Phase II Extension Solicitation
High Performance Windows and Low-E Storm Windows

The following are the specifications and requirements for vendors submitting proposals for high performance windows and low-E storm windows into the volume purchase program

High Performance Windows Specifications and Requirements

Specification	Mandatory Requirement
Thermal Performance: Fixed window **Thermal Performance: Operable window**	U ≤ 0.20 Btu/h-ft^2-°F U ≤ 0.22 Btu/h-ft^2-°F
Air Leakage	≤ 0.30 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. Performance will be verified by NFRC Certified Product Directory number (CPD#).
Condensation Resistance (CR)	CR ≥ 50 and reported with bid into the program. Performance will be verified by NFRC Certified Product Directory number (CPD#). Products using the Component Modeling Approach (CMA) are not required to meet this metric.
Warranty Period-Glass **Warranty Period-Non-glass** **Warranty Documentation**	Minimum of 20 years Minimum of 10 years Copy of warranty for all products must be entered with the products bid into the program.
Frame Color	All window frame colors are to be identified in the vendors' bid for each product.
Structural	See High Performance Windows Testing and Certification Requirements (below).
Size and Pricing Categories	See Windows and Low-E Storm Windows Size and Pricing Matrices (below).

High Performance Windows Testing and Certification Requirements

Testing and Certification

Thermal - All products must be certified with NFRC. Products must appear with the required performance metrics in the NFRC certified product directory (CPD), or in the NFRC Component Modeling Approach (CMA) CPD.

Structural - All products must be tested and certified according to the 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) by one of the following four certifying organizations; AAMA, WDMA, NAMI, Keystone Certifications, Inc.

Structural Performance

Certification numbers must be provided for all products in the Bidding Templates included with the solicitation package.

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).

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. 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:

2005	2008
R	R
LC	LC
C	LC*
C	CW**
HC	CW
AW	AW

*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.

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. For purposes of this program R and LC will be considered residential products while HC and AW will be considered commercial products.

The minimum performance grade for all products regardless of class type is 25.

Air Leakage (AL)

Air leakage of the windows shall be measured using: NFRC 400-2010[EOA1]-Procedure for Determining Fenestration Product Air Leakage.

or

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.)

U-factor Requirements for Higher Structural Performance

Commercial Window (CW)

For windows tested to CW, the u-factor requirement is:
Fixed: U ≤ 0.24 Btu/h-ft^2-F
Operable: U ≤ 0.27 Btu/h-ft^2-F

Architectural Window (AW)

For windows tested to AW, the u-factor requirement is:
Fixed: U ≤ 0.27 Btu/h-ft^2-F
Operable: U ≤ 0.32 Btu/h-ft^2-F

Low-E Storm Windows Specifications and Requirements

Specification	Mandatory Requirement
Emissivity	< 0.22
Warranty Period-Glass **Warranty Period-Non-glass**	Minimum of 10 years Minimum of 10 years
Frame Color	All available frame colors are to be identified in the vendors' bid.
Size Categories	See Windows and Low-E Storm Windows Size and Pricing Matrices (below).

Low-E Storm Windows Testing and Registration Requirements

	Mandatory Requirement
Product Testing and Registration	Test product in accordance with the following standards:
Performance	All glass materials must be registered in the International Glazing Database (IGDB) with Lawrence Berkeley National Laboratory and measured in accordance with NFRC 300-09, 301-09, and 302-09. The glass manufacturer, the glass name, and the ID# as listed in the IGDB must be entered with every storm window bid.
	and
Structural	ANSI/AAMA 1002.10-93 (or later version). Product must meet requirements for **15** performance grade or higher.
	or
	ASTM E1886-05 (or later version). Product must meet requirements for **15** performance grade or higher.
Product Certification	Certification numbers must be provided for all products as assigned by one of the following four certifying organizations; AAMA, WDMA, NAMI, Keystone.

Sales Reporting

The vendors in this program will be required to report all window and patio door sales which meet the specifications of in this document on a monthly basis to PNNL. The monthly sales report will be emailed to pnnlwindowsvp@pnl.gov by the last working day of the month following the sales. For example, sales made in the month of June would be due by the last working day in July.