

# ISS – HOME INSPECTOR TRAINING PROGRAM

## SYLLABUS: ISS103 – HVAC

### INSTRUCTIONAL GOALS

This course focuses on mechanical equipment. It provides current information on gas, oil, and electric heating systems, including wood burning appliances. It also discusses both space and hot water heating for residential applications. The content also includes cooling and ventilation and air filtration systems as well as wood burning appliances.

### LEARNING OUTCOMES (NOS = National Occupational Standard for Home and Property Inspector)

Learning outcomes are clear statements of the critical/essential knowledge, skills and attitudes that a student is required to demonstrate to indicate successful completion of this course. Upon successfully completing the course the student will be able to:

- Visually inspects primary heating systems (NOS D1)
- Identifies type of heating systems (NOS D1.01)
- Identifies type and source of fuels (NOS D1.02)
- Visually inspects condition of fuel storage systems (NOS D1.03)
- Visually inspects condition of fuel distribution system (NOS D1.04)
- Visually inspects condition of heating equipment (NOS D1.05)
- Visually inspects condition of heat distribution systems (NOS D1.06)
- Observes operation of heating system (NOS D1.07)
- Identifies source of combustion and/or make-up air (NOS D1.08)
- Visually inspects exterior condition of chimneys, flues and vents (NOS D1.09)
- Document inspection findings (NOS D1.10)
- Visually Inspects supplemental heating systems (NOS D2)
- Identifies types of supplemental heating (NOS D2.01)
- Visually inspects condition of supplemental fuel storage system (NOS D2.02)
- Visually inspects condition of supplemental fuel distribution system (NOS D2.03)
- Visually inspects condition of supplemental heating equipment (NOS D2.04)
- Visually inspects condition of supplemental heat distribution systems (NOS D2.05)
- Identification of source of combustion and/or make-up air (NOS D2.06)
- Visually inspects exterior condition of chimneys, flues and vents (NOS D2.07)
- Document inspection findings (NOS D2.08)
- Visually Inspects permanent cooling systems (NOS D3)
- Identifies type of cooling system (NOS D3.01)
- Visually inspects condition of exterior equipment (NOS D3.02)
- Visually inspects condition of interior equipment (NOS D3.03)
- Visually inspects condition of cold air distribution system (NOS D3.04)
- Tests function of cooling system (NOS D3.05)
- Document inspection findings (NOS D3.06)
- Visually inspects air handling systems (NOS D4)
- Identifies type of air handling system (NOS D4.01)
- Visually inspects condition of air handling system (NOS D4.02)
- Tests function of air handling system (NOS F4.03)
- Document inspection findings (NOS D4.04)

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## COURSE CONTENT

- House as a System
- Heating and Cooling – Energy Sources, Equipment and Systems
- Distribution
- Ventilation and Filtration Basics
- Heating and Ventilating System Retrofits
- Filtration and Air Cleaning Systems
- Residential Wood Heating
- Standards of Practice
- Defect Recognition / Analysis (Case Studies)

## NEEDS AND RESOURCES

### Required Background

To successfully complete this course, you have the ability to:

- Use a computer
- Use a web browser to connect to the course site
- Send and respond to email messages
- Use Skype

### Required Materials

- A Guide to Mechanical Equipment – (Download from course site)
- A Guide to Residential Wood Heating – (Download from course site)

### Online Resources

- Online course notes
- Referenced technical papers specified in the course

## COURSE SCHEDULE

This is an 80-hour course. Online courses are based on a maximum of 14 weeks duration for completion. This course includes quizzes, and/or assignments, activities and a final exam. This course contains 28 hours of Skype/webinar based interaction required to complete. In-class sessions are scheduled for an 80-hour contact format.

## POLICIES AND PROCEDURES

### General Rules:

It is expected that the individual student must perform all work. Any student having an academic concern or questioning an academic decision should first discuss the matter directly with their course instructor, if the issue is not resolved then with the ISS Program Coordinator. The ISS Program Coordinator's decision is final. Further information may be found on the Inspection Support Services webpage and a link to ISS Education Policy.

### Communication:

One of the first things we would like you to do, when you are enrolled is to send your course instructor an email that indicates a little info about who you are and where you live. This will be used as your main point of contact for communications. This also gives the instructor a better idea regarding scheduling webinars. Upon enrollment our Program Administrator will provide you with your Instructors contact email.

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## **Webinar Attendance Policy:**

The **Direct Instruction** is a critical part of the course delivery. As such and based on studying various types of “best practices” for course delivery. Note that a portion of your grades accounts for what we deem as \*mandatory participation in the scheduled webinars. This is keeping with the regulations primarily set by Consumer Protection BC Home Inspector educational program approved for the purposes of Section 3(3)(a) of the Home Inspector Licensing Regulation (“HILR”).

## **Grading:**

Students will be evaluated as follows: (Activity & Assessment Percentage)

- Quizzes = 40%
- Inspection Project = 10%
- Final Exam = 50%
- \*Webinars

Supplemental evaluations are not available in this course, unless extraordinary, documentable circumstances have prevented a student from participating in scheduled course activities. All applications for a supplemental are made to the course instructor.

## **Grading Scale:**

A passing grade in this course is a minimum of 70%. Note that some inspection associations and/or provincial regulations for licensing home inspectors require 80% as their minimum.

## **Final Exam:**

The final course exam must be completed within 2 weeks of the scheduled course completion date. All exams for online courses must be independently proctored\*\*. (Refer to the Proctoring Document\*\* available on the “Program” website.)

## **Course Copyright:**

All course materials students receive or have access to, are protected by Copyright Laws. Students may use these materials strictly for their training, but any type of unauthorized distribution and/or transfer is prohibited.

## **Disclaimer:**

Please note that the specifics of this course may be modified from time to time, due to changes. While every effort is made by the instructor to cover all content material listed in this outline, the order, content and/or evaluation may change as a result of special circumstances (e.g. technology/equipment problems and/or changes, etc.). In any such case, every effort will be made to make appropriate adjustments to the course delivery. These include reference to web links or changes due to updates within the home inspection sector. Students will be advised by email directly when and if changes do occur.

## **Schedule of Topics, Readings & Direct Instruction Webinars**

This schedule provides an outline of the main topics for this course and during which week they will be addressed. Characteristics of the webinars can vary in a number of different types of formats such as discussions, lectures, presentations and question and answer style deliveries.

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## ISS103 HVAC (28 hours of webinar based delivery) \*TOTAL Direct Instruction

Week	Topic	Reference Module	Hours	*DI Hrs
1	Intro & Course Orientation	Intro, Overview	3	2
2	House as a System Building Enclosure Design	Building Science, Systems, Impact	4	2
3	Heating Systems 1 Combustion Appliances	Heat Gain/Loss, Types - Forced Air Systems, Distribution	8	2
4	Heating Systems 2 Heating System Checklist	Types cont'd, Water, Steam, Radiant, Hybrid, etc.	5	2
5	Cooling Systems AC Inspection Checklist	Cooling Systems, Heat Gain, Refrigeration	6	2
6	Ventilation, HRV & Fan Systems	HRV, Vent & Fan Systems, IAQ, Combustion Spillage	6	2
7	System Retrofits, Venting Updates, Clearances	Options for replacement and adding to system	4	2
8	Filtration & Air Cleaning, Air Quality, Health Concerns	Filters & Air Cleaning Systems	6	2
9	Wood Heating Appliances Inspection Checklist	Stoves, Wood Appliances, Space Heaters	6	2
10	HVAC Standards – SOP Report Forms, Case Study	SOP, National Standards, Codes	8	2
11	Defect Recognition Case Study	Checkpoints, Defects, Photo Reviews, Methodology	6	2
12	Report Writing Inspection Project, Recalls	Report types & Samples	6	2
13	Project Review Terms & Review	Project Work Review & Practice Exam Prep	8	2
14	Exam	Exam Feedback & Survey	4	2
			80	28

### NOTE:

- ISS100 Fundamentals provides an introductory overview of home inspections.
- Although the Direct Instruction hours appear to be directed at the topic of that week, it also includes discussion on the previous topics as part of a review and reinforcement process