

Phase II Solicitation

High Performance (R-5) Windows

High Performance Windows Specifications and Requirements

Specification	Mandatory Requirement
Thermal Performance: Fixed window Thermal Performance: Operable window	$U \leq 0.20 \text{ Btu/h-ft}^2\text{-F}$ $U \leq 0.22 \text{ Btu/h-ft}^2\text{-F}$
Air Leakage	$\leq 0.30 \text{ cfm/ft}^2$. See High Performance Windows Testing and Certification Requirements (below)
Solar Heat Gain Coefficient (SHGC)	Must report NFRC-certified SHGC with windows bid into the program
Condensation Resistance (CR)	>50 and reported with windows bid into the program
Warranty Period-Glass Warranty Period-Non-glass	Minimum of 20 years Minimum of 10 years
Warranty Details	<p>Glass: Warranted against visible obstruction through the glass caused by defect or failure of the air seal around the glass. Provider has option to repair or replace the glass.</p> <p>Non-glass: Product is warranted to be free from defects in manufacturing, materials, and workmanship. Provider has the option to repair, replace, or refund the defective materials and/or entire product.</p>
Frame Type	Vendor will separate their bids for vinyl, wood, fiberglass, or composite frame material. Any frame type can be bid.
Frame Color	The window frame colors are to be identified in the vendors' bid. White-colored frame is minimum requirement for vinyl-framed windows.
Structural	Windows products must meet requirements for R-25 Performance Grade or higher. The Performance Grade of the windows bid into the program shall be documented. See High Performance Windows Testing and Certification Requirements (below)
Size Categories	See High Performance Windows Size and Pricing Matrices (below).
Qualified Bid Quantity	20-99 for new or retrofit construction windows 1-9 for new or retrofit construction patio doors Optional bids are requested for additional quantities as noted in the High Performance Windows Bid Quantities (below).

High Performance Windows Testing and Certification Requirements

Testing and Certification	The following documentation of compliance and/or certification to be provided to PNNL to become certified vendors in the Volume Purchase Program:														
<u>Thermal Performance (U-factor)</u> <u>Solar Head Gain Coefficient (SHGC)</u> <u>Visible Transmittance (VT)</u>	All windows products to be certified with NFRC-for listing on the Volume Purchase Program web site. All products sold through the Volume Purchase Program will have an NFRC label affixed to window indicating values for Thermal Performance (U-factor), Solar Heat Gain Coefficient (SHGC), and Visible Transmittance (VT).														
<u>Structural Performance</u>	The Structural Performance of the windows shall be tested according to AAMA/WDMA/CSA 101/I.S.2/A440 North American Fenestration Standard/Specification (NAFS) for windows, doors and unit skylights. (2005 or more recent version.) The highest performance grade that can be achieved at the gateway size for each performance class shall be included in the product bid. When a window has not been rated in a particular class that value may be left blank. Class types of windows will follow the NAFS 2008 convention (R,LC,CW,AW) with products tested according to the 2005 version being converted as follows:														
<table border="1"> <thead> <tr> <th>2005</th> <th>2008</th> </tr> </thead> <tbody> <tr> <td>R</td> <td>R</td> </tr> <tr> <td>LC</td> <td>LC</td> </tr> <tr> <td>C</td> <td>LC*</td> </tr> <tr> <td>C</td> <td>CW**</td> </tr> <tr> <td>HC</td> <td>CW</td> </tr> <tr> <td>AW</td> <td>AW</td> </tr> </tbody> </table>		2005	2008	R	R	LC	LC	C	LC*	C	CW**	HC	CW	AW	AW
2005	2008														
R	R														
LC	LC														
C	LC*														
C	CW**														
HC	CW														
AW	AW														
<p>*Default conversion when the window does not meet the L/175 deflection test or when deflection test results are not provided **Conversion applies when manufacturer provides documentation that the window would meet the L/175 deflection test required by the 2008 CW class</p>															
<p>If a window could be rated under more than one category in the 2005 standard and the above methodology results in two possible performance grades for a window, the higher performance grade will be displayed.</p>															
<u>Air Leakage (AL)</u>	Air leakage of the windows shall be measured using: NFRC 400-2010 _[EOA1] -Procedure for Determining Fenestration Product Air Leakage														
<p style="text-align: center;">or</p> <p>AAMA/WDMA/CSA 101/I.S.2/A440 North American Fenestration Standard/Specification (NAFS) for windows, doors and unit skylights. (2005 or most recent version.)</p>															
<u>Insulating Glass (IG)</u>	All windows products to be certified with the NFRC Insulating Glass Certification (IGC) program according to the requirements set forth in NFRC 706-2009.														

U-factor Requirements for Higher Structural Performance

<u>Commercial Window (CW)</u>	For windows tested to CW70 and above, the u-factor requirement is: Fixed: $U \leq 0.24 \text{ Btu/h-ft}^2\text{-F}$ Operable: $U \leq 0.27 \text{ Btu/h-ft}^2\text{-F}$
<u>Architectural Window (AW)</u>	For windows tested to AW70 and above, the u-factor requirement is: Fixed: $U \leq 0.27 \text{ Btu/h-ft}^2\text{-F}$ Operable: $U \leq 0.32 \text{ Btu/h-ft}^2\text{-F}$

High Performance Windows Size and Pricing Matrices

Frame Type/Color: _____ [fill in]

Single Hung Size	New Const. (\$)	Retrofit Const. (\$)
up to 50 UI		
51-60 UI		
61-70 UI		
71-80 UI		
81-90 UI		
91-100 UI		
101-110 UI		
111-120 UI		
per UI over 120		

Double Hung Size	New Const. (\$)	Retrofit Const. (\$)
up to 50 UI		
51-60 UI		
61-70 UI		
71-80 UI		
81-90 UI		
91-100 UI		
101-110 UI		
111-120 UI		
per UI over 120		

Horizontal Slider Size	New Const. (\$)	Retrofit Const. (\$)
up to 50 UI		
51-60 UI		
61-70 UI		
71-80 UI		
81-90 UI		
91-100 UI		
101-110 UI		
111-120 UI		
per UI over 120		

Dual Action Size	New Const. (\$)	Retrofit Const. (\$)
up to 50 UI		
51-60 UI		
61-70 UI		
71-80 UI		
81-90 UI		
91-100 UI		
101-110 UI		
111-120 UI		
per UI over 120		

Casement Size	New Const. (\$)	Retrofit Const. (\$)
up to 50 UI		
51-60 UI		
61-70 UI		
71-80 UI		
81-90 UI		
91-100 UI		
101-110 UI		
111-120 UI		
per UI over 120		

Fixed Size	New Const. (\$)	Retrofit Const. (\$)
up to 50 UI		
51-60 UI		
61-70 UI		
71-80 UI		
81-90 UI		
91-100 UI		
101-110 UI		
111-120 UI		
per UI over 120		

Awning Size	New Const. (\$)	Retrofit Const. (\$)
up to 50 UI		
51-60 UI		
61-70 UI		
71-80 UI		
81-90 UI		
91-100 UI		
101-110 UI		
111-120 UI		
per UI over 120		

Patio Door Size	New Const. (\$)	Retrofit Const. (\$)
L x H		
6' x 6'-8"		
8' x 6'-8"		
9' x 6'-8"		

United Inches (UI) = Length + Width

The contents of the bins in the above matrices may change or expand during the course of the program at the discretion of PNNL.

High Performance Windows Bid Quantities

Bin #1: Required bid quantity for program qualification

- 20-99 for new or retrofit construction windows
- 1-9 for new or retrofit construction patio doors

Bin #2: Optional bid quantity

- 1- 19 for new or retrofit construction windows

Bin #3 Optional bid quantity

100-499 for new or retrofit construction windows
 10-49 for new or retrofit construction patio doors

Bin #4 Optional bid quantity

500+ for new or retrofit construction windows
 50+ for new or retrofit construction patio doors

For Bin #1 and for each optional Bin, bidders are requested to complete size and pricing matrices above for each frame type and color.

Buyers may meet the purchase quantity in any of the 4 bins above from any single vendor through any combination of high performance window types, sizes or frame types offered by that vendor on the volume purchase program web site.

High Performance Windows Sales Reporting

Volume Purchase Program vendors will be required to report window sales resulting from the Volume Purchase Program monthly to PNNL. The required template for reporting monthly sales is attached. The monthly sales report will be emailed to doewindows@pnl.gov by the 10th working day of the following month. Reporting of sales of high performance (R-5) windows not sold through the volume purchase program is requested but not required.

Low-e Storm Windows

Low-e Storm Windows Specifications and Requirements

Specification	Mandatory Requirement
Emissivity	< 0.22
Minimum Glass Thickness	3.0 mm
Warranty Period-Glass Warranty Period-Non-glass	Minimum of 10 years Minimum of 10 years
Warranty Details	If a defect appears during the term of the warranty, the provider can elect to: (1) repair the defective product, (2) replace the defective materials or (3) refund the purchase price. If replacement is elected, provider will not be responsible for installation or refinishing of replacement parts.
Frame Color	All available frame colors are to be identified in the vendors' bid.
Size Categories	See Low-e Storm Windows Size and Pricing Matrices (below).
Qualified Bid Quantity	20-99 See Low-e Storm Windows Bid Quantities (below).

Low-e Storm Windows Testing and Registration Requirements

	Mandatory Requirement
<p>Product Testing and Registration</p> <p><u>Performance</u></p> <p><u>Structural</u></p>	<p>Test product in accordance with the following standards:</p> <p>All glass materials must be registered in the International Glazing Database with Lawrence Berkeley National Laboratory and measured in accordance with NFRC 300-09, 301-09, and 302-09.</p> <p style="text-align: center;">and</p> <p>ANSI/AAMA 1002.10-93 (or later version). Documentation of testing from independent party is required, certification is not required. Product must meet requirements for 15 Performance Grade or higher.</p>

Low-e Storm Windows Size and Pricing Matrices

Frame Type/Color: _____ [fill in]

Low-e Storm Windows Size	(\$)
up to 40 UI	
41-65 UI	
66-90 UI	
91-115 UI	
116-140 UI	
per UI over 140	

United Inches (UI) = Length + Width

Low-e Storm Windows Bid Quantities

Bin #1: Required for qualified bid
20-99

Bin #2: Optional bid quantity
1-19

Bin #2 Optional bid quantity
100-499

Bin #3: Optional bid quantity
500+

For Bin #1 and for each optional Bin, bidders are requested to complete size and pricing matrices above for each frame type and color.

Purchasers may meet the purchase quantity in any of the 4 bins above from any single vendor through any combination of low-e storm window sizes or frame types offered by that vendor and listed on the volume purchase program web site.

Low-e Storm Windows Sales Reporting

Volume Purchase Program vendors will be required to report window sales resulting from the Volume Purchase Program monthly to PNNL. The required template for reporting monthly sales is attached. The monthly sales report will be emailed to doewindows@pnl.gov by the 10th working day of the following month. Reporting of sales of low-e storm windows not sold through the volume purchase program is requested but not required.