SUCCESS WITH HOME ENERGY UPGRADES

What every contractor needs to know.

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INTRODUCTION

DISCLAIMER: These tools are for illustrative purposes only and do not always align with the Energy Trust Existing Homes Specifications.

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Mission + Company History

Advanced Energy's Applied Building Science team is committed to ensuring that every home in the nation is healthy, safe, durable, comfortable, energy efficient and environmentally responsible. Our staff of building science experts provides training and consultation services to a variety of clients in the building industry. Specializing in new construction, existing home retrofit and affordable housing, our programs and partnerships with utilities, program implementers, builders, building product manufacturers, municipalities and government agencies have resulted in more than 200,000 energy-efficient homes nationwide.

With more than 30 years of experience developing and delivering effective building science products and programs, Advanced Energy is your trusted partner in helping you exceed your program or company goals. For more information about the Applied Building Science team or our training products, contact 919.857.9000 or visit www.AdvancedEnergy.org/buildings.

Created in 1980, Advanced Energy was established largely through the efforts of the North Carolina Utilities Commission with the cooperation of the state's electric utility industry. The organization supports a wide variety of clients and partners nationally and internationally, including utilities, government agencies, municipalities and other stakeholders involved with energy efficiency efforts. Our staff of experts provides training, consulting and testing services with specialized expertise in the areas of applied building science, industrial processes and commercial buildings, motors and drives and transportation. Essentially, Advanced Energy is bringing energy efficiency to your home, your workplace, the places you go and the vehicles you take to get there.

MORE INFORMATION www.AdvancedEnergy.org

APPLIED BUILDING SCIENCE

Applied Building Science

The applied building science training process is based on a whole-house systems approach combining technical building science knowledge with decades of experience in new construction, existing home retrofit and affordable housing. Our portfolio of *Success* training products ensures participants successfully implement what they learn by going beyond classroom instruction and providing the practical tools, methods and processes for use in the field.

Success trainings:

1. Give participants tools documenting critical details, steps and work processes to ensure successful implementation in the field

2. Link participants to Advanced Energy's 30 years of building science experience and team of experts

3. Train participants on standard work processes that increase productivity and reduce waste

MORE INFORMATION www.AdvancedEnergy.org

SUCCESS WITH HOME ENERGY UPGRADES

What every builder needs to know.

Learn to implement code requirements right the first time with Advanced Energy's *Success With Home Energy Upgrades* training for contractors. In this course, Advanced Energy simplifies and guides contractors and installers through the process.

Topics covered during presentations:

- Introduction to major changes to the code
- Introduction to a prevention-oriented culture and establishing standard work processes
- Basic building science techniques
- Field implementation techniques for:
    - Duct Sealing
    - Duct Repair
    - Air Sealing
    - Insulation Preparation
    - Insulation Installation

Health + Safety Information Sheet

HOME ENERGY UPGRADES

OSHA REGULATIONS

OSHA regulations must always be followed when completing any home energy upgrades. Ensure the measures below are addressed:

- Work site operations are conducted in compliance with OSHA regulatory requirements.
- Workers are trained in the hazards of their job and the methods to protect themselves.
- Workers are provided the protective equipment needed to reduce site exposures.

EPA GUIDELINES

EPA) has developed the Healthy Indoor Environment Protocols for Home Energy Upgrades to provide guidance on improving or maintaining indoor air quality and indoor environments during home energy upgrades, retrofits. It addresses these measures:

- Contaminants
- Critical Building Systems
- Safety

Health + Safety: Introduction

Home energy upgrades can decrease an occupant's energy bills while increasing the comfort of the home. However, home energy upgrade activities may negatively affect indoor air quality if appropriate health and safety measures are not put in place. It is important for an assessment to be completed prior to beginning any work. As always, it is required for all contractors to follow OSHA regulations. By law, employers and supervisors are required to ensure that:

1. Work site operations are conducted in compliance with OSHA regulatory requirements.

   Site plans should address safety and health and should include precautions to address multiple construction issues. Measures an employer needs to take to evaluate existing and potential health concerns, as well as recommended actions to ensure worker safety, are also included in Table 2. Free help with developing these plans is often available from state or federal training (consulting) programs.

2. Workers are trained in the hazards of their job and the methods to protect themselves.

3. Workers are provided the protective equipment needed to reduce site exposures.

   When possible, choose construction products whose manufacturers disclose all ingredients and verify that they are free of formaldehyde, mercury and other known toxic substances.

   When known pollutants are being produced or disturbed during retrofit activities, follow appropriate standards (including OSHA, NIOSH, EPA lead safe, and BPI) to minimize worker and occupant exposure.

The U.S. Environmental Protection Agency (EPA) has developed a guide specific to the home energy retrofit industry to supplement OSHA requirements. This guide, the Healthy Indoor Environment Protocols for Home Energy Upgrades provides practical guidance on improving or maintaining indoor air quality and indoor environments during home energy upgrades, retrofits or remodeling.

These protocols apply to existing single-family and multi-family low-rise residential buildings and are intended for use by the home energy retrofit industry. They provide guidance for conducting home assessments and undertaking the responses necessary to maintain or improve indoor air quality and safety. The protocols also can help improve the quality of home weatherization projects and other energy-efficiency retrofit or remodeling jobs, thus reducing failures and call-backs.

The full document may be found in the appendix or online here:
http://www.epa.gov/iaq/pdfs/epa_retrofit_protocols.pdf

Healthy Indoor Environment Protocols

The Healthy Indoor Environment Protocols for Home Energy Upgrades includes the topics listed below:

- Contaminants

  This section contains information on common contaminants, such as lead, mold, asbestos, pests and radon. For each contaminant, it provides information on how to assess if the contaminant exists and how to mitigate issues.

- Critical Building Systems For Healthy Indoor Environments

  This section contains information on heating and ventilation systems in a home. Each measure provides a list of items

to assess and actions to take if the measure is not working properly.

- Safety

  This section contains information on creating a safe environment for both the occupants and the contractors completing home energy upgrades.

In the appendix, we have included the complete Healthy Indoor Environment Protocols for Home Energy Upgrades for your use. We recommend that both assessors and installers keep the guide with them during on-site visits for guidance. Note this document should be used in addition to OSHA regulations.

Occupant Health + Safety

Advanced Energy believes that every retrofit project should result in a more healthy, safe, comfortable, durable, energy efficient and environmentally responsible home. We also believe a house is a system, meaning all parts of the house are interactive and interdependent. Proper air sealing of a house includes ensuring combustion appliances work properly and considering fresh air ventilation. It's important to realize air sealing can affect each part of the house in an adverse way, creating unhealthy conditions for the occupants, durability issues for the home and considerable risk and liability for you the retrofit contractor.