

High Performance Window (R-5) Specifications

R-5 Performance Specifications

		Mandatory
Thermal Performance	(fixed) (operable)	U ≤ 0.20 U ≤ 0.22
Air Leakage	(fixed) (operable)	≤ 0.10 cfm/ft ² (See Certification Requirements) ≤ 0.20 cfm/ft ² (See Certification Requirements)
Warranty	(glass)	20 years
Warranty	(non-glass)	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, replace, or refund 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 Color	All available vinyl and aluminum clad frame colors are to be identified in the vendors' bid. White is a preferred option.	
Size Categories	See Windows and Sliding Doors Matrices	
Minimum Order	See Windows and Sliding Doors Matrices	
Sales Reporting Requirements	<p>Volume Purchase Program vendors will be required to report window sales monthly to PNNL. The purpose of reporting sales is to assure PNNL that the products are sold to the buyers at no greater than the base bid price*. The sales data will not be shared with any other participant/vendor in the volume purchase program nor outside of PNNL or the U.S. Department of Energy. An example of a monthly sales report spreadsheet is attached. The monthly report will be e-mailed or faxed to Terry Mapes, PNNL Engineer. Terry.Mapes@pnl.gov; Fax: 509-372-4370 by the 10th working day of the following month.</p> <p>*The base bid price is the price of the product bid into the volume purchase program without customer-specified options and less sales tax and delivery at the time of the specified date of sale.</p>	

Certification Requirements

<p>Testing and Certification</p>	<p>Documentation of certification to be provided for the following:</p> <p><i>ASTM E2190-08 Standard Specification for Insulating Glass Unit Performance and Evaluation</i></p> <p>All products Certified with NFRC program and appearing with NFRC label indicating values for Thermal Performance (U-Factor), Solar Heat Gain Coefficient, and Visible Transmittance.</p> <p><i>AAMA/WDMA/CSA 101/I.S.2/A440-05 Standard/Specification for windows, doors and skylights.</i> Test is for air leakage resistance, water penetration resistance uniform load, et al.</p>	<p>Air Leakage (AL)</p>	<p>The following methods and procedures are to be used for testing and certification:</p> <p>Air leakage measured using: <i>NFRC 400-2004 Procedure for Determining Fenestration Product Air Leakage</i> or <i>AAMA/WDMA/CSA 101/I.S.2/A440-08. These standards reference ASTM E283-02 Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors</i></p>

R-5 Windows and Sliding Doors Matrices

Single Hung	New (\$)	Retrofit (\$)
up to 50 UI		
51-60 UI		
61-70 UI		
71-80 UI		
81-90 UI		
91-100 UI		
per UI over 100		
min. order	5	10

Double Hung	New (\$)	Retrofit (\$)
up to 50 UI		
51-60 UI		
61-70 UI		
71-80 UI		
81-90 UI		
91-100 UI		
per UI over 100		
min. order	5	10

Slider	New (\$)	Retrofit (\$)
up to 50 UI		
51-60 UI		
61-70 UI		
71-80 UI		
81-90 UI		
91-100 UI		
per UI over 100		
min. order	5	10

Casement	New (\$)	Retrofit (\$)
up to 50 UI		
51-60 UI		
61-70 UI		
71-80 UI		
81-90 UI		
91-100 UI		
per UI over 100		
min. order	5	10

Picture	New (\$)	Retrofit (\$)
up to 50 UI		
51-60 UI		
61-70 UI		
71-80 UI		
81-90 UI		
91-100 UI		
per UI over 100		
min. order	5	10

Patio Doors	New (\$)	Retrofit (\$)
6' x 6'-8" LxH		
8' x 6'-8" LxH		
9' x 6'-8" LxH		
min. order	1	1

United Inches (UI) = Length + Width

Internal and External Low-e Storm Window Specifications

Storm Window Performance Specifications

	Mandatory
Emissivity	< 0.22
Warranty (glass)	20 years
Warranty (non-glass)	10 years
Warranty Details	If a defect appears during the term of the warranty, the owner can elect for the provider 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 vinyl and aluminum clad frame colors are to be identified in the vendors' bid. White is a preferred option.
Size Categories	See Storm Windows Matrices
Minimum Order	See Storm Windows Matrices
Sales Reporting Requirements	<p>Volume Purchase Program vendors will be required to report window sales monthly to PNNL. The purpose of reporting sales is to assure PNNL that the products are sold to the buyers at no greater than the base bid price*. The sales data will not be shared with any other participant/vendor in the volume purchase program nor outside of PNNL or the U.S. Department of Energy. An example of a monthly sales report spreadsheet is attached. The monthly report will be e-mailed or faxed to Terry Mapes, PNNL Engineer. Terry.Mapes@pnl.gov; Fax: 509-372-4370 by the 10th working day of the following month.</p> <p>*The base bid price is the price of the product bid into the volume purchase program without customer-specified options and less sales tax and delivery at the time of the specified date of sale.</p>

Testing Requirements

	Mandatory
Testing and Certification	<p>Test in accordance with the following standards:</p> <p><i>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.</i></p> <p><i>If applicable, meets ASTM D 4099-95 Standard Specification for Poly Vinyl Chloride (PVC) Prime Windows/Sliding Glass Doors.</i></p>

Storm Windows Matrices

Storm	New (\$)
up to 40 UI	
41-65 UI	
66-90 UI	
90-115 UI	
116-140 UI	
per UI over 140	
min. order	5

United Inches (UI) = Length + Width