Building Energy Codes in Virginia: Where We Stand Nationally

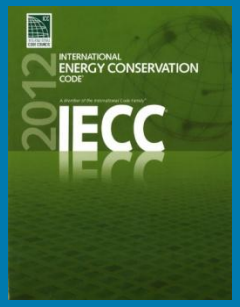
May 29, 2014 Presentation to
Virginia Energy Efficiency Council

Eric Lacey
Responsible Energy Codes Alliance

Who RECA Is

RECA Mission

RECA's primary mission is to promote the adoption, implementation, and enforcement of the most recent version of the IECC nationwide.



- Air Barrier Association of America
- Alliance to Save Energy
- American Chemistry Council
- American Council for an Energy-Efficient Economy
- Cardinal Glass Industries, Inc.
- CertainTeed Corporation
- EPS Industry Alliance
- Extruded Polystyrene Foam Association
- Guardian Industries Corporation
- Hogan & Hartson LLP
- Institute for Market Transformation
- Johns Manville Corporation
- Knauf Insulation
- Midwest Energy Efficiency Alliance
- National Fenestration Rating Council
- Northeast Energy Efficiency Partnerships
- North American Insulation Manufacturers Association
- Owens Corning
- Pactiv Corporation
- Polyisocyanurate Insulation Manufacturers Association
- Sierra Club
- Southeast Energy Efficiency Alliance
- Southwest Energy Efficiency Project

Why Building Energy Codes?

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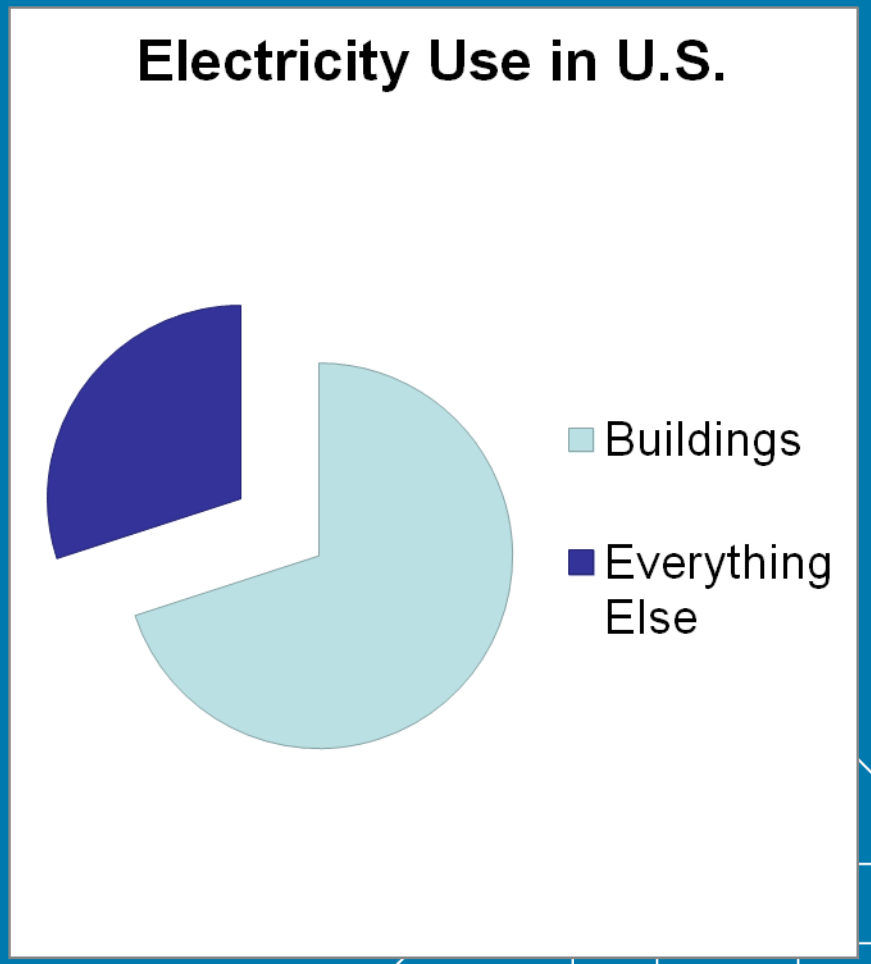
Responsible Energy Codes Alliance

Why Building Energy Codes?

- Buildings account for over 70% of electricity use
- Buildings account for almost 40% of total national energy use



Why Building Energy Codes?

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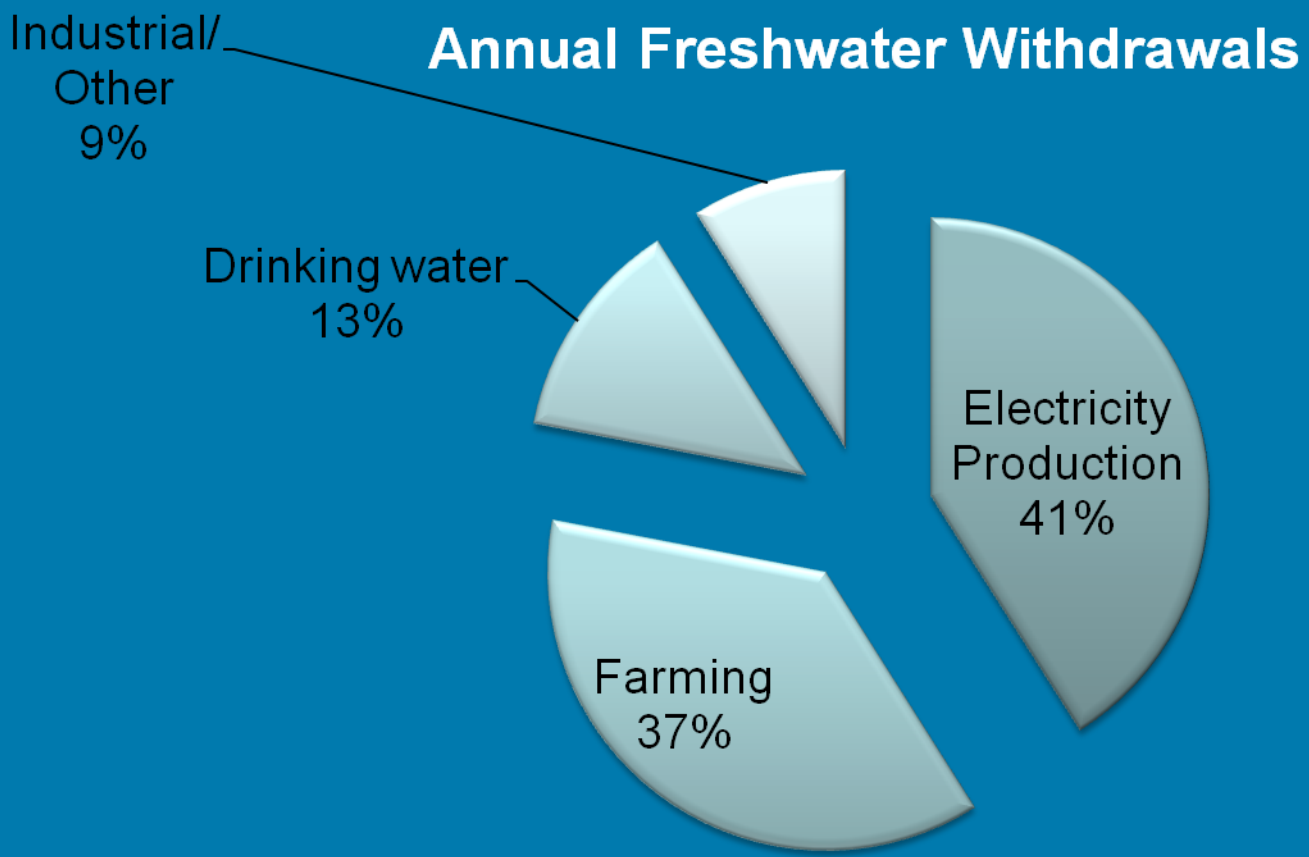

Virginia is an Regional and National Energy Policy Leader

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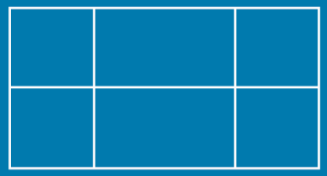
- May is Building Safety Month in VA
  - An “opportunity to highlight appropriate steps everyone can take to make our buildings safe and sustainable…” Gov. McAuliffe
- History of building energy codes in VA
  - VA was among the first to adopt the 2009 IECC
  - VA code officials are very active in national code development



The Model Energy Codes

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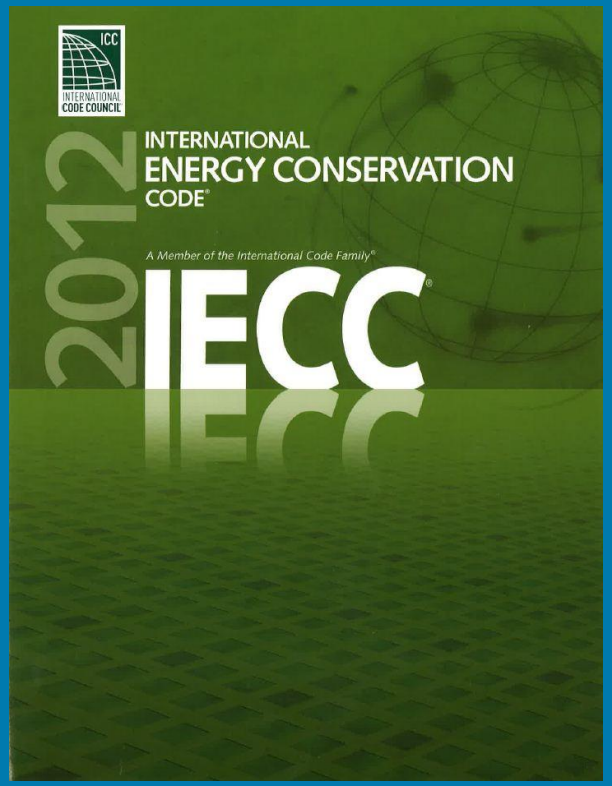
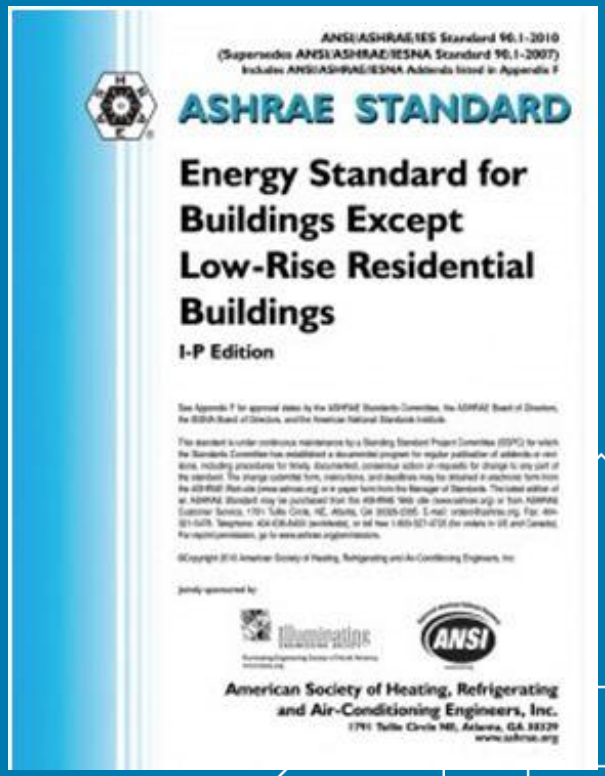
International Code Council - IECC



ASHRAE – Standard 90.1



Improvements in Model Energy Codes

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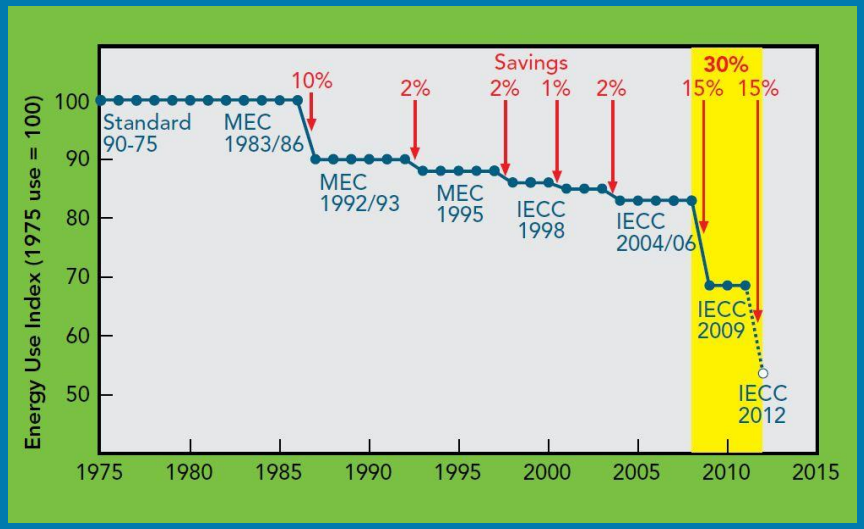
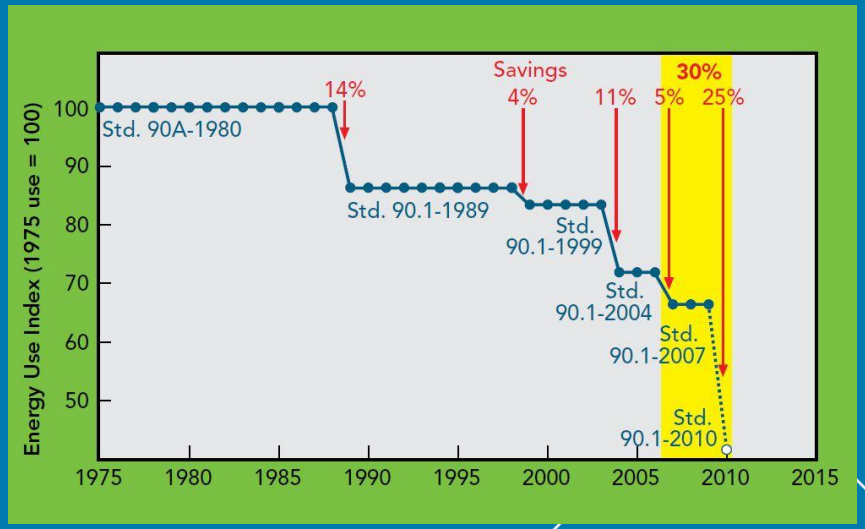
IECC Residential

(Source: U.S. DOE)



ASHRAE 90.1 Commercial

(Source: U.S. DOE)



Improvements in Model Energy Codes

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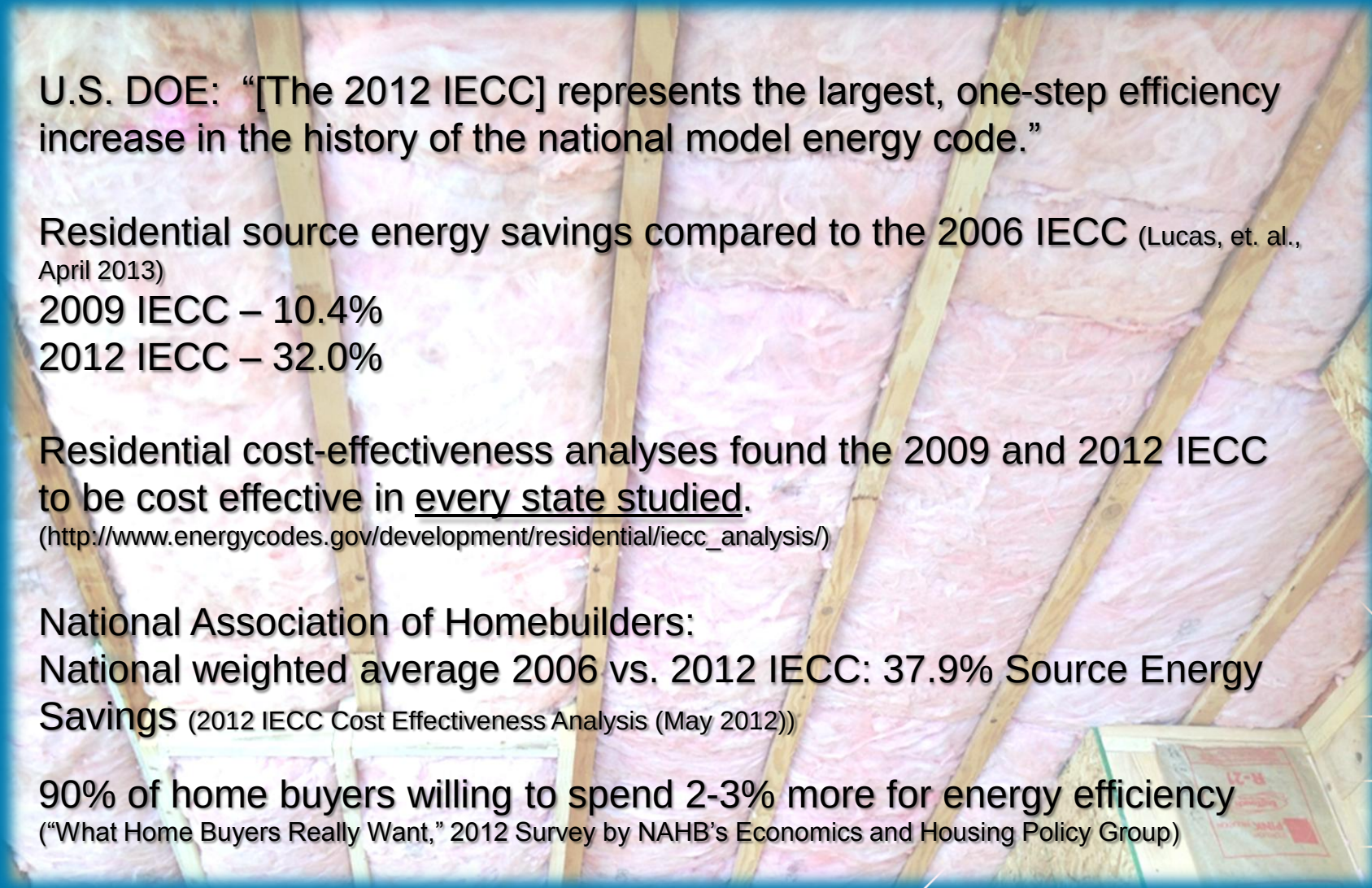


U.S. DOE: "[The 2012 IECC] represents the largest, one-step efficiency increase in the history of the national model energy code."

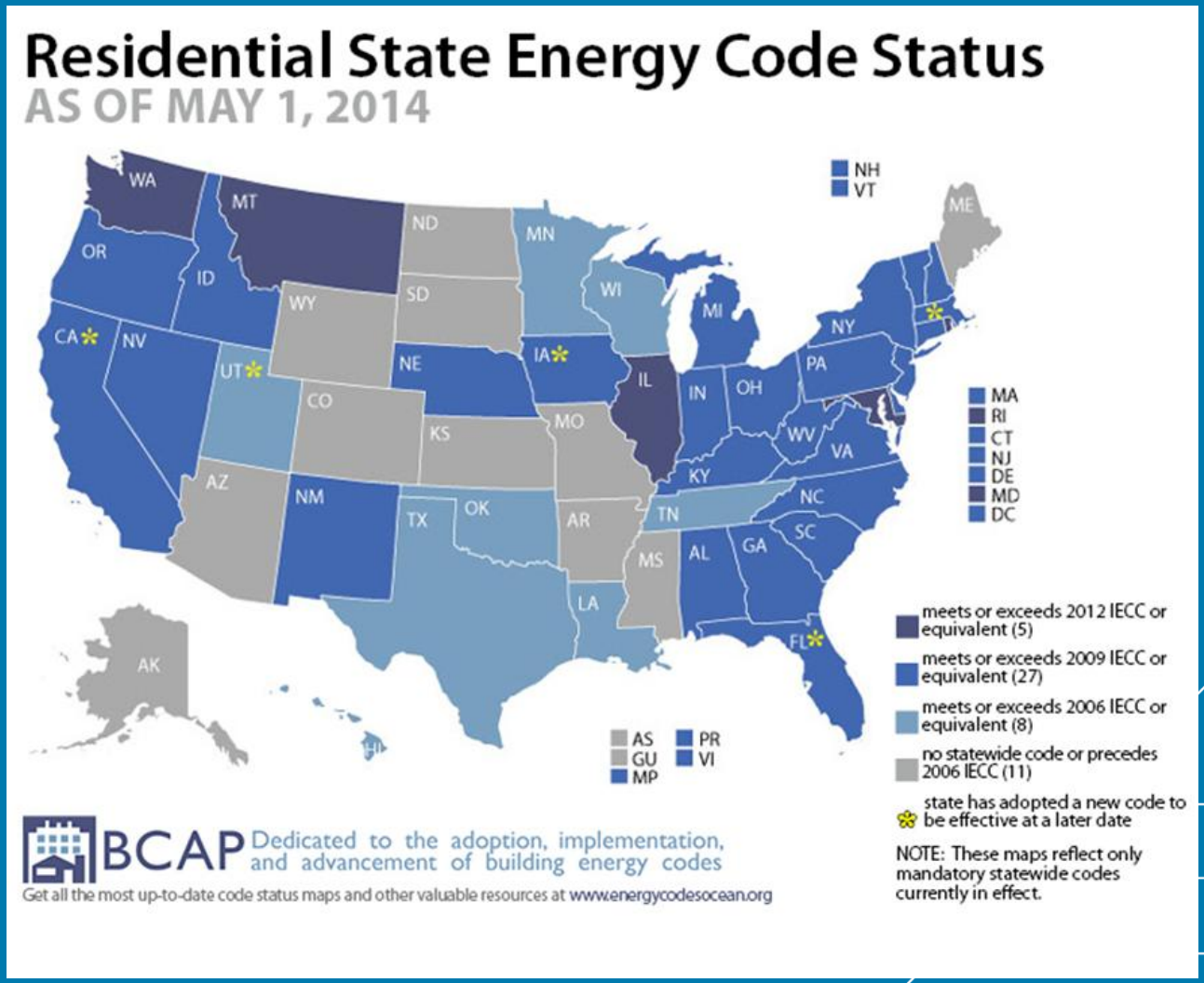
Residential source energy savings compared to the 2006 IECC (Lucas, et. al., April 2013)
2009 IECC – 10.4%
2012 IECC – 32.0%

Residential cost-effectiveness analyses found the 2009 and 2012 IECC to be cost effective in every state studied.
(http://www.energycodes.gov/development/residential/iecc_analysis/)

National Association of Homebuilders:
National weighted average 2006 vs. 2012 IECC: 37.9% Source Energy Savings (2012 IECC Cost Effectiveness Analysis (May 2012))

90% of home buyers willing to spend 2-3% more for energy efficiency
("What Home Buyers Really Want," 2012 Survey by NAHB's Economics and Housing Policy Group)

National Code Adoption – IECC



National Code Adoption – ASHRAE 90.1

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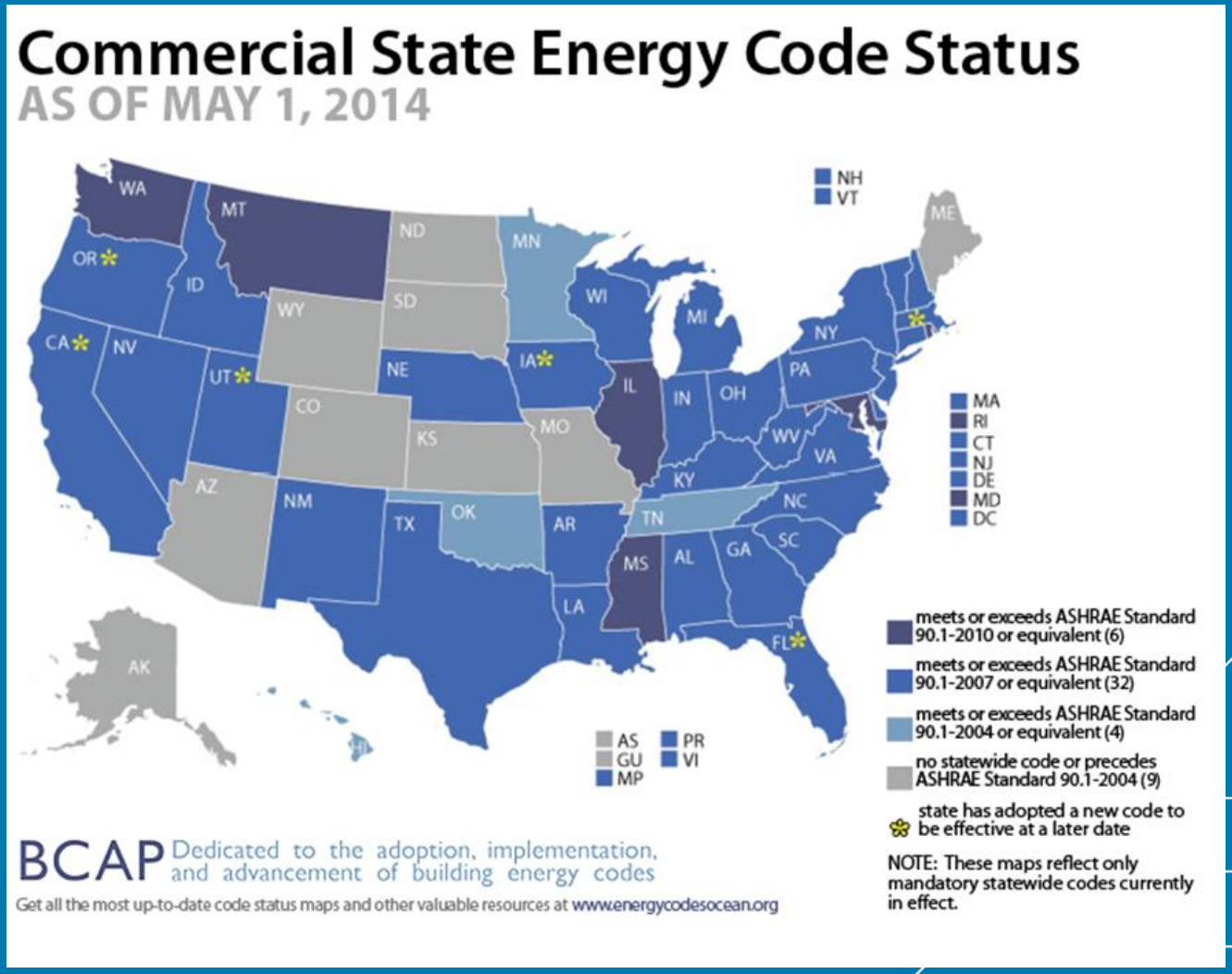

Where is VA on Energy Codes?

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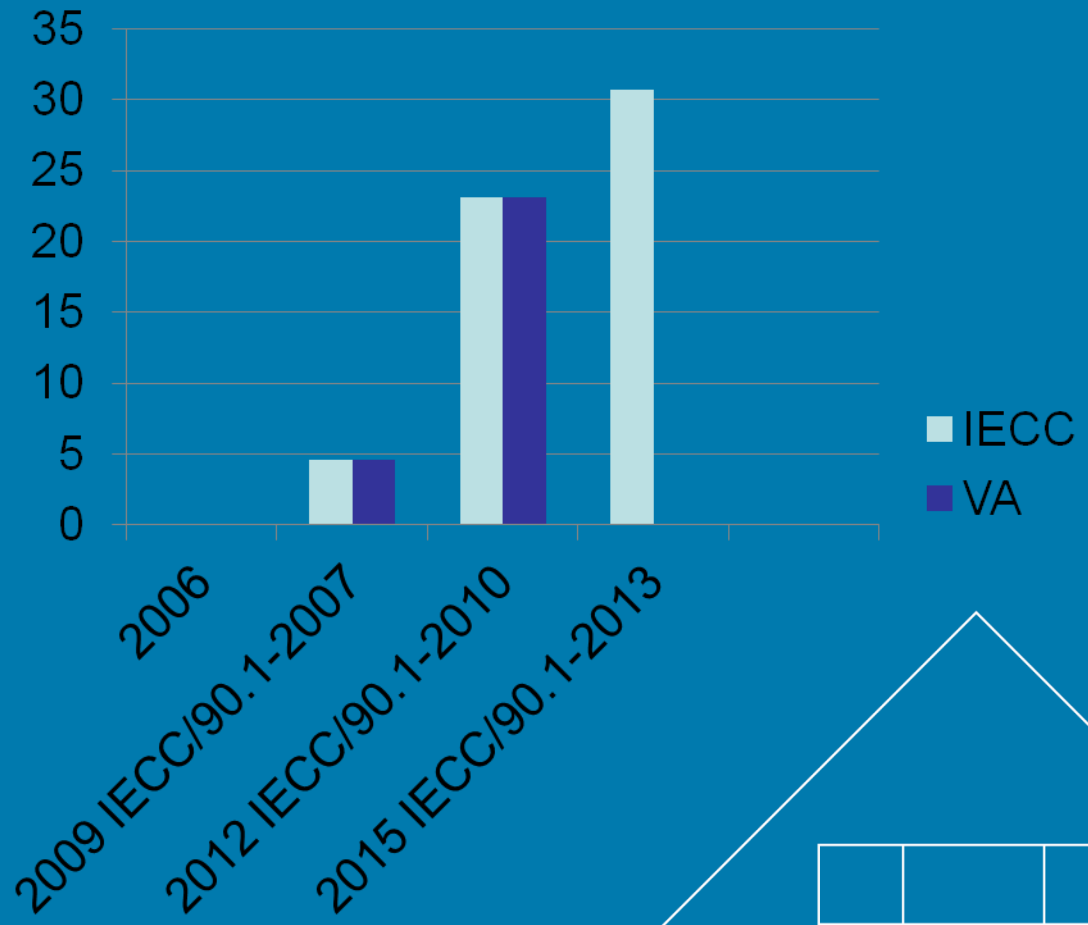
Commercial

2009 IECC
- Adopted 7/27/10
- Effective 3/1/11

2012 IECC
- Adopted 3/24/14
- Effective Fall 2014



Where is VA on Energy Codes?

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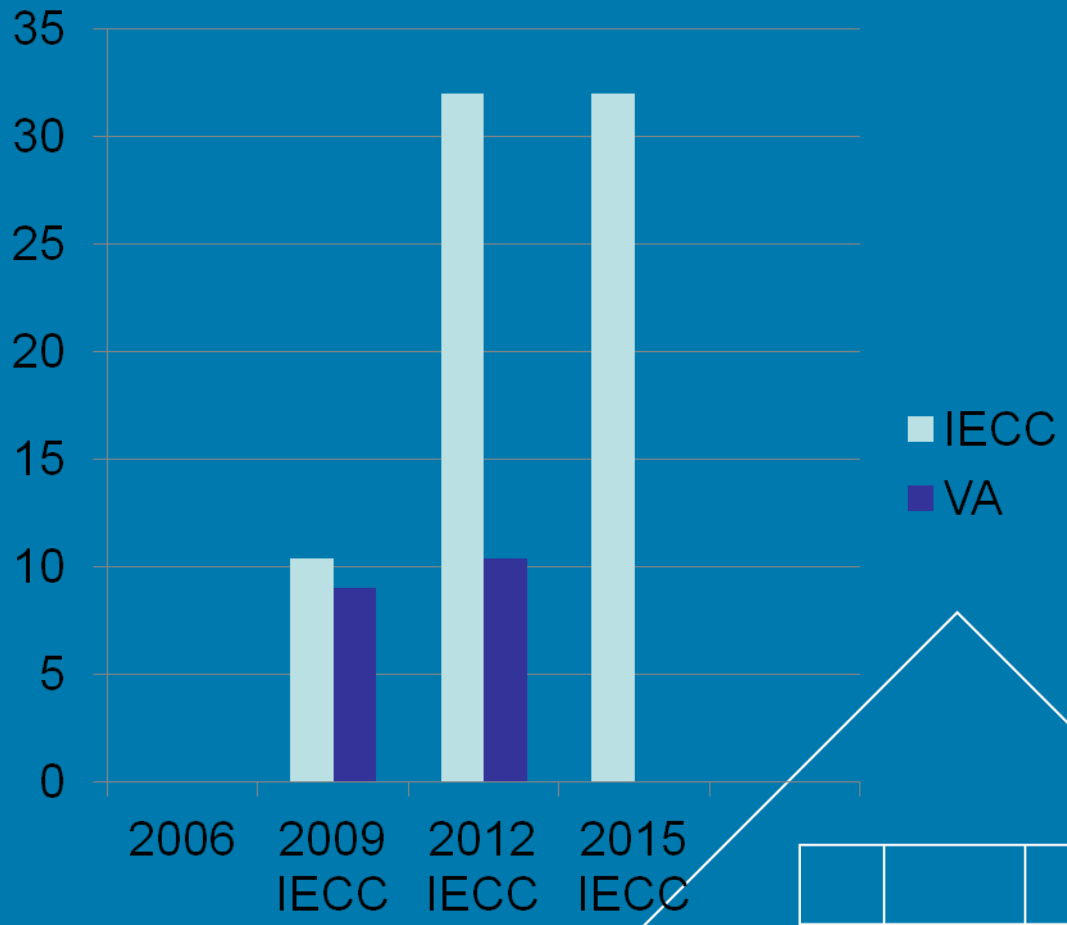
Residential

2009 IECC, *with amendments*
Adopted 7/27/10
Effective 3/1/11

2012 IECC, *with amendments*
Adopted 3/24/14
Effective Fall 2014



Where is VA on Energy Codes?

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Room to Grow

- Replacement Windows
- Wall insulation
- Ceiling insulation
- Air leakage testing
- Duct testing
- Pipes & Lighting

U.S. DOE: Energy and Cost Savings for 2012 IECC in VA

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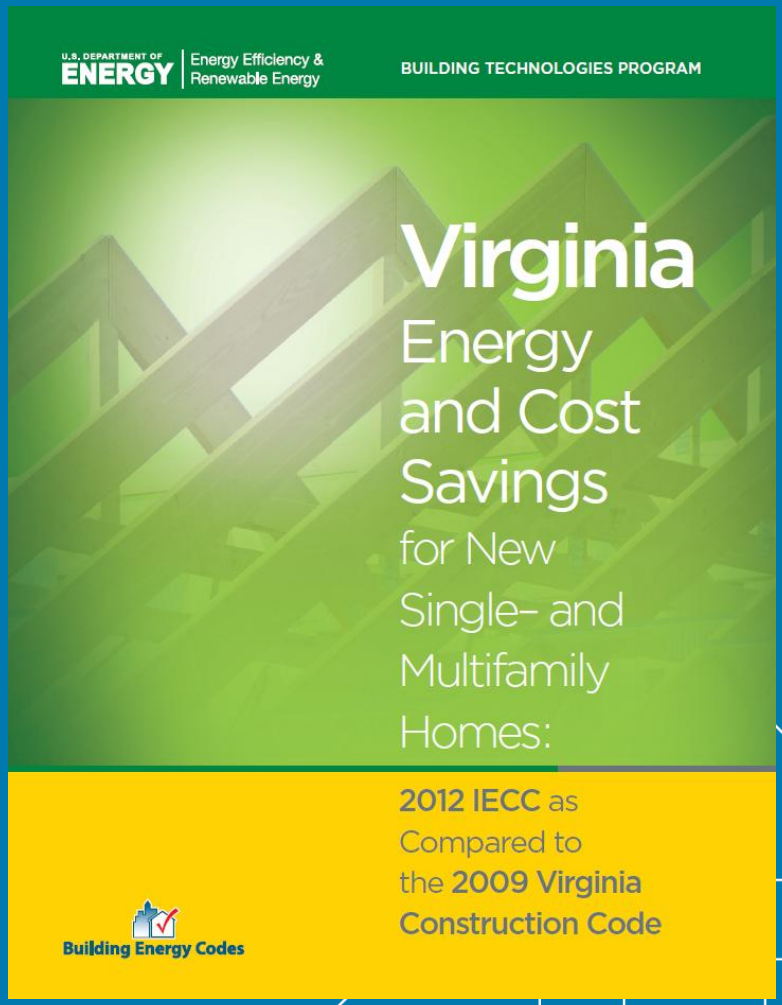
Energy Savings: 27.4%

Life Cycle Cost Savings (30 years): **$5,836**

Net Positive Cash Flow: 1 year

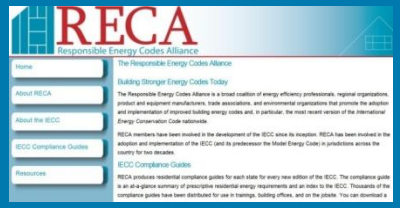
Simple Payback: 5.2 years

http://www.energycodes.gov/development/residential/iecc_analysis/



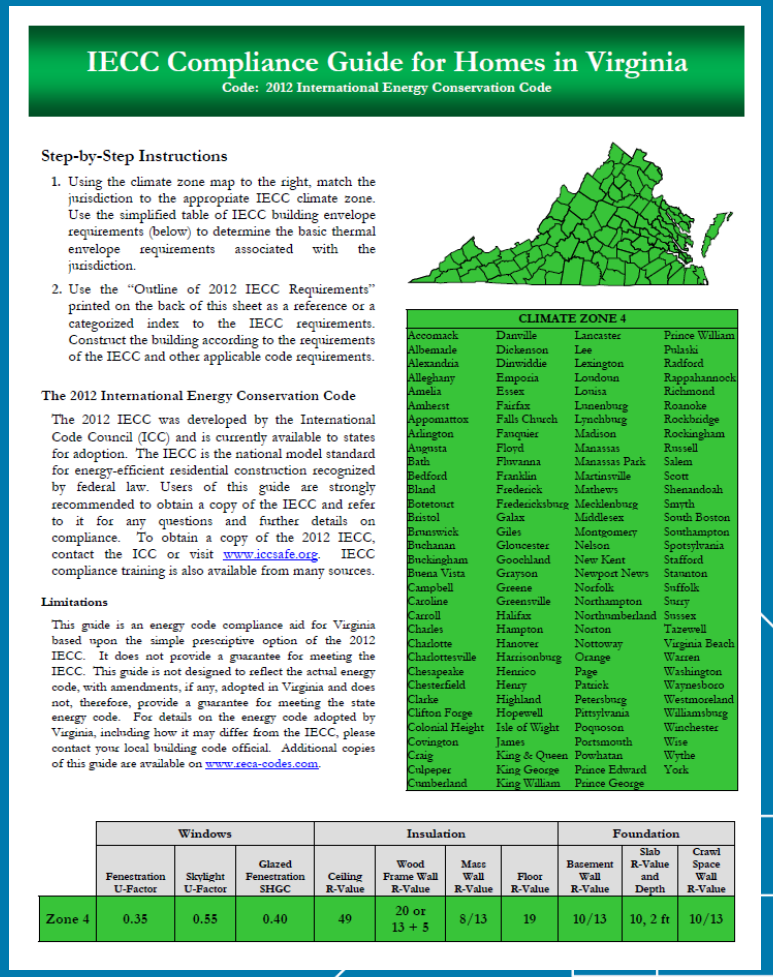
Energy Code Resources

Reca-codes.com



Energycodesocean.org

Energycodes.gov



IECC Compliance Guide for Homes in Virginia

Code: 2012 International Energy Conservation Code

Step-by-Step Instructions

1. Using the climate zone map to the right, match the jurisdiction to the appropriate IECC climate zone. Use the simplified table of IECC building envelope requirements (below) to determine the basic thermal envelope requirements associated with the jurisdiction.
2. Use the "Outline of 2012 IECC Requirements" printed on the back of this sheet as a reference or a categorized index to the IECC requirements. Construct the building according to the requirements of the IECC and other applicable code requirements.

The 2012 International Energy Conservation Code

The 2012 IECC was developed by the International Code Council (ICC) and is currently available to states for adoption. The IECC is the national model standard for energy-efficient residential construction recognized by federal law. Users of this guide are strongly recommended to obtain a copy of the IECC and refer to it for any questions and further details on compliance. To obtain a copy of the 2012 IECC, contact the ICC or visit www.iccsafe.org. IECC compliance training is also available from many sources.

Limitations

This guide is an energy code compliance aid for Virginia based upon the simple prescriptive option of the 2012 IECC. It does not provide a guarantee for meeting the IECC. This guide is not designed to reflect the actual energy code, with amendments, if any, adopted in Virginia and does not, therefore, provide a guarantee for meeting the state energy code. For details on the energy code adopted by Virginia, including how it may differ from the IECC, please contact your local building code official. Additional copies of this guide are available on www.reca-codes.com.

CLIMATE ZONE 4

Accomack	Danville	Lancaster	Prince William
Albemarle	Dickenson	Lee	Pulaski
Alexandria	Dinwiddie	Lexington	Radford
Alleghany	Emporia	Loudoun	Rappahannock
Amelia	Essex	Louisa	Richmond
Amherst	Fairfax	Lunenburg	Roanoke
Appomattox	Falls Church	Lynchburg	Rockbridge
Arlington	Fauquier	Madison	Rockingham
Augusta	Floyd	Manassas	Russell
Bath	Fluvanna	Manassas Park	Salem
Bedford	Franklin	Martinsville	Scott
Bland	Frederick	Mathews	Shenandoah
Botetourt	Fredericksburg	Mecklenburg	Smyth
Bristol	Galax	Middlesex	South Boston
Brunswick	Giles	Montgomery	Southampton
Buchanan	Gloucester	Nelson	Spotsylvania
Buckingham	Goochland	New Kent	Stafford
Buena Vista	Grayson	Newport News	Staunton
Campbell	Greene	Norfolk	Suffolk
Caroline	Greensville	Northampton	Surry
Carroll	Halifax	Northumberland	Sussex
Charles	Hampton	Norton	Tazewell
Charlotte	Hanover	Nottoway	Virginia Beach
Charlottesville	Harrisonburg	Orange	Warren
Chesapeake	Henrico	Page	Washington
Chesterfield	Henry	Patrick	Waynesboro
Clarke	Highland	Petersburg	Westmoreland
Clifton Forge	Hopewell	Pittsylvania	Williamsburg
Colonial Height	Isle of Wight	Poquoson	Winchester
Covington	James	Portsmouth	Wise
Craig	King & Queen	Powhatan	Wythe
Culpeper	King George	Prince Edward	York
Cumberland	King William	Prince George	

	Windows			Insulation				Foundation		
	Fenestration U-Factor	Skylight U-Factor	Glazed Fenestration SHGC	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value	Floor R-Value	Basement Wall R-Value	Slab R-Value and Depth	Crawl Space Wall R-Value
Zone 4	0.35	0.55	0.40	49	20 or 13 + 5	8/13	19	10/13	10, 2 ft	10/13

Thank You

Eric Lacey, Chairman
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