

TRADE PROFILE

Plumber

2016



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RED SEAL TRADE PROFILE PLUMBER



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 Plumber 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 PLUMBER TRADE

"Plumber" is this trade's official Red Seal occupational title approved by the CCDA. This standard covers tasks performed by plumbers 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 – Plumber Specialty | | | | | ■ | | | | | | | | |
| Plumber | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

Plumbers install, repair and maintain plumbing fixtures and systems such as water, hydronic, drain, waste and vent (DWV), low pressure steam, residential fire, chemical and irrigation. They also install specialized systems such as medical gas, process piping, compressed air, water conditioners, fuel piping, sewage and water treatment, and storage and flow equipment. Plumbers interpret drawings, refer to layouts of existing services, and review applicable codes and specifications to determine work details and procedures. They locate and mark positions for fixtures, pipe connections and sleeves, and cut openings to accommodate pipe and fittings.

Plumbers may be employed by plumbing/mechanical contractors, service companies, and maintenance departments of manufacturing, commercial, health care and educational facilities. They may also be self-employed. Plumbers install piping and equipment in residential, commercial, institutional and industrial buildings and sites.

Plumbers use a variety of tools and equipment such as hand and power tools, welding and soldering/brazing equipment, and hoisting and lifting equipment to perform the tasks in their trade. To perform some tasks or use some equipment, specific certification may be required. Plumbers work with a variety of piping materials such as copper, steel, plastic, glass, cast iron, cement, fibreglass and specialty materials. Before assembling and fitting pipe sections, tubing and fittings, the pipes must be measured, cut and bent as required. Joining pipe may be done by various means, such as threading, using mechanical joints, welding, soldering/brazing and using fastening materials and compounds. Plumbers test and commission systems to ensure proper operation. They perform scheduled, unscheduled and emergency maintenance and repair.

Safety awareness is essential for plumbers. They may work indoors or outdoors and working conditions vary from one job to another. The work of plumbers can be physically demanding. Plumbers often need to lift and carry heavy materials and equipment. While performing their duties, plumbers are also required to do considerable standing, climbing and kneeling. They may work at heights and in confined spaces. Special precautions may have to be taken when working with fluids, gases, steam and hazardous elements. Plumbers need to assess the systems and the environment to identify possible dangers.

Key attributes for people entering this trade are good mechanical, mathematical and spatial visualization skills. Plumbers also need good communication skills to communicate with co-workers and clients. Analytical/problem solving skills are required to interpret building plans, inspect piping systems and diagnose system faults and/or malfunctions.

This standard recognizes some similarities or overlaps with the work of gasfitters, steamfitters/pipefitters, refrigeration and air conditioning mechanics and sprinkler system installers.

With experience, plumbers act as mentors and trainers to apprentices in the trade. They may also move into other positions such as instructors, inspectors, estimators and project managers.

PLUMBER TASK MATRIX

A – PERFORMS COMMON OCCUPATIONAL SKILLS

12%

| | | | | | |
|---|--|---|---|--|------------------------------------|
| A-1 Performs safety-related functions 20% | 1.01 Maintains safe work environment | 1.02 Uses personal protective equipment (PPE) and safety equipment | 1.03 Performs lock-out and tag-out procedures | | |
| A-2 Uses and maintains tools and equipment 27% | 2.01 Uses common tools and equipment | 2.02 Uses access equipment | 2.03 Uses rigging, hoisting, lifting and positioning equipment | 2.04 Rigs loads for cranes | 2.05 Uses welding equipment |
| | 2.06 Uses soldering and brazing equipment | 2.07 Uses oxy-fuel equipment | | | |
| A-3 Organizes work 18% | 3.01 Organizes project tasks and procedures | 3.02 Organizes materials and supplies | | | |
| A-4 Performs routine trade activities 26% | 4.01 Performs piping system layout | 4.02 Calculates pipe, tube and tubing lengths | 4.03 Calculates piping offsets | 4.04 Installs piping supports | 4.05 Installs sleeves |
| | 4.06 Commissions systems | 4.07 Protects piping systems, equipment and structure from damage | 4.08 Coordinates excavation and backfilling of trenches | 4.09 Installs fire stopping devices and materials | |
| A-5 Uses communication and mentoring techniques 9% | 5.01 Uses communication techniques | 5.02 Uses mentoring techniques | | | |

B – PREPARES AND ASSEMBLES PIPE

13%

B-6 Prepares pipe

41%

6.01 Inspects tube, tubing, pipe and fittings before installation

6.02 Cuts tube, tubing and pipe

6.03 Bends tube, tubing and pipe

6.04 Prepares tube, tubing and pipe connections

B-7 Joins tube, tubing and pipe

59%

7.01 Joins copper tube, tubing and pipe

7.02 Joins plastic pipe and tubing

7.03 Joins steel pipe

7.04 Joins cast iron pipe

7.05 Joins specialized pipe

C – INSTALLS, TESTS AND SERVICES SEWERS, SEWAGE TREATMENT SYSTEMS AND DRAINAGE, WASTE AND VENT (DWV) SYSTEMS

24%

C-8 Installs, tests and services sewers

19%

8.01 Sizes pipe for sewers

8.02 Installs manholes and catch basins

8.03 Installs piping for sewers

8.04 Tests manholes, catch basins and piping for sewers

8.05 Services manholes, catch basins and piping for sewers

C-9 Installs, tests and services sewage treatment systems

14%

9.01 Plans installation of sewage treatment systems

9.02 Installs sewage treatment system components

9.03 Tests sewage treatment systems and components

9.04 Services sewage treatment systems and components

C-10 Installs, tests and services interior drainage, waste and vent (DWV) systems

67%

10.01 Sizes pipe for interior drainage, waste and vent (DWV) systems

10.02 Installs underground piping and components for interior drainage, waste and vent (DWV) systems

10.03 Installs piping and components for interior drainage, waste and vent (DWV) systems above-ground

10.04 Tests interior drainage, waste and vent (DWV) systems

10.05 Services piping and components for interior drainage, waste and vent (DWV) systems

D – INSTALLS, TESTS AND SERVICES WATER SERVICE AND DISTRIBUTION

17%

| | | | | | |
|--|--|---|---|---|---|
| D-11 Installs, tests and services water services 24% | 11.01 Sizes pipe for water services | 11.02 Installs piping for water services | 11.03 Installs water service equipment | 11.04 Tests water service piping and components | 11.05 Services water services |
| D-12 Installs, tests and services potable water distribution systems. 52% | 12.01 Sizes piping and equipment for potable water distribution systems | 12.02 Installs piping for potable water distribution systems | 12.03 Installs potable water distribution equipment | 12.04 Installs and uses cross-connection control devices and methods | 12.05 Tests potable water distribution systems |
| | 12.06 Services potable water distribution systems | | | | |
| D-13 Installs, tests and services pressure systems 24% | 13.01 Sizes pressure systems | 13.02 Installs piping for pressure systems | 13.03 Installs equipment and components for pressure systems | 13.04 Tests pressure systems | 13.05 Services pressure systems |

E – INSTALLS, TESTS AND SERVICES FIXTURES, APPLIANCES AND WATER TREATMENT SYSTEMS

14%

| | | | | |
|---|--|--|---|--|
| E-14 Installs, tests and services plumbing fixtures and appliances 72% | 14.01 Installs fixture supports | 14.02 Installs plumbing fixtures and appliances | 14.03 Tests plumbing fixtures and appliances | 14.04 Services plumbing fixtures and appliances |
| E-15 Installs, tests and services water treatment equipment 28% | 15.01 Sizes water treatment equipment | 15.02 Installs water treatment equipment | 15.03 Tests water treatment equipment | 15.04 Services water treatment equipment |

F – INSTALLS, TESTS AND SERVICES LOW PRESSURE STEAM AND HYDRONIC HEATING AND COOLING SYSTEMS

14%

| | | | | |
|---|--|---|--|---|
| <p>F-16 Installs, tests and services low pressure steam systems 12%</p> | <p>16.01 Sizes piping and components for low pressure steam systems</p> | <p>16.02 Installs piping and components for low pressure steam systems</p> | <p>16.03 Tests piping and components for low pressure steam systems</p> | <p>16.04 Services piping and components for low pressure steam systems</p> |
| <p>F-17 Installs, tests and services hydronic heating and cooling piping systems 33%</p> | <p>17.01 Sizes piping and components for hydronic systems</p> | <p>17.02 Installs piping and components for hydronic systems</p> | <p>17.03 Tests piping and components for hydronic systems</p> | <p>17.04 Services piping and components for hydronic systems</p> |
| <p>F-18 Installs, tests and services hydronic heating and cooling generating systems 28%</p> | <p>18.01 Installs hydronic heating generating systems</p> | <p>18.02 Installs hydronic cooling generating systems</p> | <p>18.03 Tests hydronic heating and cooling generating systems</p> | <p>18.04 Services hydronic heating and cooling generating systems</p> |
| <p>F-19 Installs, tests and services hydronic system controls and transfer units 27%</p> | <p>19.01 Installs hydronic system controls</p> | <p>19.02 Installs hydronic transfer units</p> | <p>19.03 Tests hydronic system controls and transfer units</p> | <p>19.04 Services hydronic system controls and transfer units</p> |

G – INSTALLS, TESTS AND SERVICES FIRE PROTECTION SYSTEMS

NCC

| | | | |
|--|---|--|---|
| <p>G-20 Installs, tests and services flow-through fire protection systems (Not Common Core)</p> | <p>20.01 Installs flow-through fire protection systems (Not Common Core)</p> | <p>20.02 Tests flow-through fire protection systems (Not Common Core)</p> | <p>20.03 Services flow-through fire protection systems (Not Common Core)</p> |
| <p>G-21 Installs, tests and services standpipe systems (Not Common Core)</p> | <p>21.01 Installs piping and equipment for standpipe systems (Not Common Core)</p> | <p>21.02 Tests standpipe systems (Not Common Core)</p> | <p>21.03 Services standpipe systems (Not Common Core)</p> |

H – INSTALLS, TESTS AND SERVICES SPECIALIZED PLUMBING SYSTEMS

6%

| | | | | |
|--|---|---|---|--|
| H-22 Installs, tests and services specialized systems 60% | 22.01 Installs piping for specialized systems | 22.02 Installs equipment and components for specialized systems | 22.03 Tests specialized systems | 22.04 Services specialized systems |
| H-23 Installs, tests and services process piping systems 40% | 23.01 Installs piping for process piping systems | 23.02 Installs equipment and components for process piping systems | 23.03 Tests process piping systems | 23.04 Services process piping systems |