

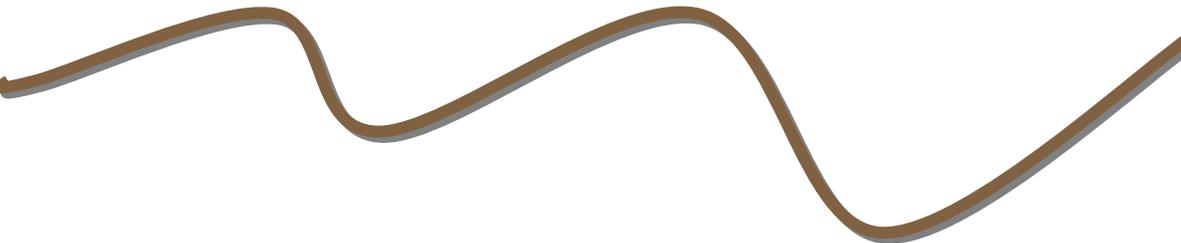
# Training on a Shoestring

**Jeff Tiller, PE**

**Appalachian State University  
Energy Center**



# Outline



- **The Big Why (and How)**
- **Zero In: Targeting Your Market**
- **Be Real: Establishing Realistic Goals**
- **Bag-O-Tricks: Consider Your Portfolio Options**

# The Big Why

- Why energy code information programs?

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# The Big Why

- Why energy code information programs?

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# The How



- How do we achieve the key goals?



# The How

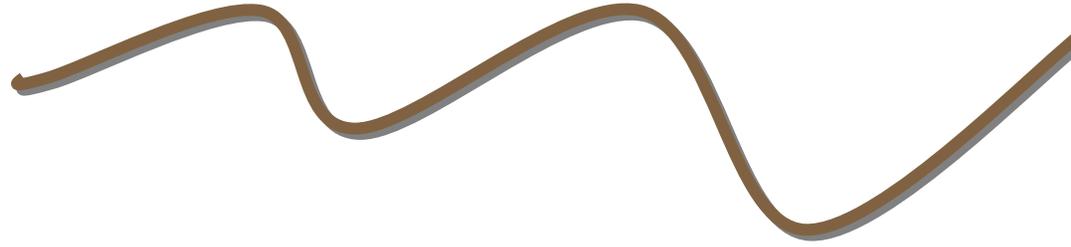


- How do we achieve the key goals?





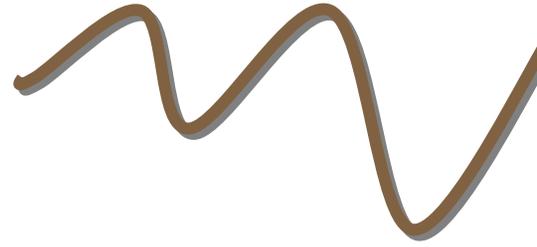
# The How



**Why you should change your behavior:**

- **Advantages**
- **It's the Law**
- **Humor**
- **Economics**
- **Science**
- **Gadgets and Demos**
- **Outrage**

# Key Advantages



## Low-e windows are important

- **Energy bills** – energy savings exceed annual mortgage costs
- **Comfort** – warmer window temperatures
- **Moisture control** – reduced condensation
- **Reduced fabric fading**
- **Lower cooling load** – reduced HVAC size may pay for windows

# It's the Law!



***Unsealed ducts are illegal – and should be!!***

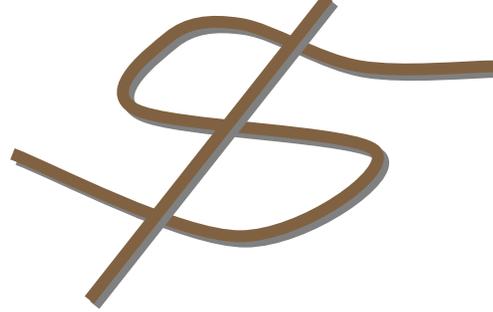
# Humor



“The Problem with Ducks”

**Uncontrolled duct leaks will come back and get you!**

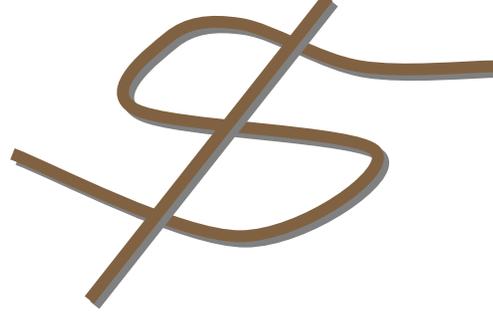
# Economics



Like This?

Costs and Savings from Low-e Windows							
	Energy Savings						
	Heating (MMBtu)	Cooling (MMBtu)	Total (\$/year)	Cost of Windows	Payback Period	Extra Mortgage Costs	Net Annual Benefit
Asheville	6.9	2.0	100	330	3.3	24	76
Charlotte	4.6	2.8	77	330	4.3	24	53
Greensboro	6.0	2.4	91	330	3.6	24	67
Raleigh	5.8	2.7	91	330	3.6	24	67
Wilmington	5.5	3.1	90	330	3.7	24	66

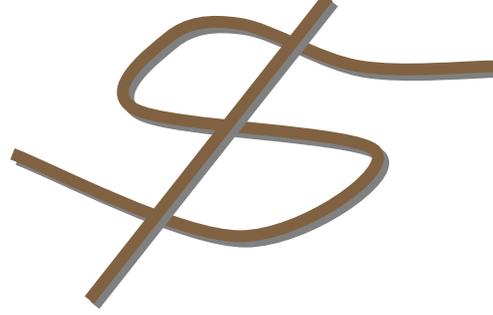
# Economics



## Or This?

	Asheville	Charlotte	Greensboro	Raleigh	Wilmington
<b>Energy Savings per Year</b>	\$100	\$77	\$91	\$91	\$90
<b>Extra Cost for Windows</b>	\$330	\$330	\$330	\$330	\$330
<b>Savings for 30-Yr Mortgage</b>	\$2,997	\$2,298	\$2,741	\$2,727	\$2,697

# Economics



## Or This?

### In a typical North Carolina home, low-e windows

- ❖ Save over \$90 per year on energy bills
- ❖ Will save over \$3,000 during the life of the mortgage
- ❖ Only add a little over \$300 to the cost of the home – about \$1 per square foot of glass
- ❖ Provide other benefits
  - ❑ Increased comfort and better moisture control
  - ❑ Limited fabric fading from sunlight
  - ❑ Reduced cooling loads – and smaller HVAC size
- ❖ Increase income to builders and realtors

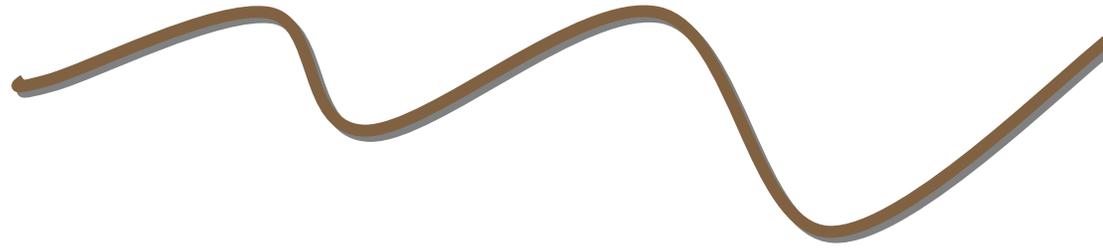
# Economics



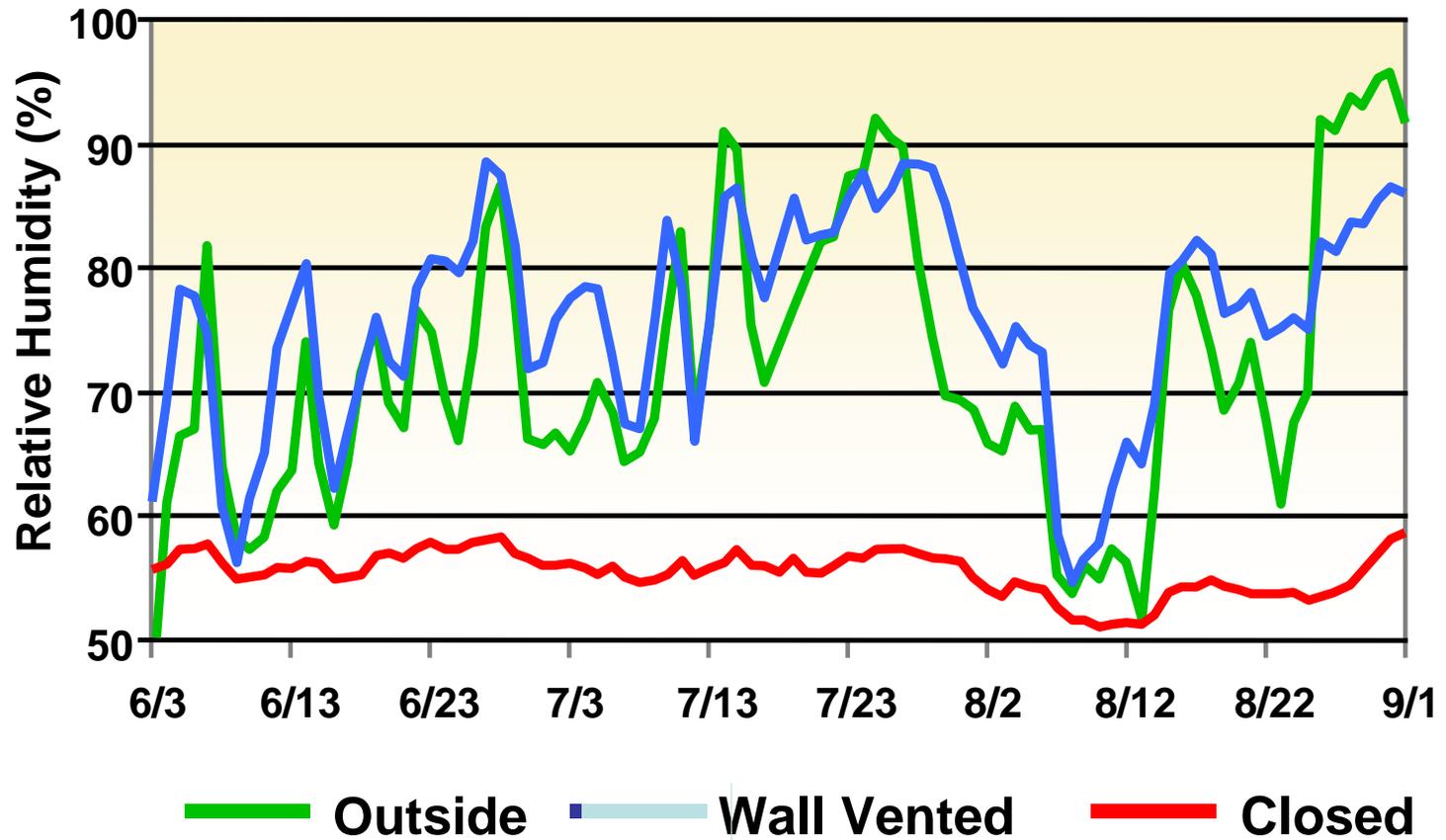
## Or Even This – Statewide Impact

Statewide Energy Savings (\$ million)						
	2006	2007	2008	2009	2010	
<b>Number of Homes</b>	50,000	50,000	50,000	50,000	50,000	
<b>Total Energy Savings</b>	\$ 5.2	\$ 10.4	\$ 15.6	\$ 20.8	\$ 25.9	
Increased Income (\$ million)						
<b>Builder Profit (15%)</b>	\$ 2.8	\$ 2.8	\$ 2.9	\$ 2.9	\$ 2.9	
<b>Realtor Income (6%)</b>	\$ 1.3	\$ 1.3	\$ 1.3	\$ 1.3	\$ 1.3	

# Science



## Crawlspace RH (Summer 2002)



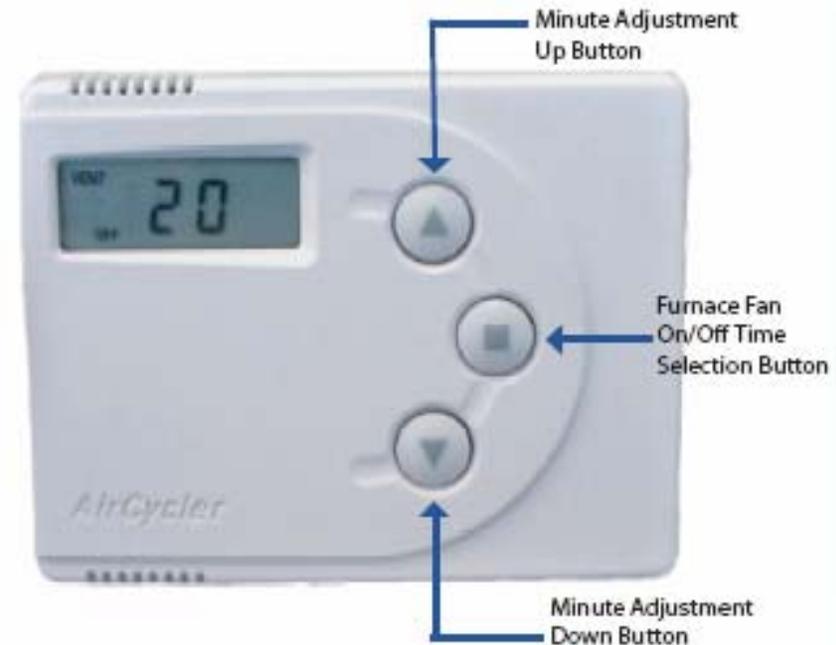
# Gadgets and Demos

Low-e window checker

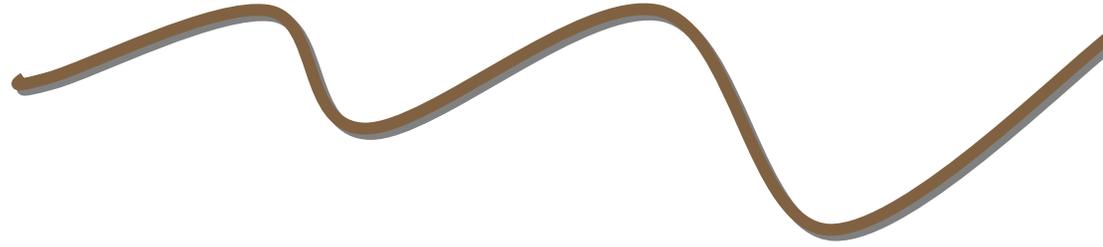
Ventilation timer

Duct sealing

ResCheck and  
COMCheck



# Outrage



## Why Enforce Continuous Insulation?



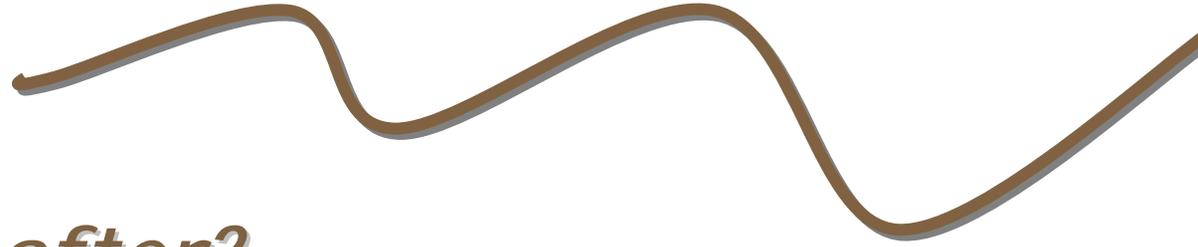
# Zero In

## *Targeting Your Market*



- Who am I going after?
- What information do they need (what behavior needs changing)?
- What type of session?
- How do I find them?
- What will entice them to come?

# Zero In



## *Who am I going after?*

- *Code officials, builders*
- *Insulation and mechanical subcontractors*
- *Architects and designers, engineers*
- *Utility personnel*
- *Realtors and financial institutions*
- *Energy program staff, policy or political folks*
- *Consumers, future homeowners*

# Zero In

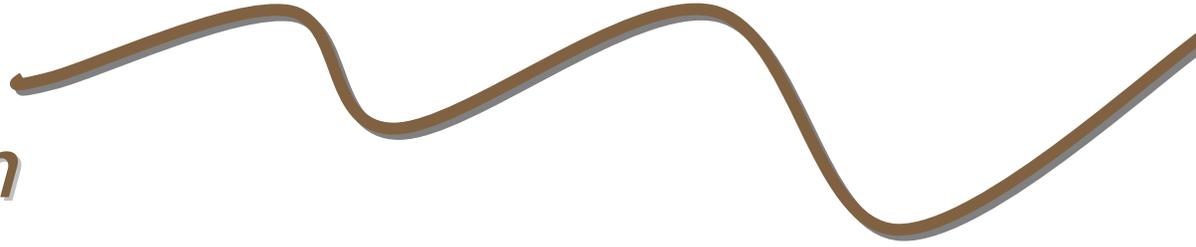


## *What information do they need?*

- *Residential energy code*
- *Commercial energy code*
- *High performance building practices*
- *Energy Star or Green Building information*
- *Key construction details*
- *Summary of energy code/ Wet the appetite*
- *Impetus for revising/ updating the code*
- ***Inspiration!***

# Zero In

*Type of session*

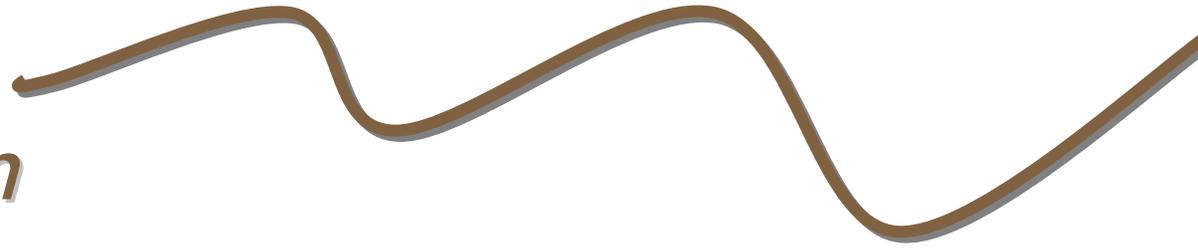


## Publicized workshop

- \$5K to \$10K per day
- Skills – PR, graphics, logistics, trainer
- Lead time; Brochure; Mailing list
- Facility; Catering
- Arrange PDH: preapproval; administrative details

# Zero In

## *Type of session*



**Their turf – their meeting or a special session  
(code office, HBA, AIA, ASHRAE, other)**

- **\$500 to \$3,000 per session**
- **Skills – Logistics, trainer**
- **Less lead time; no brochure or mailing list**
- **Their facility; they do catering**
- **Usually no PDH logistics to arrange**
- **Usually a shorter session**
- **Get attendees who don't attend workshops**

# Zero In

*Type of session*



## On-line session, workbook, video

- If successful, can be inexpensive per contact, but usually expensive up front.
- Lots of resources already exist
- Always available; challenging to get people to use
- PDH's may work if test is provided
- May get attendees who don't attend workshops
- Unfortunately, many construction-related professionals are not all that computer literate

# Zero In

*How do I find my audience?*

## Publicized Workshops

- Seek cosponsorships to help with PR
  - Distribute brochures themselves; Promote to their contacts
  - Provide you a mailing list
  - Purchase mailing lists

## Their turf – presentations at meetings

- Associations are often looking for speakers
- May be reluctant if they don't know you; Have presentation accessible
- Will usually book way in advance
- Personal contacts help



# Be Real

## *Establish Realistic Learning Goals*

**During session, participants should:**

- Memorize every table
- Learn code basics and how to access information
- See how to use software so they can replicate
- Discover innovative new construction methods
- Discover ways to train others
- Become inspired
  - Improve their own work
  - Support the energy code – enforcement, adoption of updated codes or amendments, participate in high performance programs

# Be Real

*Avoid confusion*

ASHRAE 90.1-89

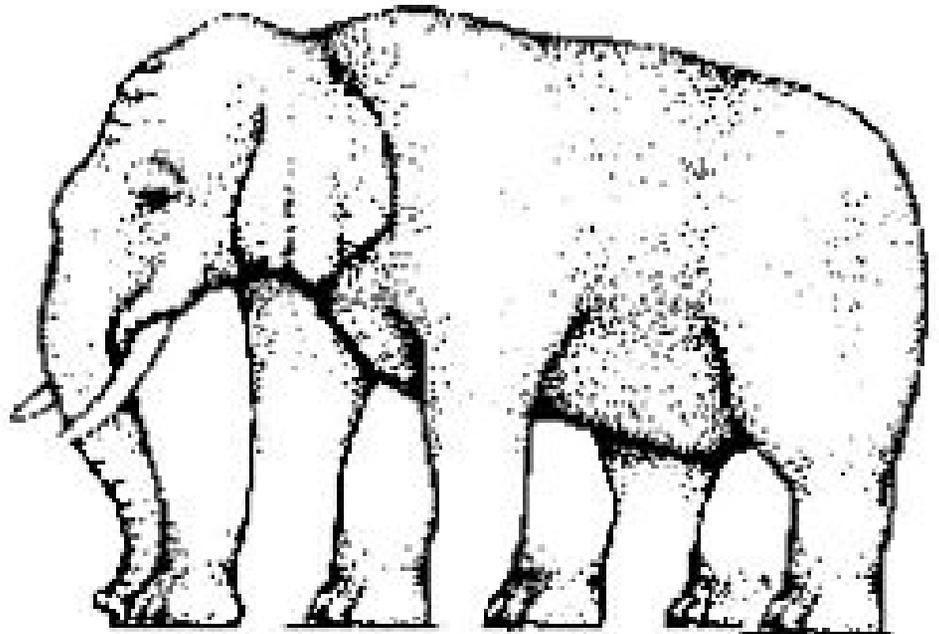
ASHRAE 90.1-99

ASHRAE 90.1-01

IECC 2000

IECC 2003

IECC 2004 Addendum



How many legs does this elephant have?

# Be Real

*Will “take-aways” help?*



## Why give them anything?

- Increases perceived value of session; Makes it more memorable
- Provides structure for taking notes
- Reference for future; Helps them retain information

## Options

- Workbook -- \$5 to \$15 per attendee
- Summary of key points – could be cheap
- Summary on a Prize – MT pencil, laminated handout – may be cheaper than workbook and provide information at their fingertips
- Other options – CD containing handout, other prizes

# Be Real

*How Do You Make It Memorable?*

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# Be Real

## *Establish Realistic Retention Goals*

To retain information, participants should:

- Enthusiastically take notes
- Fill out sheets with blanks you provide
- Take a quiz at the end
- Take home a summary of key points
- Take home a video or CD
- Know exactly where to find specific information on the Internet
- Participate in a joint summary exercise at the conclusion of the session

# Bag-O-Tricks

## *Consider Your Portfolio Options*

- **Speaker presentation**
  - Full day sessions
  - 1/2 to 2-hour session for target audience
- **Online self-paced**
- **Web-based**
- **Other**



# Bag of Tricks

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[www.glasbergen.com](http://www.glasbergen.com)



**“My PowerPoint presentation went so well,  
I had it made into a tattoo!”**

# Bag of Tricks

## *Workshops -- Structure for learning*

### PowerPoint presentations

- Avoid “Death by PowerPoint”; don’t be rigid; minimize tables; include lots of photos and graphics; no matter what, don’t read the text
- Be careful with animations; they can drag
- Don’t feel that all of your slides are critical
- If you are breezing along with no questions, don’t assume your audience is hanging on every word

**Interaction is critical – invite questions; if none, then ask questions and make them answer**

**Multiple speakers help**

# Bag of Tricks



## *Workshops -- Structure for learning*

### **Product samples and demos**

- Increase interest and learning; pass around when possible
- More set-up time, may not be “objective”, air travel difficult
- Demos – e.g. proper wall insulation, duct sealing, air sealing
- Software demos – make concise, provide handout, work out ahead of time, make sure software is available and attendees know how to get it

**In-class projects** – group problems, use room as an example, site visits, walk around building

**Videos**

# Resources



## International Code Council



[Home](#)

### Online training

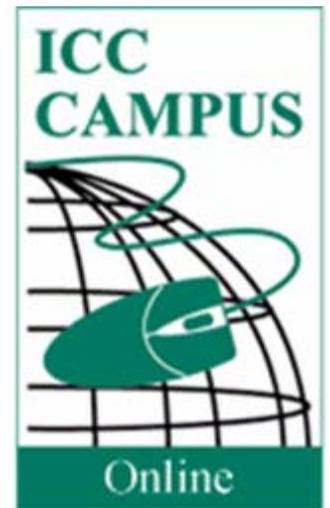
<http://www.icccampus.org/>

### Sample course offering

Course Title: 2000 IMC: Overview - Ventilation V2

Classification: Technical

<http://www.vcampus.com/icc/catalog/offering/?coid=59963>



[www.icccampus.org](http://www.icccampus.org)

# Resources

## Department of Energy

Building Energy Codes Program

<http://www.energycodes.gov/>

Provides users with information about energy codes and beyond code technologies.

Resources are available the following media types:

- Articles
- Graphics
- Online Tools
- Presentations
- Videos



# Resources

## Graphics

[HERE](#)

Electric Furnace

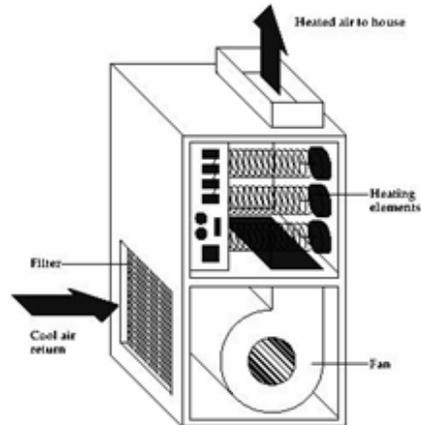
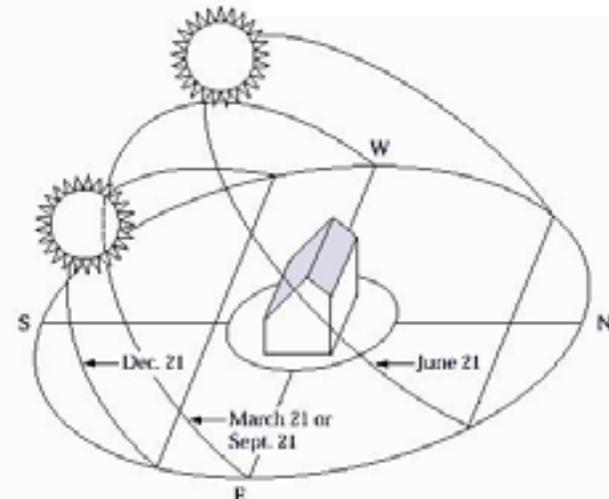
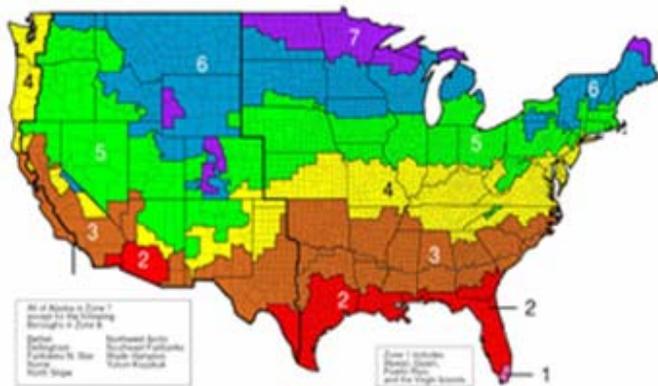


photo by Jeff McCullough



# Resources



## Presentations

[HERE](#)

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### NFRC – Your Ally in Energy Code Compliance



#### Summary of Conditions Leading to Problems

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- Poor drainage away from foundations
- Inadequate flashing of windows and doors
- Conventional ventilation of crawl spaces in warm/hot humid climates
- Poor maintenance of the building envelope

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State Energy Code Workshop  
June 2003  
James C. Benney  
NFRC Executive Director

# Resources



## Energy Star

### Online Trainings & Presentations



[http://www.energystar.gov/index.cfm?c=business.bus\\_internet\\_presentations](http://www.energystar.gov/index.cfm?c=business.bus_internet_presentations)

# Resources



## Home Energy

### Home Energy on the Internet

<http://hem.dis.anl.gov/eehem/95/950311.html#95031186>

Resources are available the following media types:

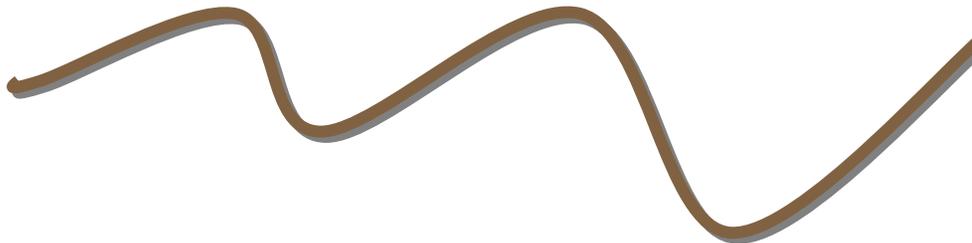
- Bulletin Boards
- News Group
- Listservs
- FTP Sites
- Gopher
- Long Distance Learning Courses

• <http://hem.dis.anl.gov/eehem/95/950311.html#95031188>



The logo features the word "HOME" in large, bold, dark green capital letters. To the right of "HOME", the word "energy" is written vertically in a smaller, light green font. Below "HOME", the word "online" is written in a blue, lowercase, sans-serif font.

# Resources



## Home Energy

Do it Yourself

<http://www.homeenergy.org/consumerinfo/index.html>

[Ducts](#)

[Benchmarking](#)

[Refrigeration](#)

[Energy Myths](#)

[Better Breathing](#)

[Sucking in Health](#)

[Hazards](#)

[Energy Efficient Financing](#)

[Roofs](#)

[Air Sealing](#)

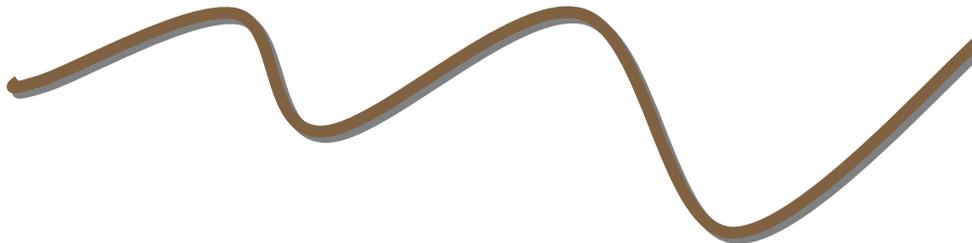
[Walls and Windows](#)

[Optimizing Your Ceiling Fan](#)

[Beware the Closed Bedroom Door](#)

[Energy Efficient Lighting](#)

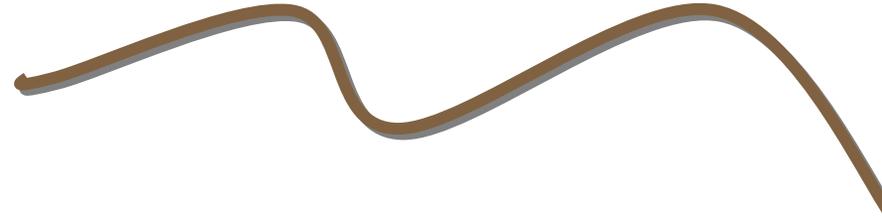
# Resources



**BCAP: [www.bcap-energy.org](http://www.bcap-energy.org)**

- Maps
- Code Status Updates
- Code Adoption Process
- Training Events Around the Country
- Construction Activity in Each State
- Energy Use by State (in production)

# to tie it up



- **The Big Why (and How)**
- **Zero In: Targeting Your Market**
- **Be Real: Establishing Realistic Goals**
- **Bag-O-Tricks: Consider Your Portfolio Options**