TORQ Analysis of Stationary Engineers and Boiler Operators to Bindery Workers

ANALYSIS INPUT

Transfer	Title	O*NET	Filters		
From Title:	Stationary Engineers and Boiler Operators	51-8021.00	Abilities:	Importance LeveL: 50	Weight: 1
To Title:	Bindery Workers	51-5011.00	Skills:	Importance LeveL: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

TORQ RESULTS

Grand TORQ: 86

Ability TORQ		Skills TORQ		Knowledge TORQ	
Level	90	Level	86	Level	83

Gaps To Narrow if Possible

Ability	Level	Gap	Impt
Perceptual Speed	37	12	50
Arm-Hand Steadiness	45	7	55
Control Precision	52	5	77
Manual Dexterity	44	3	67
Near Vision	42	4	50
Information Ordering	41	1	67
Written Comprehension	38	1	52
Extent Flexibility	38	1	50

Upgrade These Skills

Skill	Level	Gap	Impt
Quality Control Analysis	63	6	73

Knowledge to Add

Knowledge	Level	Gap	Impt
No Knowledge Upgrades Required!			

LEVEL and IMPT (IMPORTANCE) refer to the Target Bindery Workers. GAP refers to level difference between Stationary Engineers and Boiler Operators and Bindery Workers.

ASK ANALYSIS

Ability Level Comparison - Abilities with importance scores over 50

Description	Stationary Engineers and Boiler Operators	Bindery Workers	Importance
Control Precision	47	52	77
Information Ordering	40	41	67
Manual Dexterity	41	44	67
Arm-Hand Steadiness	38	45	55

Written Comprehension	37	38	52
Problem Sensitivity	42	34	50
Perceptual Speed	25	37	50
Extent Flexibility	37	38	50
Near Vision	38	42	50

Skill Level Comparison - Abilities with importance scores over 69

Description	Stationary Engineers and Boiler Operators	Bindery Workers	Importance
Quality Control Analysis	57	63	73

Knowledge Level Comparison - Knowledge with importance scores over 69

Description	Stationary Engineers and Boiler Operators	Bindery Workers	Importance

Experience & Education Comparison

Related Work Experience Comparison

Description	Stationary Engineers and Boiler Operators	Bindery Workers
10+ years	5%	0%
8-10 years	0%	0%
6-8 years	5%	0%
4-6 years	13%	2%
2-4 years	30%	7%
1-2 years	26%	24%
6-12 months	0%	16%
3-6 months	0%	0%
1-3 months	10%	0%
0-1 month	0%	3%
None	8%	44%

Required Education Level Comparison

Description	Stationary Engineers and Boiler Operators	Bindery Workers
Doctoral	0%	0%
Professional Degree	0%	0%
Post-Masters Cert	0%	0%
Master's Degree	0%	0%
Post-Bachelor Cert	0%	0%
Bachelors	8%	0%
AA or Equiv	22%	0%
Some College	8%	0%
Post-Secondary Certificate	22%	0%
High Scool Diploma or GED	33%	56%
No HSD or GED	4%	42%

Stationary Engineers and Boiler Operators	Bindery Workers
Most Common Educational/Training Requirement:	
Long-term on-the-job training	Short-term on-the-job training
Job Zone Comparison	
3 - Job Zone Three: Medium Preparation Needed	2 - Job Zone Two: Some Preparation Needed
Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.
Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.	Employees in these occupations need anywhere from a few months to one year of working with experienced employees.

Tasks

Stationary Engineers and Boiler Operators

Core Tasks

Generalized Work Activities:

- Repairing and Maintaining Mechanical Equipment - Servicing, repairing, adjusting, and testing machines, devices, moving parts, and equipment that operate primarily on the basis of mechanical (not electronic) principles.
- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Monitor Processes, Materials, or Surroundings - Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).

Specific Tasks

Occupation Specific Tasks:

- Activate valves to maintain required amounts of water in boilers, to adjust supplies of combustion air, and to control the flow of fuel into burners.
- Adjust controls and/or valves on equipment to provide power, and to regulate and set operations of system and/or industrial processes.
- Analyze problems and take appropriate action to ensure continuous and reliable operation of equipment and systems.
- Check the air quality of ventilation systems and make adjustments to ensure compliance with mandated safety codes.
- Clean and lubricate boilers and auxiliary equipment and make minor adjustments as needed, using hand tools.
- Contact equipment manufacturers or appropriate specialists when necessary to resolve equipment problems.
- Develop operation, safety, and maintenance procedures, or assist in their development.
- Fire coal furnaces by hand or with stokers and gas- or oil-fed boilers, using automatic gas feeds or oil pumps.
- Ignite fuel in burners, using torches or flames.
- Install burners and auxiliary equipment, using hand tools.
- Investigate and report on accidents.

Bindery Workers

Core Tasks

Generalized Work Activities:

- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Handling and Moving Objects - Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.
- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).
- Performing General Physical Activities - Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials.
- Communicating with Supervisors, Peers, or Subordinates - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.

Specific Tasks

Occupation Specific Tasks:

- Clean work areas, and maintain equipment and work stations, using hand tools.
- Crease or compress signatures before affixing covers; then place paper jackets on finished books.
- Examine stitched, collated, bound, and unbound product samples for defects such as imperfect bindings, ink spots, torn or loose pages, and loose and uncut threads.
- Feed books and related articles such as periodicals and pamphlets into binding machines, following specifications.
- Fill glue reservoirs, turn switches to activate heating elements, and adjust flow of glue and speed of conveyors.
- Fill machine paper feeds.
- Install and adjust bindery machine devices, such as knives, guides, rollers, rounding forms, creasing rams, and clamps, in order to accommodate sheets, signatures, or books of specified sizes, using hand tools.
- Lubricate and clean machine parts, and make minor repairs in order to keep machines in working condition.
- Maintain records of daily production, using specified forms.
- Mount and secure rolls or reels of wire, cloth, paper, or other material onto machine spindles.

- Maintain daily logs of operation, maintenance, and safety activities, including test results, instrument readings, and details of equipment malfunctions and maintenance work.
- Monitor and inspect equipment, computer terminals, switches, valves, gauges, alarms, safety devices, and meters to detect leaks or malfunctions, and to ensure that equipment is operating efficiently and safely.
- Monitor boiler water, chemical, and fuel levels, and make adjustments to maintain required levels.
- Observe and interpret readings on gauges, meters, and charts registering various aspects of boiler operation, in order to ensure that boilers are operating properly.
- Operate mechanical hoppers, and provide assistance in their adjustment and repair.
- Operate or tend stationary engines, boilers, and auxiliary equipment such as pumps, compressors and air-conditioning equipment, in order to supply and maintain steam or heat for buildings, marine vessels, or pneumatic tools.
- Perform or arrange for repairs, such as complete overhauls, replacement of defective valves, gaskets, or bearings, and/or fabrication of new parts.
- Provide assistance to plumbers in repairing or replacing water, sewer, or waste lines, and in daily maintenance activities.
- Receive instructions from steam engineers regarding steam plant and air compressor operations.
- Supervise the work of assistant stationary engineers, turbine operators, boiler tenders, and/or air-conditioning and refrigeration operators and mechanics.
- Switch from automatic controls to manual controls, and isolate equipment mechanically and electrically, in order to allow for safe inspection and repair work.
- Test boiler water quality or arrange for testing; and take any necessary corrective action, such as adding chemicals to prevent corrosion and harmful deposits.
- Test electrical systems to determine voltages, using voltage meters.
- Weigh, measure, and record fuel used.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- clean equipment or machinery
- control HVAC equipment
- control operation of compressors
- inspect machinery or equipment to determine adjustments or repairs needed
- install equipment or attachments on machinery or related structures

- Move controls to adjust and activate bindery machines.
- Observe and monitor machine operations to detect malfunctions and to determine whether adjustments are needed.
- Open machines and remove and replace damaged covers and books, using hand tools.
- Punch holes in paper sheets, and fasten sheets, signatures, or other material, using hand or machine punches or staplers.
- Read work orders to determine setup specifications and instructions.
- Record production sheet information such as the amount of time spent on specific tasks.
- Remove broken wire pieces from machines, and load machines with new spools of wire.
- Remove printed material or finished products from machines or conveyors, wrap products in plastic, and stack them on pallets or skids or pack them in boxes.
- Secure reels of stitching wire on spindles, and thread wire through feeding, cutting, stitch forming, and driving mechanisms to load stitcher heads for stapling.
- Set machine controls to adjust lengths and thicknesses of folds, stitches, or cuts, to synchronize speed of feeding devices and stitching, and to adjust tension on creasing blades and folding rollers.
- Set up, or set up and operate, machines that perform binding operations such as pressing, folding, and trimming on books and related articles.
- Start machines and make trial runs to verify accuracy of machine setups.
- Stitch or glue endpapers, bindings, and signatures to attach them.
- Stock supplies such as signatures, books, or paper.
- Stop machines, cut threads that connect books, and stack separated books.
- Thread spirals in perforated holes of items to be bound, using spindles or rollers.
- Train workers to set up, operate, and use automatic bindery machines.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- apply adhesives, caulking, sealants, or coatings
- clean equipment or machinery
- clean rooms or work areas
- collate printed materials
- demonstrate or explain assembly or use of equipment
- examine products or work to verify conformance to specifications

- install generating plant equipment
- install/connect electrical equipment to power circuit
- load or unload material or workpiece into machinery
- maintain consistent production quality
- maintain or repair industrial or related equipment/machinery
- maintain production or work records
- monitor production machinery/equipment operation to detect problems
- operate power driven pumps
- operate power generation equipment
- overhaul power-generating equipment or machinery
- perform safety inspections in manufacturing or industrial setting
- tend boilers or related equipment
- test manufactured products or materials
- use acetylene welding/cutting torch
- use electrical or electronic test devices or equipment
- use hand or power tools
- use pneumatic tools
- weld together metal parts, components, or structures

Technology - Examples

Analytical or scientific software

- Statistical software

Data base user interface and query software

- Data entry software
- Database software

Electronic mail software

- Email software

Facilities management software

- Building management system software
- Computerized maintenance management system CMMS software

Graphics or photo imaging software

- Graphics software

Internet browser software

- Web browser software

Spreadsheet software

- Microsoft Excel
- Spreadsheet software

Word processing software

- Microsoft Word

- fabricate, assemble, or disassemble manufactured products by hand
- install equipment or attachments on machinery or related structures
- load or unload material or workpiece into machinery
- load, unload, or stack containers, materials, or products
- maintain consistent production quality
- maintain or repair industrial or related equipment/machinery
- maintain production or work records
- monitor production machinery/equipment operation to detect problems
- move or fit heavy objects
- operate collating machine
- operate printing equipment/machinery
- package goods for shipment or storage
- perform safety inspections in manufacturing or industrial setting
- read work order, instructions, formulas, or processing charts
- set up production equipment or machinery
- use hand or power tools
- wrap products

Technology - Examples

- Word processing software

Tools - Examples

- Adjustable wrenches
- Pneumatic pumps
- Dial calipers
- Equipment cleaning scrapers
- Colorimeters
- Conductivity meters
- Electric drain augers
- Dropping pipettes
- Protective ear plugs
- Pressure transmitters
- Industrial platform scales
- Forklifts
- Gas brazing equipment
- Dial indicators
- Grapple cranes
- Grease guns
- Rotary hammers
- Claw hammers
- Hydraulic press frames
- Boom trucks
- Hydrometers
- Graduated glass cylinders
- Ladders
- Bench lathes
- Precision levels
- Locking pliers
- Filter masks
- Programmable logic controllers PLC
- Micrometers
- Combustion analyzers

- Digital multimeters
- Ohmmeters
- Oil guns
- Opacity meters
- Personal computers
- pH indicators
- Pipe cutters
- Pipe wrenches
- Descalers
- Power drills
- Power meters
- Power saws
- Bourdon tubes
- Steam cleaning equipment
- Water column gauges
- Safety gloves
- Sling psychrometers
- Ratchets
- Electronic remote reading thermometers
- Self-contained breathing apparatus
- Safety glasses
- Scaffolding
- Phillips head screwdrivers
- Socket sets
- Layout squares
- Infrared guns
- Tapping machines
- Dies
- Electronic temperature sensors
- Thermocouples
- Hand pipe threaders
- Turbidity testers

- Two way radios
- Amp meters
- Electric welding equipment
- Drill presses

Labor Market Comparison

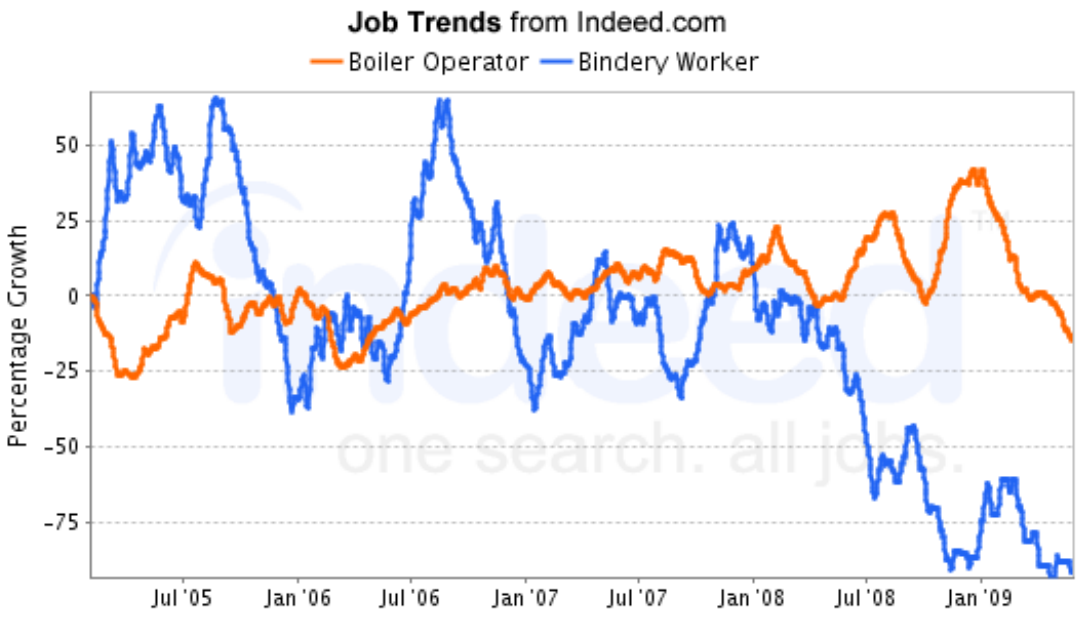
Maine Department of Labor.

Description	Stationary Engineers and Boiler Operators	Bindery Workers	Difference
Median Wage	$ 38,830	$ 26,130	$(12,700)
10th Percentile Wage	$ 27,760	$ 17,110	$(10,650)
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	$ 50,520	$ 31,490	$(19,030)
90th Percentile Wage	$ 58,660	$ 36,420	$(22,240)
Mean Wage	$ 41,220	$ 26,320	$(14,900)
Total Employment - 2596	490	350	-140
Employment Base - 2006	513	366	-147
Projected Employment - 2605	416	293	-123
Projected Job Growth - 2006-2605	-18.9 %	-19.9 %	-1.0 %
Projected Annual Openings - 2006-2605	9	5	-4
Special			

Special Occupations:

National Job Posting Trends

Trend for Stationary Engineers and Boiler Operators and Bindery Workers



Data from Indeed

Programs

Related Programs

Graphic Communications, Other

Graphic Communications, Other. Any instructional program in graphic communications not listed above.

No information on schools for the program

Leatherworkers and Upholsterers, Other

Leatherworking and Upholstery, Other. Any instructional program in leatherworking and upholstering not listed above.

No information on schools for the program

Shoe, Boot and Leather Repairer

Shoe, Boot and Leather Repair. A program that prepares individuals to apply technical knowledge and skills to repair all types of footwear, including replacement and mending of worn parts; repairing orthopedic footwear, refinishing and dyeing leather; and repairing other leather goods such as handbags, belts, and luggage.

No information on schools for the program

Maine Statewide Promotion Opportunities for Stationary Engineers and Boiler Operators

O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings	Special
51-8021.00	Stationary Engineers and Boiler Operators	100	3	490	$38,830.00	$0.00	-19%	9	
49-3011.00	Aircraft Mechanics and Service Technicians	83	3	210	$44,280.00	$5,450.00	-2%	2	

49-9041.00	Industrial Machinery Mechanics	81	3	990	$39,370.00	$540.00	7%	25	☆
49-9044.00	Millwrights	79	3	830	$41,280.00	$2,450.00	-12%	11	
47-2011.00	Boilermakers	78	4	60	$39,260.00	$430.00	12%	3	
51-4041.00	Machinists	78	3	1,860	$41,560.00	$2,730.00	4%	35	☆
17-3023.01	Electronics Engineering Technicians	77	3	430	$45,180.00	$6,350.00	-20%	9	
49-2094.00	Electrical and Electronics Repairers, Commercial and Industrial Equipment	77	3	440	$49,450.00	$10,620.00	-19%	15	
49-9012.00	Control and Valve Installers and Repairers, Except Mechanical Door	77	3	170	$47,860.00	$9,030.00	-9%	3	
49-2095.00	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	76	5	20	$60,790.00	$21,960.00	5%	1	
53-6051.07	Transportation Vehicle, Equipment and Systems Inspectors, Except Aviation	76	3	60	$42,890.00	$4,060.00	5%	2	
51-4192.00	Lay-Out Workers, Metal and Plastic	75	2	180	$43,870.00	$5,040.00	-24%	3	
51-4111.00	Tool and Die Makers	74	3	160	$51,670.00	$12,840.00	-11%	2	
53-7021.00	Crane and Tower Operators	73	3	240	$41,940.00	$3,110.00	-2%	4	
49-9062.00	Medical Equipment Repairers	73	3	80	$46,700.00	$7,870.00	30%	6	☆

Special Occupations:

Top Industries for Bindery Workers

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change

Printing and related support activities	323100	75.67%	49,078	34,998	-28.69%
Employment services	561300	4.66%	3,020	3,822	26.56%
Converted paper product manufacturing	322200	2.30%	1,489	1,125	-24.47%
Advertising and related services	541800	1.69%	1,095	1,112	1.55%
Newspaper publishers	511110	1.53%	993	765	-22.90%
Self-employed workers, primary job	000601	1.32%	853	818	-4.12%
Specialized design services	541400	0.81%	528	636	20.43%
Colleges, universities, and professional schools, public and private	611300	0.42%	271	273	0.69%
Federal government, excluding postal service	919999	0.36%	234	199	-14.92%
Paper and paper product merchant wholesalers	424100	0.33%	214	206	-3.85%
Other support services	561900	0.29%	189	233	23.30%
Management of companies and enterprises	551100	0.17%	109	113	3.75%
State government, excluding education and hospitals	929200	0.15%	100	88	-11.68%
Elementary and secondary schools, public and private	611100	0.11%	71	68	-5.16%
Industrial machinery manufacturing	333200	0.11%	70	52	-26.26%

Top Industries for Stationary Engineers and Boiler Operators

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
General medical and surgical hospitals, public and private	622100	13.26%	6,017	6,662	10.71%
Colleges, universities, and professional schools, public and private	611300	12.27%	5,570	6,231	11.87%
Local government, excluding education and hospitals	939300	11.34%	5,147	5,782	12.34%
Electric power generation, transmission and distribution	221100	7.05%	3,200	2,943	-8.03%
State government, excluding education and hospitals	929200	6.92%	3,140	3,081	-1.87%
Pulp, paper, and paperboard mills	322100	5.25%	2,383	1,653	-30.64%
Elementary and secondary schools, public and private	611100	3.89%	1,766	1,861	5.38%
Federal government, excluding postal service	919999	3.24%	1,472	1,391	-5.47%
Lessors of real estate	531100	1.88%	856	943	10.18%
Sawmills and wood preservation	321100	1.79%	814	652	-19.82%
Activities related to real estate	531300	1.56%	708	902	27.44%
Psychiatric and substance abuse hospitals, public and private	622200	1.50%	682	536	-21.35%

Veneer, plywood, and engineered wood product manufacturing	321200	1.35%	614	669	8.89%
Junior colleges, public and private	611200	1.24%	563	622	10.50%
Other fabricated metal product manufacturing	332900	1.04%	472	419	-11.40%

TORQ Analysis of Stationary Engineers and Boiler Operators to Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

ANALYSIS INPUT

Transfer	Title	O*NET	Filters		
From Title:	Stationary Engineers and Boiler Operators	51-8021.00	Abilities:	Importance LeveL: 50	Weight: 1
To Title:	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	51-4122.00	Skills:	Importance LeveL: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

TORQ RESULTS

Grand TORQ: 85

Ability TORQ		Skills TORQ		Knowledge TORQ	
Level	90	Level	80	Level	85

Gaps To Narrow if Possible

Ability	Level	Gap	Impt
Information Ordering	45	5	62
Manual Dexterity	44	3	63
Near Vision	41	3	58

Upgrade These Skills

Skill	Level	Gap	Impt
No Skills Upgrade Required!			

Knowledge to Add

Knowledge	Level	Gap	Impt
No Knowledge Upgrades Required!			

LEVEL and IMPT (IMPORTANCE) refer to the Target Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders. GAP refers to level difference between Stationary Engineers and Boiler Operators and Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders.

ASK ANALYSIS

Ability Level Comparison - Abilities with importance scores over 50

Description	Stationary Engineers and Boiler Operators	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Importance
Control Precision	47	46	75
Manual Dexterity	41	44	63
Information Ordering	40	45	62
Near Vision	38	41	58
Problem Sensitivity	42	38	56
Arm-Hand Steadiness	38	37	53

Skill Level Comparison - Abilities with importance scores over 69

Description	Stationary Engineers and Boiler Operators	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Importance
Knowledge Level Comparison - Knowledge with importance scores over 69			
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Experience & Education Comparison

Related Work Experience Comparison

Description	Stationary Engineers and Boiler Operators	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders
10+ years	5%	0%
8-10 years	0%	0%
6-8 years	5%	2%
4-6 years	13%	6%
2-4 years	30%	13%
1-2 years	26%	9%
6-12 months	0%	10%
3-6 months	0%	8%
1-3 months	10%	0%
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None	8%	47%

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Stationary Engineers and Boiler Operators	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders
Most Common Educational/Training Requirement:	
Long-term on-the-job training	Moderate-term on-the-job training
Job Zone Comparison	
3 - Job Zone Three: Medium Preparation Needed	2 - Job Zone Two: Some Preparation Needed
Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.
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Tasks

Stationary Engineers and Boiler Operators	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders
Core Tasks	Core Tasks

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- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
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Occupation Specific Tasks:

- Activate valves to maintain required amounts of water in boilers, to adjust supplies of combustion air, and to control the flow of fuel into burners.
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- Ignite fuel in burners, using torches or flames.
- Install burners and auxiliary equipment, using hand tools.
- Investigate and report on accidents.
- Maintain daily logs of operation, maintenance, and safety activities, including test results, instrument readings, and details of equipment malfunctions and maintenance work.
- Monitor and inspect equipment, computer terminals, switches, valves, gauges, alarms,

Generalized Work Activities:

- Handling and Moving Objects - Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.
- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).
- Identifying Objects, Actions, and Events - Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.

Specific Tasks

Occupation Specific Tasks:

- Add chemicals and materials to workpieces or machines to facilitate bonding or to cool workpieces.
- Anneal finished workpieces to relieve internal stress.
- Assemble, align, and clamp workpieces into holding fixtures to bond, heat-treat, or solder fabricated metal components.
- Clean, lubricate, maintain, and adjust equipment to maintain efficient operation, using air hoses, cleaning fluids, and hand tools.
- Compute and record settings for new work, applying knowledge of metal properties, principles of welding, and shop mathematics.
- Conduct trial runs before welding, soldering or brazing; make necessary adjustments to equipment.
- Correct problems by adjusting controls, or by stopping machines and opening holding devices.
- Devise and build fixtures and jigs used to hold parts in place during welding, brazing, or soldering.
- Dress electrodes, using tip dressers, files, emery cloths, or dressing wheels.
- Fill hoppers and position spouts to direct flow of flux, or manually brush flux onto seams of workpieces.
- Give directions to other workers regarding machine setup and use.
- Immerse completed workpieces into water or acid baths to cool and clean components.
- Inspect, measure, or test completed metal workpieces to ensure conformance to specifications, using measuring and testing devices.
- Lay out, fit, or connect parts to be bonded,

safety devices, and meters to detect leaks or malfunctions, and to ensure that equipment is operating efficiently and safely.

- Monitor boiler water, chemical, and fuel levels, and make adjustments to maintain required levels.
- Observe and interpret readings on gauges, meters, and charts registering various aspects of boiler operation, in order to ensure that boilers are operating properly.
- Operate mechanical hoppers, and provide assistance in their adjustment and repair.
- Operate or tend stationary engines, boilers, and auxiliary equipment such as pumps, compressors and air-conditioning equipment, in order to supply and maintain steam or heat for buildings, marine vessels, or pneumatic tools.
- Perform or arrange for repairs, such as complete overhauls, replacement of defective valves, gaskets, or bearings, and/or fabrication of new parts.
- Provide assistance to plumbers in repairing or replacing water, sewer, or waste lines, and in daily maintenance activities.
- Receive instructions from steam engineers regarding steam plant and air compressor operations.
- Supervise the work of assistant stationary engineers, turbine operators, boiler tenders, and/or air-conditioning and refrigeration operators and mechanics.
- Switch from automatic controls to manual controls, and isolate equipment mechanically and electrically, in order to allow for safe inspection and repair work.
- Test boiler water quality or arrange for testing; and take any necessary corrective action, such as adding chemicals to prevent corrosion and harmful deposits.
- Test electrical systems to determine voltages, using voltage meters.
- Weigh, measure, and record fuel used.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- clean equipment or machinery
- control HVAC equipment
- control operation of compressors
- inspect machinery or equipment to determine adjustments or repairs needed
- install equipment or attachments on machinery or related structures
- install generating plant equipment
- install/connect electrical equipment to power circuit
- load or unload material or workpiece into machinery
- maintain consistent production quality

calculating production measurements as necessary.

- Load or feed workpieces into welding machines in order to join or bond components.
- Mark weld points and positions of components on workpieces, using rules, squares, templates, and scribes.
- Observe meters, gauges, and machine operations to ensure that soldering or brazing processes meet specifications.
- Prepare metal surfaces and workpieces, using hand-operated equipment such as grinders, cutters, or drills.
- Read blueprints, work orders, and production schedules to determine product or job instructions and specifications.
- Record operational information on specified production reports.
- Remove workpieces and parts from machinery after work is complete, using hand tools.
- Select torch tips, alloys, flux, coil, tubing, and wire, according to metal types and thicknesses, data charts, and records.
- Select, position, align, and bolt jigs, holding fixtures, guides, and stops onto machines, using measuring instruments and hand tools.
- Set dials and timing controls to regulate electrical current, gas flow pressure, heating/cooling cycles, and shut-off.
- Set up, operate, and tend welding machines that join or bond components to fabricate metal products or assemblies.
- Start, monitor, and adjust robotic welding production lines.
- Tend auxiliary equipment used in welding processes.
- Transfer components, metal products, and assemblies, using moving equipment.
- Turn and press knobs and buttons, or enter operating instructions into computers to adjust and start welding machines.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- braze metal parts or components together
- clean equipment or machinery
- clean or degrease weld, or parts to be welded or soldered
- demonstrate or explain assembly or use of equipment
- examine products or work to verify conformance to specifications
- fabricate, assemble, or disassemble manufactured products by hand
- install equipment or attachments on machinery or related structures

- maintain or repair industrial or related equipment/machinery
- maintain production or work records
- monitor production machinery/equipment operation to detect problems
- operate power driven pumps
- operate power generation equipment
- overhaul power-generating equipment or machinery
- perform safety inspections in manufacturing or industrial setting
- tend boilers or related equipment
- test manufactured products or materials
- use acetylene welding/cutting torch
- use electrical or electronic test devices or equipment
- use hand or power tools
- use pneumatic tools
- weld together metal parts, components, or structures

Technology - Examples

Analytical or scientific software

- Statistical software

Data base user interface and query software

- Data entry software
- Database software

Electronic mail software

- Email software

Facilities management software

- Building management system software
- Computerized maintenance management system CMMS software

Graphics or photo imaging software

- Graphics software

Internet browser software

- Web browser software

Spreadsheet software

- Microsoft Excel
- Spreadsheet software

Word processing software

- Microsoft Word
- Word processing software

Tools - Examples

- Adjustable wrenches

- lay out machining, welding or precision assembly projects
- load or unload material or workpiece into machinery
- maintain production or work records
- monitor production machinery/equipment operation to detect problems
- move or fit heavy objects
- operate hoist, winch, or hydraulic boom
- operate metal or plastic fabricating equipment/machinery
- perform safety inspections in manufacturing or industrial setting
- position, clamp or assemble workpiece prior to welding
- preheat metal before welding, brazing, or soldering
- read blueprints
- read production layouts
- read specifications
- read technical drawings
- read work order, instructions, formulas, or processing charts
- recognize characteristics of metals
- set up computer numerical control machines
- set up production equipment or machinery
- solder metal parts or components together
- test manufactured products or materials
- understand technical operating, service or repair manuals
- use acetylene welding/cutting torch
- use hand or power tools
- use non-destructive test equipment
- use precision measuring tools or equipment
- use spot or tack welding techniques
- weld together metal parts, components, or structures

Technology - Examples

Data base user interface and query software

- Data entry software

Electronic mail software

- Email software

Industrial control software

- Tool center point TCP setting software

Spreadsheet software

- Spreadsheet software

Word processing software

- Word processing software

Tools - Examples

- Pneumatic pumps
- Dial calipers
- Equipment cleaning scrapers
- Colorimeters
- Conductivity meters
- Electric drain augers
- Dropping pipettes
- Protective ear plugs
- Pressure transmitters
- Industrial platform scales
- Forklifts
- Gas brazing equipment
- Dial indicators
- Grapple cranes
- Grease guns
- Rotary hammers
- Claw hammers
- Hydraulic press frames
- Boom trucks
- Hydrometers
- Graduated glass cylinders
- Ladders
- Bench lathes
- Precision levels
- Locking pliers
- Filter masks
- Programmable logic controllers PLC
- Micrometers
- Combustion analyzers
- Digital multimeters
- Ohmmeters
- Oil guns
- Opacity meters
- Adjustable widemouth pliers
- Bench vises
- Hand scrapers
- Gas welding torches
- C clamps
- Dial calipers
- Desktop computers
- Side cutting pliers
- Face masks
- Files
- Arc welding equipment
- Undercut gauges
- Safety goggles
- Ball peen hammers
- Hand clamps
- Power hoists
- Hydraulic booms
- Heating furnaces
- Laser cutters
- Laser-beam machines
- Walk-behind lift trucks
- Product loading equipment
- Vise grip pliers
- Magnifiers
- Micrometers
- Workpiece positioning jigs
- Chipping hammers
- Power grinders
- Safety gloves
- Center punches
- Rulers
- Slip-joint pliers
- Soldering machines

- Personal computers
- pH indicators
- Pipe cutters
- Pipe wrenches
- Descalers
- Power drills
- Power meters
- Power saws
- Bourdon tubes
- Steam cleaning equipment
- Water column gauges
- Safety gloves
- Sling psychrometers
- Ratchets
- Electronic remote reading thermometers
- Self-contained breathing apparatus
- Safety glasses
- Scaffolding
- Phillips head screwdrivers
- Socket sets
- Layout squares
- Infrared guns
- Tapping machines
- Dies
- Electronic temperature sensors
- Thermocouples
- Hand pipe threaders
- Turbidity testers
- Two way radios
- Amp meters
- Electric welding equipment
- Drill presses

- Layout squares
- Measuring tapes
- Fillet weld gauges
- Tongs
- Cold-welding machines
- Welding electrodes
- Welding helmets
- Welding tip cleaning files
- Welding torch tips
- Brazing robots
- Tip dressers
- Spot welding guns
- Hydraulic winches
- Wire brushes

Labor Market Comparison

Maine Department of Labor.

Description	Stationary Engineers and Boiler Operators	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Difference
Median Wage	$ 38,830	$ 36,960	$(1,870)
10th Percentile Wage	$ 27,760	$ 23,370	$(4,390)
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	$ 50,520	$ 44,750	$(5,770)
90th Percentile Wage	$ 58,660	$ 49,220	$(9,440)
Mean Wage	$ 41,220	$ 36,640	$(4,580)
Total Employment - 2596	490	120	-370
Employment Base - 2006	513	157	-356
Projected Employment - 2605	416	160	-256
Projected Job Growth - 2006-2605	-18.9 %	1.9 %	20.8 %
Projected Annual Openings - 2006-2605	9	3	-6
Special			

Special Occupations:

National Job Posting Trends

Trend for Stationary Engineers and Boiler Operators and Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

Data from Indeed

Programs

Related Programs

Welder/Welding Technologist

Welding Technology/Welder. A program that prepares individuals to apply technical knowledge and skills to join or cut metal surfaces. Includes instruction in arc welding, resistance welding, brazing and soldering, cutting, high-energy beam welding and cutting, solid state welding, ferrous and non-ferrous materials, oxidation-reduction reactions, welding metallurgy, welding processes and heat treating, structural design, safety, and applicable codes and standards.

Institution	Address	City	URL
Eastern Maine Community College	354 Hogan Rd	Bangor	www.emcc.edu
Eastern Maine Community College	354 Hogan Rd	Bangor	www.emcc.edu
Eastern Maine Community College	354 Hogan Rd	Bangor	www.emcc.edu
Wasington County Community College	One College Drive	Calais	www.wccc.me.edu

Maine Statewide Promotion Opportunities for Stationary Engineers and Boiler Operators

O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings	Special
51-8021.00	Stationary Engineers and Boiler Operators	100	3	490	$38,830.00	$0.00	-19%	9	

49-3011.00	Aircraft Mechanics and Service Technicians	83	3	210	$44,280.00	$5,450.00	-2%	2	
49-9041.00	Industrial Machinery Mechanics	81	3	990	$39,370.00	$540.00	7%	25	
49-9044.00	Millwrights	79	3	830	$41,280.00	$2,450.00	-12%	11	
47-2011.00	Boilermakers	78	4	60	$39,260.00	$430.00	12%	3	
51-4041.00	Machinists	78	3	1,860	$41,560.00	$2,730.00	4%	35	
17-3023.01	Electronics Engineering Technicians	77	3	430	$45,180.00	$6,350.00	-20%	9	
49-9012.00	Control and Valve Installers and Repairers, Except Mechanical Door	77	3	170	$47,860.00	$9,030.00	-9%	3	
49-2094.00	Electrical and Electronics Repairers, Commercial and Industrial Equipment	77	3	440	$49,450.00	$10,620.00	-19%	15	
49-2095.00	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	76	5	20	$60,790.00	$21,960.00	5%	1	
53-6051.07	Transportation Vehicle, Equipment and Systems Inspectors, Except Aviation	76	3	60	$42,890.00	$4,060.00	5%	2	
51-4192.00	Lay-Out Workers, Metal and Plastic	75	2	180	$43,870.00	$5,040.00	-24%	3	
51-4111.00	Tool and Die Makers	74	3	160	$51,670.00	$12,840.00	-11%	2	
53-7021.00	Crane and Tower Operators	73	3	240	$41,940.00	$3,110.00	-2%	4	
49-9062.00	Medical Equipment Repairers	73	3	80	$46,700.00	$7,870.00	30%	6	

Special Occupations:

Top Industries for Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Motor vehicle parts manufacturing	336300	19.38%	10,236	9,164	-10.47%
Architectural and structural metals manufacturing	332300	7.67%	4,053	4,867	20.11%
Agriculture, construction, and mining machinery manufacturing	333100	6.00%	3,167	3,325	5.00%
Self-employed workers, primary job	000601	5.61%	2,961	3,548	19.81%
Motor vehicle body and trailer manufacturing	336200	4.84%	2,556	2,812	10.04%
Other general purpose machinery manufacturing	333900	4.26%	2,251	2,285	1.52%
Ventilation, heating, air-conditioning, and commercial refrigeration equipment manufacturing	333400	3.79%	2,001	2,070	3.45%
Other fabricated metal product manufacturing	332900	3.68%	1,942	1,936	-0.36%
Ship and boat building	336600	3.18%	1,679	2,113	25.87%
Machine shops	332710	2.65%	1,398	1,301	-6.97%
Boiler, tank, and shipping container manufacturing	332400	2.47%	1,302	1,320	1.34%
Electrical equipment manufacturing	335300	1.82%	964	921	-4.45%
Spring and wire product manufacturing	332600	1.78%	939	782	-16.75%
Employment services	561300	1.55%	817	1,163	42.33%
Forging and stamping	332100	1.55%	818	720	-12.00%

Top Industries for Stationary Engineers and Boiler Operators

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
General medical and surgical hospitals, public and private	622100	13.26%	6,017	6,662	10.71%
Colleges, universities, and professional schools, public and private	611300	12.27%	5,570	6,231	11.87%
Local government, excluding education and hospitals	939300	11.34%	5,147	5,782	12.34%
Electric power generation, transmission and distribution	221100	7.05%	3,200	2,943	-8.03%
State government, excluding education and hospitals	929200	6.92%	3,140	3,081	-1.87%
Pulp, paper, and paperboard mills	322100	5.25%	2,383	1,653	-30.64%
Elementary and secondary schools, public and private	611100	3.89%	1,766	1,861	5.38%
Federal government, excluding postal service	919999	3.24%	1,472	1,391	-5.47%

Lessors of real estate	531100	1.88%	856	943	10.18%
Sawmills and wood preservation	321100	1.79%	814	652	-19.82%
Activities related to real estate	531300	1.56%	708	902	27.44%
Psychiatric and substance abuse hospitals, public and private	622200	1.50%	682	536	-21.35%
Veneer, plywood, and engineered wood product manufacturing	321200	1.35%	614	669	8.89%
Junior colleges, public and private	611200	1.24%	563	622	10.50%
Other fabricated metal product manufacturing	332900	1.04%	472	419	-11.40%

TORQ Analysis of Stationary Engineers and Boiler Operators to Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic

ANALYSIS INPUT

Transfer	Title	O*NET	Filters		
From Title:	Stationary Engineers and Boiler Operators	51-8021.00	Abilities:	Importance LeveL: 50	Weight: 1
To Title:	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	51-4193.00	Skills:	Importance LeveL: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

TORQ RESULTS

Grand TORQ: 85

Ability TORQ		Skills TORQ		Knowledge TORQ	
Level	93	Level	80	Level	82

Gaps To Narrow if Possible				Upgrade These Skills				Knowledge to Add			
Ability	Level	Gap	Impt	Skill	Level	Gap	Impt	Knowledge	Level	Gap	Impt
No Critical Gaps Recorded!				No Skills Upgrade Required!				No Knowledge Upgrades Required!			

LEVEL and IMPT (IMPORTANCE) refer to the Target Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic. GAP refers to level difference between Stationary Engineers and Boiler Operators and Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic.

ASK ANALYSIS

Ability Level Comparison - Abilities with importance scores over 50

Description	Stationary Engineers and Boiler Operators	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	Importance
Control Precision	47	44	66
Manual Dexterity	41	36	52
Information Ordering	40	39	50

Skill Level Comparison - Abilities with importance scores over 69

Description	Stationary Engineers and Boiler Operators	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	Importance

Knowledge Level Comparison - Knowledge with importance scores over 69

Description	Stationary Engineers and Boiler Operators	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	Importance

Experience & Education Comparison

Related Work Experience Comparison

Description	Stationary Engineers and Boiler Operators	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic
10+ years	5%	0%
8-10 years	0%	0%
6-8 years	5%	0%
4-6 years	13%	0%
2-4 years	30%	5%
1-2 years	26%	1%
6-12 months	0%	3%
3-6 months	0%	0%
1-3 months	10%	15%
0-1 month	0%	16%
None	8%	55%

Required Education Level Comparison

Description	Stationary Engineers and Boiler Operators	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic
Doctoral	0%	0%
Professional Degree	0%	0%
Post-Masters Cert	0%	0%
Master's Degree	0%	0%
Post-Bachelor Cert	0%	0%
Bachelors	8%	0%
AA or Equiv	22%	0%
Some College	8%	0%
Post-Secondary Certificate	22%	4%
High Scool Diploma or GED	33%	67%
No HSD or GED	4%	28%

Stationary Engineers and Boiler Operators	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic
Most Common Educational/Training Requirement:	
Long-term on-the-job training	Moderate-term on-the-job training
Job Zone Comparison	
3 - Job Zone Three: Medium Preparation Needed	2 - Job Zone Two: Some Preparation Needed
Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.
Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.	Employees in these occupations need anywhere from a few months to one year of working with experienced employees.

Tasks

Stationary Engineers and Boiler Operators	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic
Core Tasks	Core Tasks

Generalized Work Activities:

- Repairing and Maintaining Mechanical Equipment - Servicing, repairing, adjusting, and testing machines, devices, moving parts, and equipment that operate primarily on the basis of mechanical (not electronic) principles.
- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Monitor Processes, Materials, or Surroundings - Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).

Specific Tasks

Occupation Specific Tasks:

- Activate valves to maintain required amounts of water in boilers, to adjust supplies of combustion air, and to control the flow of fuel into burners.
- Adjust controls and/or valves on equipment to provide power, and to regulate and set operations of system and/or industrial processes.
- Analyze problems and take appropriate action to ensure continuous and reliable operation of equipment and systems.
- Check the air quality of ventilation systems and make adjustments to ensure compliance with mandated safety codes.
- Clean and lubricate boilers and auxiliary equipment and make minor adjustments as needed, using hand tools.
- Contact equipment manufacturers or appropriate specialists when necessary to resolve equipment problems.
- Develop operation, safety, and maintenance procedures, or assist in their development.
- Fire coal furnaces by hand or with stokers and gas- or oil-fed boilers, using automatic gas feeds or oil pumps.
- Ignite fuel in burners, using torches or flames.
- Install burners and auxiliary equipment, using hand tools.
- Investigate and report on accidents.
- Maintain daily logs of operation, maintenance, and safety activities, including test results, instrument readings, and details of equipment malfunctions and maintenance work.
- Monitor and inspect equipment, computer terminals, switches, valves, gauges, alarms,

Generalized Work Activities:

- Performing General Physical Activities - Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials.
- Handling and Moving Objects - Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.
- Communicating with Supervisors, Peers, or Subordinates - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.
- Documenting/Recording Information - Entering, transcribing, recording, storing, or maintaining information in written or electronic/magnetic form.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.

Specific Tasks

Occupation Specific Tasks:

- Adjust controls to set temperatures of coating substances and speeds of machines and equipment.
- Adjust dials to regulate flow of current and voltage supplied to terminals in order to control plating processes.
- Attach nozzles, position guns, connect hoses, and thread wire in order to set up metal-spraying machines.
- Charge furnaces.
- Clean and maintain equipment, using water hoses and scrapers.
- Clean workpieces, using wire brushes.
- Cut metal or other materials, using shears or band saws.
- Determine sizes and compositions of objects to be plated, and amounts of electrical current and time required.
- Examine completed objects to determine thicknesses of metal deposits, or measure thicknesses by using instruments such as micrometers.
- Immerse objects to be coated or plated into cleaning solutions, or spray objects with conductive solutions to prepare them for plating.
- Immerse workpieces in coating solutions or liquid metal or plastic for specified times.
- Inspect coated or plated areas for defects such as air bubbles or uneven coverage.
- Install gears and holding devices on conveyor equipment.
- Maintain production records.
- Measure and set stops, rolls, brushes, and guides on automatic feeders and conveying

safety devices, and meters to detect leaks or malfunctions, and to ensure that equipment is operating efficiently and safely.

- Monitor boiler water, chemical, and fuel levels, and make adjustments to maintain required levels.
- Observe and interpret readings on gauges, meters, and charts registering various aspects of boiler operation, in order to ensure that boilers are operating properly.
- Operate mechanical hoppers, and provide assistance in their adjustment and repair.
- Operate or tend stationary engines, boilers, and auxiliary equipment such as pumps, compressors and air-conditioning equipment, in order to supply and maintain steam or heat for buildings, marine vessels, or pneumatic tools.
- Perform or arrange for repairs, such as complete overhauls, replacement of defective valves, gaskets, or bearings, and/or fabrication of new parts.
- Provide assistance to plumbers in repairing or replacing water, sewer, or waste lines, and in daily maintenance activities.
- Receive instructions from steam engineers regarding steam plant and air compressor operations.
- Supervise the work of assistant stationary engineers, turbine operators, boiler tenders, and/or air-conditioning and refrigeration operators and mechanics.
- Switch from automatic controls to manual controls, and isolate equipment mechanically and electrically, in order to allow for safe inspection and repair work.
- Test boiler water quality or arrange for testing; and take any necessary corrective action, such as adding chemicals to prevent corrosion and harmful deposits.
- Test electrical systems to determine voltages, using voltage meters.
- Weigh, measure, and record fuel used.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- clean equipment or machinery
- control HVAC equipment
- control operation of compressors
- inspect machinery or equipment to determine adjustments or repairs needed
- install equipment or attachments on machinery or related structures
- install generating plant equipment
- install/connect electrical equipment to power circuit
- load or unload material or workpiece into machinery
- maintain consistent production quality

equipment or coating machines, using micrometers, rules, and hand tools.

- Measure or weigh materials, using rulers, calculators, and scales.
- Measure, mark, and mask areas to be excluded from plating.
- Mix and test solutions, and turn valves to fill tanks with solutions.
- Monitor and measure thicknesses of electroplating on component parts in order to verify conformance to specifications, using micrometers.
- Observe gauges to ensure that machines are operating properly; make adjustments or stop machines when problems occur.
- Operate hoists to place workpieces onto machine feed carriages or spindles.
- Operate sandblasting equipment to roughen and clean surfaces of workpieces.
- Perform equipment maintenance such as cleaning tanks and lubricating moving parts of conveyors.
- Place plated or coated materials on racks and transfer them to ovens to dry for specified periods of time.
- Plate small objects such as nuts or bolts, using motor-driven barrels.
- Position and feed materials into processing machines, by hand or by using automated equipment.
- Position containers to receive parts, and load or unload materials in containers, using dollies or handtrucks.
- Position objects to be plated in frames, or suspend them from positive or negative terminals of power supplies.
- Preheat workpieces in ovens.
- Read production schedules to determine setups of equipment and machines.
- Remove excess materials or impurities from objects, using air hoses or grinding machines.
- Remove objects from solutions at periodic intervals and observe objects to verify conformance to specifications.
- Replace worn parts and adjust equipment components, using hand tools.
- Rinse coated objects in cleansing liquids; then dry them with cloths, centrifugal driers, or by tumbling in sawdust-filled barrels.
- Set up, operate, or tend plating or coating machines to coat metal or plastic products with chromium, zinc, copper, cadmium, nickel, or other metal to protect or decorate surfaces.
- Spray coating in specified patterns according to instructions.
- Suspend objects such as parts or molds from cathode rods (negative terminals), and immerse objects in plating solutions.
- Suspend sticks or pieces of plating metal from anodes (positive terminals) and

- maintain or repair industrial or related equipment/machinery
- maintain production or work records
- monitor production machinery/equipment operation to detect problems
- operate power driven pumps
- operate power generation equipment
- overhaul power-generating equipment or machinery
- perform safety inspections in manufacturing or industrial setting
- tend boilers or related equipment
- test manufactured products or materials
- use acetylene welding/cutting torch
- use electrical or electronic test devices or equipment
- use hand or power tools
- use pneumatic tools
- weld together metal parts, components, or structures

Technology - Examples

Analytical or scientific software

- Statistical software

Data base user interface and query software

- Data entry software
- Database software

Electronic mail software

- Email software

Facilities management software

- Building management system software
- Computerized maintenance management system CMMS software

Graphics or photo imaging software

- Graphics software

Internet browser software

- Web browser software

Spreadsheet software

- Microsoft Excel
- Spreadsheet software

Word processing software

- Microsoft Word
- Word processing software

Tools - Examples

- Adjustable wrenches

immerse metal in plating solutions.

- Test machinery to ensure that it is operating properly.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- apply adhesives, caulking, sealants, or coatings
- clean equipment or machinery
- examine products or work to verify conformance to specifications
- install equipment or attachments on machinery or related structures
- load or unload material or workpiece into machinery
- load, unload, or stack containers, materials, or products
- maintain or repair industrial or related equipment/machinery
- maintain production or work records
- measure, weigh, or count products or materials
- mix paint, ingredients, or chemicals, according to specifications
- monitor production machinery/equipment operation to detect problems
- move or fit heavy objects
- operate hoist, winch, or hydraulic boom
- operate metal or plastic fabricating equipment/machinery
- perform safety inspections in manufacturing or industrial setting
- read specifications
- read work order, instructions, formulas, or processing charts
- set up computer numerical control machines
- set up production equipment or machinery
- understand technical operating, service or repair manuals
- use hand or power tools
- use precision measuring tools or equipment
- use spray application production equipment

Technology - Examples

- Pneumatic pumps
- Dial calipers
- Equipment cleaning scrapers
- Colorimeters
- Conductivity meters
- Electric drain augers
- Dropping pipettes
- Protective ear plugs
- Pressure transmitters
- Industrial platform scales
- Forklifts
- Gas brazing equipment
- Dial indicators
- Grapple cranes
- Grease guns
- Rotary hammers
- Claw hammers
- Hydraulic press frames
- Boom trucks
- Hydrometers
- Graduated glass cylinders
- Ladders
- Bench lathes
- Precision levels
- Locking pliers
- Filter masks
- Programmable logic controllers PLC
- Micrometers
- Combustion analyzers
- Digital multimeters
- Ohmmeters
- Oil guns

- Opacity meters
- Personal computers
- pH indicators
- Pipe cutters
- Pipe wrenches
- Descalers
- Power drills
- Power meters
- Power saws
- Bourdon tubes
- Steam cleaning equipment
- Water column gauges
- Safety gloves
- Sling psychrometers
- Ratchets
- Electronic remote reading thermometers
- Self-contained breathing apparatus
- Safety glasses
- Scaffolding
- Phillips head screwdrivers
- Socket sets
- Layout squares
- Infrared guns
- Tapping machines
- Dies
- Electronic temperature sensors
- Thermocouples
- Hand pipe threaders
- Turbidity testers
- Two way radios
- Amp meters
- Electric welding equipment

- Drill presses

Labor Market Comparison

Maine Department of Labor.

Description	Stationary Engineers and Boiler Operators	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	Difference
Median Wage	$ 38,830	$ 32,160	$(6,670)
10th Percentile Wage	$ 27,760	$ 21,560	$(6,200)
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	$ 50,520	$ 36,780	$(13,740)
90th Percentile Wage	$ 58,660	$ 43,000	$(15,660)
Mean Wage	$ 41,220	$ 31,530	$(9,690)
Total Employment - 2596	490	120	-370
Employment Base - 2006	513	115	-398
Projected Employment - 2605	416	133	-283
Projected Job Growth - 2006-2605	-18.9 %	15.7 %	34.5 %
Projected Annual Openings - 2006-2605	9	5	-4
Special			

Special Occupations:

National Job Posting Trends

Trend for Stationary Engineers and Boiler Operators and Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic

Data from Indeed

Programs

Related Programs

Precision Metal Workers, Other

Precision Metal Working, Other. Any instructional program in precision metal work not listed above.

No information on schools for the program

Maine Statewide Promotion Opportunities for Stationary Engineers and Boiler Operators

O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings	Special
51-8021.00	Stationary Engineers and Boiler Operators	100	3	490	$38,830.00	$0.00	-19%	9	
49-3011.00	Aircraft Mechanics and Service Technicians	83	3	210	$44,280.00	$5,450.00	-2%	2	
49-9041.00	Industrial Machinery Mechanics	81	3	990	$39,370.00	$540.00	7%	25	☆
49-9044.00	Millwrights	79	3	830	$41,280.00	$2,450.00	-12%	11	
47-2011.00	Boilermakers	78	4	60	$39,260.00	$430.00	12%	3	
51-4041.00	Machinists	78	3	1,860	$41,560.00	$2,730.00	4%	35	☆
17-3023.01	Electronics Engineering Technicians	77	3	430	$45,180.00	$6,350.00	-20%	9	

49-2094.00	Electrical and Electronics Repairers, Commercial and Industrial Equipment	77	3	440	$49,450.00	$10,620.00	-19%	15	
49-9012.00	Control and Valve Installers and Repairers, Except Mechanical Door	77	3	170	$47,860.00	$9,030.00	-9%	3	
49-2095.00	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	76	5	20	$60,790.00	$21,960.00	5%	1	
53-6051.07	Transportation Vehicle, Equipment and Systems Inspectors, Except Aviation	76	3	60	$42,890.00	$4,060.00	5%	2	
51-4192.00	Lay-Out Workers, Metal and Plastic	75	2	180	$43,870.00	$5,040.00	-24%	3	
51-4111.00	Tool and Die Makers	74	3	160	$51,670.00	$12,840.00	-11%	2	
53-7021.00	Crane and Tower Operators	73	3	240	$41,940.00	$3,110.00	-2%	4	
49-9062.00	Medical Equipment Repairers	73	3	80	$46,700.00	$7,870.00	30%	6	

Special Occupations:

Top Industries for Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Coating, engraving, heat treating, and allied activities	332800	50.92%	21,333	18,249	-14.46%
Semiconductor and other electronic component manufacturing	334400	9.46%	3,964	3,616	-8.78%
Other electrical equipment and component manufacturing	335900	3.84%	1,609	1,556	-3.29%
Other fabricated metal product manufacturing	332900	3.20%	1,340	1,239	-7.53%
Motor vehicle parts manufacturing	336300	2.97%	1,246	1,036	-16.91%

Alumina and aluminum production and processing	331300	2.13%	894	650	-27.36%
Iron and steel mills and ferroalloy manufacturing	331100	1.81%	759	533	-29.75%
Architectural and structural metals manufacturing	332300	1.59%	665	742	11.47%
Federal government, excluding postal service	919999	1.29%	540	533	-1.34%
Aerospace product and parts manufacturing	336400	1.17%	488	519	6.29%
Machine shops	332710	0.96%	401	347	-13.67%
Foundries	331500	0.92%	384	291	-24.33%
Turned product and screw, nut, and bolt manufacturing	332720	0.88%	369	279	-24.36%
Manufacturing and reproducing magnetic and optical media	334600	0.86%	362	371	2.55%
Steel product manufacturing from purchased steel	331200	0.85%	358	331	-7.64%

Top Industries for Stationary Engineers and Boiler Operators

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
General medical and surgical hospitals, public and private	622100	13.26%	6,017	6,662	10.71%
Colleges, universities, and professional schools, public and private	611300	12.27%	5,570	6,231	11.87%
Local government, excluding education and hospitals	939300	11.34%	5,147	5,782	12.34%
Electric power generation, transmission and distribution	221100	7.05%	3,200	2,943	-8.03%
State government, excluding education and hospitals	929200	6.92%	3,140	3,081	-1.87%
Pulp, paper, and paperboard mills	322100	5.25%	2,383	1,653	-30.64%
Elementary and secondary schools, public and private	611100	3.89%	1,766	1,861	5.38%
Federal government, excluding postal service	919999	3.24%	1,472	1,391	-5.47%
Lessors of real estate	531100	1.88%	856	943	10.18%
Sawmills and wood preservation	321100	1.79%	814	652	-19.82%
Activities related to real estate	531300	1.56%	708	902	27.44%
Psychiatric and substance abuse hospitals, public and private	622200	1.50%	682	536	-21.35%
Veneer, plywood, and engineered wood product manufacturing	321200	1.35%	614	669	8.89%
Junior colleges, public and private	611200	1.24%	563	622	10.50%

Other fabricated metal product manufacturing	332900	1.04%	472	419	-11.40%

TORQ Analysis of Stationary Engineers and Boiler Operators to Logging Equipment Operators

ANALYSIS INPUT

Transfer	Title	O*NET	Filters		
From Title:	Stationary Engineers and Boiler Operators	51-8021.00	Abilities:	Importance LeveL: 50	Weight: 1
To Title:	Logging Equipment Operators	45-4022.00	Skills:	Importance LeveL: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

TORQ RESULTS

Grand TORQ: 84

Ability TORQ		Skills TORQ		Knowledge TORQ	
Level	78	Level	90	Level	85

Gaps To Narrow if Possible

Ability	Level	Gap	Impt
Depth Perception	42	18	60
Control Precision	57	10	90
Multilimb Coordination	40	8	65
Trunk Strength	40	3	50

Upgrade These Skills

Skill	Level	Gap	Impt
No Skills Upgrade Required!			

Knowledge to Add

Knowledge	Level	Gap	Impt
No Knowledge Upgrades Required!			

LEVEL and IMPT (IMPORTANCE) refer to the Target Logging Equipment Operators. GAP refers to level difference between Stationary Engineers and Boiler Operators and Logging Equipment Operators.

ASK ANALYSIS

Ability Level Comparison - Abilities with importance scores over 50

Description	Stationary Engineers and Boiler Operators	Logging Equipment Operators	Importance
Control Precision	47	57	90
Multilimb Coordination	32	40	65
Depth Perception	24	42	60
Manual Dexterity	41	37	50
Trunk Strength	37	40	50

Skill Level Comparison - Abilities with importance scores over 69

Description	Stationary Engineers and Boiler Operators	Logging Equipment Operators	Importance

Knowledge Level Comparison - Knowledge with importance scores over 69

Description	Stationary Engineers and Boiler Operators	Logging Equipment Operators	Importance

Experience & Education Comparison

Related Work Experience Comparison

Description	Stationary Engineers and Boiler Operators	Logging Equipment Operators
10+ years	5%	0%
8-10 years	0%	0%
6-8 years	5%	0%
4-6 years	13%	0%
2-4 years	30%	31%
1-2 years	26%	22%
6-12 months	0%	17%
3-6 months	0%	16%
1-3 months	10%	4%
0-1 month	0%	1%
None	8%	5%

Required Education Level Comparison

Description	Stationary Engineers and Boiler Operators	Logging Equipment Operators
Doctoral	0%	0%
Professional Degree	0%	0%
Post-Masters Cert	0%	0%
Master's Degree	0%	0%
Post-Bachelor Cert	0%	0%
Bachelors	8%	0%
AA or Equiv	22%	0%
Some College	8%	9%
Post-Secondary Certificate	22%	0%
High Scool Diploma or GED	33%	28%
No HSD or GED	4%	61%

Stationary Engineers and Boiler Operators	Logging Equipment Operators
Most Common Educational/Training Requirement:	
Long-term on-the-job training	Moderate-term on-the-job training
Job Zone Comparison	
3 - Job Zone Three: Medium Preparation Needed	1 - Job Zone One: Little or No Preparation Needed
Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.	No previous work-related skill, knowledge, or experience is needed for these occupations. For example, a person can become a cashier even if he/she has never worked before.
Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.	These occupations may require a high school diploma or GED certificate. Some may require a formal training course to obtain a license.
Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.	Employees in these occupations need anywhere from a few days to a few months of training. Usually, an experienced worker could show you how to do the job.

Tasks

Stationary Engineers and Boiler Operators

Core Tasks

Generalized Work Activities:

- Repairing and Maintaining Mechanical Equipment - Servicing, repairing, adjusting, and testing machines, devices, moving parts, and equipment that operate primarily on the basis of mechanical (not electronic) principles.
- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures,

Logging Equipment Operators

Core Tasks

Generalized Work Activities:

- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).
- Operating Vehicles, Mechanized Devices, or Equipment - Running, maneuvering, navigating, or driving vehicles or mechanized equipment, such as forklifts,

or materials to identify the cause of errors or other problems or defects.

- Monitor Processes, Materials, or Surroundings - Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).

Specific Tasks

Occupation Specific Tasks:

- Activate valves to maintain required amounts of water in boilers, to adjust supplies of combustion air, and to control the flow of fuel into burners.
- Adjust controls and/or valves on equipment to provide power, and to regulate and set operations of system and/or industrial processes.
- Analyze problems and take appropriate action to ensure continuous and reliable operation of equipment and systems.
- Check the air quality of ventilation systems and make adjustments to ensure compliance with mandated safety codes.
- Clean and lubricate boilers and auxiliary equipment and make minor adjustments as needed, using hand tools.
- Contact equipment manufacturers or appropriate specialists when necessary to resolve equipment problems.
- Develop operation, safety, and maintenance procedures, or assist in their development.
- Fire coal furnaces by hand or with stokers and gas- or oil-fed boilers, using automatic gas feeds or oil pumps.
- Ignite fuel in burners, using torches or flames.
- Install burners and auxiliary equipment, using hand tools.
- Investigate and report on accidents.
- Maintain daily logs of operation, maintenance, and safety activities, including test results, instrument readings, and details of equipment malfunctions and maintenance work.
- Monitor and inspect equipment, computer terminals, switches, valves, gauges, alarms, safety devices, and meters to detect leaks or malfunctions, and to ensure that equipment is operating efficiently and safely.
- Monitor boiler water, chemical, and fuel levels, and make adjustments to maintain required levels.
- Observe and interpret readings on gauges, meters, and charts registering various aspects of boiler operation, in order to ensure that boilers are operating properly.

passenger vehicles, aircraft, or water craft.

- Identifying Objects, Actions, and Events - Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.
- Repairing and Maintaining Mechanical Equipment - Servicing, repairing, adjusting, and testing machines, devices, moving parts, and equipment that operate primarily on the basis of mechanical (not electronic) principles.
- Communicating with Supervisors, Peers, or Subordinates - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.

Specific Tasks

Occupation Specific Tasks:

- Calculate total board feet, cordage, or other wood measurement units, using conversion tables.
- Control hydraulic tractors equipped with tree clamps and booms to lift, swing, and bunch sheared trees.
- Drive and maneuver tractors and tree harvesters to shear the tops off of trees, cut and limb the trees, and then cut the logs into desired lengths.
- Drive crawler or wheeled tractors to drag or transport logs from felling sites to log landing areas for processing and loading.
- Drive straight or articulated tractors equipped with accessories such as bulldozer blades, grapples, logging arches, cable winches, and crane booms, to skid, load, unload, or stack logs, pull stumps, or clear brush.
- Drive tractors for the purpose of building or repairing logging and skid roads.
- Fill out required job or shift report forms.
- Grade logs according to characteristics such as knot size and straightness, and according to established industry or company standards.
- Inspect equipment for safety prior to use, and perform necessary basic maintenance tasks.

Detailed Tasks

Detailed Work Activities:

- fasten attachments or accessories to tractor
- fell or buck trees
- grade or redistribute earth for roads or other construction
- load, unload, or stack containers, materials, or products
- move or fit heavy objects
- operate material moving, loading, or unloading equipment

- Operate mechanical hoppers, and provide assistance in their adjustment and repair.
- Operate or tend stationary engines, boilers, and auxiliary equipment such as pumps, compressors and air-conditioning equipment, in order to supply and maintain steam or heat for buildings, marine vessels, or pneumatic tools.
- Perform or arrange for repairs, such as complete overhauls, replacement of defective valves, gaskets, or bearings, and/or fabrication of new parts.
- Provide assistance to plumbers in repairing or replacing water, sewer, or waste lines, and in daily maintenance activities.
- Receive instructions from steam engineers regarding steam plant and air compressor operations.
- Supervise the work of assistant stationary engineers, turbine operators, boiler tenders, and/or air-conditioning and refrigeration operators and mechanics.
- Switch from automatic controls to manual controls, and isolate equipment mechanically and electrically, in order to allow for safe inspection and repair work.
- Test boiler water quality or arrange for testing; and take any necessary corrective action, such as adding chemicals to prevent corrosion and harmful deposits.
- Test electrical systems to determine voltages, using voltage meters.
- Weigh, measure, and record fuel used.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- clean equipment or machinery
- control HVAC equipment
- control operation of compressors
- inspect machinery or equipment to determine adjustments or repairs needed
- install equipment or attachments on machinery or related structures
- install generating plant equipment
- install/connect electrical equipment to power circuit
- load or unload material or workpiece into machinery
- maintain consistent production quality
- maintain or repair industrial or related equipment/machinery
- maintain production or work records
- monitor production machinery/equipment operation to detect problems
- operate power driven pumps
- operate power generation equipment
- overhaul power-generating equipment or machinery
- operate tractor with accessories or attachments
- perform safety inspections in agricultural, forestry, or fishing setting
- set up specialized rigging
- signal directions or warnings to coworkers
- use chain saws
- use fire suppression equipment
- use log handling tools or equipment
- use two-way radio or mobile phone

Technology - Examples

- perform safety inspections in manufacturing or industrial setting
- tend boilers or related equipment
- test manufactured products or materials
- use acetylene welding/cutting torch
- use electrical or electronic test devices or equipment
- use hand or power tools
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- weld together metal parts, components, or structures

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Projected Employment - 2605	416	1,998	1,582
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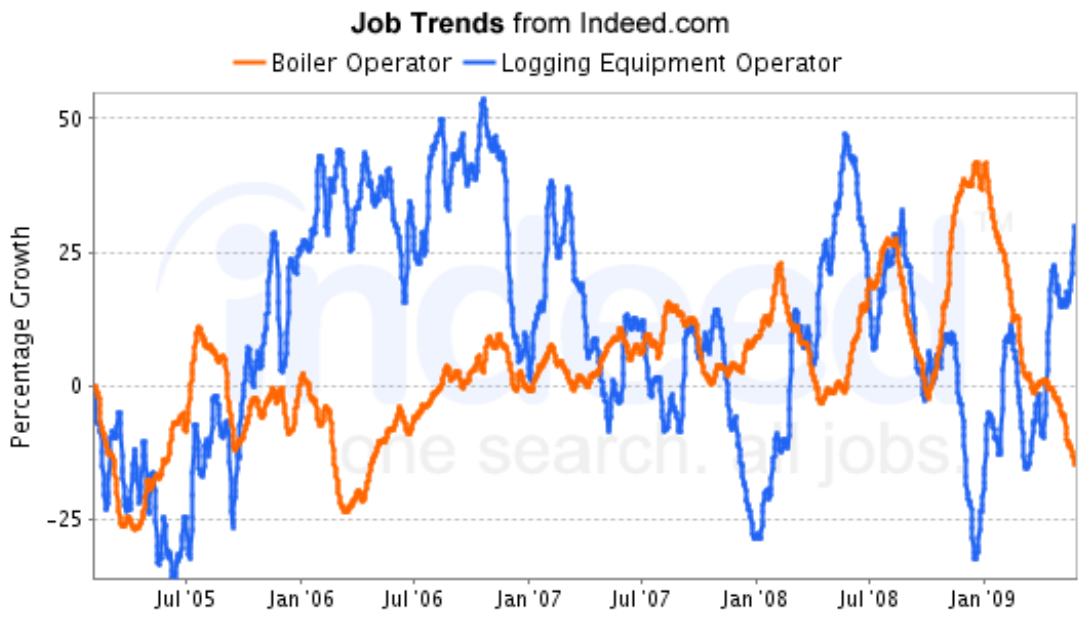
Projected Annual Openings - 2006-2605	9	46	37
Special			

Special Occupations:

National Job Posting Trends

Trend for Stationary Engineers and Boiler Operators and Logging Equipment Operators



Data from Indeed

Programs

Related Programs

Forest Resources Production and Management

Forest Resources Production and Management. A program that focuses on the application of forestry principles to the production, harvesting, and processing of forest resources and that prepares individuals to perform associated technical and managerial functions. Includes instruction in forest production and utilization, industrial forestry, agroforestry, transplantation, timber harvesting, selection and identification of trees, processing technologies and systems, equipment operations and maintenance, and related management skills.

No information on schools for the program

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53-6051.07	Transportation Vehicle, Equipment and Systems Inspectors, Except Aviation	76	3	60	$42,890.00	$4,060.00	5%	2	
51-4192.00	Lay-Out Workers, Metal and Plastic	75	2	180	$43,870.00	$5,040.00	-24%	3	
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53-7021.00	Crane and Tower Operators	73	3	240	$41,940.00	$3,110.00	-2%	4	
49-9062.00	Medical Equipment Repairers	73	3	80	$46,700.00	$7,870.00	30%	6	☆

Special Occupations:

Top Industries for Logging Equipment Operators

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Logging	113310	56.45%	22,858	21,302	-6.81%
Self-employed workers, primary job	000601	25.10%	10,163	11,407	12.24%
Sawmills and wood preservation	321100	8.83%	3,575	3,020	-15.53%
Self-employed workers, secondary job	000602	2.86%	1,158	1,214	4.88%
Specialized freight trucking	484200	1.25%	507	602	18.67%
Other wood product manufacturing	321900	1.18%	479	475	-0.72%
Veneer, plywood, and engineered wood product manufacturing	321200	1.00%	407	466	14.72%
Pulp, paper, and paperboard mills	322100	0.37%	151	110	-26.92%
Crop production; primary job	111000	0.32%	131	91	-30.16%
Lumber and other construction materials merchant wholesalers	423300	0.31%	125	151	21.01%

Top Industries for Stationary Engineers and Boiler Operators

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
General medical and surgical hospitals, public and private	622100	13.26%	6,017	6,662	10.71%
Colleges, universities, and professional schools, public and private	611300	12.27%	5,570	6,231	11.87%
Local government, excluding education and hospitals	939300	11.34%	5,147	5,782	12.34%

Electric power generation, transmission and distribution	221100	7.05%	3,200	2,943	-8.03%
State government, excluding education and hospitals	929200	6.92%	3,140	3,081	-1.87%
Pulp, paper, and paperboard mills	322100	5.25%	2,383	1,653	-30.64%
Elementary and secondary schools, public and private	611100	3.89%	1,766	1,861	5.38%
Federal government, excluding postal service	919999	3.24%	1,472	1,391	-5.47%
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Activities related to real estate	531300	1.56%	708	902	27.44%
Psychiatric and substance abuse hospitals, public and private	622200	1.50%	682	536	-21.35%
Veneer, plywood, and engineered wood product manufacturing	321200	1.35%	614	669	8.89%
Junior colleges, public and private	611200	1.24%	563	622	10.50%
Other fabricated metal product manufacturing	332900	1.04%	472	419	-11.40%

TORQ Analysis of Stationary Engineers and Boiler Operators to Printing Machine Operators

ANALYSIS INPUT

Transfer	Title	O*NET	Filters		
From Title:	Stationary Engineers and Boiler Operators	51-8021.00	Abilities:	Importance LeveL: 50	Weight: 1
To Title:	Printing Machine Operators	51-5023.00	Skills:	Importance LeveL: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

TORQ RESULTS

Grand TORQ: 85

Ability TORQ		Skills TORQ		Knowledge TORQ	
Level	80	Level	88	Level	86

Gaps To Narrow if Possible

Ability	Level	Gap	Impt
Visual Color Discrimination	45	25	58
Visualization	38	16	50
Near Vision	45	7	61

Upgrade These Skills

Skill	Level	Gap	Impt
No Skills Upgrade Required!			

Knowledge to Add

Knowledge	Level	Gap	Impt
No Knowledge Upgrades Required!			

LEVEL and IMPT (IMPORTANCE) refer to the Target Printing Machine Operators. GAP refers to level difference between Stationary Engineers and Boiler Operators and Printing Machine Operators.

ASK ANALYSIS

Ability Level Comparison - Abilities with importance scores over 50

Description	Stationary Engineers and Boiler Operators	Printing Machine Operators	Importance
Near Vision	38	45	61
Visual Color Discrimination	20	45	58
Control Precision	47	41	57
Manual Dexterity	41	37	55
Information Ordering	40	38	51
Visualization	22	38	50

Skill Level Comparison - Abilities with importance scores over 69

Description	Stationary Engineers and Boiler Operators	Printing Machine Operators	Importance

Knowledge Level Comparison - Knowledge with importance scores over 69

Description	Stationary Engineers and Boiler Operators	Printing Machine Operators	Importance

Experience & Education Comparison

Related Work Experience Comparison

Description	Stationary Engineers and Boiler Operators	Printing Machine Operators
10+ years	5%	0%
8-10 years	0%	3%
6-8 years	5%	0%
4-6 years	13%	7%
2-4 years	30%	24%
1-2 years	26%	13%
6-12 months	0%	3%
3-6 months	0%	6%
1-3 months	10%	0%
0-1 month	0%	0%
None	8%	39%

Required Education Level Comparison

Description	Stationary Engineers and Boiler Operators	Printing Machine Operators
Doctoral	0%	0%
Professional Degree	0%	0%
Post-Masters Cert	0%	0%
Master's Degree	0%	0%
Post-Bachelor Cert	0%	0%
Bachelors	8%	0%
AA or Equiv	22%	0%
Some College	8%	5%
Post-Secondary Certificate	22%	8%
High Scool Diploma or GED	33%	85%
No HSD or GED	4%	1%

Stationary Engineers and Boiler Operators	Printing Machine Operators
Most Common Educational/Training Requirement:	
Long-term on-the-job training	Moderate-term on-the-job training
Job Zone Comparison	
3 - Job Zone Three: Medium Preparation Needed	2 - Job Zone Two: Some Preparation Needed
Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.
Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.	Employees in these occupations need anywhere from a few months to one year of working with experienced employees.

Tasks

Stationary Engineers and Boiler Operators

Core Tasks

Generalized Work Activities:

- Repairing and Maintaining Mechanical Equipment - Servicing, repairing, adjusting, and testing machines, devices, moving parts, and equipment that operate primarily on the basis of mechanical (not electronic) principles.
- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors

Printing Machine Operators

Core Tasks

Generalized Work Activities:

- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Handling and Moving Objects - Using hands and arms in handling, installing, positioning,

of other problems or defects.

- Monitor Processes, Materials, or Surroundings - Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).

Specific Tasks

Occupation Specific Tasks:

- Activate valves to maintain required amounts of water in boilers, to adjust supplies of combustion air, and to control the flow of fuel into burners.
- Adjust controls and/or valves on equipment to provide power, and to regulate and set operations of system and/or industrial processes.
- Analyze problems and take appropriate action to ensure continuous and reliable operation of equipment and systems.
- Check the air quality of ventilation systems and make adjustments to ensure compliance with mandated safety codes.
- Clean and lubricate boilers and auxiliary equipment and make minor adjustments as needed, using hand tools.
- Contact equipment manufacturers or appropriate specialists when necessary to resolve equipment problems.
- Develop operation, safety, and maintenance procedures, or assist in their development.
- Fire coal furnaces by hand or with stokers and gas- or oil-fed boilers, using automatic gas feeds or oil pumps.
- Ignite fuel in burners, using torches or flames.
- Install burners and auxiliary equipment, using hand tools.
- Investigate and report on accidents.
- Maintain daily logs of operation, maintenance, and safety activities, including test results, instrument readings, and details of equipment malfunctions and maintenance work.
- Monitor and inspect equipment, computer terminals, switches, valves, gauges, alarms, safety devices, and meters to detect leaks or malfunctions, and to ensure that equipment is operating efficiently and safely.
- Monitor boiler water, chemical, and fuel levels, and make adjustments to maintain required levels.
- Observe and interpret readings on gauges, meters, and charts registering various aspects of boiler operation, in order to ensure that boilers are operating properly.
- Operate mechanical hoppers, and provide

and moving materials, and manipulating things.

- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Performing General Physical Activities - Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials.

Specific Tasks

Occupation Specific Tasks:

- Apply glue or tape to holes in screens in order to repair leaks.
- Attach cloth to take-up rollers, placing it in feeding position and threading it through equipment as necessary.
- Blend and test paint, inks, stains, and solvents according to types of material being printed and work order specifications.
- Clean and lubricate printing machines and components, using oil, solvents, brushes, rags, and hoses.
- Coordinate printing activities with activities of workers who set up, clean, and feed machines.
- Correct misprinted materials, using materials such as ink eradicators or solvents.
- Direct and monitor activities of workers feeding, inspecting, and tending printing machines and materials.
- Examine job orders to determine details such as quantities to be printed, production times, stock specifications, colors, and color sequences.
- Input instructions in order to program automated machinery, using a computer keyboard.
- Inspect and examine printed products for print clarity, color accuracy, conformance to specifications, and external defects.
- Load, position, and adjust unprinted materials on holding fixtures or in equipment loading and feeding mechanisms.
- Maintain records of goods produced, supplies used, production costs, and machine maintenance and repair activities.
- Measure screens, and use measurements to center and align screens in proper positions and sequences on machines, using gauges and hand tools.
- Monitor and control operation of auxiliary equipment used to assemble and finish products.
- Monitor feeding, printing, and racking processes of presses in order to maintain specified operating levels and to detect malfunctions; make any necessary adjustments.
- Monitor stocks of materials such as paper,

assistance in their adjustment and repair.

- Operate or tend stationary engines, boilers, and auxiliary equipment such as pumps, compressors and air-conditioning equipment, in order to supply and maintain steam or heat for buildings, marine vessels, or pneumatic tools.
- Perform or arrange for repairs, such as complete overhauls, replacement of defective valves, gaskets, or bearings, and/or fabrication of new parts.
- Provide assistance to plumbers in repairing or replacing water, sewer, or waste lines, and in daily maintenance activities.
- Receive instructions from steam engineers regarding steam plant and air compressor operations.
- Supervise the work of assistant stationary engineers, turbine operators, boiler tenders, and/or air-conditioning and refrigeration operators and mechanics.
- Switch from automatic controls to manual controls, and isolate equipment mechanically and electrically, in order to allow for safe inspection and repair work.
- Test boiler water quality or arrange for testing; and take any necessary corrective action, such as adding chemicals to prevent corrosion and harmful deposits.
- Test electrical systems to determine voltages, using voltage meters.
- Weigh, measure, and record fuel used.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- clean equipment or machinery
- control HVAC equipment
- control operation of compressors
- inspect machinery or equipment to determine adjustments or repairs needed
- install equipment or attachments on machinery or related structures
- install generating plant equipment
- install/connect electrical equipment to power circuit
- load or unload material or workpiece into machinery
- maintain consistent production quality
- maintain or repair industrial or related equipment/machinery
- maintain production or work records
- monitor production machinery/equipment operation to detect problems
- operate power driven pumps
- operate power generation equipment
- overhaul power-generating equipment or machinery
- perform safety inspections in manufacturing

ink, and metal in order to maintain supplies during equipment operation.

- Operate equipment at slow speed to ensure proper ink coverage, alignment, and registration.
- Pack and label cartons, boxes, or bins of finished products.
- Place printed items in ovens to dry or set ink.
- Place spools of thread or wire on holders, and thread through machines.
- Position knives at specified distances from edges of plastic material in order to trim excess material from edges.
- Pour ink into pans, and smooth paint onto stencils, using flat-bladed knives.
- Pour or spread paint, ink, color compounds, and other materials into reservoirs, troughs, hoppers, or color holders of printing units, making measurements and adjustments to control color and viscosity.
- Prepare and treat lithographic plates with various chemicals to clean and preserve plates and fix images.
- Provide assistance in the design and layout of forms and materials to be printed.
- Push buttons, turn handles or move controls and levers to start and control printing machines.
- Remove printed materials from presses, using handtrucks, electric lifts, or hoists, and transport them to drying, storage or finishing areas.
- Repair, maintain, or adjust equipment.
- Reposition printing plates, adjust pressure rolls, or otherwise adjust machines to improve print quality, using knobs, handwheels, or hand tools.
- Requisition supplies, materials, and equipment, and receive stock when it arrives.
- Select and install printing plates, rollers, feed guides, gauges, screens, stencils, type, dies, and cylinders in machines according to specifications, using hand tools.
- Set and adjust speed, temperature, ink flow, and positions and pressure tolerances of equipment.
- Squeeze or spread ink on plates, pads, or rollers, using putty knives, brushes, or sponges.
- Thin printing compounds, using specified thinners.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- assure quality control in printing processes
- attach or mark identification onto products or containers
- clean equipment or machinery

or industrial setting
- tend boilers or related equipment
- test manufactured products or materials
- use acetylene welding/cutting torch
- use electrical or electronic test devices or equipment
- use hand or power tools
- use pneumatic tools
- weld together metal parts, components, or structures

Technology - Examples

Analytical or scientific software
- Statistical software

Data base user interface and query software
- Data entry software
- Database software

Electronic mail software
- Email software

Facilities management software
- Building management system software
- Computerized maintenance management system CMMS software

Graphics or photo imaging software
- Graphics software

Internet browser software
- Web browser software

Spreadsheet software
- Microsoft Excel
- Spreadsheet software

Word processing software
- Microsoft Word
- Word processing software

Tools - Examples

- Adjustable wrenches
- Pneumatic pumps
- Dial calipers
- Equipment cleaning scrapers
- Colorimeters
- Conductivity meters
- Electric drain augers

clean equipment or machinery
- collect payment
- demonstrate or explain assembly or use of equipment
- determine film exposure settings
- determine specifications
- develop film or other photographic medium
- direct and coordinate activities of workers or staff
- distinguish colors
- examine products or work to verify conformance to specifications
- fabricate printing plates
- identify color or balance
- install equipment or attachments on machinery or related structures
- load or unload material or workpiece into machinery
- load, unload, or stack containers, materials, or products
- maintain consistent production quality
- maintain or repair industrial or related equipment/machinery
- maintain production or work records
- measure, weigh, or count products or materials
- mix paint, ingredients, or chemicals, according to specifications
- mix printing solutions
- monitor production machinery/equipment operation to detect problems
- move or fit heavy objects
- operate bindery equipment
- operate cameras
- operate fabric printing equipment
- operate graphic reproduction equipment
- operate hoist, winch, or hydraulic boom
- operate printing equipment/machinery
- operate scanner
- perform safety inspections in manufacturing or industrial setting
- process photographic prints
- read production layouts
- read specifications
- read work order, instructions, formulas, or processing charts
- receive customer orders
- restore photographs
- retouch negatives or prints
- set page layout or composition
- set up production equipment or machinery
- strip negatives
- understand technical operating, service or repair manuals
- use color analyzer
- use densitometer

- Dropping pipettes
- Protective ear plugs
- Pressure transmitters
- Industrial platform scales
- Forklifts
- Gas brazing equipment
- Dial indicators
- Grapple cranes
- Grease guns
- Rotary hammers
- Claw hammers
- Hydraulic press frames
- Boom trucks
- Hydrometers
- Graduated glass cylinders
- Ladders
- Bench lathes
- Precision levels
- Locking pliers
- Filter masks
- Programmable logic controllers PLC
- Micrometers
- Combustion analyzers
- Digital multimeters
- Ohmmeters
- Oil guns
- Opacity meters
- Personal computers
- pH indicators
- Pipe cutters
- Pipe wrenches
- Descalers

- use densitometer
- use desktop publishing software
- use hand or power tools
- use precision measuring tools or equipment

Technology - Examples

Calendar and scheduling software

- Job scheduling software

Data base user interface and query software

- Printing management system software

Electronic mail software

- Microsoft Outlook

Inventory management software

- Inventory tracking software

Spreadsheet software

- Microsoft Excel

Word processing software

- Microsoft Word

Tools - Examples

- Adjustable wrenches
- Materials conveyors
- Conductivity indicators
- Densitometers
- Desktop computers
- Flexo presses
- Grease guns
- Claw hammers
- Hand trucks
- Packing gauges
- Hoists
- Pallet jacks
- Letter presses
- Electric lifts
- Vise grip pliers
- Hand-held magnifiers
- Micrometers
- Offset printing equipment

- Power drills
- Power meters
- Power saws
- Bourdon tubes
- Steam cleaning equipment
- Water column gauges
- Safety gloves
- Sling psychrometers
- Ratchets
- Electronic remote reading thermometers
- Self-contained breathing apparatus
- Safety glasses
- Scaffolding
- Phillips head screwdrivers
- Socket sets
- Layout squares
- Infrared guns
- Tapping machines
- Dies
- Electronic temperature sensors
- Thermocouples
- Hand pipe threaders
- Turbidity testers
- Two way radios
- Amp meters
- Electric welding equipment
- Drill presses

- Paper drills
- Paper joggers
- Perforators
- Personal computers
- pH indicators
- Digital copiers
- Gravure presses
- Platemaking equipment
- Folding equipment
- Collating equipment
- Cutting equipment
- Multicolor presses
- Putty knives
- Ratchets
- Phillips head screwdrivers
- Screen printing presses
- Stackers
- Stapling machines
- Measuring tapes
- Strappers

Labor Market Comparison

Maine Department of Labor.

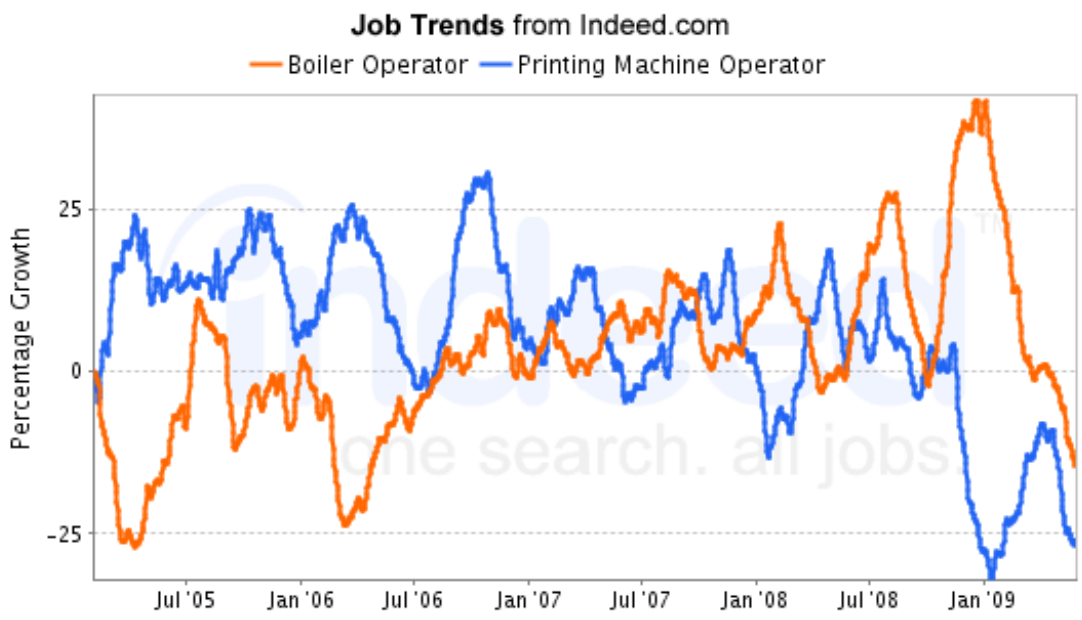
Description	Stationary Engineers and Boiler Operators	Printing Machine Operators	Difference
Median Wage	$ 38,830	$ 29,710	$(9,120)
10th Percentile Wage	$ 27,760	$ 21,270	$(6,490)

25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	$ 50,520	$ 36,080	$(14,440)
90th Percentile Wage	$ 58,660	$ 44,010	$(14,650)
Mean Wage	$ 41,220	$ 30,870	$(10,350)
Total Employment - 2596	490	790	300
Employment Base - 2006	513	820	307
Projected Employment - 2605	416	798	382
Projected Job Growth - 2006-2605	-18.9 %	-2.7 %	16.2 %
Projected Annual Openings - 2006-2605	9	18	9
Special			

Special Occupations:

National Job Posting Trends

Trend for Stationary Engineers and Boiler Operators and Printing Machine Operators



Data from Indeed

Programs

Related Programs

Graphic and Printing Equipment Operator, General Production

Graphic and Printing Equipment Operator, General Production. A program that generally prepares individuals to apply technical knowledge and skills to plan, prepare, and execute a variety of commercial and industrial graphic communications jobs. Includes instruction in the operation and maintenance of mechanical, electronic, and digital graphic, printing, and finishing equipment; and related processes.

Institution	Address	City	URL
Central Maine Community College	1250 Turner St	Auburn	www.cmcc.edu
Central Maine Community College	1250 Turner St	Auburn	www.cmcc.edu

Graphic Communications, Other

Graphic Communications, Other. Any instructional program in graphic communications not listed above.

No information on schools for the program

Printing Management

Printing Management. A program that prepares individuals to apply technical and managerial knowledge and skills to the processes and procedures of managing printing operations from initial design through finished product distribution. Includes instruction in the principles of graphic communications design and production; quality control; printing operations management; computerization; printing plant management; business finance and marketing; logistics and distribution; personnel supervision and leadership; and professional standards in the graphic communications industry.

No information on schools for the program

Printing Press Operator

Printing Press Operator. A program that prepares individuals to apply technical knowledge and skills to set up, operate, and maintain printing presses.

No information on schools for the program

Maine Statewide Promotion Opportunities for Stationary Engineers and Boiler Operators

O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings	Special
51-8021.00	Stationary Engineers and Boiler Operators	100	3	490	$38,830.00	$0.00	-19%	9	
49-3011.00	Aircraft Mechanics and Service Technicians	83	3	210	$44,280.00	$5,450.00	-2%	2	
49-9041.00	Industrial Machinery Mechanics	81	3	990	$39,370.00	$540.00	7%	25	☆
49-9044.00	Millwrights	79	3	830	$41,280.00	$2,450.00	-12%	11	
47-2011.00	Boilermakers	78	4	60	$39,260.00	$430.00	12%	3	
51-4041.00	Machinists	78	3	1,860	$41,560.00	$2,730.00	4%	35	☆
17-3023.01	Electronics Engineering Technicians	77	3	430	$45,180.00	$6,350.00	-20%	9	

49-2094.00	Electrical and Electronics Repairers, Commercial and Industrial Equipment	77	3	440	$49,450.00	$10,620.00	-19%	15	
49-9012.00	Control and Valve Installers and Repairers, Except Mechanical Door	77	3	170	$47,860.00	$9,030.00	-9%	3	
49-2095.00	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	76	5	20	$60,790.00	$21,960.00	5%	1	
53-6051.07	Transportation Vehicle, Equipment and Systems Inspectors, Except Aviation	76	3	60	$42,890.00	$4,060.00	5%	2	
51-4192.00	Lay-Out Workers, Metal and Plastic	75	2	180	$43,870.00	$5,040.00	-24%	3	
51-4111.00	Tool and Die Makers	74	3	160	$51,670.00	$12,840.00	-11%	2	
53-7021.00	Crane and Tower Operators	73	3	240	$41,940.00	$3,110.00	-2%	4	
49-9062.00	Medical Equipment Repairers	73	3	80	$46,700.00	$7,870.00	30%	6	

Special Occupations:

Top Industries for Printing Machine Operators

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Printing and related support activities	323100	50.92%	100,610	90,254	-10.29%
Newspaper publishers	511110	7.59%	14,990	12,841	-14.33%
Converted paper product manufacturing	322200	6.58%	12,998	10,908	-16.08%
Advertising and related services	541800	3.23%	6,387	7,207	12.83%
Plastics product manufacturing	326100	2.76%	5,460	5,788	6.00%
Specialized design services	541400	1.92%	3,793	5,076	33.81%
Textile and fabric finishing and fabric coating mills	313300	1.66%	3,277	2,021	-38.33%

Self-employed workers, primary job	000601	1.45%	2,864	3,052	6.54%
Employment services	561300	1.41%	2,783	3,522	26.56%
Colleges, universities, and professional schools, public and private	611300	0.89%	1,761	1,970	11.87%
Animal slaughtering and processing	311600	0.86%	1,706	1,947	14.13%
Paper and paper product merchant wholesalers	424100	0.80%	1,585	1,693	6.83%
Self-employed workers, secondary job	000602	0.74%	1,465	1,459	-0.45%
Cut and sew apparel manufacturing	315200	0.64%	1,266	534	-57.77%
Clothing stores	448100	0.61%	1,203	1,263	4.97%

Top Industries for Stationary Engineers and Boiler Operators

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
General medical and surgical hospitals, public and private	622100	13.26%	6,017	6,662	10.71%
Colleges, universities, and professional schools, public and private	611300	12.27%	5,570	6,231	11.87%
Local government, excluding education and hospitals	939300	11.34%	5,147	5,782	12.34%
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Other fabricated metal product manufacturing	332900	1.04%	472	419	-11.40%

Industry & Occupational Data Sources

TORQ Results: The TORQ Scores is based upon an proprietary algorithm applied against Knowledge, Skills and Ability levels and importance derived from O*NET 12.

ASK Analysis, Experience & Education Levels and Tasks: O*Net 12

Labor Market Comparisons Occupational Projections data from Maine Department of Labor

National Posting Trends Indeed.com

Labor Pool & Promotions Opportunities: Occupational Projections data from Maine Department of Labor

Top Industries: Occupational Employment Statistics program (U.S. Bureau of Labor Statistics)

