

SKILLED**TRADES**<sup>BC</sup>

# Personal Record Book

*Gasfitter – Class B*

**This is your Record Book!**

## **DO NOT SUBMIT TO SkilledTradesBC**

**This is not required to achieve certification**

- **It is a record of your progress towards achieving certification in the trade**
- **It provides a record of your experience**
- **It is your responsibility to keep it up-to-date**
- **Take it with you if you change employers**

***Note: Employers and supervisors are not responsible for keeping your Record Book up-to-date. They are responsible for sign-off of hours and sign-off of competencies once you have achieved the required level of skills and knowledge.***

# APPRENTICE IDENTIFICATION

**Trade: Gasfitter – Class B**

Legal First Name:		Legal Last Name:	
Suite Number:	Street Number and Name:		
City:		Province:	Postal Code:
Telephone Number:		Email Address:	

## Work Safely!

A safe work attitude contributes to an accident free environment. Accident prevention and safe working conditions are the responsibility of both employers and employees.

Wear the required personal protective equipment, follow safe work practices and follow all safety regulations applicable to specific job activities.

Employer's responsibilities:

- Provide and maintain safety equipment and protective devices
- Ensure proper safe work clothing is worn
- Enforce safe work procedures
- Provide safeguards for machinery, equipment and tools
- Observe all accident prevention regulations
- Train employees in safe use and operation of equipment

Employee's responsibilities:

- Work in accordance with the safety regulations pertaining to job environment
- Work in such a way as not to endanger themselves or fellow workers.

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# EMPLOYER INFORMATION

## Originating Employer

Start Date:	End Date:
Employer:	
Contact Person:	
Address:	Phone:
	Email:
	Fax:
Supervisor/Journeyperson 1:	*TWID #:
	Phone:
	Email:
Supervisor/Journeyperson 2:	TWID #:
	Phone:
	Email:

\*TWID # - Trade Worker Identification Number

*If you have more than one employer during your apprenticeship, record the information for subsequent employers on the following page(s).*

If your job ends or you change employers...

**Before leaving your place of employment:**

- Please have your sponsor update your Work Based Training hours on their [SkilledTradesBC Portal account](#).
- Update Record of Competencies with your supervisor.
- Confirm with your employer that your workplace hours have been reported to SkilledTradesBC, and if possible get a copy of all Work-Based Training Hours reports submitted.
- Notify SkilledTradesBC of the change in your employment by submitting an [Online Registration Request](#) with your new employer on the SkilledTradesBC Portal.

When re-employed...

**You must be registered with your new employer before submitting any work-based training hours to SkilledTradesBC.**

## Subsequent Employers

Start Date:	End Date:
Employer:	
Contact Person:	
Address:	Phone:
	Email:
	Fax:
Supervisor/Journeyperson 1:	TWID #:
	Phone:
	Email:
Supervisor/Journeyperson 2:	TWID #:
	Phone:
	Email:

## Subsequent Employers

Start Date:	End Date:
Employer:	
Contact Person:	
Address:	Phone:
	Email:
	Fax:
Supervisor/Journeyperson 1:	TWID #:
	Phone:
	Email:
Supervisor/Journeyperson 2:	TWID #:
	Phone:
	Email:

# WORKPLACE HOURS

## Instructions

Make an entry in this section each time your hours are reported to SkilledTradesBC.

1. Get a copy of the *Workplace Hours Report* from your employer.
2. Fill in the dates of the reporting period and the hours reported.
3. Enter your employer name, address and phone number.
4. Keep your Record Book in a safe place.

### Workplace Hours

**Workplace hours** must be submitted to SkilledTradesBC by your employer on a regular basis. Your hours should be reported at least every six months; however, every three months is preferred.

At the beginning of your apprenticeship discuss the frequency of reporting with your employer.

Keeping Workplace hours up-to-date in your Record Book gives you the tools to better manage your apprenticeship. It provides you with the opportunity to:

- Follow up with your employer each reporting period to ensure your hours are reported on a regular basis.
- Discuss your progress with your direct supervisor/journeyperson on a regular basis.



# RECORD OF COMPETENCIES

## Instructions

The Record of Competencies is filled out and signed-off by the journeyperson supervising your work.

1. Know what skills are expected at each level of the program.
2. Ask the journeyperson to sign off on the competency when you have acquired the skills and are able to perform the task without supervision.
3. If the journeyperson agrees that you have the required skills, he/she will:
  - Record the date that the competency was achieved
  - Sign off on the competency
  - Enter his/her Trades Worker Identification Number (TWID #)

### What is a Record of Competencies?

The Record of Competencies lists all competencies you should be knowledgeable in prior to receiving your certification. Keeping this section up to date will allow you to track your progress towards certification and demonstrate proficiency in the skills within the scope of your trade. Completion of the entire program should result in you becoming a skilled and knowledgeable journeyperson.

- Refer to this section periodically to ensure you are getting the work experience you need.
- Use the competencies as a guide to ensure work tasks are assigned so that you acquire the skills and knowledge required to be successful in the trade.

Review the Record of Competencies on a regular basis with your direct supervisor/journeyperson to ensure they have been completed.

### Program Outline

The Program Outline provides detailed information on the scope of knowledge and skills expected at each level of the program, further defining the competencies listed in the Record Book. The Program Outline is a great resource for developing a training plan.

Download from: <https://skilledtradesbc.ca/gasfitter-class-b>

### Apprenticeship Toolkit

For general information on apprenticeship and tips for navigating the apprenticeship system in BC visit SkilledTradesBC's website to learn about the [apprenticeship basics](#).

# LEVEL 1

## **IMPORTANT!**

Download the Program Outline!

<https://skilledtradesbc.ca/gasfitter-class-b>

Read the competency tables

Some competencies are taught in many levels

For detailed information about that competency, go to the Program Outline

## **THEORY**

### **LINE A: USE COMMON OCCUPATIONAL SKILLS**

- ☐ Interpret drawings and specifications
- ☐ Describe pressure measuring tools
- ☐ Interpret pressure readings
- ☐ Interpret B149.1 sections 1, 2, 3, 4, 6, Annex A & B
- ☐ Interpret the Safety Standards Act, Safety Standards General Regulation and Gas Safety Regulation
- ☐ Describe information contained in manufacturer and supplier documentation
- ☐ Describe how to source manufacturer's documentation
- ☐ Describe record management

### **LINE B: APPLY FUNDAMENTALS OF GAS UTILIZATION**

- ☐ Describe the characteristics of hydrocarbon gases
- ☐ Describe methods of combustion air supply
- ☐ Describe draft
- ☐ Describe the building as a system
- ☐ Describe the operation of hydronic heating systems
- ☐ Describe the operation of residential forced air systems
- ☐ Describe mechanical safety devices

## LINE C: APPLY ELECTRICAL CONCEPTS

- ☐ Describe electrical concepts
- ☐ Describe single phase and three phase power supplies
- ☐ Identify transformers
- ☐ Identify electrical diagrams
- ☐ Describe appliance circuits
- ☐ Interpret the Canadian Electrical Code Part 1
- ☐ Interpret the Electrical Safety Regulations
- ☐ Describe single phase motors
- ☐ Describe three phase motors
- ☐ Describe wiring components
- ☐ Describe conductor installation
- ☐ Describe wire termination

## LINE D: PLAN GAS-FIRED APPLIANCE SYSTEM INSTALLATIONS

- ☐ Describe piping, tubing and hoses
- ☐ Describe the operation of gas valve trains for appliances rated at 400 MBH or less
- ☐ Describe the purpose and operation of gas pressure regulators
- ☐ Describe gas-fired appliances
- ☐ Describe burners
- ☐ Describe the operation of atmospheric burners
- ☐ Describe burner orifices
- ☐ Describe flame detectors
- ☐ Describe the operation of standing pilot/thermocouple systems
- ☐ Describe switches

## LINE E: INSTALL GAS-FIRED SYSTEMS

- ☐ Describe manual shut-off valves installation
- ☐ Describe gas pressure regulator installation
- ☐ Describe installation of passive air supply systems

## LINE F: COMMISSION GAS-FIRED APPLIANCES AND EQUIPMENT

- ☐ Describe testing and purging procedures for pipe under 4 inch diameter

# PRACTICAL

## LINE A: USE COMMON OCCUPATIONAL SKILLS

- ☐ Assess and manage workplace hazards
- ☐ Apply OHS regulations and WorkSafe BC standards
- ☐ Use WHMIS
- ☐ Use and maintain hand and power tools
- ☐ Use cutting, soldering and brazing equipment
- ☐ Use U-tube manometers
- ☐ Use electrical testing meters to test voltage, amperage, resistance, and continuity

## LINE B: APPLY FUNDAMENTALS OF GAS UTILIZATION

- ☐ Apply gas laws
- ☐ Calculate air requirements and products of combustion
- ☐ Perform process heat load calculations

## LINE C: APPLY ELECTRICAL CONCEPTS

- ☐ Solve simple problems using Ohm's and Kirchhoff's Laws
- ☐ Sketch a series and parallel circuit
- ☐ Analyze simple circuits

## LINE D: PLAN GAS-FIRED APPLIANCE SYSTEM INSTALLATIONS

- ☐ Size piping and tubing systems
- ☐ Select valves
- ☐ Install relays
- ☐ Plan a residential piping installation

## LINE E: INSTALL GAS-FIRED SYSTEMS

- ☐ Join pipe and tubing using threading and flaring
- ☐ Perform tube bending
- ☐ Size piping and tubing systems, low pressure and 2 psig (14 kPa)

Supervisor Signature

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## NOTES FROM LEVEL 1

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## LEVEL 2

### **IMPORTANT!**

Download the Program Outline!

<https://skilledtradesbc.ca/gasfitter-class-b>

Read the competency tables

Some competencies are taught in many levels

For detailed information about that competency, go to the Program Outline

## THEORY

### **LINE A: USE COMMON OCCUPATIONAL SKILLS**

- ☐ Interpret code rules and regulations applicable to the Gasfitter B certification

### **LINE B: APPLY FUNDAMENTALS OF GAS UTILIZATION**

- ☐ Describe low pressure steam systems
- ☐ Describe the operation of a propane refrigerator
- ☐ Describe the applications and installation of mechanical safety devices
- ☐ Describe types of alternate fuels for appliances under 400MBH (120kW)
- ☐ Describe the applications of alternate fuel appliances under 400MBH (120kW)
- ☐ Describe the installation of dual-fuel appliances under 400MBH (120kW)

### **LINE C: APPLY ELECTRICAL CONCEPTS**

- ☐ Describe and select single-phase transformers
- ☐ Describe millivolt circuits
- ☐ Identify resistors
- ☐ Describe proportional control operation
- ☐ Describe variable resistors
- ☐ Describe the sequence of operation for a furnace and hydronic heating system
- ☐ Interpret the Canadian Electrical Code Part 1, sections 14, 16, 26 and 28
- ☐ Describe characteristics and operation of single phase motors
- ☐ Describe motor protection

- ☐ Describe variable frequency drives (VFD)
- ☐ Describe electronically commutated motors (ECM)
- ☐ Interpret electrical readings
- ☐ Identify network protocols and cable connectors

#### **LINE D: PLAN GAS-FIRED APPLIANCE SYSTEM INSTALLATIONS**

- ☐ Describe propane storage systems
- ☐ Describe the requirements for the installation of propane cylinder/tank storage systems
- ☐ Describe the inspection of propane cylinder/tanks
- ☐ Describe the installation of mechanical burners
- ☐ Describe limits, interlocks and operating controls
- ☐ Describe the installation of programmable thermostats
- ☐ Describe outdoor reset controls
- ☐ Describe multi-boiler hydronic heating system components

#### **LINE E: INSTALL GAS-FIRED SYSTEMS**

- ☐ Describe the installation of regulator venting
- ☐ Describe propane cylinder/tank installation
- ☐ Describe installation of venting materials
- ☐ Describe the installation of mechanical venting systems
- ☐ Describe the installation of mechanical air supply systems
- ☐ Describe the installation of draft control systems
- ☐ Describe the installation of outdoor reset controls

#### **LINE F: COMMISSION GAS-FIRED APPLIANCES AND EQUIPMENT**

- ☐ Describe purging procedures for pipe 4 inch diameter and larger
- ☐ Describe factors to consider when starting up a system
- ☐ Describe the operation of gas meters
- ☐ Interpret gas meters
- ☐ Identify types of gas meters

- ☐ Describe NOx

## LINE G: MAINTAIN AND SERVICE GAS-FIRED APPLIANCES AND EQUIPMENT

- ☐ Describe the service procedures for distribution piping
- ☐ Describe the procedures for servicing gas burners
- ☐ Describe boiler maintenance procedures
- ☐ Describe service requirements of gas-fired air heating appliances
- ☐ Describe the maintenance of gas-fired refrigeration equipment
- ☐ Describe the servicing procedures for fuel/air delivery systems
- ☐ Describe service and repair procedures for control systems
- ☐ Describe the removal of gas-fired appliances

# PRACTICAL

## LINE A: USE COMMON OCCUPATIONAL SKILLS

- ☐ Use manometers and mechanical gauges and interpret pressure readings
- ☐ Use electrical test meters and interpret readings
- ☐ Apply Section 7 of the B149.1 Gas Code
- ☐ Apply records management

## LINE C: APPLY ELECTRICAL CONCEPTS

- ☐ Design a wire diagram for a hydronic heating system
- ☐ Create a control narrative from a wiring diagram for a hydronic system
- ☐ Install electrical components

## LINE D: PLAN GAS-FIRED APPLIANCE SYSTEM INSTALLATIONS

- ☐ Size regulators
- ☐ Size venting
- ☐ Size passive air supply systems
- ☐ Select gas fired appliances rated at 400 MBH or less
- ☐ Select flame safe guards
- ☐ Create commissioning documentation for a high efficiency furnace and a condensing boiler

## LINE E: INSTALL GAS-FIRED SYSTEMS

- ☐ Install boilers
- ☐ Install air heating appliances

## LINE F: COMMISSION GAS-FIRED APPLIANCES AND EQUIPMENT

- ☐ Commission regulators
- ☐ Use gas metering devices
- ☐ Perform flue gas analysis
- ☐ Commission a storage type water heater with a standing pilot and atmospheric burner
- ☐ Commission a high efficiency furnace
- ☐ Program a programmable thermostat
- ☐ Adjust a barometric draft regulator
- ☐ Transfer appliance operation to end user

Supervisor Signature

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## NOTES FROM LEVEL 2

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## MISSING COMPETENCIES?

**To develop the best journeyperson possible employers should attempt to provide training in all competencies for the trade. This is not always possible.**

If your employer is unable to provide training in any competency required for your trade, note that competency below. Competencies listed here will remain unsigned until your employer can provide training in that area or until you find an alternate way to gain the experience needed.

Competency:	Date:
Reason:	
Alternate plan:	

Competency:	Date:
Reason:	
Alternate plan:	

# TECHNICAL TRAINING

## Instructions

Keep a record of each level of technical training completed.

### Level 1

Date Completed:	Training Provider:
Mark:	Instructor:

### Level 2

Date Completed:	Training Provider:
Mark:	Instructor:

# COMPLETION REQUIREMENTS

## Instructions

Keep a record of each program completion requirement achieved.

## GASFITTER – CLASS B

### CERTIFICATE OF APPRENTICESHIP

- ☐ Level 1 - Technical Training
- ☐ Level 2 - Technical Training
  
- ☐ 3,000 Work-Based Training Hours
  
- ☐ Recommendation for Certification signed by sponsor

Note: After all other completion requirements have been met, SkilledTradesBC sends a Recommendation for Certification form to the sponsor requesting signoff.

### CERTIFICATE OF QUALIFICATION

- ☐ Technical Safety BC Certificate of Qualification Exam

Note: For information on the full requirements to complete the Technical Safety BC Certificate of Qualification, please visit <https://www.technicalsaftybc.ca/>

# CERTIFICATIONS

## Instructions

Keep a record of the credentials and endorsements you have earned, including the certification number and date of issue.

CREDENTIAL EARNED	NUMBER	DATE OF ISSUE

*If you have any questions, please contact SkilledTradesBC  
Customer Service at [customerservice@skilledtradesbc.ca](mailto:customerservice@skilledtradesbc.ca)  
778-328-8700 or toll free (within BC) at 1-800-660-6011*