Introduction to Weatherization Annotated Instructor's Guide

Module 59101-10

Module Overview

This module introduces trainees to home weatherization including the purpose and benefits of the program. Trainees will learn how homes gain and lose heat energy and how those losses can be reduced by sealing the building shell and by adding insulation.

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Explain the purpose, benefits, and origins of the home weatherization program.
2. Explain how home weatherization goals are met by reducing heating and cooling losses and by reducing air infiltration.
3. Describe how sources of heating and cooling losses and air filtration points are located.
4. Describe the methods and materials used to reduce heating and cooling losses and to stop air infiltration.
5. Describe how the different components that make up the building shell can affect a home's energy usage.

Performance Tasks

This is a knowledge-based module; there are no performance tasks.

Materials and Equipment

Markers/chalk
Pencils and scratch paper
Whiteboard/chalkboard
Introduction to Weatherization
PowerPoint® Presentation Slides
(ISBN 978-0-13-249342-0)
Multimedia projector and screen
Desktop or laptop computer
Appropriate personal protective equipment
Blower door (optional)
Infrared camera (optional)
Samples of insulating materials
Flexible insulation
Rigid foamboard
Loose-fill insulation
Spray-in-place insulation
Spray foam
Samples of caulks, sealants, and weatherstripping
Compact fluorescent lamps
Light-emitting diode lamps
Module Examinations*

* Single-module AIG purchases include the printed exam. If you have purchased the perfect-bound version of this title, download the exam from the IRC using your access code.

Safety Considerations

Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. Trainees may be exposed to hazardous materials and may be required to work with certain materials such as insulation and/or sealants that require special protective equipment. Make sure that all trainees are briefed on appropriate safety procedures.

Additional Resources

This module is intended to present thorough resources for task training. The following reference works are suggested for both instructors and motivated trainees interested in further study. These are optional materials for continued education rather than for task training.

Insulate and Weatherize. Newtown, CT: Taunton Press.

Insulating Materials. Basel, Switzerland: Birkhauser Publishers for Architecture.

Thermal Insulation Building Guide. Malabar, FL: Krieger Publishing Company.

Teaching Time For This Module

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 17½ hours are suggested to cover *Introduction to Weatherization*. You will need to adjust the time required for hands-on activity and testing based on your class size and resources.

Topic	**Planned Time**
Session I. Introduction; Weatherization Concepts	
A. Introduction	_____
B. Weatherization Concepts	_____
1. Home Health and Safety	_____
2. Equipment Condition	_____
3. Tightness of the Building Shell	_____
4. Home Lighting	_____
5. Heat Loss and Heat Gain	_____
6. Air Infiltration	_____
Sessions II–III. Finding Air Leaks; Inadequate Insulation	
A. Visual Inspection of the Home	_____
B. Finding Air Leaks	_____
1. Finding Air Leaks With a Blower Door	_____
C. Finding Inadequate Insulation	_____
Session IV. Weatherizing a Home, Part One	
A. Adding Insulation	_____
1. Types of Insulation	_____
2. Flexible Insulation	_____
3. Rigid Foam Board	_____
4. Loose-Fill Insulation	_____
5. Spray-in-Place Insulation	_____
6. Spray Foam Insulation	_____

Session V. Weatherizing a Home, Part Two

A. Sealing Air Leaks _____
   1. Caulks and Sealants _____
   2. Weatherstripping _____
B. Losses Through Windows and Doors _____
   1. Upgrading Windows and Doors _____
   2. Replacement Windows _____
   3. Replacement Doors _____
C. Energy-Efficient Roofs _____
D. Sealing and Insulating Air Ducts _____

Session VI. Reducing the Baseload

A. Appliances _____
   1. Refrigerators _____
   2. Other Appliances _____
   3. Water Heaters _____
B. Lighting _____
C. The Energy Auditor as Educator _____

Session VII. Careers in Weatherization; NCCER Training; Review and Testing

A. Careers _____
   1. Weatherization Technician _____
   2. Weatherization Crew Chief _____
   3. Energy Auditor _____
B. NCCER Training _____
C. Advancement Opportunities in Weatherization _____
D. Module Review _____
E. Module Examination _____
   1. Trainees must score 70 percent or higher to receive recognition from NCCER.
   2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.