



Building America: Introduction
November 14, 2011

Cheryn Engebrecht
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- Reduce energy use in new and existing residential buildings
- Promote building science and systems engineering / integration approach
- “Do no harm”: Ensure safety, health and durability are maintained or improved
- Accelerate adoption of high performance technologies

www.buildingamerica.gov

Building America Industry Consortia Industry Research Teams

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



NorthernSTAR Building America Partnership

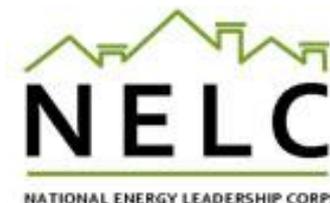


Building Solutions

Habitat Cost Effective Energy Retrofit Program

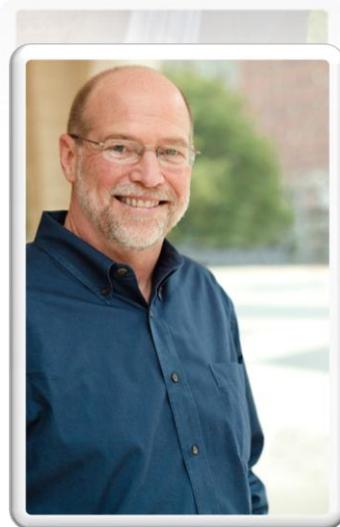


Building Energy Efficient Homes for America (BeeHa)





Steve Easley specializes in helping the industry increase quality of construction, sustainability, energy efficiency and reducing costly mistakes that lead to construction defects and call backs. Steve has published numerous articles and hundreds of videos on best practice building techniques. Steve has over 25 years experience in the industry and is the building science team member of the BARA Building America Team.



Bill Zoeller is a Registered Architect and Sr. VP with Steven Winter Associates, Inc. (SWA). He has over 30 years experience in building design, construction, post-construction evaluations, tech-transfer and training, and building materials product development. Zoeller has specialized expertise in new construction and rehabilitation technologies including: advanced and traditional techniques for low and mid-rise construction; panelized and modular practices; design to resist natural hazards and; energy efficiency and sustainable building practices.



Craig Savage is Co-President of Building Media Inc.

His career evolved from custom homebuilder and remodeler for 25 years, to editor at the Journal of Light Construction magazine and then Sales Director for JLC LIVE Training Shows. He later combined the building experience with the media business to found BMI.

Goals for the Cool Energy House Project

- Remodel a mid-90's "builder designed" spec house to be more accommodating to a family of 6 (3 boys 1 girl)
- CARB to use BEopt to optimize the Energy Efficient and Affordable measures choices
- Implement Energy Efficiency guidelines and track costs and best practices
- Report on results to:
 - Builders attending the International Builders Show
 - Building America on the efficacy of demonstration projects to DOE goals
 - Outreach channels including magazines, TV shows, internet





COOL ENERGY HOUSE

AN INTRO TO THE COOL ENERGY HOUSE RETROFIT DEMONSTRATION PROJECT





AUDIT ANALYSIS AND ENERGY SAVINGS MEASURES



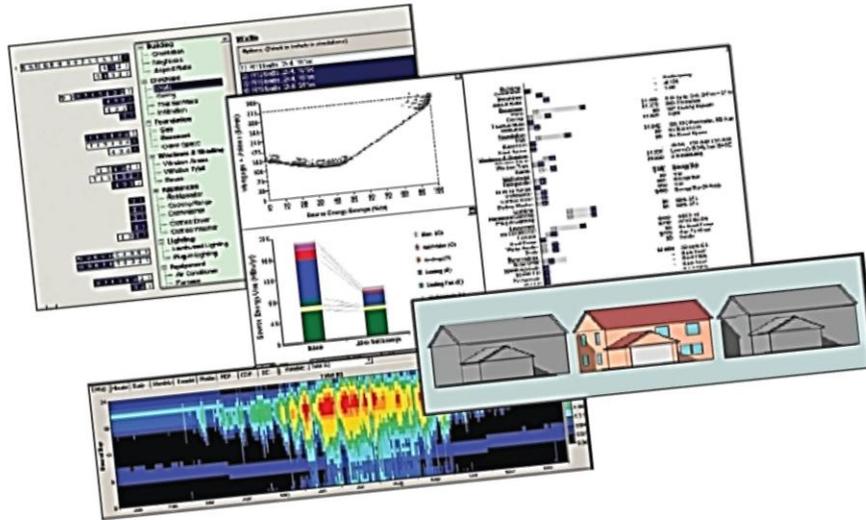
VIDEO: BLOWER/DUCT/IR



BEOPT



BEopt™ Software for Building Energy Optimization: Features and Capabilities

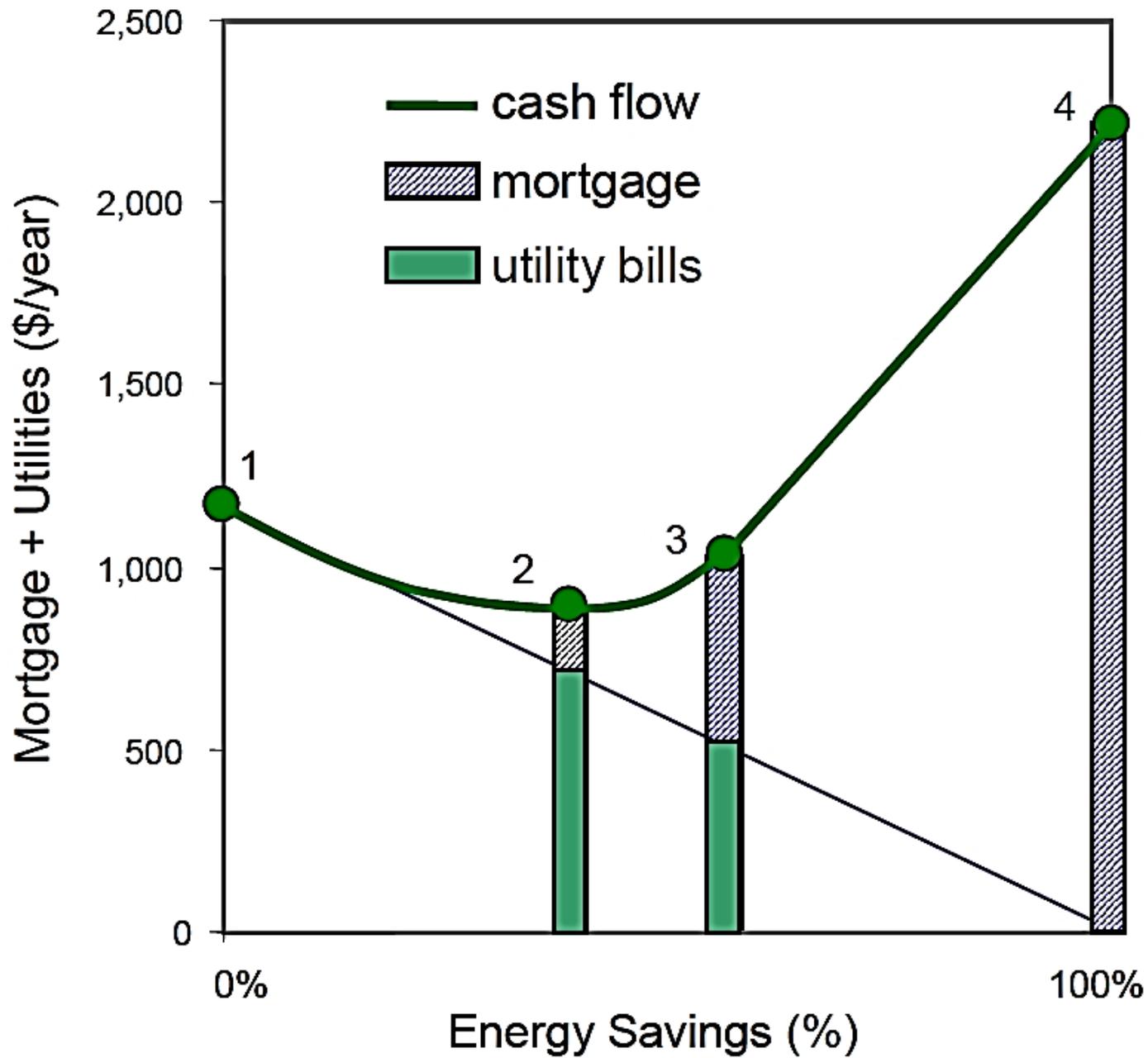


Craig Christensen and Ren Anderson
National Renewable Energy Laboratory

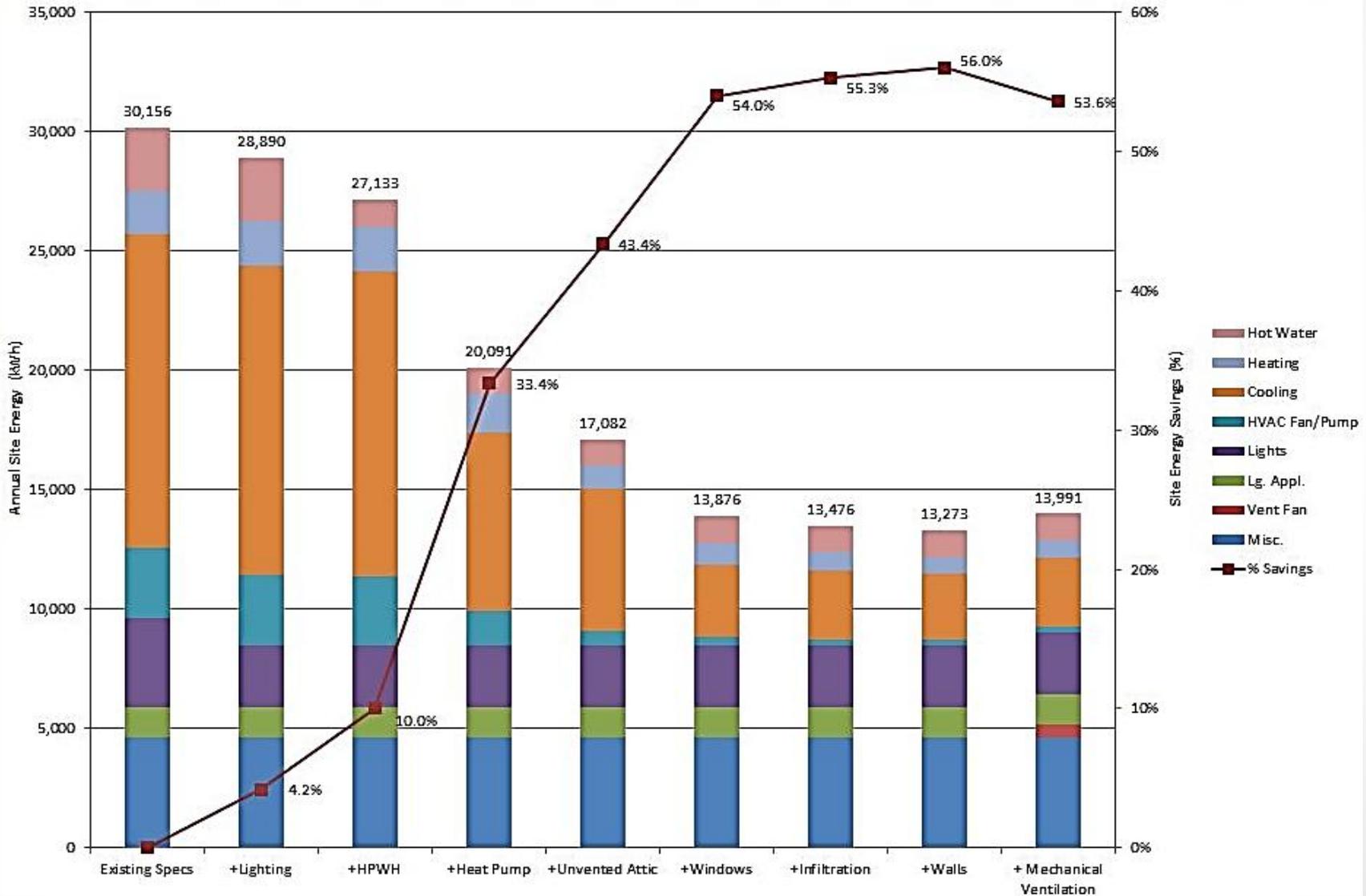
Scott Horowitz, Adam Courtney, and Justin Spencer
University of Colorado, Boulder

BeOpt Links:

www.beopt.nrel.gov



BeOpt Run CEH





IMPLEMENTATION





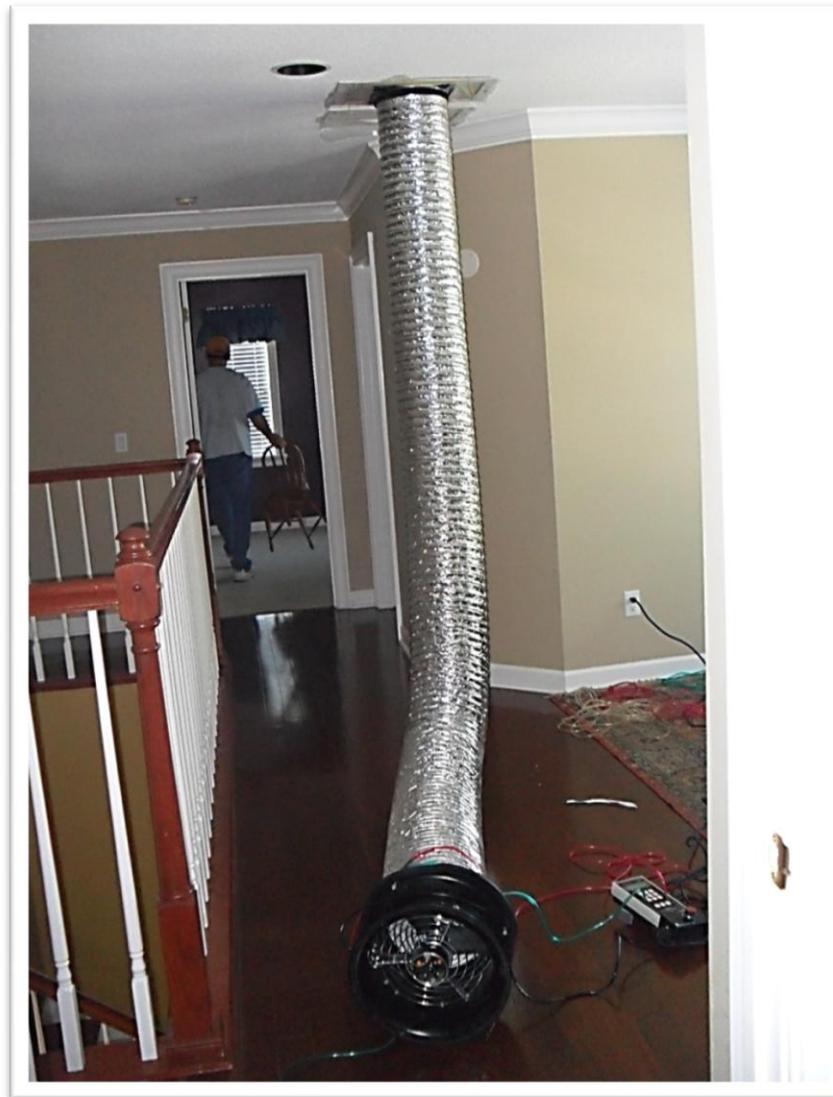




HVAC - BEOPT 23.4%



DUCT BLASTER







COMPRESSOR



FURNACE



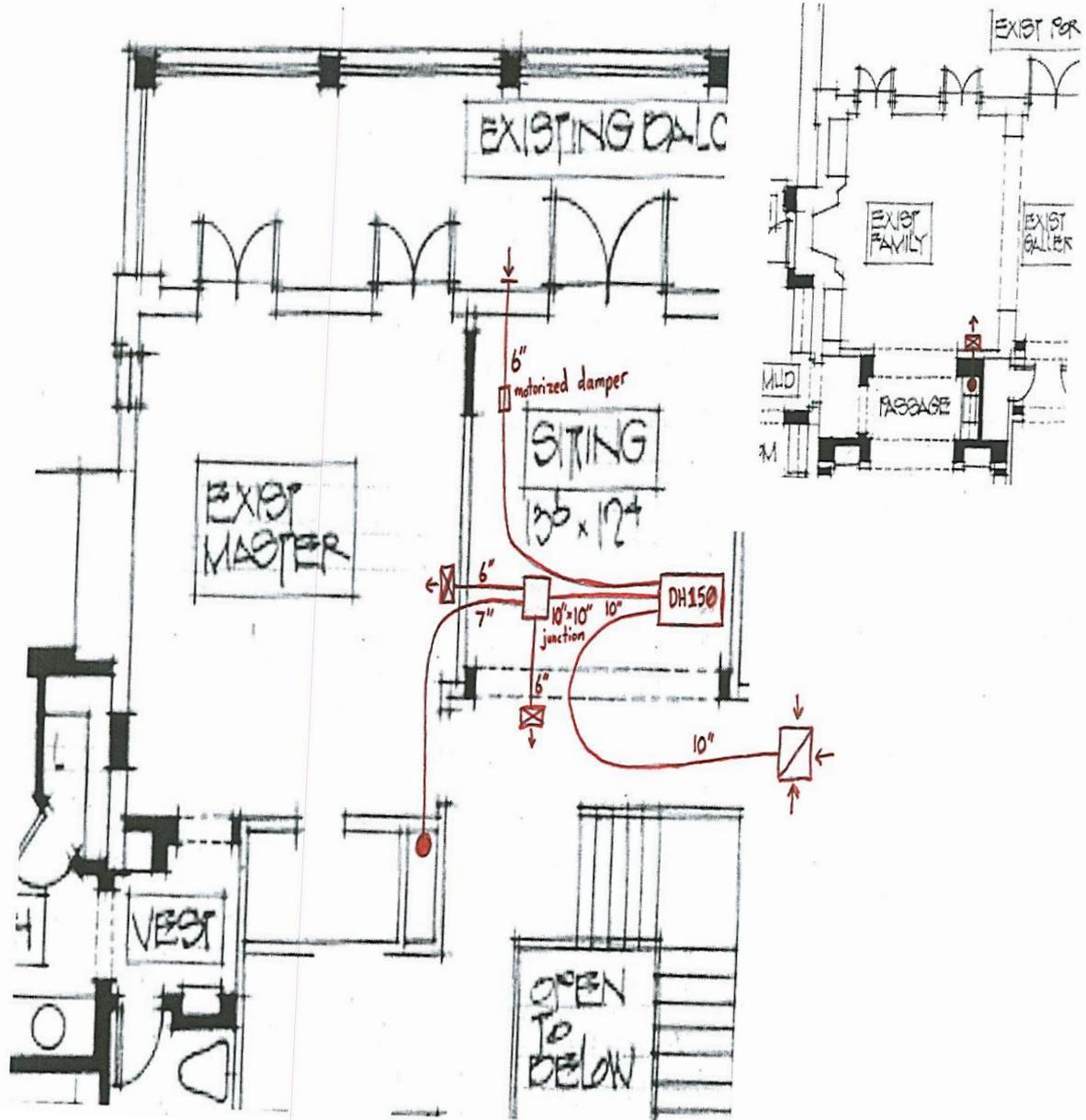


VENTILATION



2nd Floor

1st Floor





WINDOWS/DOORS – BEOPT 1.3%











HOT WATER – BEOPT 5.8%





ENERGYGUIDE

Model with lowest energy cost: **\$381**

Model with highest energy cost: **\$421**

THIS MODEL: \$421

How much will this model cost you to run yearly?

Yearly Cost	
Estimated yearly \$ cost shown below	
COST PER KILOWATT HOUR	
0.04	\$204
0.08	\$407
0.10	\$511
0.12	\$615
0.14	\$719

IMPORTANT: Removal of this label before consumer purchase is a violation of federal law (42 U.S.C. 6302)

CAUTION

Water heater should be installed by a qualified plumber. Do not use for anything other than its intended purpose. Do not use for anything other than its intended purpose. Do not use for anything other than its intended purpose.

Rheem

THE #1 CHOICE OF PLUMBING PROFESSIONALS

R-FOAM[®] INSULATED

RHEEMGLAS STANDARD

EnergyGuide

RHEEM MANUFACTURING CO. MONTICELLO, ALABAMA

SERIAL NO. 8 0994827760

MODEL NO. B22786 B

WARRANTY: UPPER 4500 LOWER 4500 TOTAL 4500

240 VOLTS AC ONLY

1-1/2" CAP. US GALLS 30

LISTED

UL WATER HEATER

WATER HEATER-ELECTRIC FIRST HOUR RATING 30 GALLONS

MODEL B19220 B B22786

ENERGYGUIDE

ESTIMATES ON THE SCALE ARE BASED ON A NATIONAL AVERAGE ELECTRIC RATE OF \$ 0.024 PER KILOWATT HOUR

ONLY MODELS WITH FIRST HOUR RATING OF 30 TO 34 GALLONS ARE USED IN THE SCALE

Model with lowest energy cost: **\$381**

Model with highest energy cost: **\$421**

THIS MODEL: \$421

How much will this model cost you to run yearly?

Yearly Cost	
Estimated yearly \$ cost shown below	
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0.04	\$204
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0.10	\$511
0.12	\$615
0.14	\$719

Ask your salesperson or local utility for the energy rate in your area.

IMPORTANT: Removal of this label before consumer purchase is a violation of federal law (42 U.S.C. 6302)

Pat. No. 4,411,616



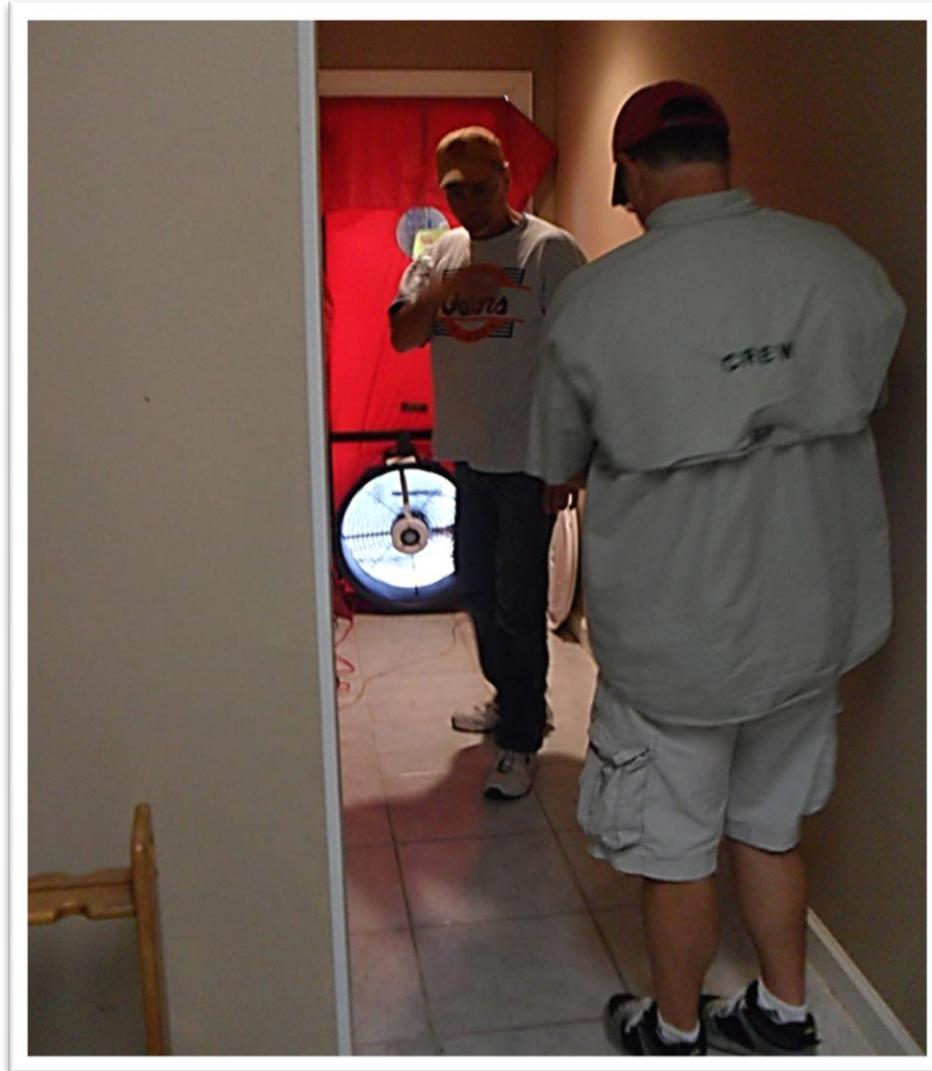




AIR LEAKAGE AND INSULATION



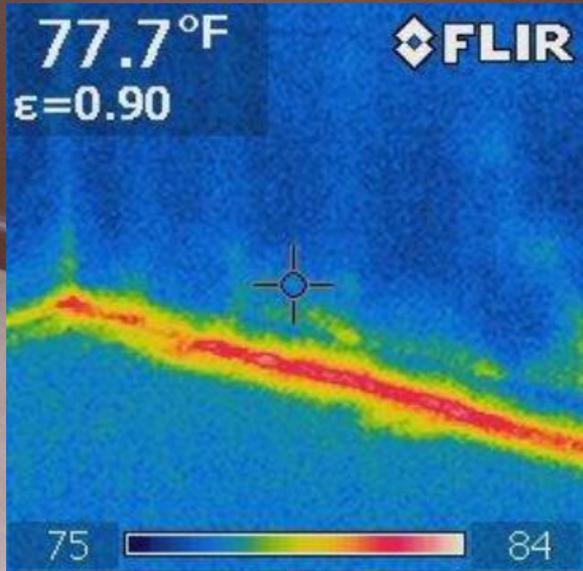
BLOWER DOOR





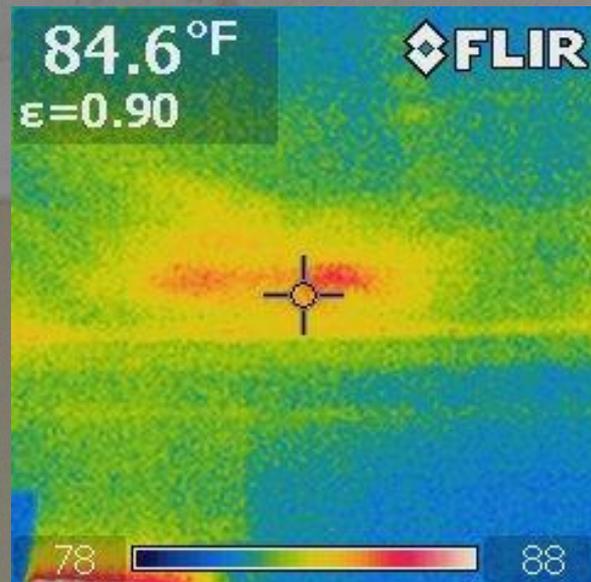
77.7°F
 $\epsilon=0.90$

FLIR



75

84







78.8°F

FLIR

$\epsilon=0.90$



73

82

JA
Johns & Willis

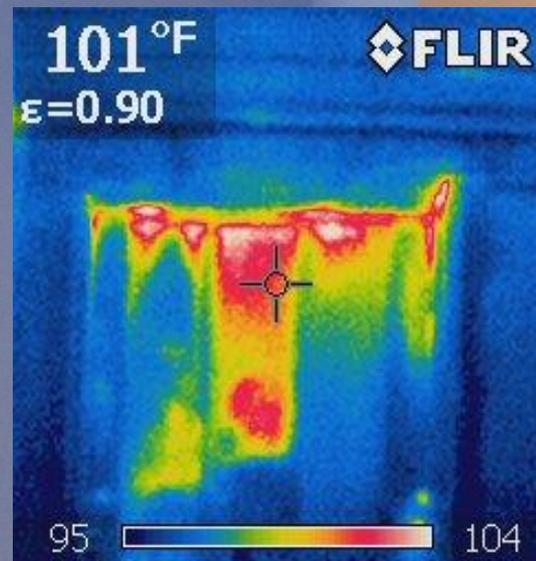
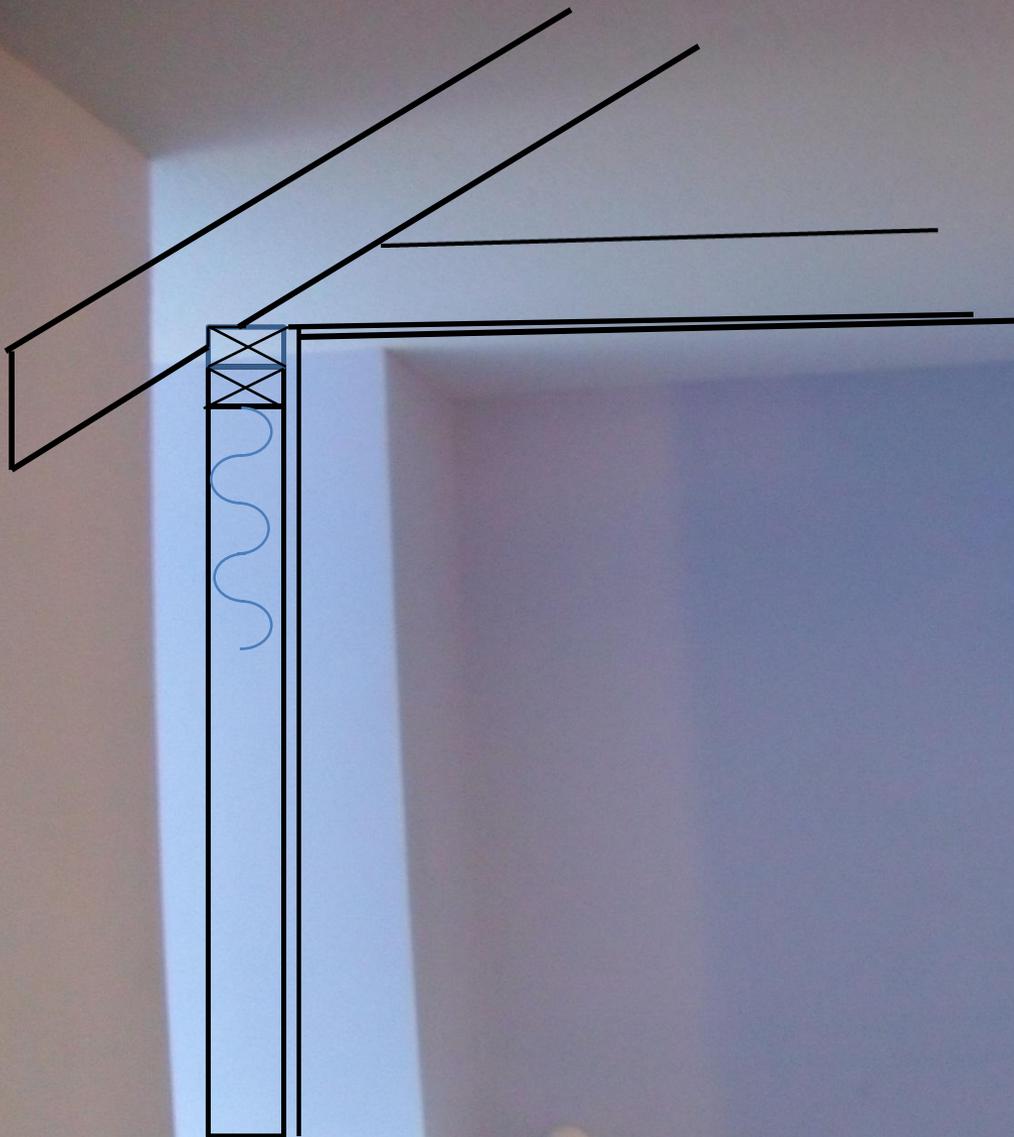
SHOWER EN
INSULATION •
SHELVING •
ICYNENE • C

VIDEO: WALL BLOW-IN



UMI spica







VIDEO: ATTIC SPRAY







VIDEO: PORCH SPRAY





LIGHTING - BEOPT 4.2 %







APPLIANCES -









POOL PUMPS - 50 – 75%





EXISTING POOL PAD



Energy Analyzer

True Rms Power
2398 Watts



On/Off

PS 3000

Monitoring
On/Off

Spikes

Harmon

More...

POOL PUMP



True Rms Power
1540 Watts

On/Off

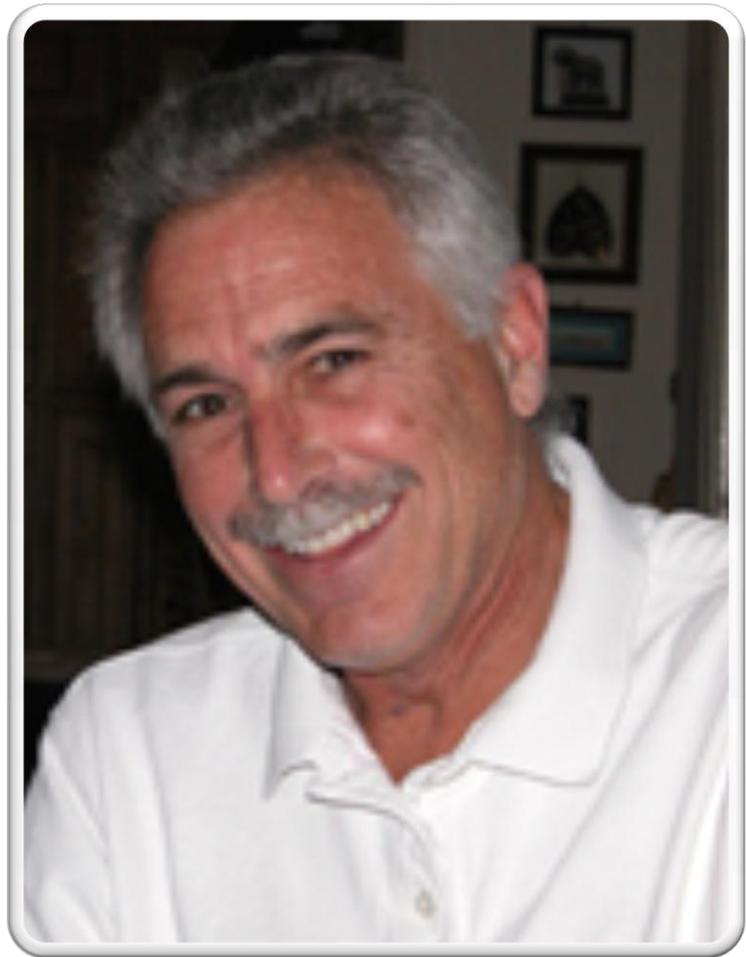
PS 3000

QUESTIONS AND ANSWERS



BARA /BMI DEMONSTRATION TASK





CRAIG SAVAGE
Co-President, Building Media, Inc.

STRATEGY GUIDELINES FOR DEMONSTRATION HOUSES

Explore best strategies to create and implement retrofit demonstration projects for the Building America program by:

- Evaluating size of the project & establishing measurable goals
- Defining and setting expectations of project scope & intended results
- Choosing builder/remodeler, sponsors and sponsorship strategies, and manufacturer, trade, and media partners
- Selecting the right location and event
- Managing project during construction
- Creating effective project communications materials
- Promoting and preparing project for public viewing
- Making the most of show time, and post show opportunities
- Evaluating the success of the project upon completion

LIVE EVENTS

Mike Brings the Jobsite to You...

HOME BUILDER OR
REMODELER ASSOCIATIONS
INDUSTRY SHOW
PLANNERS

Have a Show that needs more impact, more content? Your builders, remodelers and their crews will walk away with knowledge they can use for a lifetime.



Meet Mike...

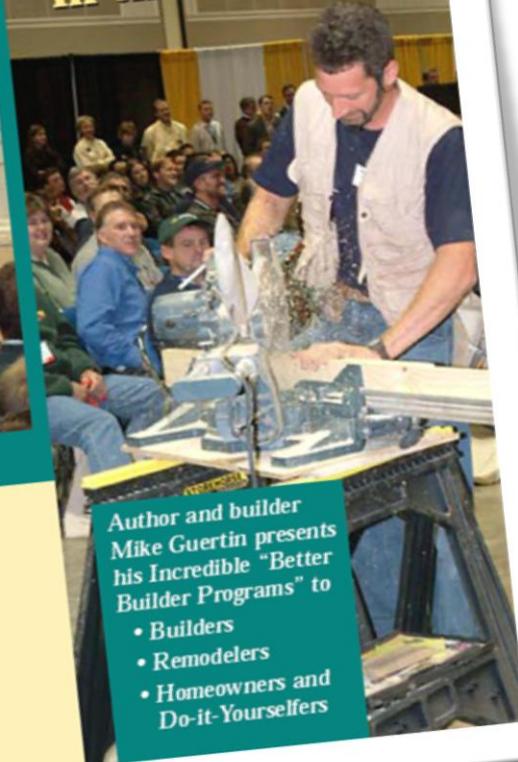


Mike Guertin is a hands-on home builder and remodeler, specializing in energy and resource-efficient construction. He tackles everything from foundation installation and framing to tile setting and trim carpentry. Mike shares his construction techniques regularly as a contributing editor to *Fine Homebuilding* magazine and contributor to *The Journal of Light Construction*. His books include *Roofing with Asphalt Shingles* (Taunton Press 2002) and *Precision Framing* (Taunton Press 2001).

Contact...

For information on putting together a *Better Builder "Hands-on" Program* with Mike Guertin, please contact Cheryl Lewis at 518-922-8843 or cherylewi@frontiernet.net

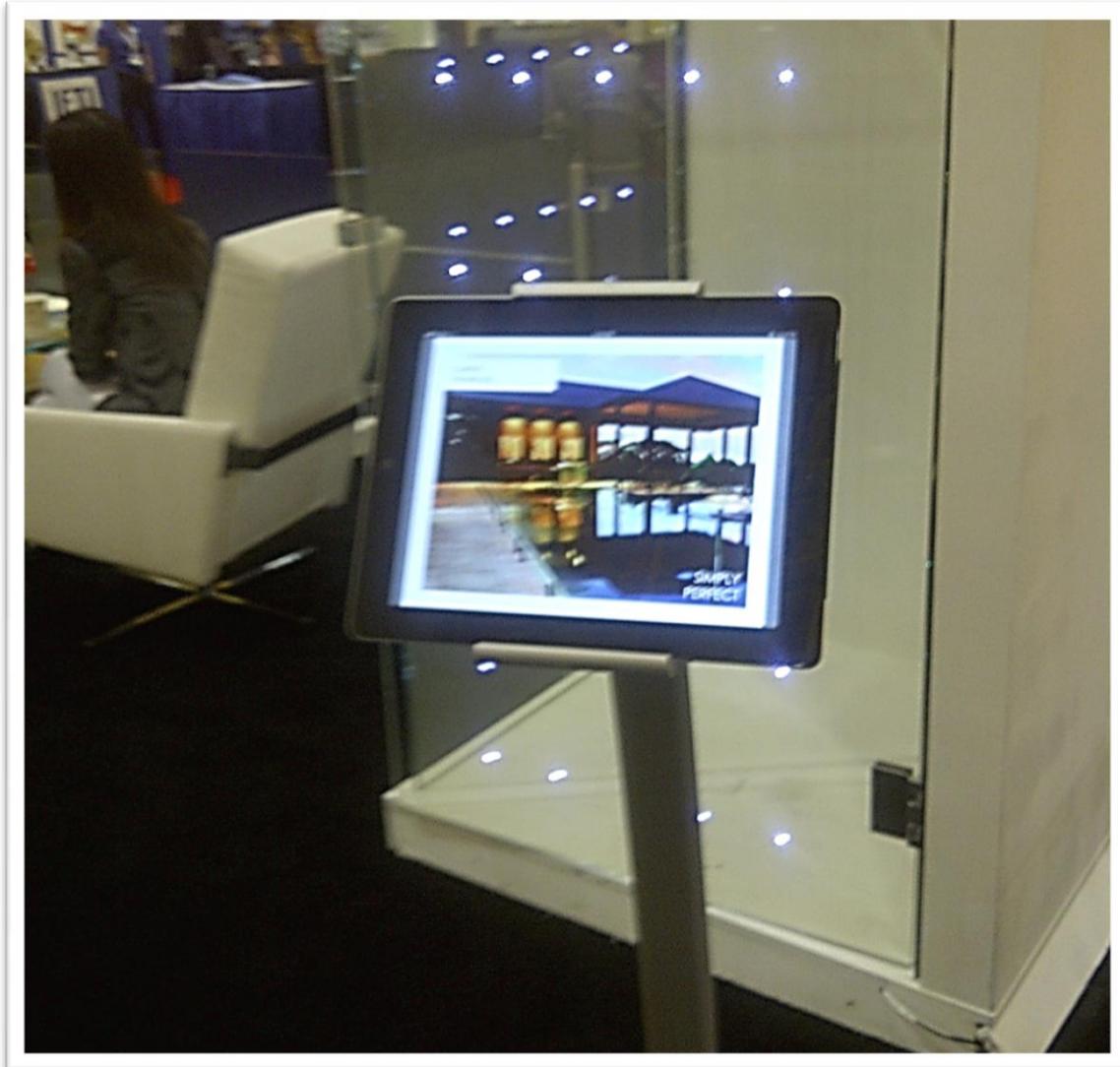
Knowledge... The Most Important Tool in the Box



Author and builder Mike Guertin presents his Incredible "Better Builder Programs" to

- Builders
- Remodelers
- Homeowners and Do-it-Yourselfers

TOUCH TABLETS



SMART PHONES



U.S. DEPARTMENT OF
ENERGY | Energy Efficiency &
Renewable Energy

Lighting



Light your home more effectively and for less money. Find out how you can choose the right bulb for every room in your house while also **improving the comfort in your home.**

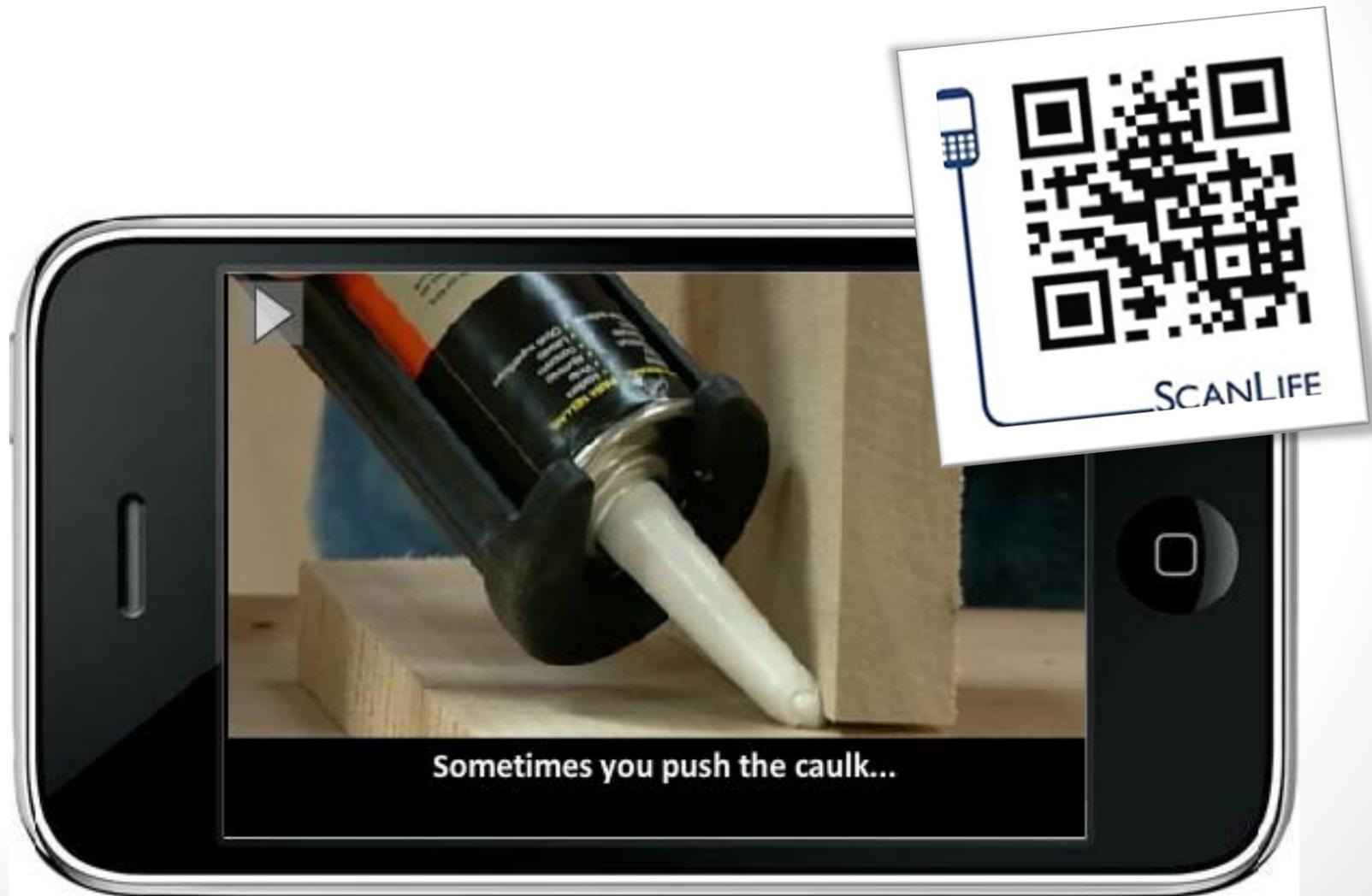


Visit www.ee.gov/124
or snap the code.

Go to myhomeenergy.com/scan to
download the scanning app.

2D BARCODE

TEXT ANIMATION VIDEO



REALITY



AUGMENTED REALITY



COOL ENERGY HOUSE RECEPTION

- During International Builder's Show
- Thursday, February 9, 2012
- Cool Energy House at Windermere, FL
- Evening Event Time TBD
- Busses from Peabody Hotel at Convention Center
- Invitations will be sent to all Webinar attendees

Thank you for attending Cool
Energy House: An Intro to the Cool
Energy House Retrofit Demonstration
Project.

For more information about Building
America programs, please contact Tami
Svarfvar at tami@buildingmedia.com