



**FSN Training & Development Inc.**  
 12 Forestgreen Drive, Uxbridge ON L9P 0B8  
 Tel: 905-649-7670 info@fsntraining.com

Proudly Canadian

## Registration Form Internal Combustion Engine (ICE) Training

The ICE-NG or ICE-IE-NG programs are for mechanics who work on natural gas powered vehicles & industrial equipment. The 2-day program teaches Ontario Regulations, natural gas theory, code requirements and engine operation & components in preparation for the TSSA Provincial ICE exam.

**Location:** **Holiday Inn Express – Toronto North York**  
**30 Norfinch Drive**  
**North York, ON M3N 1X1**  
[Hotel Booking Link](#)  
**416-665-3500** (if booking a room ask for the "FSN Training" rate)

NATURAL GAS Courses - \$1295 + \$265\*\* TSSA & Admin. fee per person (\$1560) + HST = \$1762.80  
 \*\* subject to be changed by TSSA

➡ Please check off registration date & course you require

Natural Gas - 8am–5pm		More courses will be added if required	
Feb 10&11, 2026	<input type="checkbox"/>	ICE-IE-NG (Industrial Equipment)	<input type="checkbox"/>
May 12&13, 2026	<input type="checkbox"/>	ICE-IE-NG (Industrial Equipment)	<input type="checkbox"/>
Sept 22&23, 2026	<input type="checkbox"/>	ICE-IE-NG (Industrial Equipment)	<input type="checkbox"/>

Copy of license required, ICE-IE exams will be ordered if no copy is provided

To register, please return the following to [info@fsntraining.com](mailto:info@fsntraining.com)

1. Register for an account with TSSA (if you do not have one already). <https://www.tssa.org/tssa-portals>
2. A colour copy of your Government ID. (required by TSSA)
3. A colour copy of your mechanic's license (if applying for ICE-P or ICE-NG)
4. This registration Form, including your TSSA Account #

### NOTE:

1. 20 business days' notice is **REQUIRED PRIOR** to course date to order exams from TSSA
2. **NEW:** The TSSA & Admin Fee of \$265\*\* is **NON-REFUNDABLE** after the time of booking.  
 \*\* subject to be changed by TSSA

\*All information below is required to register with TSSA.

**Name\*** \_\_\_\_\_ **Date of Birth\*** \_\_\_\_\_ **TSSA Account #\*** \_\_\_\_\_

**Address\*** \_\_\_\_\_

**City\*** \_\_\_\_\_ **Province\*** \_\_\_\_\_ **Postal Code\*** \_\_\_\_\_

**Phone Number\*** \_\_\_\_\_ **Email Address\*** \_\_\_\_\_

Company Contact Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Tel: \_\_\_\_\_ Email: \_\_\_\_\_

**Total Order amount \$** \_\_\_\_\_  
 (Cancellation Fee: If less than a full 10 business days notice is given, the full course fee will be charged. The TSSA & Admin Fee of \$260 is NON-REFUNDABLE after the time of booking)

**Credit Card:**  Visa  Master Card

Card # \_\_\_\_\_ Expiry: \_\_\_\_\_ CVV \_\_\_\_\_

Name on Card: \_\_\_\_\_ Signature: \_\_\_\_\_

**\*PAYMENT must be received with this Registration to reserve the seat.**

Course Info

Attendee

Billing Info

Payment Info



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### Preparing for the ICE-NG Program

PLEASE **READ** THIS PRIOR TO SENDING STUDENTS TO THE ICE-NG PROGRAM

1. The ICE program is a 2-day course that covers some basic information when working with natural gas engines and prepares the student to write the ICE exam.
2. The exam is issued by TSSA and contains about 75 multiple choice questions.
3. The exam will test students on NG, engine knowledge as well as the regulations that apply to this equipment.
4. There is a great deal of material covered over the two days and students will be required to look up information in the various regulations. As such a **good command of the English language (reading and understanding) is required** for them to pass the exam which is in English.
5. In preparation for the course, we strongly recommend that the students do the following prior to coming to the course.
  - a. **Use the summary and links provided to become familiar with**
    - i. The TSS Act
    - ii. O. Reg 214/01 – Compressed Gas Regulation
    - iii. O. Reg 215/01 – Fuel Industry Certificates Regulation
  - b. **Review the “Things to Know about Natural Gas”** summary and ask questions of experienced technicians.
  - c. **Review the B 109.1:21 summary** and have an experienced technician show you the various system requirements
  - d. **Review the Other Topics** provided to gain any additional information you can prior to taking the course.
  - e. If possible, **work with an experienced technician** for several hours to obtain an overall idea of what you will be required to learn.

## TSS Act

**Link to the TSS Act:** <https://www.ontario.ca/laws/statute/00t16>

Table of Contents – The Act is split into 5 Parts and then into various Sections

Part I – Purpose, Application, Definitions

Part II – Administration

Part III – Authorizations and Safety and Compliance Orders

Part IV – Inspections and Enforcement

Part V - General

Below are some of the key Sections that apply to what the ICE course covers.

Sec 1 - Purpose – TSSA's purpose is to enhance public safety

Sec 2 - Applications – The Act applies to fuels plus a variety of other areas.

Sec 3 - Definitions – This section outlines what things “mean”

Sec 5 - Identification – Inspectors must provide proof that they are an inspector

Sec 14 - Safety Orders – These can be given by an inspector to shut down or correct infractions

Timeliness - Orders may be given orally and in writing within 7 days

Appeal – You can appeal an order to the director

Sec 17 - Inspections – Inspectors are allowed to enter a facility to do an inspection

Limitations – Inspector can't force entry

Sec 18 – Power of inspection

Assistance – Inspectors can bring someone in to help or assist them with the inspection.

Cooperation – You must cooperate with inspector and provide information if asked in writing

Sec 20 - Obstruction – You cannot interfere with or stop an inspector from carrying out their duties.

Operation – You cannot operate a “thing” if the inspector puts a seal on it

Sec 21 - Not Guilty – If you make all reasonable efforts to comply with regulations you can't be charged

Sec 22 - Appeals – Appeals can be taken to the director and then to Divisional Court who make the final decision

Sec 37 - Offences - \$50k or 1 yr imprisonment for individuals, \$1MM for corporations

Sec 41 - Duties of Employers – Contractors and employers must comply with the Act

## **O.Reg 214/01 Compressed Gas**

**Link to O.Reg 214/01:** <https://www.ontario.ca/laws/regulation/010214>

Contents – 45 Sections

Sec 1 – Interpretation (definitions)

Sec 2 – Application – Applies to the conversion of highway and industrial vehicles to GV from gasoline and other hydrocarbon fuels

Sec 4 – Regulated Activities – No person shall install, alter or repair etc unless they follow the regulations

Sec 5 – Duty of Employer – Employers who employ a person to carry out activities must ensure that they comply with the Act and Regulations

Sec 6 – No person shall handle compressed gas unless they have a proper certificate

Sec 13 – Safe Operating Condition – An owner and every person responsible for the operation of an appliance etc. shall ensure it is maintained in safe operating condition

Sec 14 – No person shall operate a conversion center unless they have the proper license

Sec 16 – Occurrence or Accident – Where CO, poisoning, asphyxiation , explosion or fire occur, the certificate holder shall notify the inspector.

Sec 16 – No person shall interfere with or disturb any wreckage unless an inspector gives permission to do so.

Sec 36 – A person who converts a vehicle to GV must ensure that the system doesn't leak and is safe for continuous use

Sec 36 – A contractor must affix the required labels to the vehicle.

Sec 43 – Unacceptable condition – immediate hazard – If there is an immediate hazard the contractor must notify the owner and shut down the vehicle

Sec 44 – Unacceptable condition – non immediate hazard – If an non-immediate hazard is found the certificate holder must give oral notice and attach a notice

## O. Reg 215 – Fuel Industry Certificates Regulation

Link to O.Reg 215/01: <https://www.ontario.ca/laws/regulation/O10215>

Contents – Outline certificates and requirements

Sec 1 - Interpretation (Definitions)

Eg. Direct Supervision – supervisor is on site in close proximity to worker

General Supervision – supervisor may or may not be on site but is available to assist

Sec 2 – Application - This reg applies to O.reg 211, 212, 213 & 214

Sec 3 – Certificates

6 . ICE and 7. ICE-IE

Sec 4 – Expiry and Renewal

A person cannot work under an expired certificate

A renewal can be done before the date of expiry or within one year after

After one year, they must complete an upgrading course

Sec 13 – Additional Requirement of ICE

For ICE-NG you must have a mechanic's license and take an approved course

For ICE-IE you must take an approved course

Sec 19 – Must notify TSSA within 30 days for change of address

Sec 27 – ICE certificate allowable functions

Sec 28 – ICE– IE allowable functions

Sec 53 – A supervising certificate holder is responsible of the work of a supervised person

### Things to know about Natural Gas

1. Natural Gas is a member of the hydrocarbon family
2. Chemical Formula is CH<sub>4</sub>
3. Natural Gas is a clear liquid with no odour
4. Natural Gas is cleaner burning than gasoline with less soot, CO and oxides
5. Completely burnt natural gas produces CO<sub>2</sub> and H<sub>2</sub>O
6. A sufficient escape of natural gas can displace air and cause death
7. Propane is 1.5 times as heavy as air
8. Natural Gas is .5 as heavy as air
9. Ethyl Mercaptan is added to natural gas to help detect leaks
10. Leaks can be detected by using a soap and water solution to look for bubbles
11. A pressure test can be done using a pressure gauge
12. Mercaptan smells like rotten eggs or boiling cabbage
13. The odour is detectable at 1.5 of the lower level of flammability
14. Natural Gas is non-toxic (non-poisonous)
15. Natural Gas liquid boils at -258F or -161C
16. At -161C there would be no vapour pressure
17. As the temperature rises Natural Gas in a container rises
18. When the liquid changes to vapour it expands 600 times
19. For propane to burn you need the fuel, air and a source of ignition
20. The Lower Explosive limit (LEL) for natural gas is 4%
21. The Upper Explosive Limit (UEL) for natural gas is 14%
22. The ideal air to fuel ratio for Natural Gas is 17.2:1
23. Natural Gas in a combustion chamber will ignite at between 1200F - 1400F (648 C – 760C)
24. Natural Gas burns at .29m/sec
25. The Octane number for Natural Gas is approximately 130

Note: Table 1.1 in the B149.1:20 provides a comparison of propane properties to butane and natural gas.

## **B109.1:21 – Compressed Natural Gas Vehicle Installation Code**

The CSA B109.1:21 The Compressed Natural Gas Vehicle Installation Code outlines the specific requirements for the installation and repair of natural gas fuel systems.

Each repair shop/conversion center doing natural gas work is required to have a copy of this code at their site.

Each course participant should gain some familiarity with the B109.1:21 code book prior to coming to the course.

As part of FSN's ICE program the code requirements will be covered in detail. This will include the sections on:

- CNG fuel containers

- Container installation

- Container protection

- Fuel lines and protection

- Labels

- Leak Testing

### Other Topics Covered in the ICE-NG Program

In addition to the topics outlined so far there will be discussions on the following topics.

If students are able to, they can discuss these with experienced technicians.

1. Ignition and propane
  - a. Spark plugs and voltage
  - b. Timing
  - c. Combustion
2. Carburetion Systems
  - a. Carburetor Components
  - b. Vapourizers
  - c. Fuellocks
3. Wiring and Fuel Management
  - a. O2 Sensors
  - b. Dwell Meters
  - c. Fuel Injection
  - d. Gas Analyzers