



# ENERGY STAR® for Windows, Doors, and Skylights

Program Update

November 7, 2011

National Fenestration Rating Council  
Fall Membership Meeting  
Atlanta, GA



Learn more at [energystar.gov](http://energystar.gov)

# Agenda

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- **Framework Document**
  - Elements Considered for Adoption
  - New Program Elements
  - Preliminary Criteria Ranges
- **Next Steps**
- **Independent Verification Program**
- **Questions**



Version 6.0 Product Specification Framework Document

# Program Elements Considered for Adoption



Learn more at [energystar.gov](https://energystar.gov)



# Elements Not Included

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- Structural requirements
- Special considerations for
  - Products installed at high-altitude
  - Impact-resistant products
- Daylighting
- Lifecycle Analysis



Version 6.0 Product Specification Framework Document

# New Program Elements



Learn more at [energystar.gov](https://energystar.gov)

# Air Leakage



Product	Air Leakage Requirement
Windows, Sliding Doors, Skylights	$\leq 0.3$ cfm/ft <sup>2</sup>
Swinging Doors	$\leq 0.5$ cfm/ft <sup>2</sup>

- EPA seeks to ensure high quality products and minimize consumers' energy expenses
- EPA understands that organizations other than WDMA and AAMA test/certify for air leakage
  - Which organizations are partners using?
  - EPA asks these organizations to submit comments
- EPA will work with NFRC on how to document air leakage



# Installation Instructions

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- Most common ENERGY STAR complaints related to poor installation
  - Results in air and water leakage, reduced functionality, mold, etc.
- Will require all manufacturers to provide or link to online installation instructions
- Should EPA require
  - Installation diagrams?
  - Separate instructions for pocket replacement, full replacement, and new construction?



Version 6.0 Product Specification Framework Document

# Preliminary Criteria Ranges



Learn more at [energystar.gov](https://energystar.gov)

# New Ducker ENERGY STAR Market Share Data



ENERGY STAR Market Share	
Windows	81%
Doors	71%
Skylights (glass)	99%

- Despite change in criteria:
  - Windows market share increased 5%
  - Doors market share increased 1%
  - Skylights market share remained at 99%

# Proposed Criteria



## Windows

Climate Zone	U-Factor Current	U-Factor Proposed	SHGC Current	SHGC Proposed
Northern	$\leq 0.30$	$\leq 0.25-0.27$	Any	Any
North-Central	$\leq 0.32$	$\leq 0.28-0.30$	$\leq 0.40$	$\leq 0.35-0.40$
South-Central	$\leq 0.35$	$\leq 0.30-0.32$	$\leq 0.30$	$\leq 0.25$
Southern	$\leq 0.60$	$\leq 0.40$	$\leq 0.27$	$\leq 0.20-0.25$

**Air Leakage  $\leq 0.3$  cfm/ft<sup>2</sup>**

# Proposed Criteria

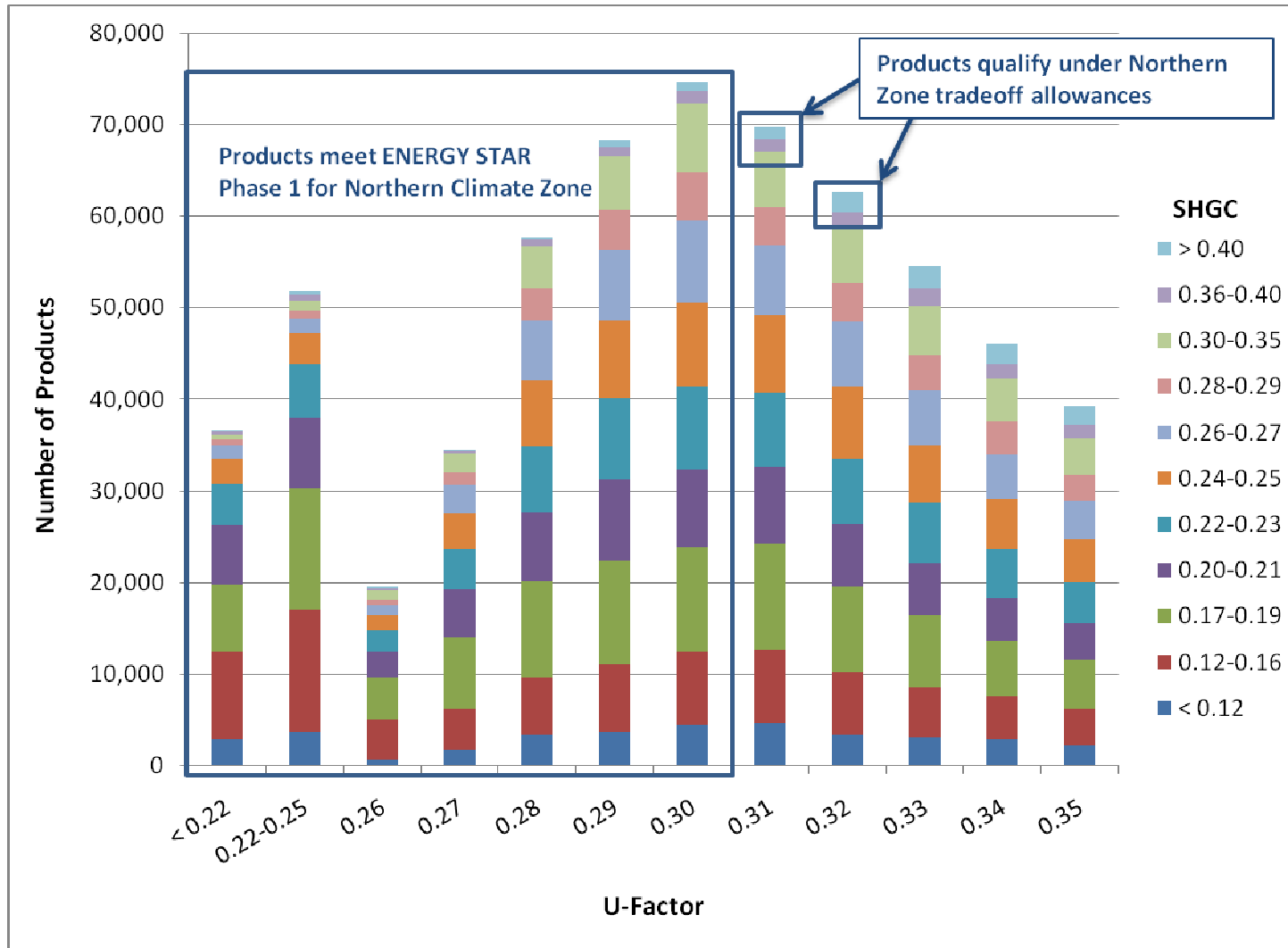


## Windows

Climate Zone	U-Factor Current	U-Factor Proposed	SHGC Current	SHGC Proposed
Northern	$\leq 0.30$	$\leq 0.25-0.27$	Any	Any
North-Central	$\leq 0.32$	$\leq 0.28-0.30$	$\leq 0.40$	$\leq 0.35-0.40$
South-Central	$\leq 0.35$	$\leq 0.30-0.32$	$\leq 0.30$	$\leq 0.25$
Southern	$\leq 0.60$	$\leq 0.40$	$\leq 0.27$	$\leq 0.20-0.25$

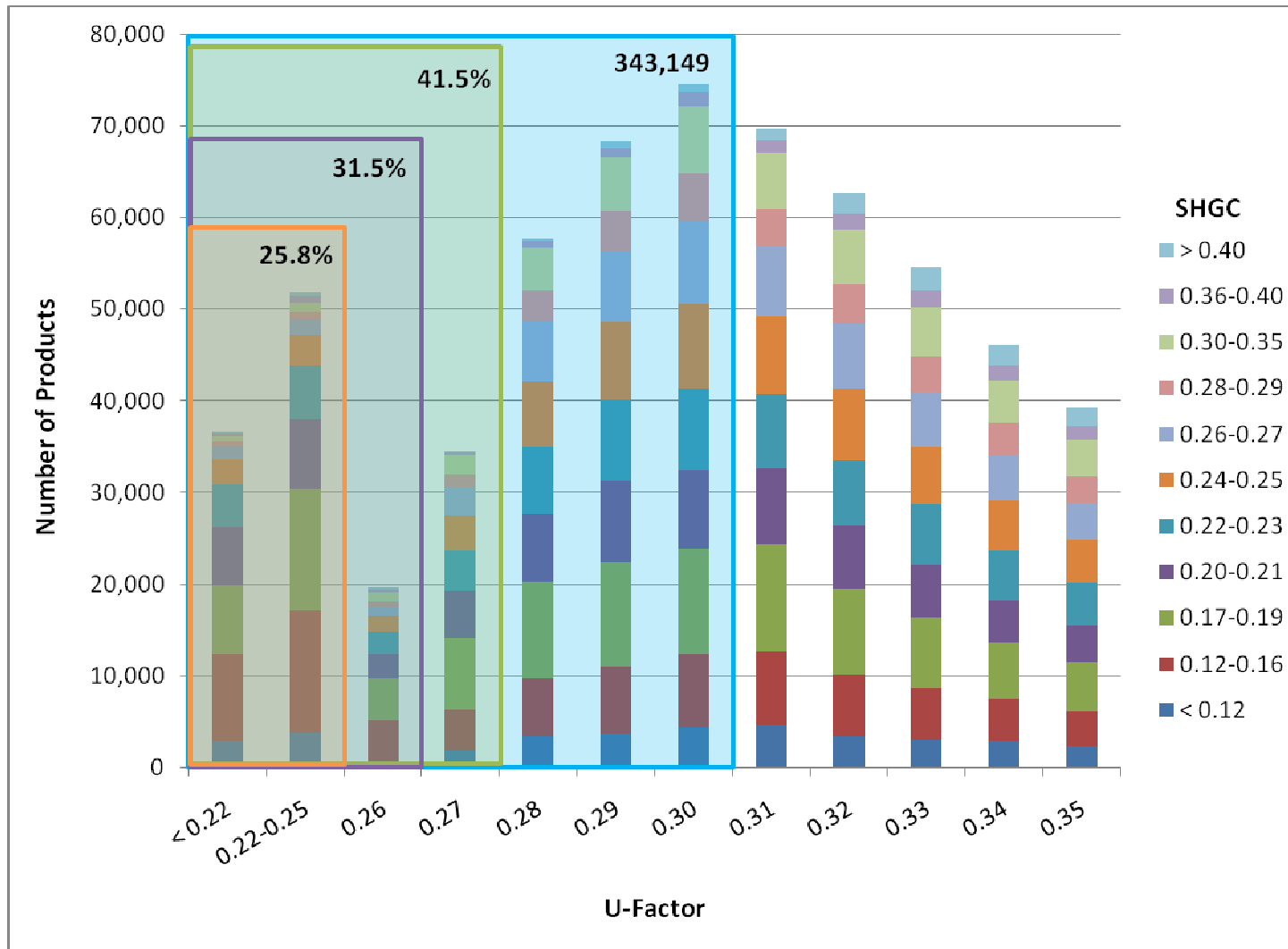
**Air Leakage  $\leq 0.3$  cfm/ft<sup>2</sup>**

# Windows Meeting Current Equivalent Energy Performance Criteria (CPD\*)



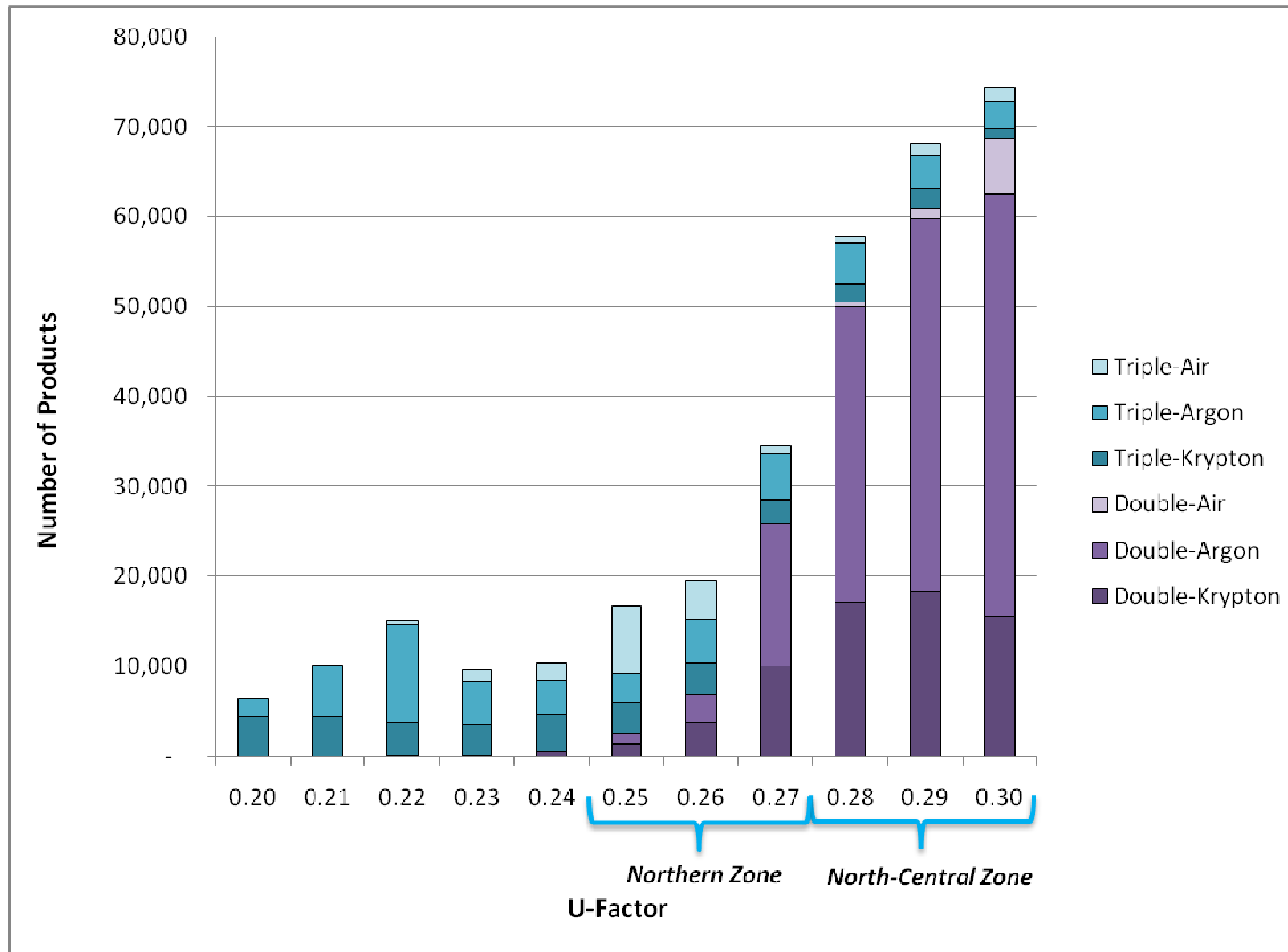
\*Note: Analysis includes only double-hung windows

# Windows Qualifying in the Northern Zone (CPD\*)



\*Note: Analysis includes only double-hung windows

# Windows by Glazing and Gas Fill (CPD\*)



\*Note: Analysis includes only double-hung windows

# Doors – Preliminary Criteria Ranges

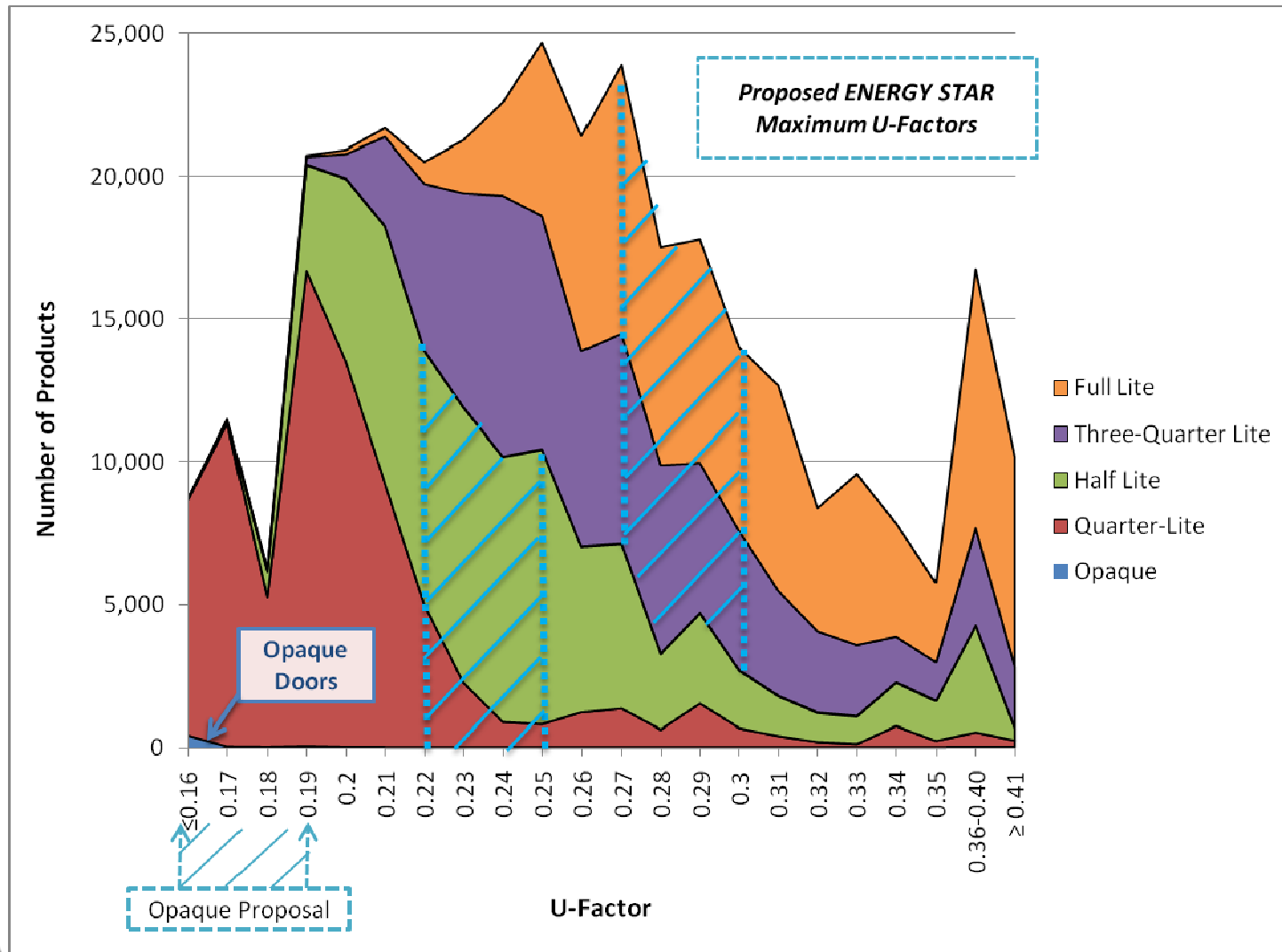


Glazing Level	U-Factor Current	U-Factor Proposed	SHGC Current	SHGC Proposed
Opaque	$\leq 0.21$	$\leq 0.15-0.19$	No Rating	No Rating
$\leq 1/2$ -Lite	$\leq 0.27$	$\leq 0.22-0.25$	$\leq 0.30$	$\leq 0.25$
$> 1/2$ -Lite	$\leq 0.32$	$\leq 0.27-0.30$	$\leq 0.30$	$\leq 0.25$

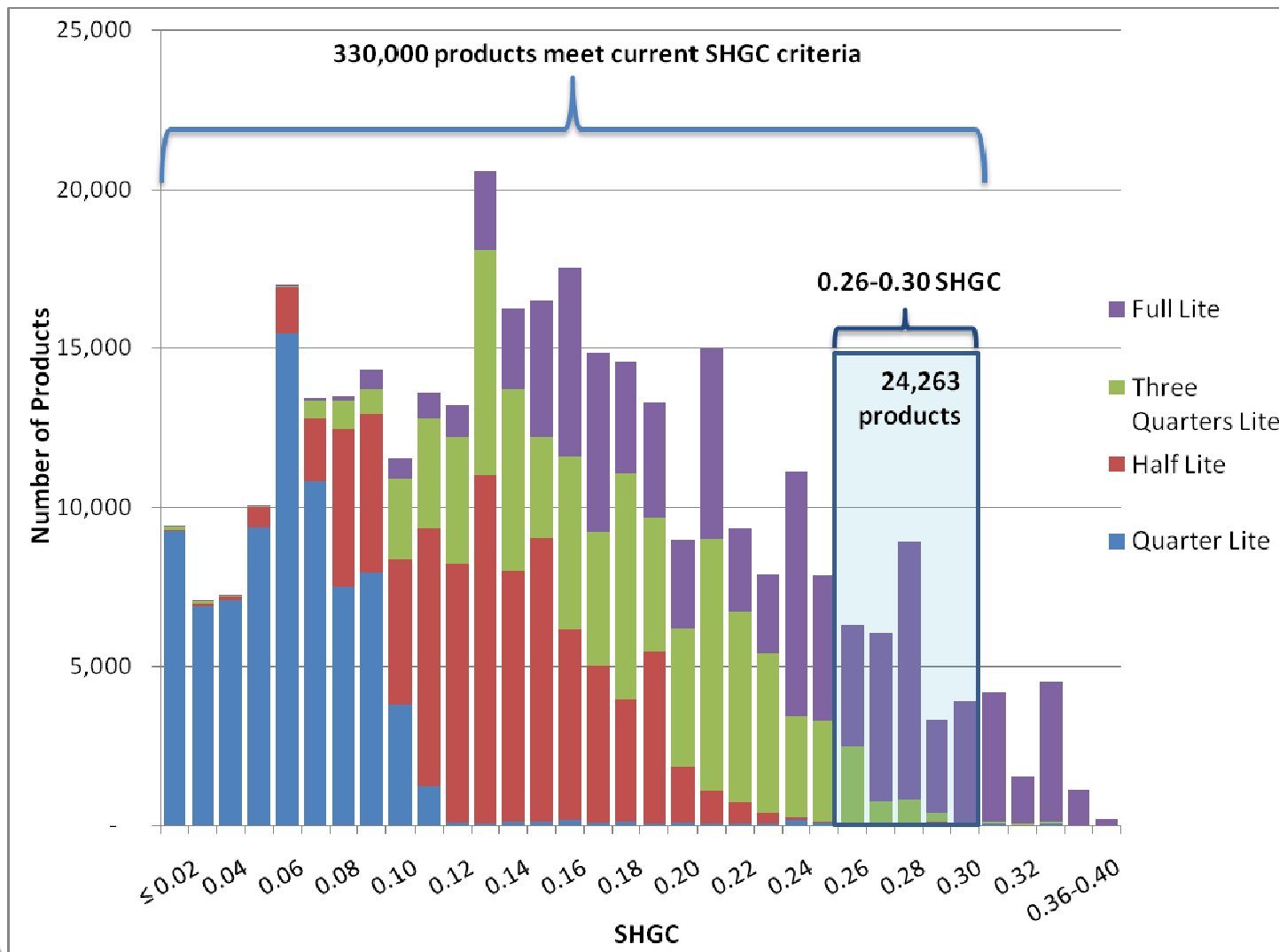
**Air Leakage  $\leq 0.3$  cfm/ft<sup>2</sup> for sliding doors**

**Air Leakage  $\leq 0.5$  cfm/ft<sup>2</sup> for swinging doors**

# U-Factor Distribution of Doors by Glazing Level (CPD)



# SHGC Distribution of Doors (CPD)



# Skylights (including TDDs) – Preliminary Criteria Ranges

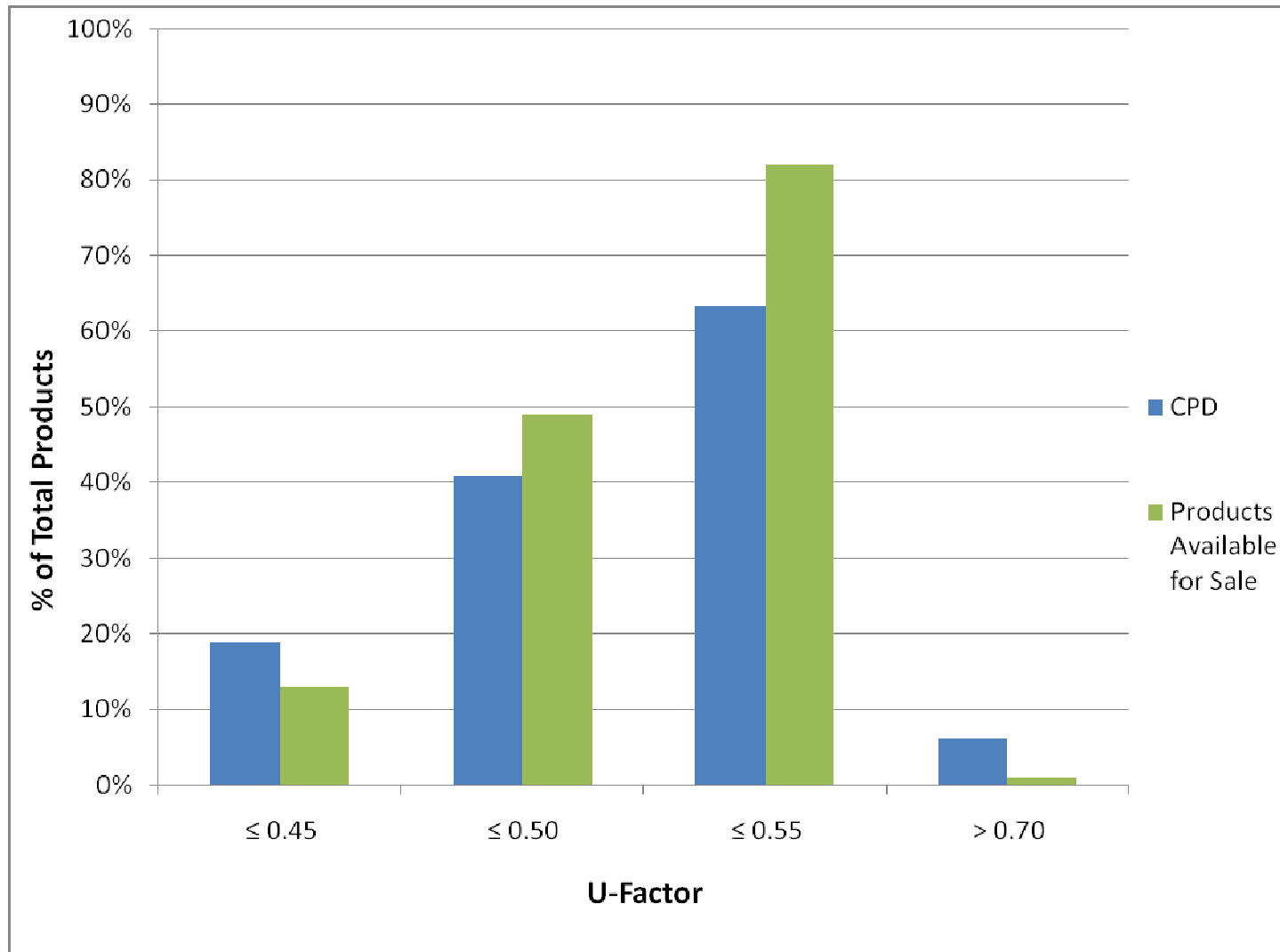


Climate Zone	U-Factor Current	U-Factor Proposed	SHGC Current	SHGC Proposed
Northern	$\leq 0.55$	$\leq 0.43-0.45$	Any	$\leq 0.25-0.35$
North-Central	$\leq 0.55$	$\leq 0.45-0.47$	$\leq 0.40$	$\leq 0.25-0.30$
South-Central	$\leq 0.57$	$\leq 0.48-0.50$	$\leq 0.30$	$\leq 0.25$
Southern	$\leq 0.70$	$\leq 0.55-0.60$	$\leq 0.30$	$\leq 0.25$

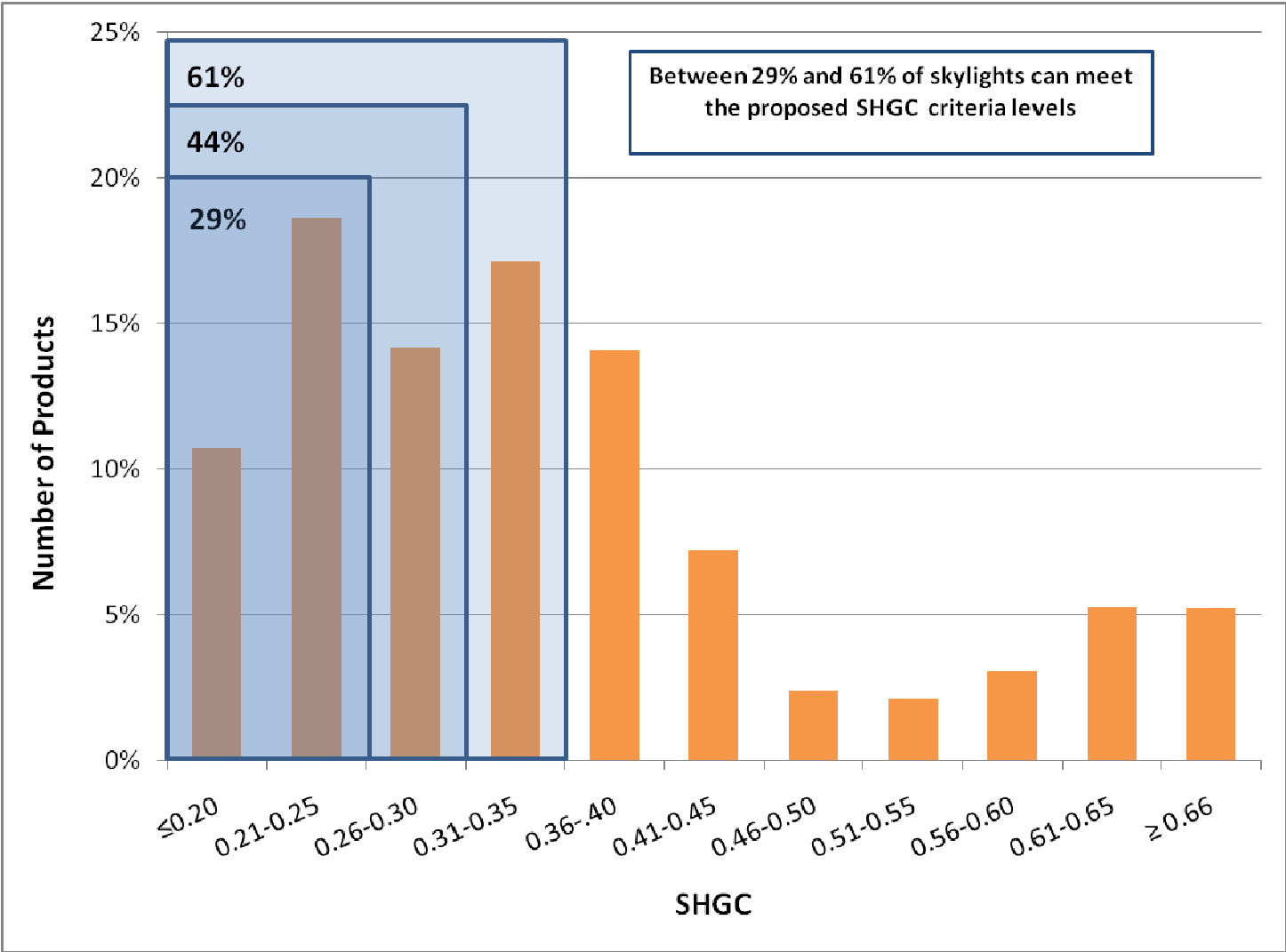
**Air Leakage  $\leq 0.3$**

The following analyses focus on glass skylights.  
No plastic skylights meet the current or met the previous criteria.

# U-Factor Comparison – CPD vs Products Available for Sale



# SHGC Distribution of Skylights (CPD)



# Criteria Revision Next Steps



- Comment Period ends **Friday, November 18**
- Send comments to [windows@energystar.gov](mailto:windows@energystar.gov)

Tentative Timeline	
Draft 1 Criteria and Analysis Report	March 2012
Stakeholder Meeting	April 2012
Comment Period	March-May 2012
Draft 2 Criteria and Analysis Report	July 2012
Comment Period	August 2012
Public New Program Requirements	September 2012
Criteria to Take Effect	Fall 2013

# Independent Verification Program (IVP)

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- EPA working closely with NFRC to develop initial strategies for IVP pilot
- EPA will continue to work with NFRC throughout the pilot and into full implementation

# IVP Next Steps



- NFRC staff will prepare “draft” documentation of the following policies, procedures, etc.

“Draft” Documentation of	Anticipated
Product Selection Algorithm	November 2011
Purchasing Protocol	November 2011
Test Procedures	December 2011
Policies & Procedures for Test Failure	TBD
Timeline for Full IVP Implementation	December 2011

- NFRC staff will provide an update at the Board Meeting on Thursday



# Questions?



Learn more at [energystar.gov](https://energystar.gov)

# Contacts

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**Framework Document Comments**  
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