

Energy Star is Changing

Current Energy Star V6.0 Criteria

ENERGY STAR Qualification Criteria for Residential Windows, Doors, and Skylights

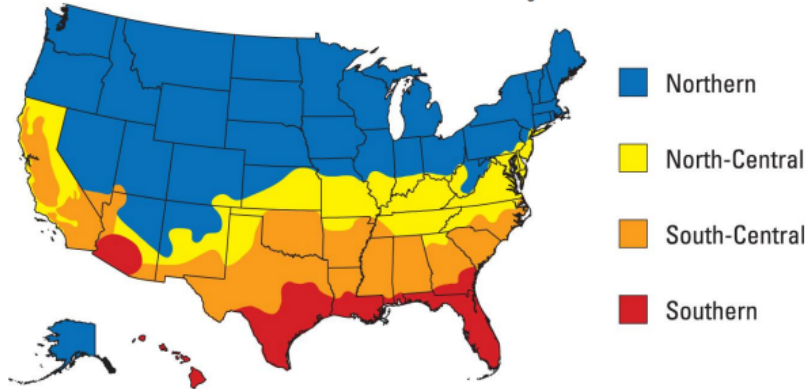
Windows				Doors			
Climate Zone	U-Factor ¹	SHGC ²		Glazing Level	U-Factor ¹	SHGC ²	
Northern*	≤ 0.27	Any	Prescriptive	Opaque	≤ 0.17	No Rating	
	= 0.28	≥ 0.32		≤ ½-Lite	≤ 0.25	≤ 0.25	
	= 0.29	≥ 0.37		> ½-Lite	≤ 0.30	Northern	≤ 0.40
	= 0.30	≥ 0.42				North-Central	≤ 0.25
North-Central	≤ 0.30	≤ 0.40	Air Leakage for Sliding Doors ≤ 0.3 cfm/ft ² Air Leakage for Swinging Doors ≤ 0.5 cfm/ft ²				
South-Central	≤ 0.30	≤ 0.25					
Southern	≤ 0.40	≤ 0.25					

Skylights		
Climate Zone	U-Factor ¹	SHGC ²
Northern	≤ 0.50	Any
North-Central	≤ 0.53	≤ 0.35
South-Central	≤ 0.53	≤ 0.28
Southern	≤ 0.60	≤ 0.28

Air Leakage ≤ 0.3 cfm/ft²

¹ Btu/h ft²·F
² Solar Heat Gain Coefficient

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



Updated Energy Star V7.0 Criteria

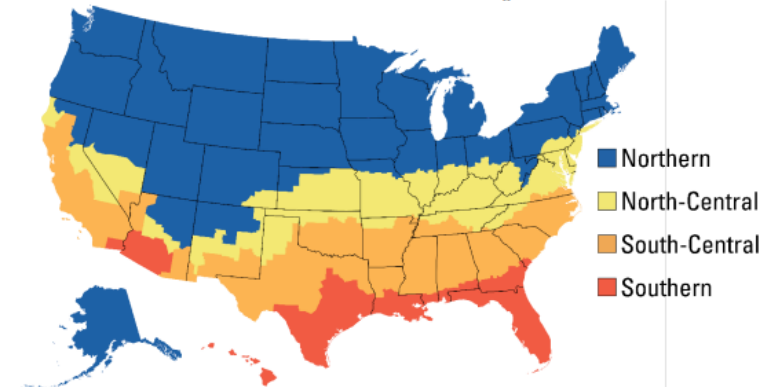
ENERGY STAR Certification Criteria for Residential Windows, Doors, and Skylights

Windows				Swinging and Sliding Glass Doors			
Climate Zone	U-Factor ¹	SHGC ²		Glazing Level	U-Factor ¹	SHGC ²	
Northern	≤ 0.22	≥ 0.17	Prescriptive	Opaque	≤ 0.17	No Rating	
	= 0.23	≥ 0.35		≤ ½-Lite	≤ 0.23	≤ 0.23	
	= 0.24	≥ 0.40		> ½-Lite	≤ 0.26	Northern and North-Central	≤ 0.40
	= 0.25					Southern and South-Central	≤ 0.23
North-Central	≤ 0.25	≤ 0.40	Air Leakage for Sliding Doors ≤ 0.3 cfm/ft ² Air Leakage for Swinging Doors ≤ 0.5 cfm/ft ²				
South-Central	≤ 0.28	≤ 0.23					
Southern	≤ 0.32	≤ 0.23					

Skylights		
Climate Zone	U-Factor ¹	SHGC ²
Northern	≤ 0.45	Any
North-Central	≤ 0.50	≤ 0.25
South-Central		
Southern		

Air Leakage for windows ≤ 0.3 cfm/ft²
¹ Btu/h ft²·F
² Solar Heat Gain Coefficient

Air Leakage ≤ 0.3 cfm/ft²



Energy Star is Changing (cont.)

Summary of Changes from V6.0

Significant windows U-factor changes for the Northern and North-Central regions

- Prescriptive U-factor for Northern region drops from 0.27 to 0.22
- U-factor for the North-Central drops from 0.30 to 0.25

U-factor requirements drop from 0.30 to 0.28 in the South-Central and 0.40 to 0.32 in the Southern regions

SHGC requirements for windows drop from 0.25 to 0.23 in the South-Central and Southern regions

U-factors for doors w/ > 1/2-lite glass drops from 0.30 nationwide to 0.26 in the Northern and North-Central and 0.28 in the South-Central and Southern regions

- SHGC drops from 0.25 to 0.23 in the South-Central and Southern regions

Energy Star zones now follow county lines

Executive Summary for V7.0 Update

ENERGY STAR is the tip of the iceberg for Energy Efficiency awareness in the mainstream, but high-efficiency building code transitions are happening at Regional and State levels - pressures on local/regional builders to answer with higher efficiencies exist

The government believes ENERGY STAR's V7 specifications will foster innovation in glass and processing technology. To date, no major innovations by our partners have been announced.

There is belief that efficiency program changes and incentivization will lead to a faster adoption of high-efficiency / low energy usage building codes.

The next IECC Energy Code (2024 adoption) will push performance requirements similar to Energy Star. When IECC code is approved, the industry has a multiple year runway before code is widely adopted into our core markets. However, we have seen states move faster (1-2 year changes)



Inflation Reduction Act Highlights

Energy Efficiency Provisions²

25C Tax Credit for Energy Efficient Windows, Doors and Skylights

While WDMA had advocated for a robust 25C credit, the legislation only offers a modest \$600 credit for windows and skylights that meet ENERGY STAR's Most Efficient standards, which will effectively make it only available on the most expensive products. Further EPA would have to develop a Most Efficient program for skylights since one does not currently exist. The credit for exterior doors is \$250 per door up to \$500 for those that meet regular ENERGY STAR standards. The legislation would extend the tax credit for 10 years. The legislation was also made more complicated by the requirement that all products eligible for the tax credit be assigned a unique product identification number (i.e. serial number) to each door, window and skylight that can be verified with the IRS by 2025. This is ostensibly to address unfounded tax fraud issues. WDMA opposes these provisions and has shared the industry concerns with Hill leadership. WDMA is advocating for the U.S. Treasury Secretary to issue clarifying guidance that allows for NFRC certified product directory codes to meet this requirement.

25D Tax Credit for Residential Clean Energy

This credit, which is used for solar-powered products, such as skylights, is extended to 2034.

Grants for Advancing Energy Codes

The legislation provides \$330 million to target adoption of energy codes that meet or exceed the 2021 International Energy Conservation Code (IECC) for residential construction and the ANSI/ASHRAE/IES Standards 90.1-2019 for commercial construction. An additional \$670 million is targeted at the adoption of energy codes that meet or exceed the net zero energy provisions of the 2021 IECC or an equivalent stretch code.

45L New Energy Efficient Home Credit

This credit, which provides builders and developers with \$2,500 for each new home or dwelling unit that meets Energy Star program requirements or \$5,000 for homes meeting the zero ready home certification, would be extended for ten years. Beginning in 2023, the tax credit requires that dwelling units must be eligible to participate in the Energy Star Residential New Construction Program or the Energy Star Manufactured New Homes program.

179D Commercial Buildings Energy-Efficiency Tax Deduction

The legislation expands the 179D tax deduction for energy efficient commercial buildings, including residential buildings built to the commercial code. The deduction will be increased from the current \$1.80 per square foot to a sliding scale of \$2.50 to \$5 per square foot. Buildings will need to achieve 25% better performance than the latest American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1 standard for \$2.50 per square foot, with a gradually increasing deduction up to \$5 for achieving 50% better performance. The current lifetime maximum deduction will be replaced with a three-year cap.

Rebates for House Energy Efficiency Retrofits

The legislation provides \$9 billion in whole house energy efficiency and electrification rebates, including \$4.3 billion in grants for states to establish a Home Energy Savings Retrofit Rebate Program that offers rebates for homeowners to invest in energy efficiency improvements. An additional \$200 million is provided to train and educate contractors on how to efficiently retrofit homes.



Environmental Activists consider the Inflation Reduction Act an important step towards environmental justice.

Funding for historical environmental problems and climate impacts in frontline communities³

- New neighborhood access and equity grant program, operated out of the Department of Transportation, which will include (i) \$1.9 billion for projects to improve transit access and walkability, along with various infrastructure investments to address stormwater problems, urban heat island hot spots, and flood-prone roads and other infrastructure in disadvantaged communities, and (ii) \$1.1 billion in Federal Highway Administration grants to disadvantaged or underserved communities
- \$250 million for Tribal and Native Hawaiian adaptation and resilience programs
- \$550 million for Bureau of Reclamation projects to provide domestic water supplies to communities or households that do not have reliable access to water
- \$1.5 billion for the Urban and Community Forestry Assistance program for tree planting and other activities that benefit underserved communities
- \$2.25 billion for addressing air pollution at ports, to benefit disadvantaged communities
- \$3 billion for a new environmental and climate justice block grant program for community-led pollution monitoring, prevention, and remediation, along with investments in low- and zero-emissions technologies. This amount also will fund workforce development, mitigation of risks from extreme heat and wildfires, climate resilience and adaptation, the reduction of indoor toxins and air pollution, and engagement of disadvantaged communities in public processes at the state and federal levels. The block grant program likely will be operated out of the Office of Environmental Justice at the US Environmental Protection Agency, giving that office an access to funds that they have not had in their nearly thirty-year history.

Provisions serving disadvantaged/underserved communities

- Expanded investment tax credit for solar and wind projects that are sited in low-income communities or on Tribal lands, that are part of low-income residential housing, or that are part of qualified low-income economic benefit projects
- \$4.3 billion for rebates to low- or moderate-income homeowners who implement energy retrofits
- \$9.7 billion to rural electric cooperatives for resilience, affordability, and low-emissions technologies for disadvantaged rural communities
- \$27 billion in a greenhouse gas reduction fund to provide low-cost financing and technical assistance for clean energy investments in disadvantaged communities
- \$150 million to retrofit and electrify Tribal homes

The IRA also builds on the \$1.2-trillion [Infrastructure Investment and Jobs Act \(IIJA\) of 2021](#), which included several provisions for disadvantaged and underserved communities: \$15 billion for the Drinking Water State Revolving Fund program to support the replacement of lead service lines; \$3.5 billion for the US Department of Energy's Weatherization Assistance Program; \$3.5 billion for flood mitigation assistance grants from the Federal Emergency Management Agency for socially vulnerable or economically disadvantaged property owners; \$3.5 billion for the cleanup of Superfund sites; and \$1 billion for a Reconnecting Communities Pilot Program to address problems in communities that have been separated by highways. Moreover, if federal agencies adhere to the Justice40 guidelines, significant spending in other programs should flow to disadvantaged communities.

Environmental advocates note while this is a good step, federal funding does not solve problems at state and local levels and there are many issues where reviews are not seen as stringent or timely enough.

Inflation Reduction Act | U.S. Federal Energy Tax Credit

The FGIA provided additional insight on the U.S. Federal Energy Tax Credit passage as a part of the Inflation Reduction Act which modifies section 25C tax credits for fenestration:

Extends tax credit which expired in 2021, through December 31, 2032

- Retains 2021 tax credits for 2022 (10% of cost up to \$500 (overall tax credit lifetime cap), windows are capped at \$200).

New tax credit effective AFTER December 31, 2022:

- Removes, and replaces LIFETIME tax credit limitations with ANNUAL limitations.
- \$1,200 cap under Section 25C for all energy-efficiency improvements (including doors, windows, and skylights).
- Credit is 30% of product cost; product must be installed in the taxpayer's principal residence. Original use of product must begin with the taxpayer; and must reasonably remain in use for at least five years.
- Windows** - up to \$600 maximum Annual credit for an ENERGY STAR Most Efficient exterior windows or skylights.
 - Must be NAFS certified to at least a PG15. Criteria subject to review, revision, by the EPA periodically.
 - Skylights are not included in the ENERGY STAR Most Efficient program*
- Doors** - \$250 per door, up to \$500 maximum* for an ENERGY STAR certified door.
- Requires a unique identifier for every qualified product after December 31, 2024**
- Requires sales reporting of qualified products based on the unique identifier to "the Secretary".**

Maximum annual U.S. window/door tax credit after December 31, 2022 is:

ENERGY STAR Most Efficient Windows = \$600
ENERGY STAR certified doors = \$500*
Maximum annual tax credit \$1,100

Current ENERGY STAR Most Efficient Windows criteria

Climate Zone	U-factor	SHGC
Northern	≤ 0.20	≥ 0.20
North-Central	≤ 0.20	≤ 0.40
South-Central	≤ 0.20	≤ 0.25
South	≤ 0.20	≤ 0.25

What does it mean for Pella today?

Continued effort to review the ENERGY STAR change impacts to our offering.

Areas of Opportunity

Incentives and price structuring may be highlighted from the builder/homeowner perspective. Considerations on pricing structures and education of product correlation to the incentives of the purchaser valuable.

Risk Considerations | ○○○ Low**

- Biggest risk is directly contingent on Energy Star.
- Understanding the unique identifier qualifiers.
 - WDMA and FGIA are requesting utilizing NFRC CPD numbers for that purpose but have not confirmed it as viable.

