

ENERGY STAR®



**Windows, Doors & Skylights
NFRC Summer Meeting
July 24, 2007**

Criteria Update Needed



- Twenty-eight states have adopted IECC 2003 or other more recent editions
- Improving energy efficiency is a national priority
- ENERGY STAR barely beats code
- ENERGY STAR windows make up 53% of the market

Revision of ENERGY STAR Criteria



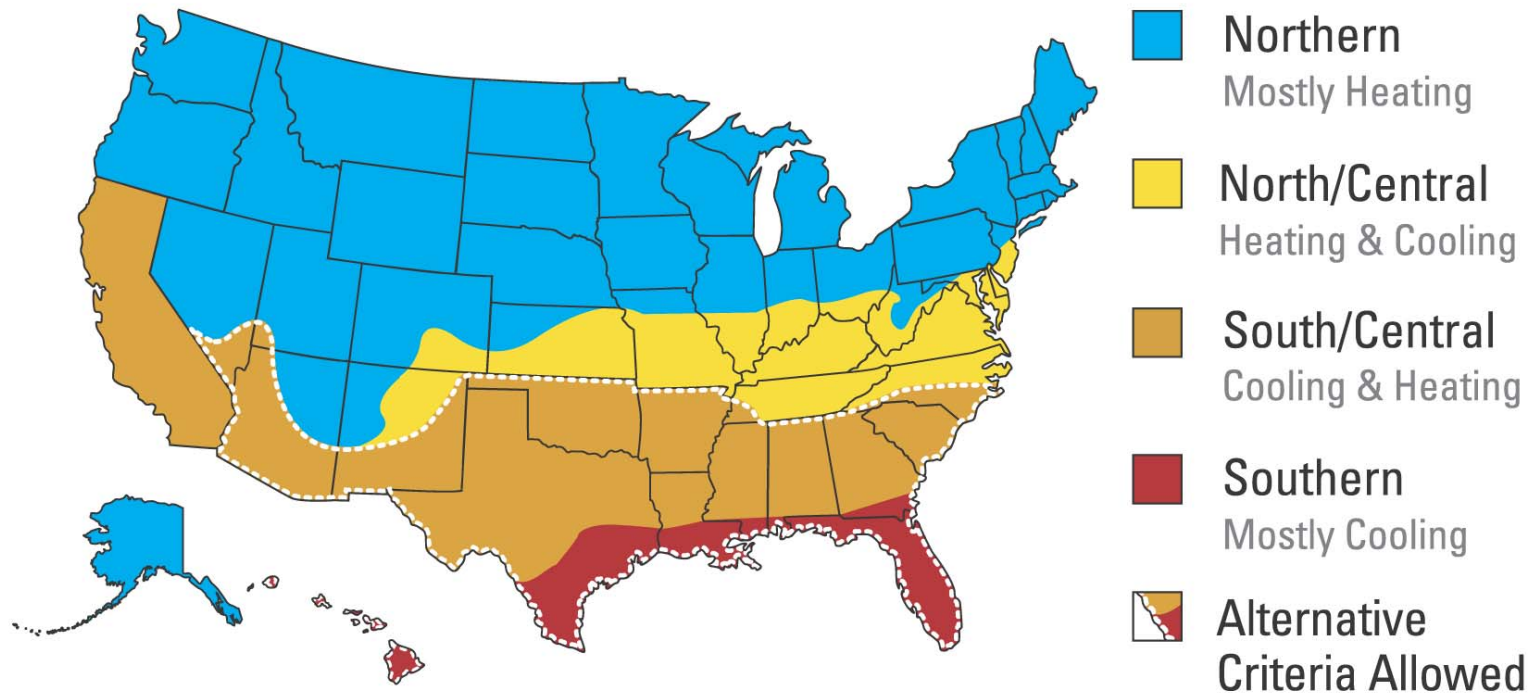
- DOE will review and likely revise the ENERGY STAR qualification criteria for windows, doors and skylights
- DOE is currently conducting preliminary research
- Formal process to begin this fall
- Earliest effective date for new criteria – 1/1/09

Guiding Principles



1. Significant energy savings
2. Cost-effective
3. Energy savings can be measured
4. Equivalent functionality and performance
5. No proprietary technologies
6. Label provides meaningful differentiation

ENERGY STAR Climate Zone Map



Qualification Criteria: Windows, Doors, Skylights



Climate Zone	U-Factor ¹	SHGC ²	
Northern	≤ 0.35	Any	
North/Central	≤ 0.40	≤ 0.55	
South/Central	≤ 0.40	≤ 0.40	Prescriptive
	≤ 0.41	≤ 0.36	Equivalent Performance (Excluding CA) <i>Products meeting these criteria also qualify in the Southern zone.</i>
	≤ 0.42	≤ 0.31	
	≤ 0.43	≤ 0.24	
	≤ 0.43	≤ 0.24	
Southern	≤ 0.65	≤ 0.40	Prescriptive
	≤ 0.66	≤ 0.39	Equivalent Performance
	≤ 0.67		
	≤ 0.68	≤ 0.38	
	≤ 0.69	≤ 0.37	
	≤ 0.70		
	≤ 0.71	≤ 0.36	
	≤ 0.72	≤ 0.35	
	≤ 0.73		
	≤ 0.74	≤ 0.34	
	≤ 0.75	≤ 0.33	

Climate Zone	U-Factor ¹		SHGC ²
	2001 NFRC rated at 20° ³	RES97 rated at 90° ⁴	
Northern	≤ 0.60	≤ 0.45	Any
North/Central	≤ 0.60	≤ 0.45	≤ 0.40
South/Central	≤ 0.60	≤ 0.45	≤ 0.40
Southern	≤ 0.75	≤ 0.75	≤ 0.40

¹ Btu/h.ft². °F

² Fraction of incident solar radiation.

³ U-Factor qualification criteria based on 2001 NFRC simulation and certification procedures that rate skylights at a 20-degree angle. Although reported U-Factor is higher than RES97 rated products, energy performance at the ENERGY STAR minimum qualifying level is equivalent.

⁴ NFRC certification using the 1997 NFRC procedures for residential windows (RES 97) that rated skylights at a 90-degree angle. Skylights rated under this procedure may be present in the marketplace until March 31, 2008. NFRC labels for products using this procedure state: "RES97 rated at 90 degrees."

Elements Under Consideration



- DOE is open to any approach to new criteria meeting the requirements of the guiding principles
- DOE identified a number of elements for possible incorporation into a new specification

Elements Under Consideration



1. Will result in **significant energy savings**, both for consumers and the nation as a whole. Some ideas to examine:
 - Substantially lower U-Factor in northern zones
 - Capture winter solar gain, e.g. minimum SHGC
 - Substantially lower SHGC in southern zones
 - AEP Guidance to determine consumption or savings

– Cont'd

Elements Under Consideration



2. Are **cost-effective** for consumers. Some ideas to examine:
 - Allow SHGC/U-Factor trade-offs (expands range of products)
 - Divide Northern zone in two (expands range of products)
 - Cont'd

Elements Under Consideration



3. Energy **savings can be measured** and products can be compared. Some ideas to evaluate:
 - Continued use of NFRC's CPD for product
 - Monitoring discussions within NFRC to require IGU certification
 - Adding VT criteria
 - Installation procedures to ensure windows perform in replacement

– Cont'd

Elements Under Consideration



4. **Do not compromise functionality** or performance of the qualified product. Looking to:
 - Require IGU certification
 - Maintain adequate VT

– Cont'd

Elements Under Consideration



5. **Do not rely on proprietary technologies** of one, or a small set of, manufacturers.

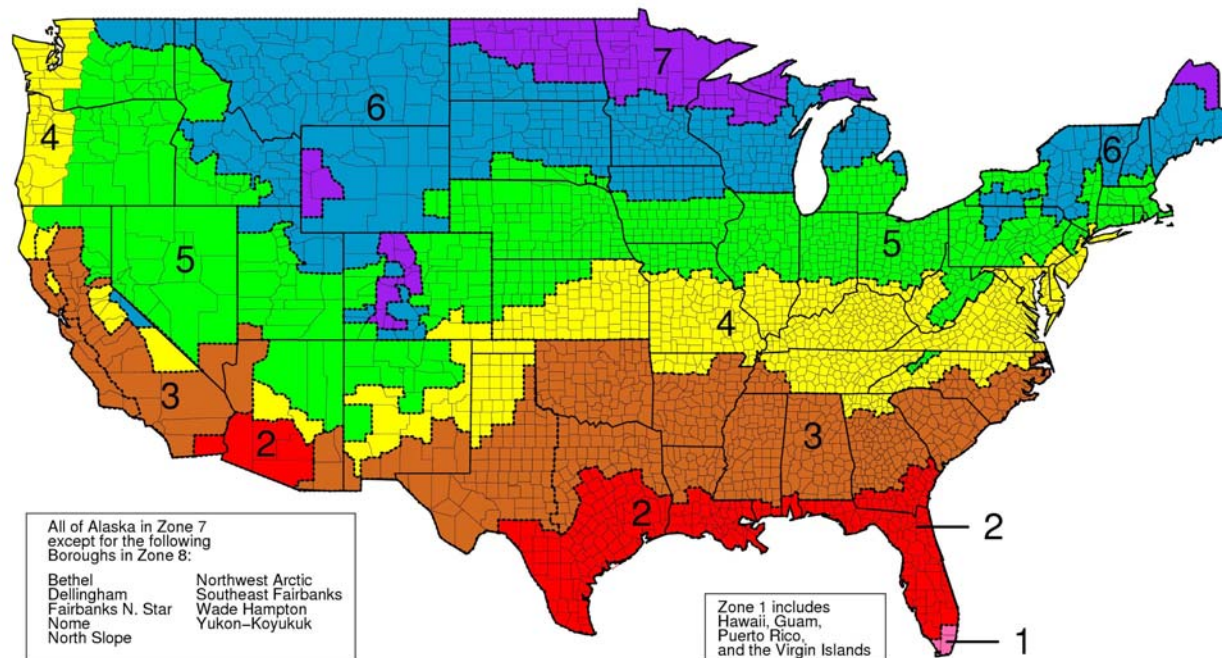
- Ensure multiple paths for achieving performance
- Provide ample consumer choice, in terms of number of models and a wide range of manufacturers.
- Allow SHGC/U-factor trade-offs
- Emerging technologies, e.g. dynamic glazings
- Best production ready technologies

– Cont'd

Elements Under Consideration



6. Provide **meaningful differentiation** between ENERGY STAR qualified products and those that just meet the federal standard.
 - New criteria will move beyond just meeting energy and building codes.



Tentative Timeline



- Initial Analysis Undertaken – Jul-Oct 2007
 - NFRC is assisting in initial analysis
 - CPD queries to identify technical potential
 - Identify commercially available products within CPD
 - IG Certification discussion ongoing
- Initial Analysis Published and Distributed – Dec 2007
- Stakeholder Meeting – Feb 2008
- Finalize Criteria – Mar 2008
- Earliest Effective Date – January 1, 2009

Questions/Comments/Suggestions



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