

ISS – HOME INSPECTOR TRAINING PROGRAM

SYLLABUS: ISS105 – Building Science

INSTRUCTIONAL GOALS

This course provides practical theory and an understanding of building science related to the Building Envelope for residential homes. Building science is the collection of scientific knowledge that focuses on the analysis and control of the physical phenomena affecting buildings. It traditionally includes the detailed analysis of building materials and building envelope systems. The course content includes defect recognition for the exterior building envelope, including foundations, walls, openings and roofs and the study of a “house as a system”.

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:

- Explain the “House as a System” concept
- Explain concerns with indoor air quality
- Explain air leakage, air and moisture movement
- Explain the impact of a well-sealed building envelope
- Identify sustainable building materials (NOS B1)
- Identify common conditions with Mechanical systems (NOS D1)
- Identify low-voltage electrical systems (NOS F4)
- Inspects openings in the building envelope (NOS C1 & C2)
- Inspects ventilation (NOS C3)
- Inspects condition of mechanical exhaust systems (NOS C3.01)
- Inspects condition of passive ventilation (NOS C3.02)
- Inspects insulation (NOS C4)
- Inspects condition of visible air/vapour barriers (NOS C4.01)
- Inspects condition of visible insulation (NOS C4.02)
- Identify significant code related defects (NOS C4.03)

COURSE CONTENT

- The House as a System
- Aspects of Building Science – Flow, transmission, comfort, air quality
- Design Considerations
- Indoor Air Quality
- Sustainability Issues
- Air, Weather and Moisture Barriers, Vapour Diffusion
- Materials – Insulation, Vapour Barriers, Air Barriers, Weather Barriers, Moisture Barriers, Dampproofing and Treated Wood
- Foundations
- Floors
- Walls
- Attics and Roofs
- Factory Built Housing
- Windows and Doors
- Principles of Space Conditioning
- Heat Distribution Systems

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- Heating Systems
- Ventilation Systems
- Cooling Systems
- Domestic Hot Water Systems
- Integrated Mechanical Systems
- Standards of Practice
- Defect Recognition / Analysis

NEEDS AND RESOURCES

Required Background

To successfully complete this course, you must have a completed ISS100 – Intro to Home Inspection

- How to use a computer
- How to use a web browser to connect to the course site
- How to send and respond to email messages
- How to use Skype

Required Materials

- Notes provided by the instructor

Additional Print Resources (Optional)

- Provincial and/or National Building Code

Online Resources

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

COURSE SCHEDULE

This is an 80-hour course. This online course is 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)

*Webinars = 28% (1% per webinar hour)

Assignments/Quizzes = 12%

Projects (2 reports) = 10%

Final Exam = 50%

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 3 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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ISS105 Building Science (28 hours of webinar based delivery) *TOTAL Direct Instruction

Week	Topic	Reference Module	Hours	*DI Hrs
1	Intro & Course Orientation	Orientation	3	2
2	Building Envelope/Building Issues	Heat, air, moisture, defects	6	2
3	IAQ & Air & Moisture Control	Pollutants, sources	4	2
4	Materials, Air Barrier, Foundations	External components, permeability	6	2
5	Floors, Walls, Attics, Roofs, Windows & Doors	Exterior finishes, windows, doors, floors, attics & roofs	8	2
6	Factory Housing, Ventilation & Space Conditioning	Modular housing, conditioning spaces	6	2
7	Heat Distribution, Systems, Ventilation	Heat and transfer, mechanical ventilation, ice dams	8	2
8	Cooling, Domestic Hot Water, Integrated Mechanical Systems	Cooling systems, hot water	6	2
9	Electrical, Electronics & Telecommunications, Thermal Imaging	Automated and smart homes Infrared Imaging	4	2
10	Standards of Practice & Reporting	SOP & report writing, safety issues	5	2
11	Case Studies	Inspections	8	2
12	Legal Studies	Case study	6	2
13	Project Studies - Prep & Review	Project work - inspection	6	2
14	Exam	Summary Review	4	2
			80	28

NOTE:

- ISS100 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 previous topics as part of a review and reinforcement process.