

## H-HEAT-1A Home Efficiency Auditor Testing Facility

### Description

With today's limited supply and rising costs of producing and delivering energy, there is an increased demand for building green buildings and retro-fitting existing buildings to be more environmentally friendly. By using recycled building materials, air tight construction, Energy Star rated appliances, modern refrigerants and HVAC controls along with multiple uses for resources, we can greatly reduce the amount of energy being used by the home owner. To this end there is now a great need for highly trained auditors that have the capability to perform detailed inspections and make cost effective recommendations on improving a homes efficiency.

The Hampden **MODEL H-HEAT-1A** Home Efficiency Auditor Testing Facility is built to mimic an actual home with components used in a new **GREEN** home. The H-HEAT-1A will allow potential auditors to learn the proper techniques in performing a complete energy audit. Some of the areas covered are consistent data collection, insulation inspection, HVAC analysis, base load consumption, air leakage, energy usage, along with many more vital areas. Along with helping develop these skills the Hampden **MODEL H-HEAT-1A** is provided with an intricate fault package. This fault package will create a realistic situation that will require the auditor to diagnose the problem and specify maintenance or repair.



H-HEAT-1A Home Efficiency Auditor Testing Facility

### Specifications

The Hampden **MODEL H-HEAT-1A** is a 10'L x 8'W x 9'-6"H green building that is built on a movable skid and outfitted with the following components:

- Roof-mounted solar collectors for electricity (4)
- Solar panel charge controller
- Marine battery
- Battery box
- Fuse
- DC to AC Inverter 375 watt
- Electricity usage meter
- Air conditioning system (R-410A)

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All Hampden units are available for operation at any voltage or frequency

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# Green Energy

Educational Training Equipment for the 21st Century

- External disconnect
- Condensate pump
- Variable speed, forced air heating system
- Gas burner
- Gas burner emergency disconnect switch
- Gas burner air supply and exhaust vent
- Gas line shut-off valve
- Fully insulated resources compartment with lockable handle
- Start-up instructions plate
- 30 Lb Propane cylinder with mounting plate
- Ceiling fan
- Ceiling fan control switch
- Programmable digital thermostat
- Fully insulated duct work
- 6" x 12" Air supply register
- 12" x 18" Air return register
- Insulated triple pane windows (4)
- Insulated vinyl sliding patio door (1)
- Insulated steel entry door
- 30 Amp electrical panel with circuit breakers
- 50' Power cord with automatic cord reel
- Matching receptacle
- Fully insulated walls
- Hinged wall panel to remove insulation
- Fully insulated ceiling
- Hinged ceiling panel to remove insulation
- CFL Light fixture (2)
- LED Recessed light fixture (1)
- Light switch (1)
- Duplex receptacles (3)
- Gable vents (2)
- Ridge Vents (2)
- Jacking castors (4)
- 4' x 2' Sign panel (1)
- T-111 External wood siding
- TYVEK® house wrap
- Interior/exterior intercom system

## Hampden Courseware

- Sustainable Construction and Design (25 Sets each included)
- Hampden Engineering Corporation H-HEAT-1 Binder

## Test Equipment

Hampden **MODEL H-HEAT-TEP** Test Equipment Package Consisting Of:

- 1 - Gas Leak Detector Kit
- 1 - Digital Combustion Analyzer
- 1 - Digital Temperature Meter
- 1 - Digital Multimeter
- 1 - Blower Door with Duct Leakage Tester & with Digital Manometer
- 1 - Power Analyzer
- 1 - Thermal Imaging Camera
- 1 - Duct Blaster
- 1 - Pressure Pan w/ Handle
- 1 - Manifold Gauge Set w/ Hoses
- 1 - Sling Psychrometer
- 1 - Clamp-on Power Meter
- 2 - Pocket Air Flow Tracker
- 1 - Glass Thermometer -40 to 160°F
- 1 - Glass Thermometer 0 to 220°F

## Optional Curriculum Offered by HVAC Excellence

### 1: Orientation

- Energy Audit Overview
- The Energy Auditor
- Diagnostic Equipment
- Green Awareness / Terminology (Certification)

### 2: Safety

- Safety
- OSHA 10 Certification

### 3: General Competencies

- Computer Literacy

### 4: Customer Relations

- Customer Relations

### 5: Mechanical Training

- Principles of AC&R
- EPA Section 608
- R-410A Training
- Basics of Heating Systems
- Combustion Analysis
- Basic Electricity

### 6: Mechanical & Envelope Evaluation

- Introduction to Heat Transfer
- Building Envelope Analysis
- Window and Doors
- Heat Gain and Heat Loss Calculations
- Mechanical Data Collections
- Exterior Insulation, Siding, Windows

### 7: Airflow

- Airflow Properties and Measurements

### 8: Building Pressure Analysis

- Blower Door
- Duct Blaster Lab

### 9: Infrared Imaging

- Introduction to Infrared Imaging

### 10: Indoor Environmental Quality

- Health and Safety
- Mold, Lead, and Asbestos

### 11: Baseload Measures

- Baseload Measures

### 12: Domestic Water

- Water Heating Systems
- Water Auditing

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