

# Energy Advisor Exam Prep Mastery

Foundation Exam Prep: 50-70 hours effort including lesson review, worksheets, challenges and practice exams

Energy Advisor (HOUSE) Exam Prep: 50-70 hours effort including lesson review, worksheets, challenges and practice exams

Module Quizzes: Multiple choice questions, timed, unlimited attempts  
Timed Final Exam: 150 multiple choice questions, timed, unlimited attempts

Passing mark on Section Exams = 70



**BLUE HOUSE  
ENERGY**

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The Energy Advisor Exam Prep Mastery gives you access to all the content you need to study for both of Natural Resources Canada's exams, which are the first steps you need to take to become an Energy Advisor!

You will have access to the Foundation Exam Prep material first, then the Energy Advisor (HOUSE) Exam Prep material, and when you've completed that, you will have access to the bonus material: 4 practice houses for HOT2000 Energy Modelling.

We've set it up so you can focus on what's on your exam first, and then get more familiar with HOT2000 modelling. The exams are multiple choice, so you can't model anything. Questions around HOT2000 will require you to understand how to navigate the screens in the software, and how/where to find the data to input into them.

## What to Expect

You will learn each concept and topic through a short video lesson, a worksheet that helps you to apply what you learned in the video to a real-world situation, and some questions or actions that will help you solidify your understanding of the topic. You get points for each piece you complete.

There's a community forum where you can ask questions, and a curated resource list that you can sort and filter to suit your own path. Our learning platform also comes with an AI assistant that will help you find the information you want when it comes to review and study time.

Jump to the course description:

[Foundation Exam Prep](#)

[Energy Advisor \(HOUSE\) Exam Prep](#)



# Foundation Exam Prep

## COURSE DESCRIPTION

This course covers the competency guidelines for Natural Resources Energy Advisor Foundation Exam. The guidelines are broken out into seven categories:

1. Communication and Computer Skills (these are not on the exam)
2. Numeracy (Arithmetic and Geometry)
3. Construction and Renovation of Low Rise Housing
4. Safety Considerations
5. Building Envelope (New and Existing Homes)
6. Heating, Ventilation, and Air Conditioning (New and Existing Homes)
7. Building Science Principles and the House-as-a-System Concept

Your training plan covers these categories (and more!), but we've laid it out in a different sequence so that you can 'ladder', or build up, your knowledge and understanding as you go. Our learning sequence is based on good instructional design principles, and how we're presenting to you is based on the latest brain science. We want you to succeed by getting the strongest Foundation! Here's how it goes. You're going to start with the basics - what does an energy advisor do? Then you're going to learn about the physical parts of the house, how to determine construction types and vintages, how to read plans, and basic safety considerations.

After these fundamentals are in place, it's on to building science, the house-as-a-system and the Envelope First Approach. This is where you learn the key elements that define what an energy advisor can offer to homeowners: how to identify air, heat, and moisture flows, problems and challenges associated with them, and how to approach improving the performance of the house.

# Foundation Exam Prep

## COURSE DESCRIPTION



Here's how it goes. You start with an overview of the Energy Advisor role. Then you learn about the physical parts of the house, construction types, how to read plans, and basic safety considerations.

Then you're going to go into mechanical systems - space heating and cooling, ventilation, and hot water. You'll learn how to identify the common types of equipment found in existing houses as well as the best options for new construction and replacement equipment in existing houses.

The final module is all about how to prepare for the actual exam: tips, strategies, and a timed practice exam that will help you get comfortable with the multiple choice exam format. Use the links below to jump to the outline of each section or module:

[Do Your Homework!](#)

[Building Science](#)

[The Envelope First Please](#)

[Plans Reading](#)

[Controlling Air, Heat, & Moisture Flows](#)

[Comfort & Energy](#)

[Safety Considerations](#)

[Prepping for the test](#)

NOTE: Math is incorporated into the course in the form of worksheets, actions and challenges. You need to be able to calculate perimeter, area, and volume as well as slope or pitch for roofs. In addition, you must be able to convert between imperial and metric units for measurement, energy, and insulation values. If your basic arithmetic and geometry skills are rusty, one of the best online math programs is through the Khan Academy. It's free, or pay what you want. Here are the links:

Basic math review: <https://www.khanacademy.org/math/early-math>

Arithmetic: <https://www.khanacademy.org/math/arithmetic>

Geometry: <https://www.khanacademy.org/math/basic-geo>

All of the Khan Academy math courses: <https://www.khanacademy.org/math>

# Foundation Exam Prep

## COURSE DESCRIPTION

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### TOP LEVEL LEARNING OBJECTIVES

#### Construction Math

- Use and understand all operations on whole numbers, fractions and decimals commonly used in the construction industry
- Calculate the perimeter, circumference, area, and volume of various shapes and figures including floor and roof areas, concrete footings, slabs, walls, and columns
- Convert measurements from fractions to decimals
- Convert measurements between metric and imperial systems

#### Plans Reading

- Demonstrate an elementary knowledge of plan reading as it relates to home construction
- Demonstrate ability to read floor plans
- Demonstrate ability to read elevation, section, and detail drawings

#### Construction Safety

- Describe ladder safety protocol
- Describe construction site safety protocols
- List safety equipment
- Identify electrical shock and electrical fire hazards

#### Building Science, Control Layers, The Envelope First, Comfort and Energy

- Apply the House as a System Concept
- Interpret the role of sustainable development in construction
- Understand how building science affects building durability and occupant comfort
- Categorize the signs, symptoms and solutions for good indoor air quality
- Describe building envelope details
- Identify how the control or contribute to heat, air, and moisture flows
- Distinguish between mechanical systems

#### High Performance Housing

- Describe the characteristics of net zero energy and high performance new construction
- Provide examples of envelope assemblies and systems that are suitable for net zero energy and high performance housing
- List advanced mechanical systems suitable for net zero energy construction
- Explain the impact of occupant behaviour on energy use and reaching net zero energy targets
- Discuss, at a high level, the properties and features of residential renewable energy systems

# Foundation Exam Prep

## COURSE OUTLINE

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## DO YOUR HOMEWORK!

### WHAT AN ENERGY ADVISOR DOES

And what you to know to become one

- Soft skills
- Breadth of knowledge
- Day in the life

### WHAT'S YOUR (HOUSE) TYPE?

14,000,000 houses, 12 types

- Single detached
- Semi detached & row houses
- Part 9 MURBS

### TRAIN YOUR EYE

Putting a house into perspective

- Math and construction
- Roof slopes or pitches
- Scale & proportion

### HOW TO DATE A HOUSE

Construction methods through the years

- House Styles by period
- Below grade construction types
- Above grade construction types

### BUILDING STRUCTURE/COMPONENTS

What makes a building stand up?

- Foundations
- Above Grade Construction

### THE HOUSE AS A SYSTEM

99 elements and they're all connected

- Overview of concept & context
- Dynamics

### THE ENVELOPE FIRST

Invest in the house not the heating

- Address the permanent parts
- Solve for thermal comfort

### KEEP WATER OUT, OFF, AND AWAY

Exterior moisture management is key

- Roof
- Walls
- Foundation

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### TIMED MODULE ASSESSMENT

# Foundation Exam Prep

## COURSE OUTLINE

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## PLANS READING

### OVERVIEW

- Introduction
- History
- Basic Concepts

### COMMUNICATION

- Language of construction
- Phases of drawings
- Identification of drawing series

### NAVIGATING PLANS

- What's in a drawing set
- Plans and Elevation drawings
- Scale and grid

### FLOOR PLANS

- Line weights
- Line types
- Grid lines and labels

### SYMBOLS & ABBREVIATIONS

- Horizontal slice
- Symbol sets
- Dimensions
- Designations
- Schedules

### KEY FEATURES IN PLAN VIEW

- Doors and windows
- Finishes
- Equipment

### ELEVATIONS

- Purpose and use
- Exterior features
- Aggregate view

### SECTIONS

- Symbols in sections
- Types and categories
- Assembly cross-sections
- Feature checklist

### DETAILS

- Use and types of details
- Break line
- Typical scales
- Common details
- Complexity and number
- Below grade construction types

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TIMED MODULE ASSESSMENT:  
25 QUESTIONS

# Foundation Exam Prep

## COURSE OUTLINE

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## SAFETY CONSIDERATIONS

### INTRODUCTION

- Safety considerations for EAs
- Not a complete safety program!

TIMED MODULE ASSESSMENT: 25 QUESTIONS

### LADDER SAFETY

- Types of ladders
- Materials
- Safe use

*NOTE: This is NOT a comprehensive construction safety course. It is specific to the safety considerations issues found in Section 4.1 of NRCAN's competency guidelines, and therefore something that might be on your exam.*

### CONSTRUCTION SITE SAFETY

- New Construction
- Renovations
- Hazards to avoid

*If you would like more comprehensive safety training, the Alberta Construction Safety Association has a free 9 module online course called Construction Safety Training System (CSTS) The full program takes on average ninety minutes to two hours to complete, and is a nationally, recognized pre-entry requirement for many construction and industry work sites.*

### SAFETY EQUIPMENT

- PPE standards
- Boots
- Head gear
- Eye protection
- Hearing protection

[Link to Alberta Construction Safety Association Course](#)

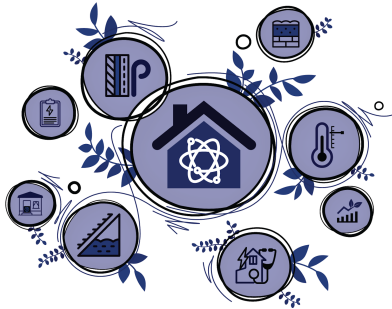
### ELECTRIC SHOCK AND FIRE HAZARDS

- Dangers of electricity
- BE SAFE acronym
- Situations to avoid

# Foundation Exam Prep

## COURSE OUTLINE

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## BUILDING SCIENCE

### Air Flow Mechanisms

#### THE PRESSURE'S ON!

Air flow mechanisms and pressure differences

- Overview
- Infiltration and exfiltration

#### THE WIND EFFECT

Pressure from the outside

- Behaviour of wind
- Measuring pressurization

#### THE STACK EFFECT

Pressure on the inside

- Impact of design and envelope
- Infiltration/Exfiltration

#### THE COMBUSTION/VENTILATION EFFECT

Pressure can be so exhausting

- Spillage susceptible equipment
- Testing for backdrafting
- Exhaust fans and make up air

#### DEPRESSURIZATION SUCKS

Pressure differences cause problems

- Combustion spillage
- Radon

### Heat Flow Mechanisms

#### HEAT WAVE

Heat moves in all directions

- 2nd law of thermodynamics
- Heat transfer explained

#### HEAT FLOW 1: RADIATION

Soak up the heat!

- Greenhouse effect
- Radiant heating delivery systems

#### HEAT FLOW 2: CONDUCTION

Heat gets physical

- Conductance/conductivity
- Conductive heating delivery systems

#### HEAT FLOW 3: CONVECTION

The rise and fall of heat transfer

- Molecular agitation
- Convective heating delivery systems

#### LIVING WITH THE HEAT

How heat flow mechanisms interact

- It's all connected
- Thermal stratification



# Foundation Exam Prep

## COURSE OUTLINE

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### Moisture Flow Mechanisms

#### MAKE A SPLASH

##### Moisture is enemy #1

- Pressure/temperature/gravity
- Why water is Enemy # 1

#### WATER AND PRESSURE

##### Gravity can be defied by pressure

- Bulk water leaks
- Capillary action
- Hydrostatic pressure

#### WATER VAPOUR

##### Air Flow vs Diffusion

- Humidity (Absolute/Relative)
- Water Vapour
- Vapour Diffusion

#### MOISTURE-RELATED POLLUTANTS

##### Some nasty travelling companions

- Condensation
- Mold

### Dynamics of Building Science

#### DYNAMIC TENSION

##### Reminder: everything is connected

- Building science dynamics overview

#### THERMAL BRIDGING

##### Materials that give you the cold shoulder

- Signs of thermal bridging
- Consequences

#### THERMAL BYPASSES

##### Sneaky leaks and hidden pathways

- Signs of thermal bypasses
- Consequences

#### ICE DAMMING

##### Icicles are not pretty

- How ice dams are formed
- Consequences

#### SOLAR VAPOUR DRIVE

##### When moisture pushes back

- How vapour drive happens
- Consequences

#### ATTIC RAIN

##### Water on the wrong side of the roof

- How attic rain forms
- Consequences

#### THE DEW POINT

##### It's psychrometric, baby!

- Define dew point
- The psychrometric chart

#### THE NEUTRAL PRESSURE PLANE

##### What's the over/under?

- Define neutral pressure plane
- Wind pressure differentials
- Air seal to stabilize and control

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#### TIMED MODULE ASSESSMENT: 50 QUESTIONS

# Foundation Exam Prep

## COURSE OUTLINE

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## CONTROL LAYERS

### Control Layers

#### THE ENVELOPE (FIRST), PLEASE

It's all about control

- Weather resistive barrier
- Air barrier
- Vapour barrier
- Thermal barrier

#### AIR BARRIERS ARE THE BEST!

Control air flow, solve many problems

- Materials
- Interior
- Exterior
- Consequences of poor continuity

#### CONTROLLING VAPOUR DIFFUSION

You say barrier, I say diffusion retarder

- Materials
- Positioning of VDR
- Consequences of no VDR/improper placement

#### WHAT'S THAT LAYER DOING?

Materials with one or more functions

- Characteristics of materials that have multiple functions

#### THE PERMEABILITY FACTOR

Houses don't have to breathe, they have to DRY

- Managing moisture for durability
- Consequences of a vapour sandwich

#### CONTROL THE FRESH AIR

Build tight, ventilate right

- Control air flow
- Provide fresh air
- Consequences of no mechanical ventilation

# Foundation Exam Prep

## COURSE OUTLINE

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### Air Sealing

#### AIR SEALING THE BUILDING ENVELOPE

##### The key control factor

- Blower door/thermal imaging
- Start at the foundation, work up
- Control over air movement

#### AIR SEALING THE FOUNDATION

##### Stop the stack effect

- Solve for moisture problems first
- Why air seal?
- Neutral pressure plane

#### AIR SEALING ABOVE GRADE WALLS

##### Keep those walls tight

- Continuity is key
- Interior or exterior air barrier
- Consequences of material choices

#### AIR SEALING AT WINDOWS & DOORS

##### Be a draft dodger

- Seal from interior and exterior
- Consequences of poor sealing

#### AIR SEALING AT CEILINGS & ROOFS

##### Batten down the hatches

- Penetrations and top plates
- Avoid ice dams and attic rain

#### VENTILATE RIGHT

##### Why we need mechanical ventilation

- Airborne pollutants
- Controlling RH in tighter envelope

### Insulation

#### WARMING UP TO BUILDING SCIENCE

##### What insulation does

- Heat transfer
- Measuring thermal resistance

#### GOT ENOUGH FIBRE IN YA?

##### Fibrous insulation characteristics

- Fibreglass
- Cellulose
- Mineral Wool
- Wood Fibre

#### FOAM IS IN THE HOUSE

##### Foam insulation characteristics

- Board (Type I, II, IV, graphene)
- Spray (Low/Med/High density)

#### TAKING MEASURE OF RESISTANCE

##### Calculating R-values - YES!!! Math!!!

- R, RSI, U factor
- Nominal vs. effective R-value

#### ARE YOU IN OR ARE YOU OUT?

##### Inboard and outboard insulation ratios

- Code requirements
- Consequences

#### UP, DOWN, IN, OR OUT?

##### Best insulation applications

- Below Grade
- Above Grade

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TIMED MODULE ASSESSMENT: 50 QUESTIONS

# Foundation Exam Prep

## COURSE OUTLINE

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## THE ENVELOPE FIRST PLEASE!

### Windows

#### WE LOVE/HATE WINDOWS

Windows are the weakest link

- Comfort and glazing choices

#### ANATOMY OF OPENINGS

The parts of windows, skylights and doors

- Windows and skylights
- Doors

#### GLAZING OVER IT ALL

Performance characteristics of windows

- Low Emissivity coatings
- Gas fill, spacers and frames
- Vertical Transmittance
- Solar Heat Gain Coefficient
- U-value

#### WHICH WINDOW WHERE?

Canadian standards and ratings

- Energy Star
- Climate Zone Ratings
- CSA 440 standard

### Healthy Indoor Environments

#### IS IT STUFFY IN HERE?

Defining a healthy indoor environment

- Investigating a house
- Symptoms of poor IAQ

#### ELIMINATE, VENTILATE, FILTER

How to solve for poor indoor air quality

- Eliminate, Ventilate, Filter
- Testing

#### WHAT'S LURKING IN THE BASEMENT?

Radon detection and mitigation

- What it is
- Testing and Mitigation

#### CHOICES AND THEIR CONSEQUENCES

Using healthy materials

- Construction and Envelope
- Finishes

#### BE A BIG FAN OF FRESH AIR

What is mechanical ventilation?

- Spot Bath/Range
- Whole House HRV/ERV
- How much?

# Foundation Exam Prep

## COURSE OUTLINE

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### BACKDRAFTING - IT'S NOT GOOD

Depressurization can bring your whole day down

- Why do we care?
- Symptoms you can see or smell
- How to test

## High Performance Houses

### BEST HOUSES EVER

High performance: here to stay

- 11 Sustainable Programs
- Characteristics of High Performance Construction

### HIGH PERFORMANCE BUILDING CODES

No more carrots, just sticks

- National programs and targets
- National Building Code Part 9.36
- BC Energy Step Code
- Tiered Code
- Climate Zone examples

### LOCATION LOCATION LOCATION

Climate influences the types of assemblies

- Permeability
- Impermeable assemblies
- Permeable assemblies
- How to calculate dew point

### WHAT ABOUT THIS OLD HOUSE?

Retrofitting is all this and more!

- Targets for reductions
- Type, vintage, climate zone
- Hazards

### UNINTENDED CONSEQUENCES

How to anticipate and avoid them

- When it goes wrong
- Integrated Design Process (IDP)

### WHAT'S COMING UP NEXT?

Preplanning and future proofing

- Preplanning
- Future proofing
- Resiliency

### TESTING TESTING, ONE TWO THREE

Commissioning houses is a thing

- Commissioning explained
- Benefits of commissioning

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TIMED MODULE ASSESSMENT:  
50 QUESTIONS

# Foundation Exam Prep

## COURSE OUTLINE

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## COMFORT AND ENERGY

### Mechanical Systems

#### SPACE CONDITIONING OVERVIEW

##### How to keep people comfortable

- How we provide comfort

#### THE COMFORT GENERATOR, PART 1

##### Space heating equipment

- Central systems
- Decentralized systems
- Controls

#### EXHALE THE BAD AIR

##### Vent types for fuel-fired equipment

- Natural
- Forced
- Condensing

#### GASPING FOR AIR

##### Depressurization and make up air

- Depressurization
- Make up air

#### MOVING THE HEAT AROUND

##### Space Heating Distribution Systems

- Forced air ducting
- High/low temp hydronic

#### THE COMFORT GENERATOR, PART 2

##### Space Cooling Equipment & Distribution

- Window A/C
- Central A/C w/ducting
- Heat pumps

#### MULTI-TASKING COMFORT

##### Combination and integrated mechanicals

- Space and water
- Space and ventilation
- Space/water/ventilation

# Foundation Exam Prep

## COURSE OUTLINE

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### GETTING INTO HOT WATER

#### Domestic hot water (DHW) systems

- DHW equipment
- DHW energy sources
- DHW distribution

### SAVINGS START BEFORE THE FAUCET

#### Reduce DHW in system design and layout

- Piping choices
- Piping layout for efficiency
- Drain water heat recovery
- Low-flow fixtures

### WHAT STYLE HEAT PUMP, PART 2

#### Energy's transferred, now what?

- Ductless, hybrid
- Central/ducted
- Hydronic tubing or fan coil

### AIR SOURCE HEAT PUMPS 101

#### Use the NRCAN guide to select and design

- Define Configuration
- Determine Load Estimates
- Identify and select ASHP
- Define the ASHP Control Strategy
- Define Backup Heating Needs

## Heat Pumps Are Space Conditioners

### THE HEAT TRANSFER PERFORMERS

#### How heat pumps work

- Heat transfer explained
- Parts of a heat pump

### USE THE SPACE CONDITIONER!

#### Heating, cooling, dehumidification

- Heating
- Cooling
- Dehumidification

### WHAT STYLE HEAT PUMP, PART 1

#### Ways that energy can be transferred

- Air to air
- Air to water
- Water to water
- Water to air

## Measuring Energy

### FUEL AND ENERGY

#### You can't have one without the other

- Fuel Types
- Energy Consumption
- Energy Efficiency ratings

### ENERGY EFFICIENCY METRICS

#### You can't manage what you don't measure

- EUI
- TEDI
- MEUI
- ACH

### MEASURING UP COMFORT

#### Calculate equipment size and system design

- Overview
- F280 Heat loss/heat gain calculation

# Foundation Exam Prep

## COURSE OUTLINE

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### SUPPLYING FRESH FILTERED AIR

Whole house ventilation: more than HRV

- F326: how to calculate
- Natural air change rate
- Calculating air flow (cfm and L/s)
- Calculating make-up air
- Garbage bag flow test

### BILINGUAL MATH

Key conversions for Energy Advisors

- Metric and imperial units
- Insulation values
- Effective R value

## Renewable Energy for Houses

### THE SUN IN THE SKY

Don't look a gift horse in the mouth!

- The solar cycle

### MAKING SOLAR ENERGY USEFUL

Collect, store, and distribute solar gain

- Collect: Windows, greenhouse effect
- Store: Envelope, thermal mass
- Distribute the heat

### BE COOL LIKE NATURE

Natural ventilation and shading

- Stack, cross & night ventilation
- Shading: orientation, seasonal

### ACTIVE SOLAR HEAT

Water and air solar thermal systems

- Flat Panel or Evacuated Tube
- Open loop or Closed Loop

### ON-SITE ENERGY GENERATION

Solar and wind-driven electricity

- Fundamentals of system design

### PHOTOVOLTAICS (PV) FOR HOUSES

What makes solar electric hum?

- Cells, panels, balance of system

### HOW MUCH PV IS ENOUGH?

How to rough size a PV system

- How to do a rough size calculation

### WHAT'S BLOWING IN THE WIND

Turbines, site planning, and rough sizing

- Turbine types
- Site

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TIMED MODULE ASSESSMENT:  
50 QUESTIONS



# Foundation Exam Prep

## COURSE OUTLINE

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## BE PREPARED

### BE PREPARED

#### How to study for your exam

- Sequence of questions
- Duration of exam
- When NOT to study

### TOP 100 CHALLENGES

#### Review the key competencies

- Which are crucial?

### WE'RE JUST PLAYING WITH YA

#### Games for memorization

- Jeopardy-based games

### EVERYTHING BUT THE KITCHEN SINK

#### Other study aids

- Review course & transcripts
- Watch these videos
- Do these challenges

### DON'T SECOND GUESS!

#### Multiple choice exam strategies

- Read through
- Easy → hardest
- First thought, best thought

### COURSE WRAP UP

You made it! Congratulations

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**TIMED PRACTICE ASSESSMENT:**

**150 QUESTIONS**



# Energy Advisor (HOUSE) Exam Prep

## COURSE DESCRIPTION

This course covers the competency guidelines for Natural Resources Energy Advisor (HOUSE) Exam. The guidelines are broken out into 4 main categories:

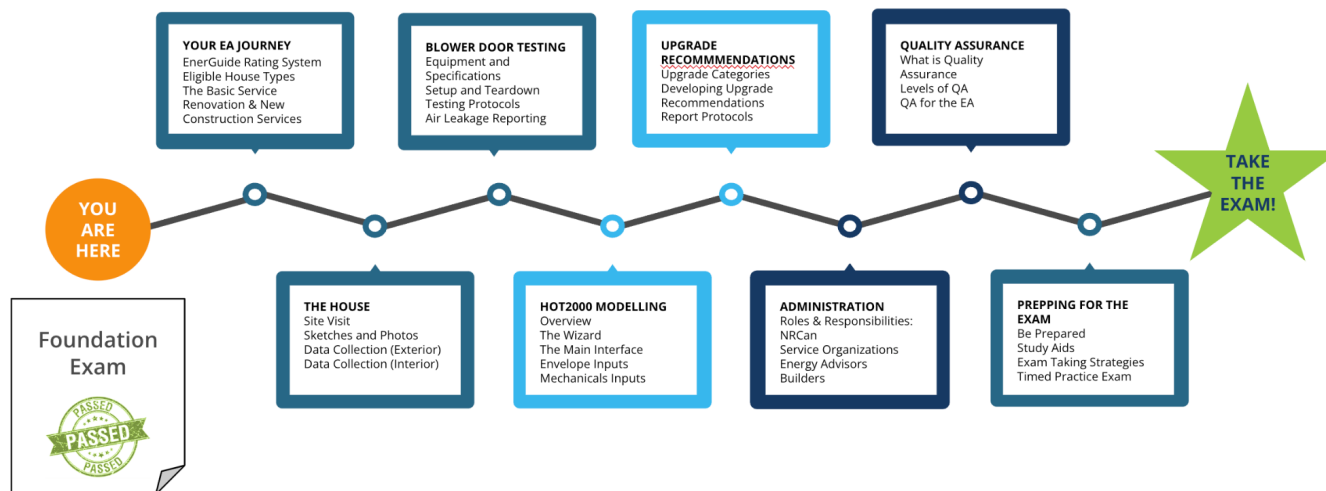
1. The EnerGuide Rating System (ERS)
2. Modelling in HOT2000 v.11
3. Administration
4. Quality Assurance

This course reflects the specific information you need to know about the technical and administrative requirements that you will be working with every day as an Energy Advisor. You will need to memorize a lot of information that NRCAN has provided in online handbooks and manuals. When you're in the field, you don't need to keep it all in your head. But you will need to study hard to pass the exam.

There are fewer categories and fewer lessons in the Energy Advisor (HOUSE) Exam Prep when compared to the broad-base of the Foundation Exam Prep, but there's just as much effort required! You need to memorize a large amount of information that is not as intuitive as Foundation. Also, nobody has the advantage of experience in the home construction or renovation industry or other learning. This exam is all about protocols, tasks, and roles that are specific to the EnerGuide Rating Service.

# Energy Advisor (HOUSE) Exam Prep

## COURSE OUTLINE



Here's how it goes. You start with the basics - what is the EnerGuide Rating Service (ERS). This outlines the four separate services for new and existing houses that an Energy Advisor can provide.

Then, you learn about the site visit, equipment, and what data you need to collect from inside and outside the house as well as how to carry out a variety of tests using the blower door apparatus.

Once you've got the data, it's time to input it into HOT2000, the energy modelling software used in the ERS. You learn about the Wizard, The Main Interface, creating a base model and then how to identify and develop upgrade recommendations and reports. (NOTE: you don't have access to the reporting module until you are a registered EA, so the exam focusses on the protocols for reporting)

Then there's the paperwork side of the ERS: Administration defines the different roles and responsibilities and how you get registered and licensed. Quality Assurance clarifies the roles and responsibilities further, you learn who reviews your files, and what to do to check off your own work.

The final module is all about how to prepare for the actual exam: tips, strategies, and a timed practice exam that will help you get comfortable with the multiple choice exam format.

Use the links below to jump to the outline of each section or module:

[EnerGuide Rating System](#)  
[The House](#)  
[Blower Door Testing](#)

[HOT2000 Modelling](#)  
[Developing Upgrade Recommendations](#)

[Administration](#)  
[Quality Assurance](#)  
[Prepping for the Exam](#)

# Energy Advisor (HOUSE) Exam Prep

## COURSE OUTLINE

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# Energy Advisor (HOUSE) Exam Prep

## LEARNING OBJECTIVES

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### EnerGuide Rating System (ERS)

- Describe of the EnerGuide Rating System (ERS), its communication tools and its related services
- Explain of the EnerGuide rating and it's related terminology and calculations
- Explain the ERS Services: Basic, Construction Blower Door, Construction Upgrade for New Homes and Renovation Upgrade
- Demonstrate knowledge of data collection requirements for building components and mechanical equipment

### Blower Door Testing

- List the parts and specifications of blower door testing equipment
- Identify the various tests that can be performed with the blower door testing equipment
- Demonstrate knowledge of the air leakage location identification procedure

### HOT2000 Energy Modelling

- Demonstrate how to set up a house file in HOT2000 and save and store it properly
- Identify data input requirements for each building component and mechanical system
- Complete the data entry of house information into the screens correctly
- Describe how to generate reports from the software

### Developing Upgrade Recommendations

- Identify the categories of energy efficiency upgrade recommendations
- Describe recommendations in each category
- Explain how upgrade recommendations are prioritized
- Explain the Renovation Upgrade Report

### Administration

- Explain the roles and responsibilities of the various stakeholders involved in the EnerGuide Rating Service
- Explain the Registration, Licensing, Designation, Re-qualification, Suspension and Delicensing processes

### Quality Assurance

- Explain the importance of conducting quality assurance activities
- Identify and explain the various levels of QA in the Energy Rating System
- Understand the QA responsibilities of an Energy Advisor

### Preparing for the Energy Advisor Exam

- List preparations required for the exam
- Apply strategies for choosing the best answer during the exam
- Schedule the exam

# Energy Advisor (HOUSE) Exam Prep

## COURSE OUTLINE

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### ENERGUIDE RATING SYSTEM

#### KICKSTART YOUR EA JOURNEY

##### Foundation Complete, on to the ERS!

- Energy advisors
- Energy intensity
- Greenhouse gas emissions
- Operating conditions

#### BASICALLY, IT'S THE ERS

##### The Basic Service (Rating)

- EnerGuide label
- Homeowner information sheet
- HOT2000 warnings

#### GOING ON A HOUSE HUNT

##### Eligible House Types

- Eligible residential housing
- Eligible mixed-use buildings
- State-of-home requirements
- Refusing service
- Risk assessment

#### ON HOME BASE

##### Introduction To The 4 ERS Services

- Overview

#### START AT THE BEGINNING

##### The Basic Service

- Tasks
- Data collection

#### LOOK TO THE FUTURE

##### Renovation & New Construction Services

- Renovation Upgrade Service
- Construction Upgrade Service
- Construction Blower Door Service

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TIMED MODULE ASSESSMENT: 25 QUESTIONS

# Energy Advisor (HOUSE) Exam Prep

## COURSE OUTLINE

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## THE HOUSE

### HARVEST THE HOUSE

#### Onsite Data Collection

- Equipment
- Photos

### INDULGE YOUR INNER PICASSO

#### Sketches And Dimensions

- Protocols
- Geometry calculations

### TAKE A WALK OUTSIDE

#### Exterior Data Collection

- Protocols
- Foundations
- Windows and doors

### INSIDE THOUGHTS

#### Interior Data Collection

- Protocols
- Foundations
- Above Grade

### CONDITIONED FOR COMFORT

#### Space Conditioning Data Collection

- Heating and cooling systems
- Heat pumps
- Supplementary Heating

### CARRY THE WATER

#### Domestic Hot Water Data Collection

- Storage tanks, tankless, indirect
- Hot water heat pumps (HWHP)
- Solar Thermal DHW

### BLOWING IN THE WIND

#### Ventilation Data Collection

- Whole House Ventilation
- Spot Ventilation

### ONGOING CONTRIBUTIONS

#### Renewable Energy Data Collection

- Photovoltaics (PV)
- Wind
- 

## Blower Door Testing

### BIGGEST FAN OF BUILDING SCIENCE

#### Blower Door Testing

- Components and equipment
- Specifications and calibration
- Types of Tests

### DON'T BLOW THE TEST

#### Airtightness Testing Protocols

- CGSB, As Operated
- Depressurization
- Blower door zones

### EVALUATING YOUR BIGGEST FAN

#### Blower Door Testing

- Evaluating the blower door test
- Airtightness test results calculations

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TIMED MODULE ASSESSMENT: 25 QUESTIONS

# Energy Advisor (HOUSE) Exam Prep

## COURSE OUTLINE

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### MODELLING IN HOT2000

#### MODEL ENERGY

##### Introducing Modelling in HOT2000

- Basic inputs
- Preferences
- Help menu
- User Guide

#### CONJURE A HOUSE IN 5 STEPS

##### The House Wizard

- Limitations
- Creating a house file
- Basic input screens

#### EVALUATE THE ENVELOPE

##### Envelope Components Above Grade

- Modelling ceilings and roofs
- Modelling walls
- Modelling floor headers
- Modelling windows and doors
- Modelling exposed floors

#### BUILDING THE BASE

##### Envelope Components Below Grade

- Foundations in General
- Modelling basements
- Modelling crawlspaces
- Modelling slab-on-grade
- Natural Air Infiltration

#### FROM SCRATCH MODEL

##### The Code Editor

- House info tabs
- Code Selector
- Favourite Codes
- Code Editor
- Nominal RSI/R Value
- Hot Keys

#### ENERGY IN - ENERGY OUT

##### Modelling Mechanical Systems

- Base loads
- Modelling renewable systems
- Modelling heating and cooling systems
- Modelling hot water systems

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TIMED MODULE ASSESSMENT: 25 QUESTIONS



# Energy Advisor (HOUSE) Exam Prep

## COURSE OUTLINE

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### DEVELOPING UPGRADE RECOMMENDATIONS

#### UPGRADES ARE NOT JUST FOR SEATS

##### Renovation Upgrade

- How to access upgrade screens
- Basic inputs

#### REPORTING FOR ENERGY DUTY

##### Generating Reports

- ERS calculation
- File name protocols
- Evaluation codes

#### CUSTOM ENERGY SOLUTIONS

##### Introduction To Developing Upgrades

- Recommendation criteria
- Upgrade categories
- Sequencing and prioritizing

#### WRAP UP ENERGY SAVINGS

##### Developing Envelope Upgrades

- Air sealing recommendations and factors
- Ventilation requirements
- Insulation recommendations and limiting factors
- Moisture and repair
- Combustion spillage

#### MECHANICAL MAKE OVERS

##### Developing Mechanical System

##### Upgrades

- Heating and cooling systems
- Thermostats
- Water heaters
- Ventilation systems
- Air conditioning
- Renewable energy

#### REPORTING REVELATIONS

##### Developing the Renovation Upgrade

##### Report

- Key elements
- Energy action roadmap
- Energy calculations
- Warnings

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TIMED MODULE ASSESSMENT: 25 QUESTIONS

# Energy Advisor (HOUSE) Exam Prep

## COURSE OUTLINE

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### THE PAPERWORK

#### ROLES AND RESPONSIBILITIES

##### Introduction To Administration

- Code of Ethics
- Code of Conduct
- Conflict of Interest

#### NRCAN'S ROLE

##### Administration Responsibilities

- Database & QA Duties
- Official marks and identifiers

#### THE SERVICE ORGANIZATION

##### Administration Responsibilities

- Administrative & QA Duties
- Marketing Duties
- Recruitment Duties

#### KEEPING TABS ON FILES

##### Responsibilities of the Quality Assurance Specialist (QAS)

- Role & Duties

#### MANAGING THE TEAM

##### Role And Responsibilities Of The Service Organization Manager (SOM)

- Role & Duties

#### ENERGIZING EXPERT EMPOWERED

##### Role And Responsibilities of the Registered Energy Advisor (REA)

- Role & General duties
- Delivering services

#### CONSTRUCTING EFFICIENCY

##### Responsibilities Of Builders

- Role & Duties

#### LICENSE TO SAVE

##### Registration and Licensing

- Designating service providers
- Exams
- Probationary field files

#### THE POWER OF CONSEQUENCE

##### Suspension and Delicensing

- Major and minor infractions

### Quality Assurance (QA)

#### ENSURING EXCELLENCE

##### Introduction To Quality Assurance

- QA Objectives
- Who does QA

#### LEVEL UP

##### Levels of Quality Assurance

- Audit levels
- EA self-QA

#### KEEPING YOUR HOUSE IN ORDER

##### Quality Assurance for Energy Advisors

- Energy Advisor QA responsibilities
- Documentation retention

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TIMED MODULE ASSESSMENT: 25 QUESTIONS

# Energy Advisor (HOUSE) Exam Prep

## COURSE OUTLINE

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### Exam Preparation

#### BE PREPARED

How to Study for Your Exam

#### WE'RE JUST PLAYING WITH YA

Question and Answer Games for  
Memorization

#### DON'T SECOND GUESS

How to Use Multiple Choice Exam  
Strategies

#### PRACTICE PRACTICE PRACTICE

Full-Length Timed Assessment