

TRADE PROFILE

Steamfitter/Pipefitter

2015



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Social Development Canada

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STEAMFITTER/PIPEFITTER **RED SEAL** **TRADE PROFILE**



STRUCTURE OF THE RED SEAL TRADE PROFILE

This profile has two sections that provide a snapshot of the trade's description, and all trade activities as they are organized in the Red Seal Occupational Standard:

Description of the Steamfitter/Pipefitter trade: An overview of the trade's duties, work environment, job requirements, similar occupations and career progression

Task Matrix: a chart which outlines graphically the Major Work Activities, Tasks and Sub-tasks of this trade

Major Work Activity (MWA): the largest division within the standard that is comprised of a distinct set of trade activities

Task: distinct actions that describe the activities within a major work activity

Sub-task: distinct actions that describe the activities within a task

A complete version of the occupational standard, which provides additional detail for the trade activities, skills and knowledge can be found at www.red-seal.ca

DESCRIPTION OF THE STEAMFITTER/PIPEFITTER TRADE

“Steamfitter/Pipefitter” is this trade’s official Red Seal occupational title approved by the CCDA. This standard covers tasks performed by a Steamfitter/Pipefitter whose occupational title has been identified by some provinces and territories of Canada under the following names:

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
Pipefitter - Heating System Installer Specialty (Construction)					■								
Steamfitter						■							
Steamfitter – Pipefitter							■		■				
Steamfitter/Pipefitter	■	■	■	■				■		■	■	■	■

Steamfitters/Pipefitters lay out, assemble, fabricate, maintain, repair and service equipment and piping systems carrying water, steam, fluids, gases, chemicals and fuel in various systems such as heating, cooling, lubricating and process piping systems. They read and interpret drawings, specifications and codes to determine layout, type and size of pipe, and tools to use. They measure, cut, thread, groove, bend, solder, braze, assemble and install metal, plastic and fiberglass pipes, valves and fittings. As well, they must be able to join and secure pipe sections of related equipment. They check systems for leaks. Steamfitters/Pipefitters also do general maintenance work including replacement of worn components.

Steamfitters/Pipefitters must carry out quality control checks on work performed. The system must be tested and commissioned to verify the quality of work and to confirm that the system is functioning to design specifications. They use welding, cutting, shaping, soldering, threading and brazing equipment to join pipes and fabricate sections of piping systems.

Areas of specialization in this trade include maintenance, quality control, rigging, fabrication and installation of various types of systems and specialty piping.

Safety practices are of utmost importance in this trade. Steamfitters/Pipefitters work both indoors and outdoors at physically demanding tasks that often require working at heights. There is some risk of injury when working in and around trenches, on work platforms, and with power tools and heavy equipment. The piping systems may carry dangerous substances. Safety practices and training are emphasized in order to minimize risks.

Steamfitters/Pipefitters must have mechanical aptitude, manual dexterity, mathematical skills, an ability to read and understand complex instructions and an ability to do careful and exacting work. They sometimes work in uncomfortable or cramped positions. The work can also be physically demanding. In aspects of layout, work organization, project planning and supervisory tasks, steamfitters/pipefitters may also make use of many digital tools and applications.

With experience, steamfitters/pipefitters may advance to positions such as foreman, contractor, owner, superintendent and instructor.

STEAMFITTER/PIPEFITTER

TASK MATRIX

A – PERFORMS COMMON OCCUPATIONAL SKILLS

12%

Task A-1 Performs safety-related functions 31%	A-1.01 Maintains safe work environment	A-1.02 Selects, inspects and uses personal protective equipment (PPE) and safety equipment	A-1.03 Follows lock-out procedures
Task A-2 Uses and maintains tools and equipment 32%	A-2.01 Uses common tools and equipment	A-2.02 Uses access equipment	A-2.03 Uses welding equipment
	A-2.04 Uses soldering and brazing equipment	A-2.05 Uses oxy-fuel equipment	
Task A-3 Organizes job 37%	A-3.01 Plans work	A-3.02 Generates drawings	A-3.03 Interprets drawings and specifications
	A-3.04 Develops piping templates	A-3.05 Performs preliminary quality control functions	

B – PERFORMS LAYOUT, FABRICATION AND PIPING INSTALLATION

23%

<p>Task B-4 Performs fabrication 32%</p>	<p>B-4.01 Fabricates piping system components</p>	<p>B-4.02 Fabricates brackets, supports, hangers, guides and anchors</p>	
<p>Task B-5 Lays out, identifies and installs piping, tubing, fittings and related components 39%</p>	<p>B-5.01. Lays out, identifies and installs copper piping, tubing, fittings and related components</p>	<p>B-5.02 Lays out, identifies and installs plastic piping, tubing, fittings and related components</p>	<p>B-5.03 Lays out, identifies and installs carbon steel piping, tubing, fittings and related components</p>
<p>Task B-6 Installs, maintains, troubleshoots, repairs and tests valves 19%</p>	<p>B-5.04. Lays out, identifies and installs stainless steel piping, tubing, fittings and related components</p>	<p>B-5.05. Lays out, identifies and installs fibreglass piping, fittings and related components</p>	<p>B-5.06. Lays out, identifies and installs specialty piping, fittings and related components</p>
<p>Task B-7 Installs, tests, maintains, troubleshoots and repairs heat tracing systems 10%</p>	<p>B-6.01 Installs valves</p>	<p>B-6.02 Maintains, troubleshoots, repairs and tests valves</p>	
	<p>B-7.01. Installs steam tracing systems</p>	<p>B-7.02. Maintains, troubleshoots, repairs and tests steam tracing systems</p>	<p>B-7.03. Installs liquid-filled tracing systems</p>
	<p>B-7.04. Maintains, troubleshoots, repairs and tests liquid-filled tracing systems</p>		

C – PERFORMS RIGGING, HOISTING, LIFTING AND POSITIONING

13%

Task C-8
Performs common rigging, hoisting, lifting and positioning
62%

C-8.01 Determines load	C-8.02. Prepares lift plan(s)	C-8.03 Selects rigging, hoisting, lifting and positioning equipment
C-8.04 Inspects rigging, hoisting, lifting and positioning equipment	C-8.05 Secures lift area	C-8.06 Sets up rigging, hoisting, lifting and positioning equipment
C-8.07 Performs lift and positioning	C-8.08 Maintains and stores rigging, hoisting, lifting and positioning equipment	

Task C-9
Performs complex and critical rigging, hoisting, lifting and positioning
38%

C-9.01 Prepares lift plan for complex and critical rigging, hoisting, lifting and positioning	C-9.02 Performs calculations for complex and critical rigging, hoisting, lifting and positioning	C-9.03 Selects rigging, hoisting, lifting and positioning equipment for complex and critical lifts
C-9.04 Sets up rigging, hoisting, lifting and positioning equipment for complex and critical lifts	C-9.05 Performs complex and critical lifts and positioning	

D – INSTALLS, TESTS, MAINTAINS, TROUBLESHOOTS AND REPAIRS LOW AND HIGH PRESSURE STEAM AND CONDENSATE SYSTEMS

18%

Task D-10 Installs, tests, maintains, troubleshoots and repairs low pressure steam and condensate systems 46%	D-10.01 Installs equipment for low pressure steam and condensate systems	D-10.02 Installs piping for low pressure steam and condensate systems	D-10.03 Tests low pressure steam and condensate systems
	D-10.04 Maintains, troubleshoots and repairs low pressure steam and condensate systems		
Task D-11 Installs, tests, maintains, troubleshoots and repairs high pressure steam and condensate systems 54%	D-11.01 Installs equipment for high pressure steam and condensate systems	D-11.02 Installs piping for high pressure steam and condensate systems	D-11.03 Tests high pressure steam and condensate systems
	D-11.04 Maintains, troubleshoots and repairs high pressure steam and condensate systems		

E – INSTALLS, TESTS, MAINTAINS, TROUBLESHOOTS AND REPAIRS HEATING, COOLING AND PROCESS PIPING SYSTEMS

20%

Task E-12 Installs, tests, maintains, troubleshoots and repairs hydronic systems 23%	E-12.01 Installs equipment for hydronic systems	E-12.02 Installs piping for hydronic systems	E-12.03 Tests hydronic systems
	E-12.04 Maintains, troubleshoots and repairs hydronic systems		
Task E-13 Installs, tests, maintains, troubleshoots and repairs process piping systems 23%	E-13.01 Installs equipment for process piping systems	E-13.02 Installs piping for process piping systems	E-13.03 Tests process piping systems
	E-13.04 Maintains, troubleshoots and repairs process piping systems		

Task E-14
 Installs, tests, maintains, troubleshoots and repairs industrial water and waste treatment systems
9%

E-14.01 Installs equipment for industrial water and waste treatment systems

E-14.02 Installs piping for industrial water and waste treatment systems

E-14.03 Tests industrial water and waste treatment systems

E-14.04 Maintains, troubleshoots and repairs industrial water and waste treatment systems

Task E-15
 Installs, tests, maintains, troubleshoots and repairs hydraulic systems
8%

E-15.01 Installs equipment for hydraulic systems

E-15.02 Installs piping, tubing and hoses for hydraulic systems

E-15.03 Tests hydraulic systems

E-15.04 Maintains, troubleshoots and repairs hydraulic systems

Task E-16
 Installs, tests, maintains, troubleshoots and repairs heating, ventilation, air conditioning and refrigeration (HVACR) systems
10%

E-16.01 Installs equipment for HVACR systems

E-16.02 Installs hydronic piping and refrigeration tubing for HVACR systems

E-16.03 Tests associated components of HVACR systems

E-16.04 Maintains, troubleshoots and repairs associated components of HVACR systems

Task E-17
 Installs, tests, maintains, troubleshoots and repairs fuel systems
9%

E-17.01 Installs equipment for fuel systems

E-17.02 Installs piping and tubing for fuel systems

E-17.03 Tests fuel systems

E-17.04 Maintains, troubleshoots and repairs fuel systems

Task E-18
 Installs, tests, maintains, troubleshoots and repairs medical gas systems
8%

E-18.01 Installs equipment for medical gas systems

E-18.02 Installs piping and tubing for medical gas systems

E-18.03 Tests medical gas systems

E-18.04 Maintains, troubleshoots and repairs medical gas systems

Task E-19
 Installs, tests, maintains, troubleshoots and repairs compressed air and pneumatic systems
10%

E-19.01 Installs equipment for compressed air and pneumatic systems

E-19.02 Installs piping and tubing for compressed air and pneumatic systems

E-19.03 Tests compressed air and pneumatic systems

E-19.04 Maintains, troubleshoots and repairs compressed air and pneumatic systems

Task E-20
 Installs and tests fire protection systems
(NOT COMMON CORE)

E-20.01 Installs equipment for fire protection systems
(NOT COMMON CORE)

E-20.02 Installs piping for fire protection systems
(NOT COMMON CORE)

E-20.03 Tests fire protection systems
(NOT COMMON CORE)

F – INSTALLS, TESTS, MAINTAINS, TROUBLESHOOTS AND REPAIRS RENEWABLE ENERGY SYSTEMS

6%

Task F-21 Installs, tests, maintains, troubleshoots and repairs geo-exchange and geothermal systems 28%	F-21.01 Installs equipment for geo-exchange and geothermal systems	F-21.02 Installs piping for geo-exchange and geothermal systems	F-21.03 Tests geo-exchange and geothermal systems
	F-21.04 Maintains, troubleshoots and repairs geo-exchange and geothermal systems		
Task F-22 Installs, tests, maintains, troubleshoots and repairs solar heating systems 16%	F-22.01 Installs equipment for solar heating systems	F-22.02 Installs piping for solar heating systems	F-22.03 Tests solar heating systems
	F-22.04 Maintains, troubleshoots and repairs solar heating systems		
Task F-23 Installs, tests, maintains, troubleshoots and repairs heat recovery systems 56%	F-23.01 Installs equipment for heat recovery systems	F-23.02 Installs piping for heat recovery systems	F-23.03 Tests heat recovery systems
	F-23.04 Maintains, troubleshoots and repairs heat recovery systems		

G – PERFORMS COMMISSIONING, START-UP AND TURNOVER

8%

Task G-24
Prepares system for commissioning, start-up and turnover
59%

G-24.01 Flushes system	G-24.02 Chemically treats system	G-24.03 Pre-checks system for commissioning
G-24.04 Selects and connects commissioning equipment		

Task G-25
Commissions systems
41%

G-25.01 Secures commissioning area.	G-25.02 Pressurizes system	G-25.03 Inspects system
G-25.04 Corrects faulty conditions	G-25.05 Participates in start-up and turnover procedures	