Home Energy Audit Training

Energy audits have increased as the demand grows to lower expensive energy costs and move towards a sustainable future. There are tax credits from cities and the federal government for homeowners who implement recommendations made as a result of an energy audit. In this course you will learn the fundamentals of building science – thermodynamics, heat systems and transfer, moisture and humidity, airflow, insulation, thermal boundaries, R/U values, pressure boundaries, air sealing, blower door technology, ventilation, building calculations, combustion science and testing and energy conservation strategies.

Course Materials

- Residential Energy Textbook
- Online course access w/ instructor led streaming video
- Technical support via phone or email
- Exam Simulator
- Data Collection Form
- BPI Building Analyst, BPI Building Envelope and RESNET content

Course Outline

Intro
- Building Performance Institute
- Course Textbook: "Residential Energy"
- BPI Building Analyst (BA) Standards
- BPI Envelope Professional (EP) Standards

Energy Basics
- First 2 Laws of Thermodynamics
- Energy Types
- Energy Units
- Fuel Types
- Heat Transfer Mechanisms
- Temperature and Delta “ΔT”
- Relative Humidity and Moisture
- Air Movement within Buildings
- Baseload Calculations/Client Interview

Building Assessment
- Building Envelope
- Heat Flow
- Defining Thermal & Air Boundaries
- Fenestration
- Calculating Conductive Heat Loss
- Area & Volume Calculations
- Building Diagnostics
- Blower Door Evaluation

Air Leakage
- Blower Door Evaluation
- Building Airflow Calculations
- Mechanical Ventilation
- Calculating Convective Heat Loss
- Cost Effectiveness of Retrofits
- Combustion Appliance Issues
HVAC Systems
- Equipment Identification
- Fuels
- Distribution Types
- Vent Design
- Efficiencies
- Combustion Safety

Water Heating
- Equipment Type
- Venting Type
- Age & Condition
- Energy Factors
- Savings Tips

Lighting & Appliances
- Consumption Data
- Lighting Efficacy
- Appliance Info & Tips

Health & Safety
- Personal Responsibility
- Electrical
- Ladders
- Respiratory

BPI Field Evaluation
- Field DVD Here

Duct Blaster Testing (Optional)
- Equipment
- Why Test Duct Leakage?
- Total Leakage Protocol
- Leakage to Outside Protocol
- Results
- Equivalent Leakage Area

RESNET Standards (Optional)
- HERS Index
- MINHERS
- Appendix A
- National Rater Test Study Guide
- Home Energy Rating Standards of Practice
- Rating and Home Energy Survey Code of Ethics
- Home Energy Rating Standard Disclosure
- Procedures for Certifying Residential Energy
- Efficiency Tax Credits for New Homes

Software

A 90-minute Field Training DVD – This video takes you through an existing home energy audit from start to finish. It includes worst case combustion safety testing of furnaces, boilers and water heaters, blower door setup and air leakage testing, advance pressure diagnostics, indoor air quality and durability inspections and much more.

A Data Collection Form – this form follows along the video and details step by step how to set-up and perform each diagnostic test, space to record appropriate observations, and guidance on necessary calculations.

Residential Energy Textbook – The best book available on home energy conservation. This book introduces readers to a home’s energy-related components and explains all the important possibilities for energy conservation. Readers will learn that effective energy conservation requires a whole-house approach that addresses the biggest energy wasters first.

Exam Simulator – Our practice exams are designed to prepare you to pass the BPI Building Analyst and RESNET exam.