

American National Standard

Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors

EXCERPT EDITION

Product Designations (Product Types,
Performance Classes & Grades), and
Gateway Performance Requirements



Approved by ANSI 12/14/98

Reprinted 12/1999
CMB-3 (Excerpt) 5/4/01



SPECIFIC REQUIREMENTS

(TABLE 2.1) – GATEWAY PERFORMANCE REQUIREMENTS

NOTE: This table contains the Gateway Performance Requirements applicable to particular types of aluminum, vinyl (PVC) and wood windows and doors. It shall be used in conjunction with Section 1, Section 2.2 and, when required, Section 3.

Design Pressure = Performance Grade
Structural Test Pressure = 1.5 x Design Pressure

Water Test Pressure: R, LC, C & HC = .15 x Positive Design Pressure (12 psf max)
AW = .20 x Positive Design Pressure (12 psf max)

Window/Door Designation (Minimum Test Size)		Reference Section	Design Pressure		Structural Test Pressure		Water Resistance Test Pressure		Air Leakage			
			lbf/ ft ²	(Pa)	lbf/ft ²	(Pa)	lbf/ft ²	(Pa)	lbf/ft ²	(Pa)	ft ³ / (min - ft ²)	m ³ / (h-m ²)
Group I		Sliding Seal Window Products										
Single/Double/Triple Hung Windows		2.2.1, p. 9										
H-R15	(3'8" x 5'0")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
H-LC25	(3'8" x 6'5")		25	(1200)	37.5	(1800)	3.75	(180)	1.57	(75)	0.3	(5)
H-C30	(4'6" x 7'6")		30	(1440)	45.0	(2160)	4.50	(220)	1.57	(75)	0.3	(5)
H-HC40	(5'0" x 8'0")		40	(1920)	60.0	(2880)	6.00	(290)	1.57	(75)	0.3	(5)
H-AW40	(5'0" x 8'0")		40	(1920)	60.0	(2880)	8.00	(390)	6.24	(300)	0.3	(5)
Horizontal Sliding Windows		2.2.2, p. 11										
HS-R15	(5'9" x 4'0")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
HS-LC25	(5'9" x 4'6")		25	(1200)	37.5	(1800)	3.75	(180)	1.57	(75)	0.3	(5)
HS-C30	(5'11" x 4'11")		30	(1440)	45.0	(2160)	4.50	(220)	1.57	(75)	0.3	(5)
HS-HC40	(8'0" x 6'6")		40	(1920)	60.0	(2880)	6.00	(290)	1.57	(75)	0.3	(5)
HS-AW40	(8'0" x 6'6")		40	(1920)	60.0	(2880)	8.00	(390)	6.24	(300)	0.3	(5)
Vertical Sliding Windows		2.2.3, p. 12										
VS-R15	(3'8" x 5'0")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
Group II		Compression Seal Window Products										
Awning/Hopper/Projected Windows		2.2.4, p. 13										
AP-R15	(4'0" x 1'4"/4'0" x 1'4")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
AP-LC25	(4'0" x 1'4"/4'0" x 2'5")		25	(1200)	37.5	(1800)	3.75	(180)	1.57	(75)	0.3	(5)
AP-C30	(4'0" x 1'4"/4'0" x 2'5")		30	(1440)	45.0	(2160)	4.50	(220)	1.57	(75)	0.3	(5)
AP-HC40	(5'0" x 2'8"/5'0" x 2'8")		40	(1920)	60.0	(2880)	6.00	(290)	6.24	(300)	0.3	(5)
AP-AW40	(5'0" x 3'0"/5'0" x 3'0")		40	(1920)	60.0	(2880)	8.00	(390)	6.24	(300)	0.1	(2)
Casement Windows		2.2.5, p.16										
C-R15	(1'5" x 4'0")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
C-LC25	(2'0" x 4'0")		25	(1200)	37.5	(1800)	3.75	(180)	1.57	(75)	0.3	(5)
C-C30	(2'0" x 4'0")		30	(1440)	45.0	(2160)	4.50	(220)	1.57	(75)	0.3	(5)
C-HC40	(2'0" x 4'0")		40	(1920)	60.0	(2880)	6.00	(290)	6.24	(300)	0.3	(5)
C-AW40	(3'0" x 5'0")		40	(1920)	60.0	(2880)	8.00	(390)	6.24	(300)	0.1	(2)
Vertically/Horizontally Pivoted Windows		2.2.6, p. 18										
VP-R15	HP-R15 (3'8" x 5'0")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
VP-LC25	HP-LC25 (4'0" x 5'0")		25	(1200)	37.5	(1800)	3.75	(180)	1.57	(75)	0.3	(5)
VP-C30	HP-C30 (4'0" x 7'0")		30	(1440)	45.0	(2160)	4.50	(220)	1.57	(75)	0.3	(5)
VP-HC40	HP-HC40 (5'0" x 8'0")		40	(1920)	60.0	(2880)	6.00	(290)	6.24	(300)	0.3	(5)
VP-AW40	HP-AW40 (5'0" x 8'0")		40	(1920)	60.0	(2880)	8.00	(390)	6.24	(300)	0.1	(2)
Side Hinged (Inswinging) Windows		2.2.7, p. 20										
SHW-AW40	(4'0" x 6'0")		40	(1920)	60.0	(2880)	8.00	(390)	6.24	(300)	0.1	(2)
Top Hinged (Inswinging) Windows		2.2.8, p. 21										
TH-C30	(4'0" x 5'0")		30	(1440)	45.0	(2160)	4.50	(220)	1.57	(75)	0.3	(5)
TH-HC40	(5'0" x 8'0")		40	(1920)	60.0	(2880)	6.00	(290)	6.24	(300)	0.3	(5)
TH-AW40	(5'0" x 8'0")		40	(1920)	60.0	(2880)	8.00	(390)	6.24	(300)	0.1	(2)
Group III		Fixed Window Products										
Fixed Windows		2.2.9, p. 22										
F-R15	(4'0" x 4'0")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
F-LC25	(4'6" x 4'6")		25	(1200)	37.5	(1800)	3.75	(180)	1.57	(75)	0.3	(5)
F-C30	(5'0" x 5'0")		30	(1440)	45.0	(2160)	4.50	(220)	1.57	(75)	0.3	(5)
F-HC40	(6'0" x 6'0")		40	(1920)	60.0	(2880)	6.00	(290)	6.24	(300)	0.3	(5)
F-AW40	(5'0" x 8'0")		40	(1920)	60.0	(2880)	8.00	(390)	6.24	(300)	0.1	(2)

Window/Door Designation (Minimum Test Size)	Reference Section	Design Pressure		Structural Test Pressure		Water Resistance Test Pressure		Air Leakage			
		lbf/ ft ²	(Pa)	lbf/ft ²	(Pa)	lbf/ft ²	(Pa)	lbf/ft ²	(Pa)	ft ³ / (min - ft ²)	m ³ / (h-m ²)
Group IV		Dual Action Window Products									
Dual Action Windows	2.2.10, p. 23										
DA-R15 (3'8" x 5'0")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
DA-LC25 (4'0" x 5'0")		25	(1200)	37.5	(1800)	3.75	(180)	1.57	(75)	0.3	(5)
DA-C30 (4'0" x 6'0")		30	(1440)	45.0	(2160)	4.50	(220)	1.57	(75)	0.3	(5)
DA-HC40 (5'0" x 8'0")		40	(1920)	60.0	(2880)	6.00	(290)	6.24	(300)	0.3	(5)
DA-AW40 (5'0" x 8'0")		40	(1920)	60.0	(2880)	8.00	(390)	6.24	(300)	0.1	(2)
Group V		Specialty Window Products									
Basement Windows	2.2.11, p. 24										
BW-R15 (2'8" x 1'4")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
BW-LC25 (2'8" x 1'4")		25	(1200)	37.5	(1800)	3.75	(180)	1.57	(75)	0.3	(5)
Hinged Egress Windows	2.2.12, p. 25										
HE-R15 (Minimum size based on window type)		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)(3)
Greenhouse Windows	2.2.13, p. 26										
GH-R15 (3'0" x 3'0")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3 (2)	(5)(2)
Jalousie Windows	2.2.14, p. 27										
J-R15 (3'0" x 4'0")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	1.2	(22)
Jal-Awning Windows	2.2.15, p. 27										
JA-R15 (4'5" x 5'3")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3 (2)	(5)(2)
Tropical Awning Windows	2.2.16, p. 28										
TA-R15 (4'0" x 2'0"/4'0" x 5'3")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
TA-LC25 (4'5" x 2'2"/4'5" x 8'0")		25	(1200)	37.5	(1800)	3.75	(180)	1.57	(75)	0.3	(5)
TA-C30 (4'5" x 2'2"/4'5" x 8'0")		30	(1440)	45.0	(2160)	4.50	(220)	1.57	(75)	0.3	(5)
Group VI		Door Products									
Hinged Glass Doors (4)	2.2.17, p. 28										
HGD-R15 (2'8" x 6'6")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
HGD-LC25 (2'10" x 6'8")		25	(1200)	37.5	(1800)	3.75	(180)	1.57	(75)	0.3	(5)
HGD-C30 (3'0" x 6'10")		30	(1440)	45.0	(2160)	4.50	(220)	1.57	(75)	0.3	(5)
HGD-HC40 (4'8" x 8'0")		40	(1920)	60.0	(2880)	6.00	(290)	6.24	(300)	0.3	(5)
Dual Action Hinged Glass Doors (4)	2.2.18, p. 29										
DA-HGD-R15 (2'8" x 6'6")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
DA-HGD-LC25 (2'10" x 6'8")		25	(1200)	37.5	(1800)	3.75	(180)	1.57	(75)	0.3	(5)
DA-HGD-C30 (3'0" x 6'10")		30	(1440)	45.0	(2160)	4.50	(220)	1.57	(75)	0.3	(5)
DA-HGD-HC40 (4'8" x 8'0")		40	(1920)	60.0	(2880)	6.00	(290)	6.24	(300)	0.3	(5)
Sliding Glass Doors (4)	2.2.19, p. 31										
SGD-R15 (2'10" x 6'6")		15	(720)	22.5	(1080)	2.86	(140)	1.57	(75)	0.3	(5)
SGD-LC25 (3'6" x 6'8")		25	(1200)	37.5	(1800)	3.75	(180)	1.57	(75)	0.3	(5)
SGD-C30 (3'10" x 6'10")		30	(1440)	45.0	(2160)	4.50	(220)	1.57	(75)	0.3	(5)
SGD-HC40 (4'10" x 7'10")		40	(1920)	60.0	(2880)	6.00	(290)	6.24	(300)	0.3	(5)
SGD-AW40 (4'10" x 7'10")		40	(1920)	60.0	(2880)	8.00	(390)	6.24	(300)	0.3	(5)

(1) Products shall be rated for air leakage on a Pass/Fail basis.

(2) Air leakage rate for Greenhouse and Jal-Awning Windows shall be measured as cubic feet per minute per square foot (cubic meter per hour per square meter) of finished window opening in the plane of the wall.

(3) Air leakage for hinged perimeter frame window assemblies shall be rated on the basis of CFM/ft (cubic meter/hr/meter) of sash crack. On Hinged perimeter frame window assemblies, the perimeter crack between the stationary perimeter frame and the window frame plus the operable sash crack of the window itself shall be used in determining the sash crack. If the hinged perimeter frame window is a fixed window, only the perimeter crack between the stationary perimeter frame and the window frame shall be used.

(4) Sizes for doors are given as panel width x frame height.

GENERAL REQUIREMENTS

NOTE: This section contains general information applicable to single and dual windows and glass doors, and is to be used in conjunction with Sections 2 and 3.

1.1 GENERAL

This voluntary specification covers requirements for single and dual windows and glass doors for new construction and replacement applications.

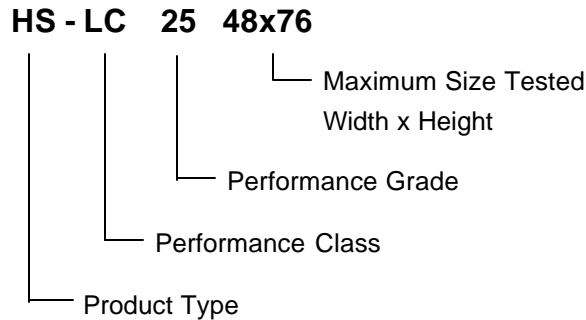
For further information, refer to the AAMA Window Selection Guide and the Window Selection Section of NWWDA I.S.2.

1.2 TERMINOLOGY

As used in this specification, the following definitions and designations apply:

1.2.1 PRODUCT DESIGNATIONS

Window and door products included in this document are designated by a four-part code which includes product type, performance class, performance grade and maximum size tested. The format for product designation is:



NOTE: An asterisk (*) added to the performance grade indicates the size tested for the optional performance grade was smaller than the minimum test size for the original product type and class.

For example, if a H-HC40 product which has passed the General Requirements of Section 1, the Gateway Performance Requirements in Table 2.1, the Specific Performance Requirements of Sections 2.2, and the Material and Component Requirements of Section 3, is then tested and passes the performance requirements for an Optional Performance Grade 60 according to Section 4, that product is now identified as a H-HC60 (W x H).

If the test size for this product at the HC60 optional performance grade were smaller than that required for an H-HC40 specimen, the new designation would be H-HC60* (W x H).

1.2.1.1 Product Type Each product type and class requires minimum test sizes for entry into the product class.

Window and door product types covered in this document are as follows:

AP	=	Awning, Hopper, Projected Window
BW	=	Basement Windows
C	=	Casement Windows
DA	=	Dual Action Windows
DA-HGD	=	Dual Action Hinged Glass Doors
F	=	Fixed Windows
GH	=	Greenhouse Windows
H	=	Hung Windows (Single, Double, Triple)
HE	=	Hinged Egress Windows
HGD	=	Hinged Glass Doors
HP	=	Horizontally Pivoted Windows
HS	=	Horizontal Sliding Windows
J	=	Jalousie Windows
JA	=	Jal-Awning Windows
SHW	=	Side Hinged Inswinging Windows
SGD	=	Sliding Glass Doors
TA	=	Tropical Awning Windows
TH	=	Top Hinged Windows
VP	=	Vertically Pivoted Windows
VS	=	Vertical Sliding Windows

1.2.1.2 Performance Class

Window and door products covered by this document shall be divided into five performance classes as follows:

R	=	Residential
LC	=	Light Commercial
C	=	Commercial
HC	=	Heavy Commercial
AW	=	Architectural

1.2.1.3 Performance Grade

Products are designated by the design pressure for which they have been tested in pounds per square foot. The structural test pressure for all products is 1.5 times the design pressure. Each product performance class shall have a minimum performance grade as follows:

R	=	15 psf (720 Pa)
LC	=	25 psf (1200 Pa)
C	=	30 psf (1440 Pa)
HC	=	40 psf (1920 Pa)
AW	=	40 psf (1920 Pa)

In addition, products may be tested to optional performance grades higher than the minimum grade in increments of 5 psf (240Pa). (See Section 4, Optional Performance)

Products which have been tested as dual windows as specified in Section 1.2.2, shall have the code DW added to their product designation after the product type. An example of product designation for a dual window would be: HS-DW-LC25 48x76.