



SystemVision

Building Affordable, Energy Efficient Homes

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About Advanced Energy

- Independent, non-profit organization established in 1980, Headquartered in Raleigh, NC
- Mission: Create economic, environmental and societal benefits through innovative and market-based approaches to energy issues
- Provide research, training, consulting, testing, program services and outreach:
 - Building Sciences
 - Energy Efficiency
 - Renewable Energy
 - Transportation Initiatives
 - Motors and Drives



Agenda

- System Vision Overview
- Keys to Success
- Other Applications



4379 Guaranteed SystemVision
Homes in North Carolina.

Energy savings over \$4.5 million!

System Vision Guarantee

- Two-year guarantee
- Covers heating/cooling and comfort
- Guarantee expressed as annual kWh
- Based on energy modeling
- Typically guarantees average between \$25 and \$35 per month



Verified Savings

- Research conducted in 2005 found that SV homes achieved the following savings:
 - 15 percent more energy efficient than code-built homes
 - 30 percent more efficient in heating and cooling than code-built homes.



Keys to Success: Program Design

- Collaboration/Stakeholder Engagement
- Program Standards
- Quality Processes
- Training
- Feedback Loops



Finished Product



System Vision History

- Guaranteed home program launched in 2001
- First key sponsor was NCCDI
- Based on the nationally-recognized mainstream program: Environments for Living.
- Focus on health, safety, comfort, durability, energy efficiency and environmental responsibility.



Key Partnerships

- North Carolina Housing Finance Agency
- Affordable Housing Builders
 - Habitat for Humanity
 - Housing Authorities
 - Community Development Corporations
- Home Energy Raters
- Building Contractors and Subs
- Manufacturers (e.g., DOW, Panasonic)

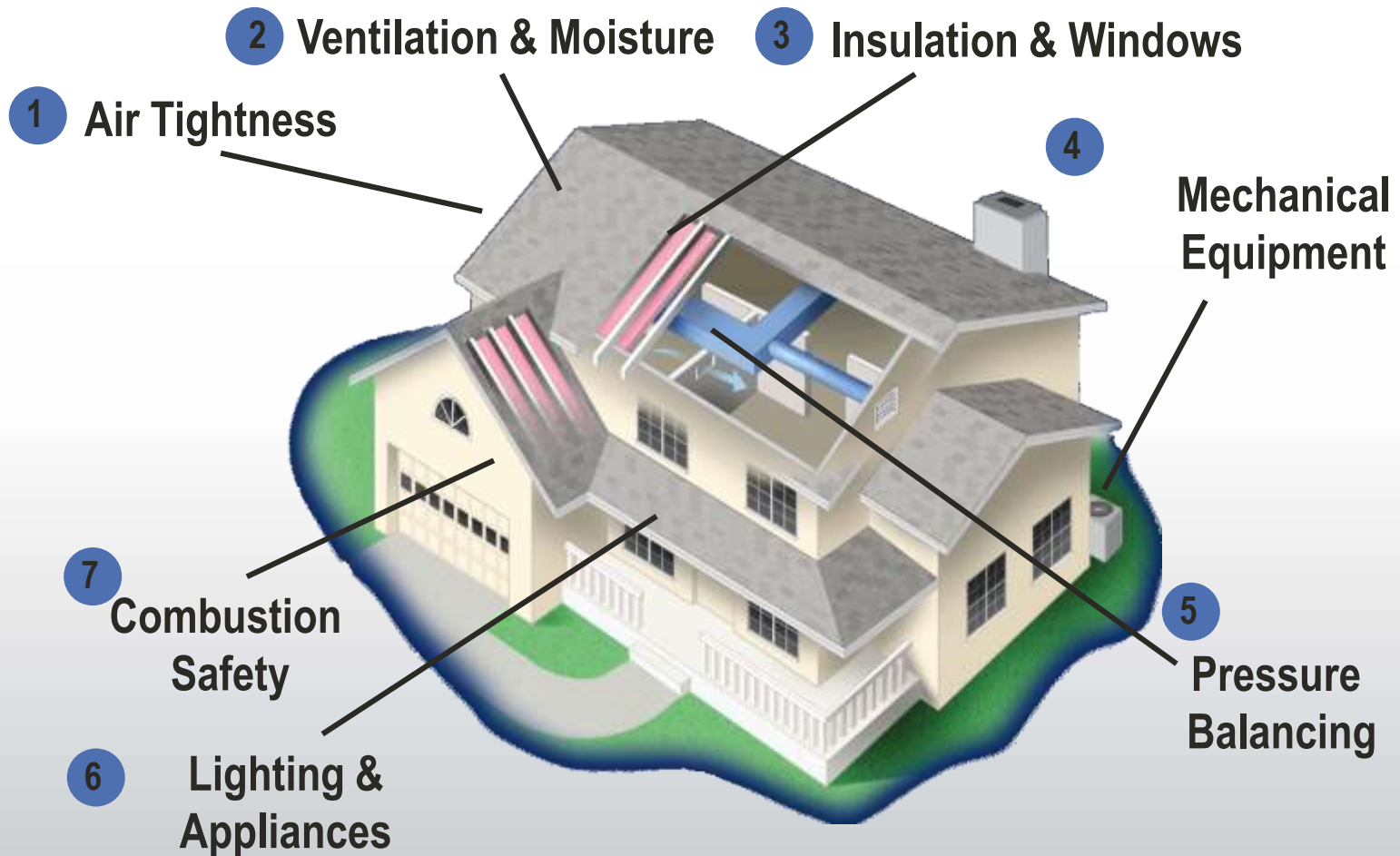


Program Implementation

- Program Standards
- Process (e.g., plan reviews, energy modeling, load reviews, 2-3 inspections per house)
- Builder/contractor training
- Ongoing technical support
- Third-party inspections



Program Standards



Process

- Contractor training
- Plan review
- HVAC load calculation review
- Energy modeling
- Field Inspections
- Ongoing technical support
- Energy data collection



Technical Resources

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CRITICAL DETAIL: BATH EXHAUST FAN

Cut the duct to the exact length to eliminate the possibility of unnecessary curves, crimping, restrictions or length.

Ensure the inner liner is not tucked inside of the insulation or restricting movement of the fan damper.

✓ LENGTH



The termination should have little to no restriction, with the exception of a metal insect screen. Remove any packing tape during install.

✓ INNER LINER



Verify the duct terminates outside of the building, especially if termination is located at the roofline.

✓ TERMINATION



✓ CONNECTION



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SUCCESS WITH AFFORDABLE HOUSING

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Each bathroom must have an exhaust fan that exhausts a minimum of 50 CFM directly to the outside. This is the measured flow as installed, not the rated flow. There are three important areas to watch during the construction process. If all of the key factors on the next two pages are working properly, the bathroom fan should operate the way it was intended.

KEY AREAS

- 1 Fan
- 2 Duct
- 3 Exterior

✓ ORIENTATION



Orient the fan outlet so the duct will have the shortest and straightest route to the outside of the building.

✓ DAMPER



Bath fans have back-draft danger to keep outside air from entering the bathroom. Remove shipping tape from the damper and ensure it swings freely.

✓ SEALING



Caulk all of the holes between the drywall and the fan housing unit as well as all holes in the housing unit.

✓ RATING



As a rule of thumb, to ensure that your bath fan will pull a minimum of 50 CFM once it is installed, install a fan rated for 70 CFM.

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Third-Party Verification

- Quality Installation



Developer Benefits

- Reimbursement funds to offset costs of building to SV standards (NCHFA)
- Training and technical support.
- Third-party verification of quality installation.
- Supports their mission: helping to make their homes not only affordable to purchase, but affordable to operate.
- Additional certifications and incentives



Homeowner Benefits

- Healthy, Safe, Comfortable, Durable and Energy Efficient Home
- Homeowner Education
 - Habitat for Humanity requires homeowner to volunteer during the build process.
- SystemVision Guarantee



Other Applications

- Single-Family
- Multifamily
- Rental/Owned
- New Construction
- Rehab
- Urgent Repair
- Supportive Housing



Energy Efficient

**Environmentally
Friendly**

Healthy

Durable

Safe

Comfortable



Thank You!

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