- Plans, supervises and assists with maintenance; overhauls and repairs the main engines, auxiliaries, pumps, electric motors and related equipment; maintains engineering spaces in a clean and orderly condition.

- Instructs staff in the proper performance of routine and emergency duties.
- Maintains engine room logs, records, and operating data as required; maintains inventories, requisitions supplies, and prepares reports.
- Stands regular watches and performs maintenance duties while in port.
- Assists in fire rescue work if required.
- Completes all necessary reports, correspondence, and documentation as required in the performance of assigned duties.

MINIMUM QUALIFICATIONS:

A minimum of three years assignment completed with no less than 135 *shifts* worked on City fireboats.

WORK ENVIRONMENT/PHYSICAL DEMANDS:

Exposure to extreme heat, wet conditions, and adverse atmospheric and hazardous conditions.

LICENSE, CERTIFICATION AND OTHER REQUIREMENTS:

Current State of Washington driver's license.

COMMENTS:

Class History: Updated July 29, 1991. Updated November 7, 2022.

This description was prepared to indicate the kinds of activities and levels of work difficulty required of positions in this class. It is not intended as a complete list of specific duties and responsibilities.