NFRC Regulatory Affairs & Marketing Committee: Energy Codes Update

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Refresher – The Importance of Energy Codes

- States and local jurisdictions adopt energy efficient codes to establish the minimum legal standards for building construction – including fenestration
- Energy codes generally establish requirements for new buildings, additions & remodeling and replacement windows
- Jurisdictions typically adopt model codes, occasionally with local amendments

Federal Law Requires Consideration and/or Adoption of Model Energy Codes

- For almost two decades, federal law has required jurisdictions to consider and/or adopt model energy codes
- Two primary national model energy codes
  - Residential construction = IECC
  - Non-residential construction = ASHRAE 90.1 and IECC

Today There is Substantial Emphasis on Energy Codes to Achieve National Policy

- There has been much emphasis at the national policy–maker level for using energy codes to provide energy efficiency for national security, economic and environmental reasons
- Example: DOE target for 2012: 30% improvement over 2006 IECC

Current Model Codes Require Efficient Windows

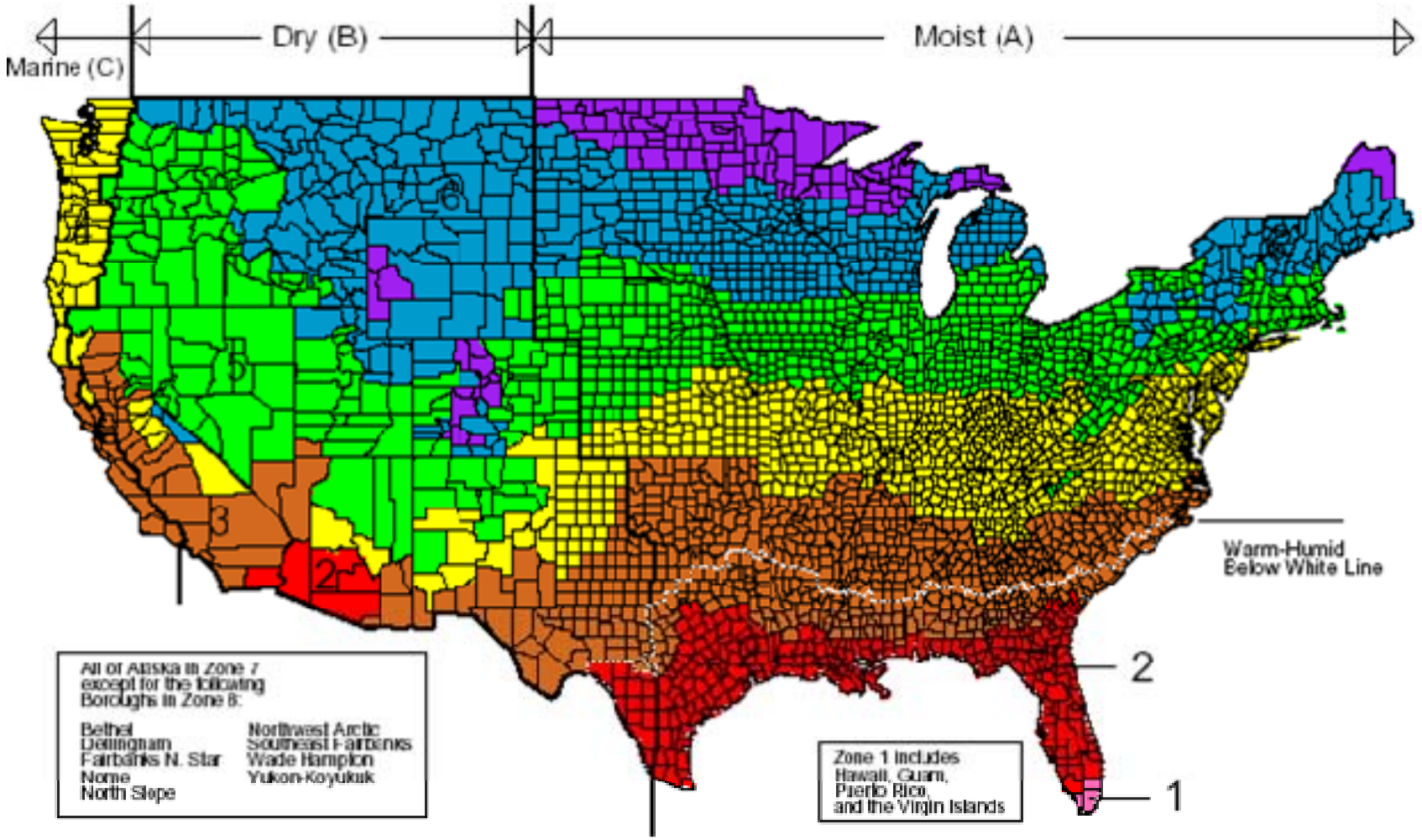
Future model codes expected to require even more efficient windows ….

NFRC ratings are key to code compliance for fenestration ….

NFRC Role in Energy Codes

- Modern model energy codes incorporate NFRC procedures as the exclusive method for determining fenestration energy performance for both residential and non-residential construction (U-factor and SHGC)
- The only alternative is an extremely limited default table
- Virtually all state codes currently incorporate these requirements

U.S. Energy Code Requirements Vary By Climate Zones



2012 IECC Final Action Hearings

- Completed in Charlotte on October 30
- During 2012 development process, over 200 IECC proposals were reviewed and either approved or rejected, plus IRC proposals
- ICC adopted proposal to replace IRC residential energy provisions in Chapter 11 with a requirement to comply with the IECC
- ICC revised IECC intent -- excerpt:

  "regulate the design and construction of buildings for the effective use and conservation of energy over the useful life of each building."

2012 IECC and NFRC

- U-factors and SHGCs:
  - Same approach as 2009 IECC
  - All fenestration ratings must be determined in accordance with NFRC or limited default table
  - AAMA 507 alternative disapproved
- VT:
  - NFRC VT recognized by IECC for first time
  - VTs for fenestration (if required by the code) must be determined in accordance with NFRC or limited default table

Increased RES Energy Efficiency Requirements In The Most Recent Published IECC (2009)

- For windows, lower SHGC and U-factor in the south
- Improved performance path and no mechanical trade-offs
- Overall changes to code are estimated by observers to result in at least a 10% - 15% more efficient residential code

Improved RES Requirements Approved at Final Action For Next Version of IECC (2012)

- DOE omnibus package proposal approved
- More efficient fenestration in virtually all climate zones
- Window area limits rejected
- Overall increase in stringency over 2006 IECC estimated by some observers to achieve 30% target

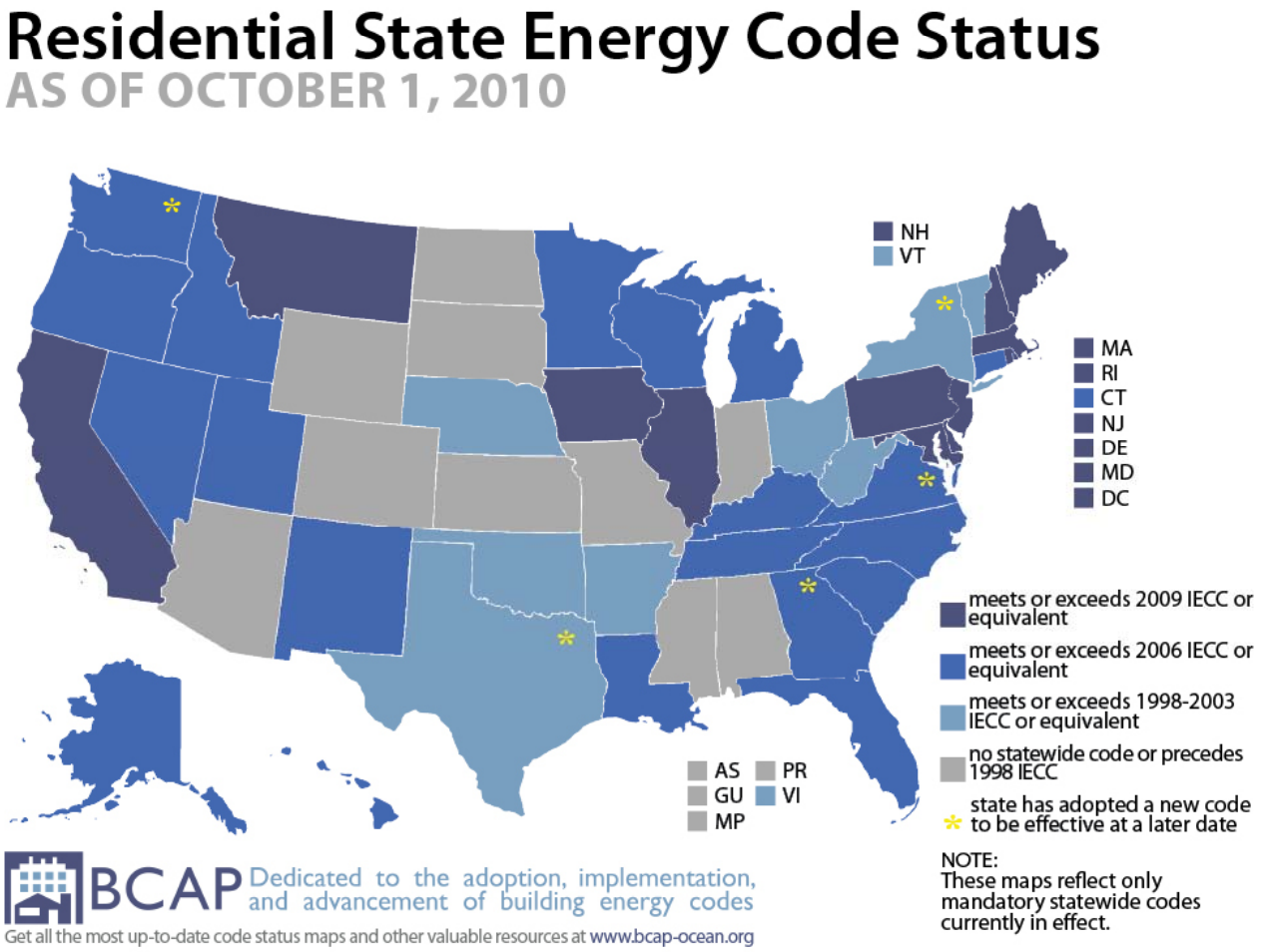
RES: Lower Window U-Factor in Most Climate Zones

	2006 Code	2009 Code	2012 Code
Zone 2	0.75	0.65	0.40
Zone 3	0.65	0.50	0.35
Zone Marine 4 and Zones 5-8	0.35	0.35	0.32

RES: Lower Window SHGC in Certain Climate Zones

	2006 Code	2009 Code	2012 Code
Climate Zones 1 through 3	0.40	0.30	0.25
Climate Zone 4	NR	NR	0.40

Status of State Code Adoptions for Residential Construction



Final Action Hearings for 2012 IECC: Commercial Fenestration Energy Efficiency – Part 1

- New prescriptive fenestration U-factors using three categories: Fixed, Operable and Entrance Door (skylights are addressed separately)
- New weighted average approach for U-factor
- New projection factor formula for SHGC

Final Action Hearings for 2012 IECC: Commercial Fenestration Energy Efficiency – Part 2

- Prescriptive table allows:
  - 30% window to wall ratio
  - Up to 40% window to wall ratio permitted if new daylighting provisions are satisfied
- Compliance may also be achieved through use of performance analysis or ASHRAE 90.1

Final Action Hearings for 2012 IECC: Commercial Fenestration Energy Efficiency – Part 3

- New, more stringent air leakage requirements for commercial windows
- New minimum requirements for skylights in certain buildings

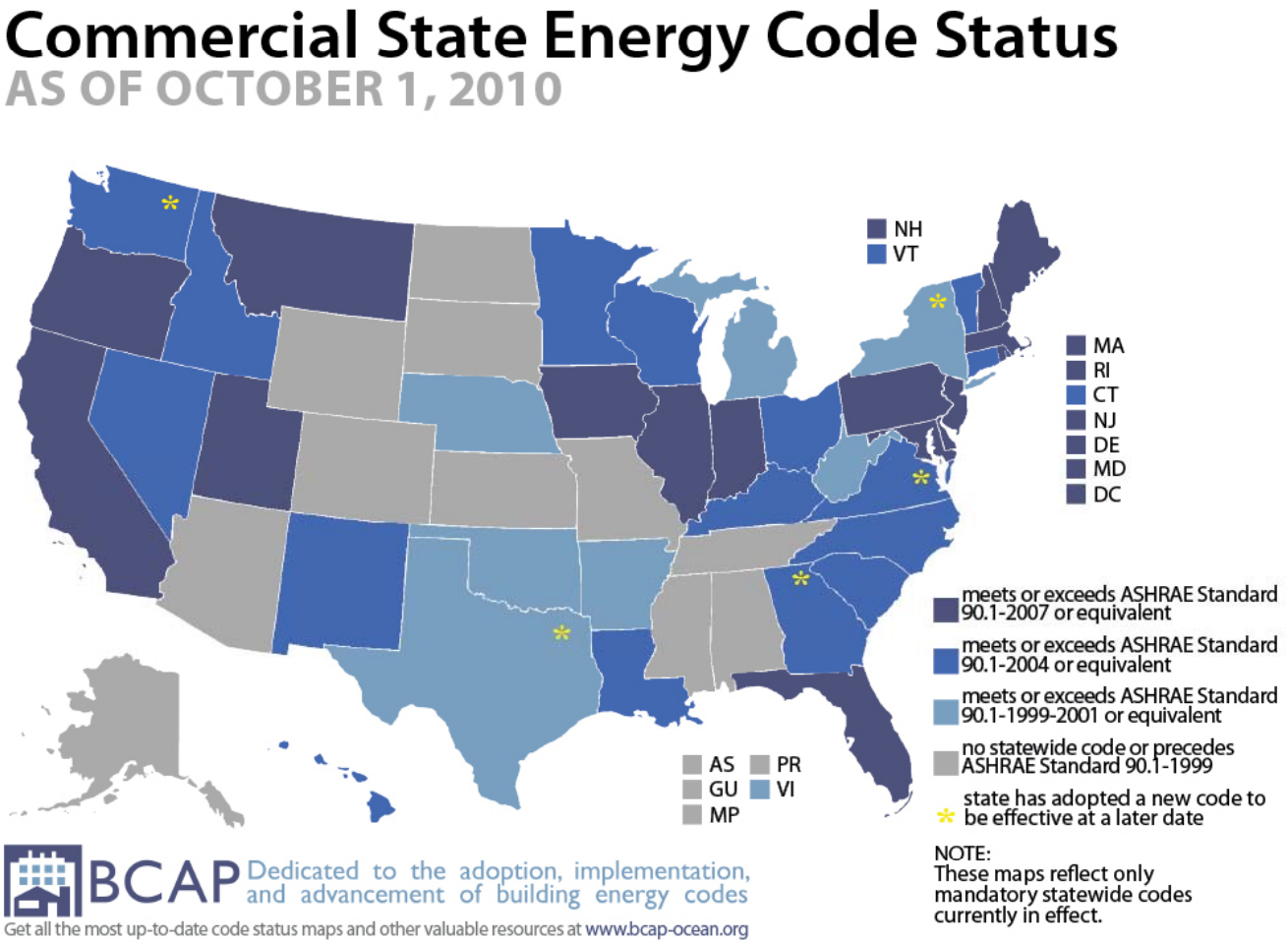
COM: Lower U-Factors for Most Zones Along With Changes to Classification

	Zone 1	Zone 2	Zone 3	Zone 4 Except Marine	Zone 5 & Marine 4	Zone 6	Zone 7	Zone 8
U-Factor – Fixed	0.50	0.50	0.46	0.38	0.38	0.36	0.29	0.29
U-Factor – Operable	0.65	0.65	0.60	0.45	0.45	0.43	0.37	0.37
Entrance door U-Factor	1.10	0.83	0.77	0.77	0.77	0.77	0.77	0.77

ASHRAE 90.1 Update

- New proposed 2010 Fenestration U-factor, SHGC and VT requirements subject to reconsideration
- Appeal by various fenestration-related interests was successful recently in returning Addendum bb back to the Committee
- Future outcome uncertain ….

Status of State Code Adoptions for Commercial Construction



Federal Action: American Recovery & Reinvestment Act of 2009

- $3.1 Billion available from the Federal Government for state energy programs
- For states to qualify for this stimulus money, two conditions must be satisfied:
  - Must Adopt the Most Recent IECC and ASHRAE 90.1-2007
  - Must create a plan for achieving 90% code compliance and enforcement over 8 years

State Reaction: American Recovery & Reinvestment Act of 2009

- 50 State Governors requested stimulus money & made commitments to meeting those conditions (along with others)

EXPECTED RESULTS: Unprecedented Adoption & Enforcement of Most Recent Model Energy Codes

- Many states have already adopted the 2009 IECC and/or ASHRAE 90.1-2007
- Many more are in the process to do so
- DOE and the states are working toward improved compliance rates

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