# House as a System

# Weatherization Installer/Technician Fundamentals

Learning Objectives

By attending this session, participants will be able to:

* Summarize the basic interrelation of home components.
* Recognize that changes made now can create issues that emerge as damage years later.

Key Terminology

Air barrier

Ice dam

Indoor air quality (IAQ)

Thermal boundary

Supplemental Materials

Handouts & Resources

Boles, Bill. “Missteps with Mold.” *Home Energy* 19 June 2006. <www.homeenergy.org>.

Lstiburek, Joseph, and John Carmody. “Fundamentals of Moisture in Houses.” *Home Energy* Nov./Dec. 1995. <www.homeenergy.org.>.

Partnership for Advancing Technology in Housing (PATH). “Your House Is a System: Tips for the Handy Homeowner.” Jan. 2006. <www.pathnet.org>.

Van der Meer, Bill. “Avoiding Moisture Problems.” *WTC Technical Update 1*. Weatherization Training Center at Pennsylvania College of Technology. Feb. 2003. <www.pct.edu>.

On-line Platform Lessons

Use these on-line interactive training modules as prerequisites before students attend the course or as in-class computer lab sessions. Users must first create an account at [www.nterlearning.org](http://www.nterlearning.org) to access.

i- 3.6 House as a System part 2 Assessment <https://www.nterlearning.org/web/guest/course-details?cid=2005>

i- 3.6 House as a System part 2 Explanatory <https://www.nterlearning.org/web/guest/course-details?cid=2005>

i- 3.6 House as a System part 2 Guided <https://www.nterlearning.org/web/guest/course-details?cid=2005>

Relevant Standard Work Specifications

3.000 – Air Sealing

4.000 – Insulation

5.000 – Heating and Cooling

6.000 – Ventilation

Class Overview

* Use the presentation and in-class discussion to teach students the concept of each house as an interrelated system of components.
* Walk students through a situation that might lead to problems for residents later and have students answer what future problems will arise if you encounter:
  + A home with no bath fan or hood exhaust that has been air sealed, or has kerosene space heaters.
  + An older furnace replaced with a 90+ direct vent appliance, orphaning the water heater.
* Introduce the concept of mounting savings by discussing:
  + Air sealing and insulating reduce the load on heating and cooling appliances, making it possible to downsize equipment.
  + Sealing ducts gets conditioned air where it belongs, reducing the need for extra space heaters in rooms far from the source.
  + Air sealing and insulating attic prevents warm, moist air from escaping the house, reducing the heating bill and preventing ice dams and costly repairs associated with them.