

Reducing Energy Cost for Affordable Housing

sponsored by
Florida Housing Finance
Corporation's Catalyst
Program

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DEFINITION OF A GREEN HOME

A green home is an energy-efficient home that incorporates multiple environmental, ecological and sustainability features that materially enhance the built environment.



GOAL OF A GREEN HOME

- Enhance health and safety,
- Enhance building durability, comfort,
- Enhance energy efficiency, and
- Enhance efficient use of resources.



GREEN FEATURES

Elements that enhance or increase:

- Disaster resistance
- Excellent indoor air quality
- Universal design
- Resource efficient materials
- Low water use
- Reduced energy consumption
- Native landscaping



IMPORTANCE TO AFFORDABILITY

- Energy efficiency is encouraged in affordable housing programs.
- Many improvements can be made for minimal cost.
- Reduced utility expenses are a major incentive particularly for lower income households.
- All homeowners benefit from a healthier home that is free of toxins.



SHIP rules on Green

SHIP statute:

(14) Each county and eligible municipality shall include initiatives in the local housing assistance plan identifying **current** and **emerging** green building and design techniques and explain how these techniques are to be integrated into its **housing strategies** both for **sustainability** and promote greater **affordability** pursuant to Section 420.9075(3)(d), F.S.



SHIP Statute

- **420.9075 Local housing assistance plans; partnerships** (d) Each county and each eligible municipality shall describe initiatives in the local housing assistance plan to encourage or **require** innovative design, **green building** principles, **storm-resistant** construction, or other elements that **reduce** long-term costs relating to maintenance, utilities, or insurance.



LHAP Requirements

T - Describe efforts to incorporate Green Building and Energy Saving products and processes:

- Make sure that you follow the process and include the products that has been outlined in the LHAP
- You can do more, not less
- Include these products in your specifications and plans




Presenters

Neil Moyer

- Building Science Consultant - Trainer
- The Master's Touch – Transform, LLC
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Master's Touch - Transform, LLC
Building Diagnostics - Training - Research - Ratings


IMPROVING REHAB INSPECTIONS WITH BUILDING PERFORMANCE

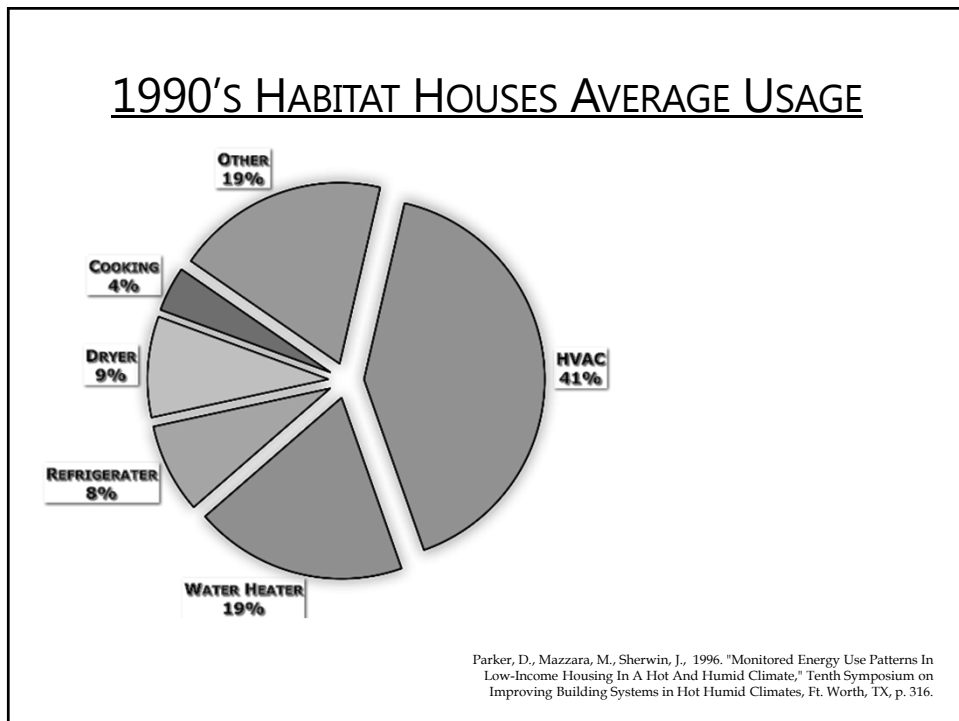
NEIL MOYER



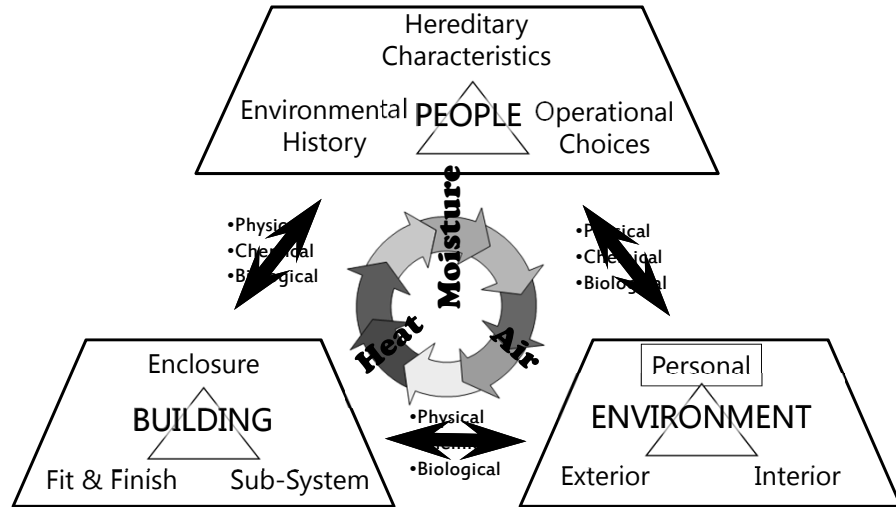
FLORIDA
HOUSING
COALITION

Reducing Energy Cost for
Affordable Housing (Webinar)
7 September 2016





BUILDING IS A SYSTEM



from Builder's Field Guide written by Building Science Corporation

KNOW THE ENEMY

- Solar Radiation
- Water Vapor



REDUCE ENERGY USE CAUSED BY... - Solar Radiation

Roof

- Light colors
- Metal

Attic

- Air Sealing
- Insulation
- Radiant Barrier
- Ventilation

Walls

- Landscape
- Light colors

Windows

- Landscape
- Sunscreen

HVAC

- Efficiency

REDUCE ENERGY USE CAUSED BY... - Water Vapor

Pressure Boundary

- Air Sealing

HVAC

- Right sized
- Efficiency
- Tight ducts
- Exhaust fans
- Pressure balance



REDUCE ENERGY
USE CAUSED BY... - Other



Water Heating

- Flow Resistors
- Leaks

Refrigeration

- EnergyStar®

Lighting

- LED / CFL

BENEFITS

Potentially
Performance homes have:

LOWER ENERGY BILLS

MORE COMFORT

SMALLER COOL/HEAT EQUIPMENT

IMPROVED INDOOR AIR QUALITY

BUILDING PERFORMANCE: VISUAL ANALYSIS

Visual Confirmation

- Simulation
- Energy Usage
 - Lifestyle
- Insulation
- Moisture
- Air pathways
- Mech Equipment

BUILDING PERFORMANCE: TEST ANALYSIS

Diagnostic Tools

- Micromanometer
 - Pressure differences
- Blower Door
 - Building airtightness
 - Air leakage pathways
- Duct Tester
- Air Flow Tester
- Moisture Meter

TOO LEAKY-TIGHT-OR JUST RIGHT

Sometimes obvious

Sometimes
not so much

BLOWER DOOR TESTING

Blower door testing is used to quantify and locate air leakage by using a calibrated fan to depressurize a house.

KNOW THE ENEMY

Solar Radiation

Water Vapor

AIR BARRIER CONTINUITY & AIR TIGHTNESS

PENETRATIONS-
PLUMBING

PENETRATIONS-
ELECTRICAL

OPEN FLOOR CAVITIES

DUCT AND ELECTRICAL PENETRATIONS

Connects attic space to conditioned space

BUILDING CAVITIES

--- Before & After---

Connects attic space to conditioned space

Note: When air sealing around chimneys or combustion vent pipes; non-combustible materials must be used.

THEN TO TIGHT...

CONCRETE HOUSE – ALL 6 SIDES

Very tight –
high interior moisture

DUCT TESTING –

Pressure Pan

Duct Tester

--- Duct Leakage ---

MISSING INSULATION



MISSING
INSULATION

Kneewall
insulation
problem

MISSING INSULATION

WATER INTRUSION



MECHANICAL VENTILATION

Strategies:

Point-source ventilation

- Remove Pollutants

Whole-building ventilation

- Dilute Pollutants

Types:

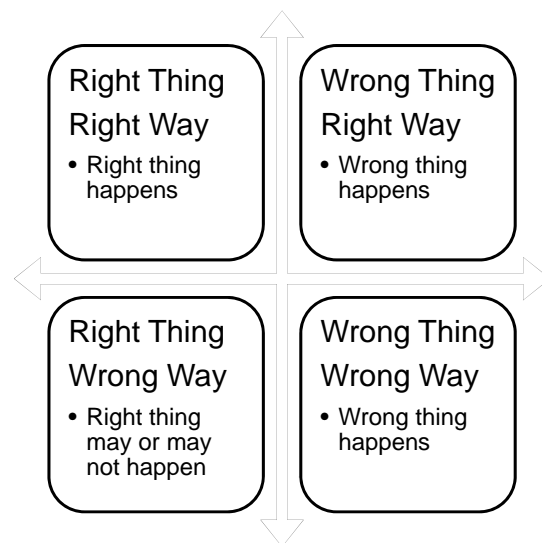
Exhaust-Only

Supply-Only

Balanced

GREEN HOME

ONE WAY OR ANOTHER



"Transforming the acceptable to exceptional"



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Presenters

BILL LAZAR

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- Executive Director of St. Johns Housing Partnership. For 24 years, he has worked with affordable housing programs in Duval, St. Johns and Clay Counties. Since 1999, the SJHP has provided home repairs to over 225 homes annually. In 2002, SJHP created Home Buyer, Credit Counseling and Foreclosure Prevention services as a critical part of their housing program.



ENERGY EFFICIENCY IN REHAB WORK



Improving Sub-Standard Housing-Home Repairs

- Start with Health and Safety Focus
- Energy Conservation= IAQ
- Accessibility promotes Aging In Place
- Basic Green Building



FLORIDA DEPARTMENT OF AG AND CONSUMER SERVICES

- ✕ The office uses available state and federal funds to develop and manage energy efficiency, renewable energy and energy education programs throughout the state.
- ✕ <http://www.myfloridahomeenergy.com/>
 - + An interactive energy consumption site



Maximizing Efficiency

- Improving building performance is the first step
- Improving the whole house, extends the value of the energy retrofit measures

Knowing what to replace/upgrade and when, is key



Energy and Water Conservation



OVERLAP BETWEEN E.E. MEASURES AND HEALTHY HOMES PRINCIPLES

- × 1. **Dry** = Air Sealing, Duct Sealing, Ventilation, Water Mgmt.
- × 2. **Clean** = Air Sealing, Duct Sealing, Materials Selection
- × 3. **Pest-Free** = Air Sealing, Duct Sealing
- × 4. **Ventilated** = Ventilation
- × 5. **Safe** = Lead, Asbestos, Mold, Radon, Fire Hazards, Structural
- × 6. **Contaminant-Free** = Ventilation, Air/Duct Sealing
- × 7. **Maintained (Durable)** = HVAC/Ventilation, Water Management, Structural
- × 8. **Energy Efficient**



UTILITY COMPANIES SELL POWER

- × And they provide conservation programs-

- + JEA- Jacksonville Electric Authority

- × Discount on Light bulbs
- × Lots of info on Tips, financing for conservation
- × Certain Programs with Rebates on residential

- + FPL-

- On Call program- monthly discount
- Consumer education
- Quality Control Training with Specialty Trades



UTILITY COMPANIES ARE A RESOURCE

- × Rebates for measures installed

- × <http://www.dsireusa.org/>

- × Conservation education

- + For Clients/Customers-

- ★ Evaluate actual energy consumption
- ★ Understand the Impact of behavior on consumption

- + For Staff-

- ★ implementing conservation measures effectively
- ★ Training contractors/inspectors



CLIENT EDUCATION

- ✕ Instructions on equipment operation and maintenance
- ✕ Tips on energy-saving actions
- ✕ Information on carbon monoxide and other hazards



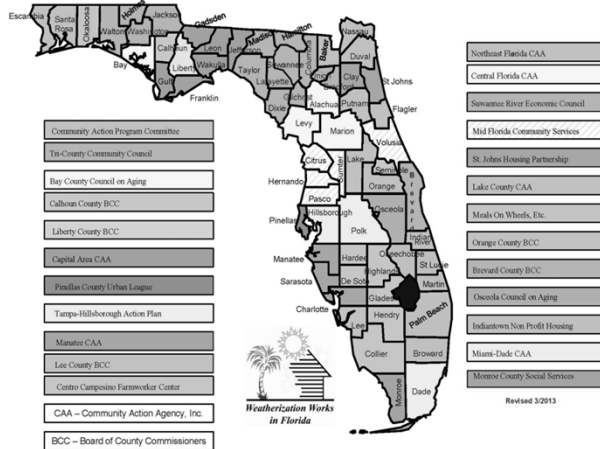
TRAINING AND PARTNERSHIPS ARE CRITICAL

- ✕ **Weatherization Plus Health** - improve the energy efficiency, health, and safety of low-income homes
- ✕ There are many, many homes that need weatherization but have needs beyond the scope of the program
- ✕ A unified approach that includes weatherization, rehab, as well as “health” issues such as lead, mold, and pest control
- ✕ This approach requires a level of cooperation yet to be achieved



WEATHERIZATION AGENCIES

Florida Weatherization Agencies



Weatherization Measures

- Air seal / tighten building envelope
- Add cellulose attic insulation to R-38
- Install energy star bath exhaust fans
- Install compact fluorescent light bulbs
- Test, seal & insulate duct systems
- Replace refrigerator, when inefficient
- Properly size heating & cooling systems

SHIP AND WEATHERIZATION

- Ms. Floyd
- Weatherization
 - Air Sealing
 - HVAC
- SHIP
 - Roof
 - Wall Insulation
 - Siding
 - Painting with Volunteers



RESOURCES:

- ✕ Florida Weatherization Network www.flwap.org
- ✕ Florida Solar Energy Center www.fsec.ucf.edu
- ✕ Florida Green Building Coalition
www.floridagreenbuilding.org
- ✕ Weatherization Plus Health-
<http://wxplushealth.org/about-weatherization-plus-health>
- ✕ From Florida DACS- an interactive energy consumption site
- ✕ <http://www.myfloridahomeenergy.com/>



Resources - Funding Partners

SHIP	Weatherization
Older Americans Act	HUD-CDBG
USDA -Section 504	Foundations/United Way
Utility Companies	Federal Home Loan Bank
Medwaiver / Medicaid Programs	Local government support

Growing Trends :

Hospitals/Health Insurance Companies/Employers

Healthy Housing and Home Performance

http://homeenergypros.lbl.gov/profiles/blogs/habitat-x-releases-2105-position-statement?xg_source=msg_mes_network



PRESENTER. BILL LAZAR

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The Neighborhood Energy Saver Program Duke Energy

Helping Neighbors Save Energy And Money

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Goals & Objectives

- Assist families in income eligible neighborhoods by installing up to **20 FREE** energy conservation measures
- Educate families on energy efficiency techniques and best practices
- Change the way they think about using energy
- Control energy usage

Eligibility Requirements

- Meet Fla. Department of Economic Opportunity's income guidelines
- Duke Energy residential metered customer
- Reside in the selected census data block group

Home Improvements

Visiting your home



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Home Improvements



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Air Infiltration Reduction/Caulking Penetrations

Air Infiltration reduction

- Through out home
- Caulking around window A/C

Weatherization Improvements

2 doors per home

- Weather-stripping
- Door sweeps

Hot water Improvements

Water flow restrictors

- 3 per Home
 - 1, Swivel head – Kitchen
 - 2, Fixed – Bathrooms
- Temperature check

Hot water Improvements

- Water heater wrap
- Water heater pipe wrap

A/C Improvements

- Digital wall plate thermometer

A/C Improvements

- 4 Central A/C
 - *Measure for filter size*
- 2 Wall Unit
- 1 Window HVAC Cover

Insulation upgrade

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Basic Air-Conditioning Maintenance

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Questions?

- Please complete the evaluation that will be emailed at the end of the webinar.
- Contact me if you need additional technical assistance at Andujar@flhousing.org

Our technical assistance hotline:

- 1800-677-4548

