

California Title 24

Effective: July 1, 2014

ENERGY STAR®

Effective: January 1, 2015

Prepared for
BMD, Inc.

Disclaimer: Please visit the California Energy Commission
for the most up-to-date information.

What is Title 24?

- Title 24 is the California Energy Commission's (CEC) Energy Standards for Residential and Non-residential buildings
- All projects must meet or exceed Title 24 code requirements for the project climate zone before a building permit will be issued
 - Includes U-Factor and SHGC requirements
 - Independent from ENERGY STAR
 - Designated by 16 zones

www.energy.ca.gov

- Zones can be accessed by city or zip code
- The 2013 Title 24 contains updates to the 2008 Title 24 with more stringent prescriptive and performance ratings
- Two pathways to meet Title 24 Code
 - Prescriptive
 - Performance

Prescriptive Method

- Required to follow code exactly!
- 16 Energy Zones, all have U-Factor of ≤ 0.32 for Residential Prescriptive method
 - Zones 1, 3, & 5 : No SHGC Requirement
 - Zones 2, 4, 6 – 16 : ≤ 0.25 SHGC Requirement
- Residential and Non-Residential Requirements
- Applies to new construction and the replacement market

Performance Method

- All Construction Projects
 - New Construction
(Residential, Non-Residential,
Multi-Family)
 - Renovations & additions
- Non-Certified products
 - Individual values from each of the primary components are used to generate U, SHGC, and air leakage values

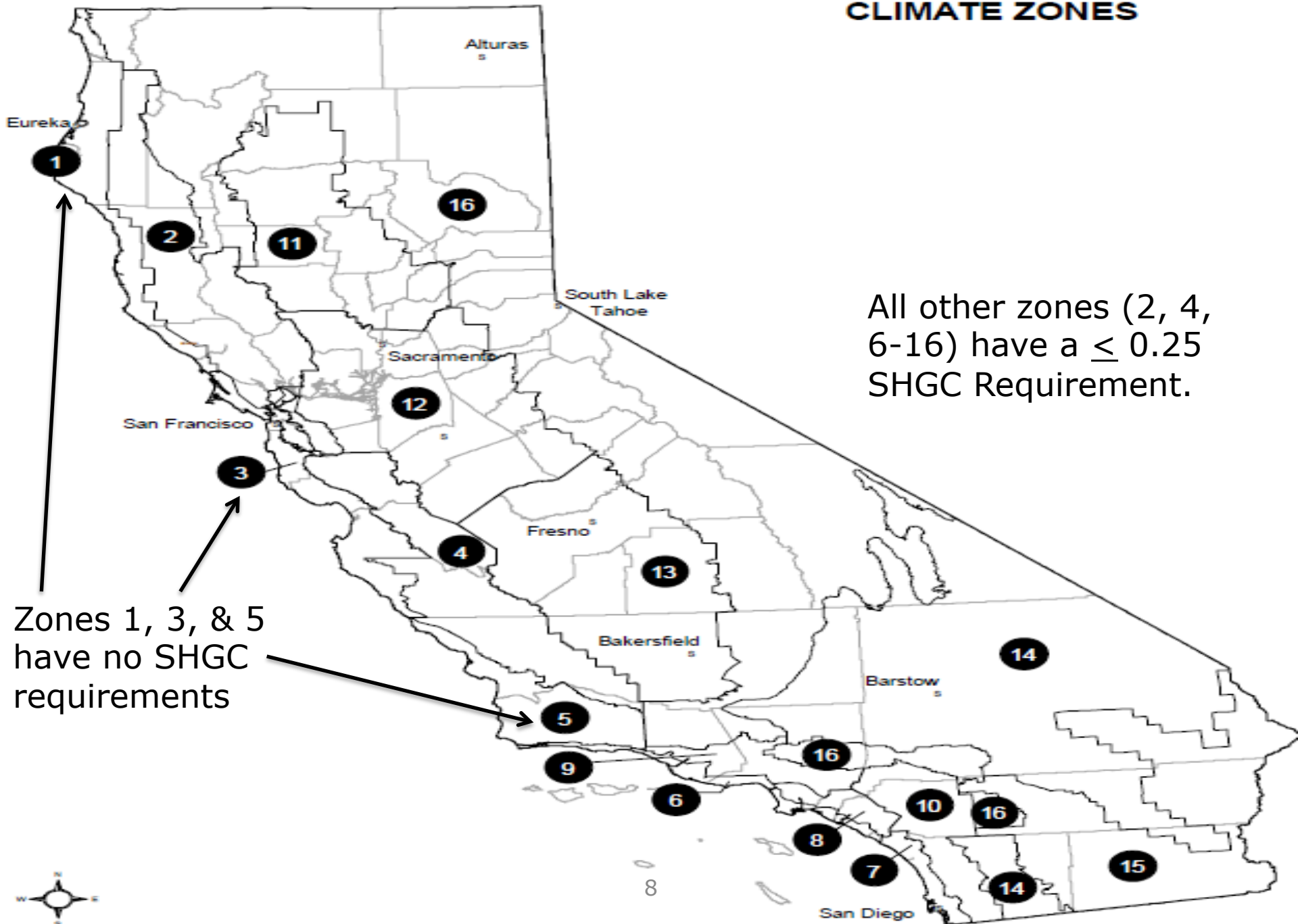
Performance Method

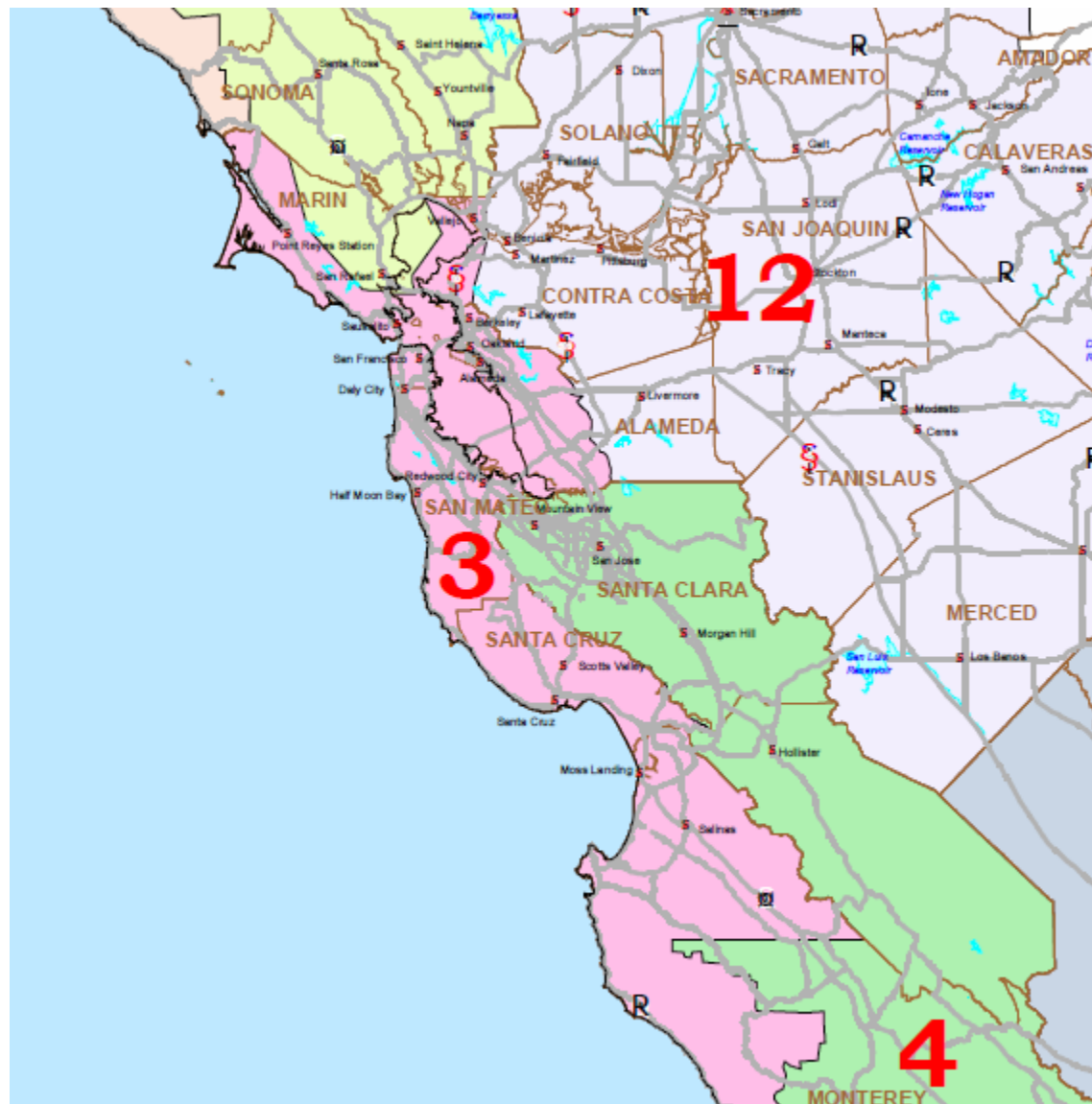
- Offers Tradeoffs
 - Title 24 Consultants use software to figure out “calculated tradeoffs” (with roofing, floors, HVAC, or insulation) to find “Alternative Performance Method”
 - Software calculates energy efficiency of a building against a prescriptive budget

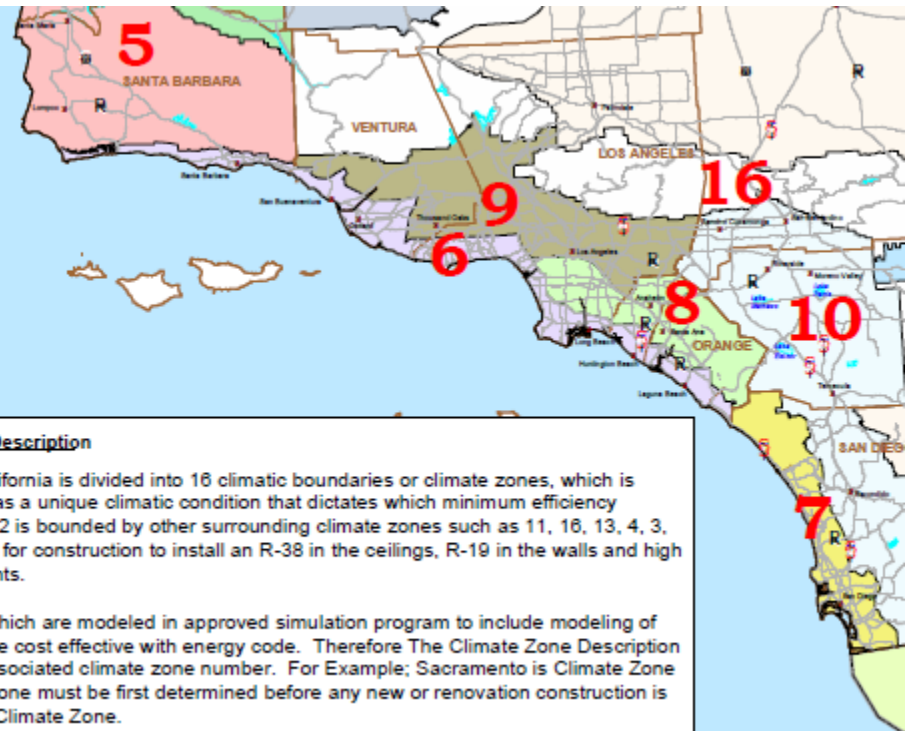
Out with the Old, in with the New

	U-Factor	SHGC	VT
Current Prescriptive (2008)	≤ 0.38	≤ 0.40	
2013 Residential Prescriptive	≤ 0.32	≤ 0.25	
2013 Non Residential Prescriptive	≤ 0.36	≤ 0.25	≥ 0.42

CALIFORNIA BUILDING CLIMATE ZONES







Building Climate Zone Description

"Building Climate Zones" or California Climate Zone Descriptions for New Buildings California is divided into 16 climatic boundaries or climate zones, which is incorporated into the Energy Efficiency Standards (Energy Code). Each Climate zone has a unique climatic condition that dictates which minimum efficiency requirements are needed for that specific climate zone. For an example; Climate zone 12 is bounded by other surrounding climate zones such as 11, 16, 13, 4, 3, and 2 and each with its unique weather characteristics. In Climate Zone 12 it is required for construction to install an R-38 in the ceilings, R-19 in the walls and high efficiency glass. Other climate zones may use less and have other efficiency requirements.

The Climate Zone Description Manual was developed from weather tapes information, which are modeled in approved simulation program to include modeling of new commercial and residential buildings. Such simulations established a base line to be cost effective with energy code. Therefore The Climate Zone Description Manual describes each climate zone boundaries and list most California cities with its associated climate zone number. For Example; Sacramento is Climate Zone 12, San Francisco is Climate Zone 3 and Lake Tahoe is Climate Zone 16. The climate zone must be first determined before any new or renovation construction is began in order to ensure the proper efficiency energy features are used for that specific Climate Zone.

Compared to ENERGY STAR

Comparing the Numbers	Zone	U-Factor	SHGC
ENERGY STAR 5.0	North Central	≤ 0.32	≤ 0.40
	South Central	≤ 0.35	≤ 0.30
Currently In Place			
ENERGY STAR 6.0	North Central	≤ 0.30	≤ 0.40
	South Central	≤ 0.30	≤ 0.25
Effective Jan. 1, 2015			
CA Title 24 Residential	California	≤ 0.32	≤ 0.25
Effective July 1, 2014			

Solutions for Zones 1, 3, & 5

- LoE 272 is permitted with most products because it achieves the desired U-Factors and there are no SHGC requirements for zones 1, 3, & 5
- If using the prescriptive method pathway for residential windows and doors:
 - U-Factor must be ≤ 0.32
 - SHGC must be ≤ 0.25

Marvin Products for Zones 2,4 & 6-16

Product	LoE	U-Factor (.32)	SHGC (.25)	VT
WUDH	11/16" IG LoE 366	0.28	0.20	0.46
CUDH	11/16" IG LoE 366	0.29	0.20	0.46
WUCA	3/4" IG LoE 366	0.27	0.19	0.43
CUCA	3/4" IG LoE 366	0.29	0.19	0.44
WUGL	11/16" IG LoE 366	0.28	0.20	0.46
CUGL	11/16" IG LoE 366	0.29	0.20	0.47
WUOFD	3/4" IG LoE 366	0.30	0.16	0.36
CUOFD	3/4" IG LoE 366	0.30	0.16	0.36

Marvin Products 272 / 366

Product	LoE	U-Factor (.32)	SHGC (.25)	VTs
WUDH	11/16" IG with LoE 272 or 366	0.29/0.28	0.29/0.20	0.51/0.46
CUDH	11/16" IG with LoE 272 or 366	0.30/0.29	0.30/0.20	0.51/0.46
WUCA	3/4" IG with LoE 272 or 366	0.28/0.27	0.28/0.19	0.48/0.43
CUCA	3/4" IG with LoE 272 or 366	0.29/0.29	0.29/0.19	0.49/0.44
WUGL	11/16" IG with LoE 272 or 366	0.29/0.28	0.29/0.20	0.52/0.46
CUGL	11/16" IG with LoE 272 or 366	0.30/0.29	0.30/0.20	0.52/0.47
WUOFD	3/4" IG with LoE 272 or 366	0.30/0.30	0.24/0.16	0.40/0.36
CUOFD	3/4" IG with LoE 272 or 366	0.30/0.30	0.24/0.16	0.40/0.36

Integrity Products for Zones 2,4 & 6-16

Product	LoE	U-Factor (.32)	SHGC (.25)	VT
ITDH	11/16" IG LoE 366	0.28	0.21	0.49
IFDH	11/16" IG LoE 366	0.30	0.22	0.51
ICA	11/16" IG LoE 366	0.27	0.20	0.46
IFCA	11/16" IG LoE 366	0.30	0.20	0.44
ITGL	11/16" IG LoE 366	0.28	0.21	0.49
IFGL	11/16" IG LoE 366	0.30	0.22	0.51
IOFD	3/4" IG LoE 366	0.30	0.18	0.42

Integrity Products 272 / 366

Product	LoE	U-Factor (.32)	SHGC (.25)	VTs
ITDH	11/16" IG with LoE 272 or 366	0.29/0.28	0.32/0.21	0.54/0.49
IFDH	11/16" IG with LoE 272 or 366	0.31/0.30	0.33/0.22	0.57/0.51
ICA	11/16" IG with LoE 272 or 366	0.28/0.27	0.30/0.20	0.51/0.46
IFCA	11/16" IG with LoE 272 or 366	0.31/0.30	0.29/0.20	0.49/0.44
ITGL	11/16" IG with LoE 272 or 366	0.29/0.28	0.32/0.21	0.54/0.49
IFGL	11/16" IG with LoE 272 or 366	0.31/0.30	0.33/0.22	0.57/0.51
IOFD	3/4" IG with LoE 272 or 366	0.30/0.30	0.28/0.18	0.47/0.42

Keep on the look-out ...

- OMS "Performance Summary" will not always be correct
- SDL (especially 1 1/8") can help LoE 272 units
- Some LoE 272 TG units can also fall below .25 SHGC
- Get to know the local energy raters



ENERGY STAR® Product Specification
Residential Windows, Doors, and Skylights

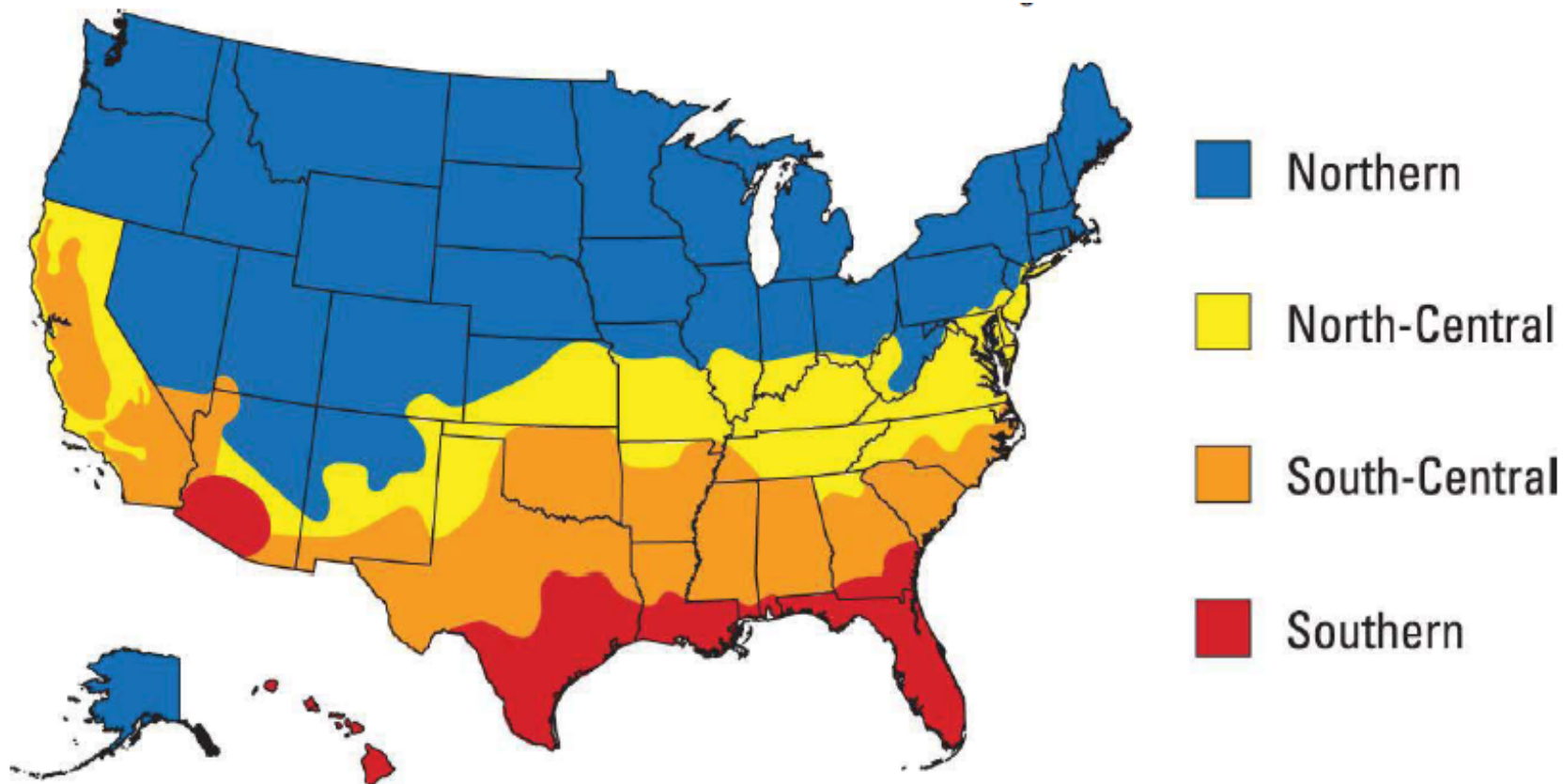
Eligibility Criteria
Version 6.0

- The Energy Star Residential Windows, Doors, and Skylights Version 6.0 specification will take effect on January 1, 2015, with the exception of the Northern zone prescriptive, which will take effect on January 1, 2016.



ENERGY STAR® Product Specification Residential Windows, Doors, and Skylights

Eligibility Criteria
Version 6.0



ENERGY STAR®

Qualification Criteria

Windows

Climate Zone	U-Factor ¹	SHGC ²	
Northern*	≤ 0.27	Any	Prescriptive
	= 0.28	≥ 0.32	Equivalent Energy Performance
	= 0.29	≥ 0.37	
	= 0.30	≥ 0.42	
North-Central	≤ 0.30	≤ 0.40	
South-Central	≤ 0.30	≤ 0.25	
Southern	≤ 0.40	≤ 0.25	

Air Leakage ≤ 0.3 cfm/ft²

Doors

Glazing Level	U-Factor ¹	SHGC ²
Opaque	≤ 0.17	No Rating
≤ ½-Lite	≤ 0.25	≤ 0.25
> ½-Lite	≤ 0.30	Northern North-Central ≤ 0.40
		Southern South-Central ≤ 0.25

Air Leakage for Sliding Doors ≤ 0.3 cfm/ft²

Air Leakage for Swinging Doors ≤ 0.5 cfm/ft²

Table 6: Test Methods for ENERGY STAR Qualification	
ENERGY STAR Requirement	Test Method Reference
U-Factor	NFRC 100
SHGC	NFRC 200
Air Leakage	ASTM E283 in accordance with NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440-11

* The effective date for the Northern Zone prescriptive and equivalent energy performance criteria for windows is January 1, 2016.

Questions?