CRL U.S. ALUMINUM

STORM WALL™

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Hurricane (Impact) Resistant Curtain Walls
• Series IW3250

Storm Wall™

SECTION M1 PAGE

Project: North Charleston City Hall, North Charleston , SC

Due to the diversity in state/provincial, local, and federal laws and codes that govern the design and application of architectural products, it is the responsibility of the individual architect, owner, and installer to ensure that products selected for use on projects comply with all applicable building codes and laws. U.S. Aluminum exercises no control over the use or application of its products, glazing materials, and operating hardware, and assumes no responsibility thereof.

The rapidly changing technology within the architectural aluminum products industry demands that U.S. Aluminum reserve the right to revise, discontinue or change any product line, specification or electronic media without prior written notice.

NOTE: Dimensions in parentheses ( ) are millimeters unless otherwise noted.
Other metric units shown in this publication are:

m - meter	Kg - kilogram
Pa - pascal	KPa - kilopascal
MPa - megapascal	

STORM WALL™

Specifications

Hurricane (Impact) Resistant Curtain Walls
• Series IW3250

SECTION 08 44 13 ALUMINUM CURTAIN WALL SYSTEMS

I. GENERAL DESCRIPTION
Work included: Furnish all necessary materials, labor, and equipment for the complete installation of aluminum framing as shown on the drawings and specified herein. *(Specifier Note: It is suggested that related items such as aluminum entrance doors, glass, and sealants be included whenever possible.)*
Work not included: Structural support of the framing system, interior closures, trim. *(Specifier list other exclusions). Related Work Specified Elsewhere: (Specifier list).*

QUALITY ASSURANCE
Drawings and specifications are based on the Series IW3250 Dry Glazed Curtain Wall System as manufactured by U.S. Aluminum. Whenever substitute products are to be considered, supporting technical literature, samples, drawings, and performance data must be submitted 10 days prior to bid in order to make a valid comparison of the products involved. Test reports certified by an independent test laboratory must be made available upon request.

PERFORMANCE REQUIREMENTS
Air Infiltration: Shall be tested in accordance with Dade County Protocol PA 202-94 and ASTM E 283-91 (99).
- IW3250 Storm Wall™/Curtain Wall Infiltration shall not exceed .06 cfm per square foot (.003 m3/sm2) fixed area when tested at 6.24 psf (300 Pa).
- IG500/IG600 Storm Front™ Entrance Doors Infiltration shall not exceed 1.00 cfm per square foot at 6.24 psf (300 Pa).

Water Infiltration: Shall be tested in accordance with Dade County Protocol PA 202-94 and ASTM E 331-93. No water penetration at test pressure of:
- IW3250 Curtain Wall - 15 psf
- IG500/IG600 Pair of Doors - 12 psf (Water resistant threshold)

Structural Performance: Shall be tested in Accordance with Dade County Protocol PA 220-94 and ASTM 330-96 and based on:
- Maximum deflection of L/175 of the span. [3/4" (19.1) max.]
- Allowable stress with a safety factor of 1.65. The system shall perform to this criteria under a wind load of *(Specify)* psf.
- IW3250 Curtain Wall Design 44 psf (131 mph) Structural ± 66 psf (161mph)
- IG500/IG600 Pair of Doors Design 44 psf (131 mph) Structural ± 66 psf (161 mph)

Forced Entry Resistance: Shall be tested with a 300 lb. force applied to the active door panel simultaneously with a 150 lb. force applied in both perpendicular directions to the 300 lb. force as per the Dade County Protocol PA 220-94.

Large Missile Impact Test: Shall be tested in accordance with Dade County Protocol PA 201-94 with a 9 lb. 2x4 traveling at 50 fps.

Small Missile Impact Test: Shall be tested in accordance with Dade County Protocol PA 201-94 with 10-2 gram steel ball bearings traveling 130 fps.

Cycle Load Test: Shall be tested in accordance with Dade County Protocol PA 201-94 for 9,000 cycles.
- IW3250 Curtain Wall
- IG500/IG600 Pair of Doors

Testing Procedures: ASTM 283, E 331, and E 330 - Laboratory performance testing. AAMA 503-08 - Newly installed curtain walls. AAMA 511-08 - Installed curtain walls after six months.

II. PRODUCTS MATERIALS
Extrusions shall be 6063-T5 alloy and temper (ASTM B221 alloy T5 temper). Fasteners, where exposed, shall be aluminum, stainless steel or zinc plated steel in accordance with ASTM A 164. Perimeter anchors shall be aluminum or steel, providing the steel is properly isolated from the aluminum. Glazing gaskets shall be E.P.D.M. elastomeric extrusions.

FINISH
All exposed framing surfaces shall be free of scratches and other serious blemishes. Aluminum extrusions shall be given a caustic etch followed by an anodic oxide treatment to obtain… *(Specify one of the following)*:
____#11 Clear anodic coating
____#22 Dark Bronze anodic coating
____#33 Black anodic coating
A Fluoropolymer paint coating conforming with the requirements of AAMA 2605. Color shall be *(Specify a U.S. Aluminum standard color)*.

FABRICATION
All mullions and horizontals shall have flexible (PVC) thermal break material located on exterior side of glass plane. Exterior glazing seal gasket shall be secured by extruded aluminum pressure plates fastened to main grid members. Provisions shall be made at all sealed horizontals to weep moisture accumulation to the exterior. A cover shall be snapped over pressure plate to show only a sharp, uninterrupted exterior profile. Framing members shall provide for straight-in glazing on all sides, with through sight lines and no projecting stops or face joints. Vertical and horizontal framing members shall have a nominal width of 2-1/2" (63.5). Back members depth of system shall be 5" (127). System shall provide for two-piece horizontal framing so that all fasteners at intersection horizontal and vertical members will be concealed. There shall be no exposed fasteners at perimeter sections. Entrance framing members shall be compatible with glass framing in appearance. Provide for internal drainage of infiltrated water into an extruded aluminum subsill channel where it is drained to the exterior through weep slots.

STORM WALL™

Specifications

Hurricane (Impact) Resistant Curtain Walls
• Series IW3250

SECTION 08 44 13 ALUMINUM CURTAIN WALL SYSTEMS

Glazing
• IW3250 Curtain Wall
Large missile test - 7/16" (11) heat strengthened glass with 0.100" Sentry Glas® Plus by Dupont®.
Small missile test - 7/16" (11) heat strengthened glass with 0.090" Butacite® PVB by Dupont®.
• 1-3/16" (30) Laminated Impact Glazing
• IG500/IG600 Pair of Doors
Large missile test - 9/16" (14) heat strengthened glass with 0.090" Sentry Glas® Plus by Dupont®.

Sealants
The IG500/IG600 entrance doors shall use DOW 995 structural silicone to adhere glass to the door sash.

III. EXECUTION INSTALLATION
All glass framing shall be set in correct location as shown in the details and shall be level, square, plumb, and in alignment with other work in accordance with the manufacturer's installation instructions and approved shop drawings. All joints between framing and the building structure shall be sealed in order to secure a watertight installation.

PROTECTION AND CLEANING
After installation the General Contractor shall adequately protect exposed portions of aluminum surfaces from damage by grinding and polishing compounds, plaster, lime, acid, cement, or other contaminants. The General Contractor shall be responsible for final cleaning.

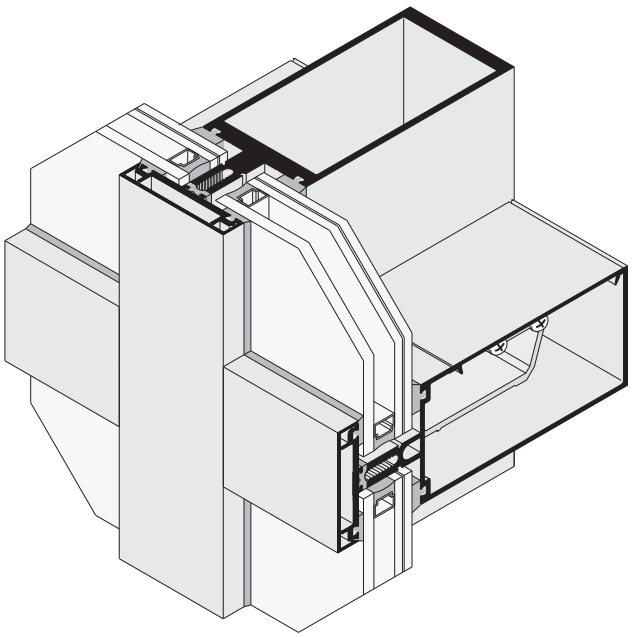
Project: Puerto Rico Convention Center, San Juan, PR

STORM WALL™

Technical Data

Hurricane (Impact) Resistant Curtain Walls
• Series IW3250

Strength, versatility, and economics make Series IW3250 High Impact Resistant Curtain Wall an industry standard for low to mid-rise applications where protection from high winds and wind-borne debris is required. Series IW3250 is thermally improved by a continuous thermal spacer interlocked with the horizontal and vertical pressure plates. Dual colors can be achieved by specifying different finishes for the exterior face covers and interior mullions. Two piece horizontals and extruded shear blocks allow for a concealed horizontal to vertical joint. These joint intersections also have concealed injection molded plastic end dams for controlling any infiltrated water.



SERIES IW3250
Impact Resistant Curtain Walls

SERIES	WIDTH	OVERALL DEPTH	GLAZING INFILL	APPLICATIONS
IW3250	2-1/2" (63.5)	6-1/4" (158.8)	7/16" (11)	Low-Rise to Mid-Rise Buildings Where Impact Resistant Specifications are Required.
	2-1/2" (63.5)	7" (177.8)	1-3/16" (30)	

GLASS SIZES*	
Glass Width and Height	= Daylight Opening + 1-5/8" (41.3)

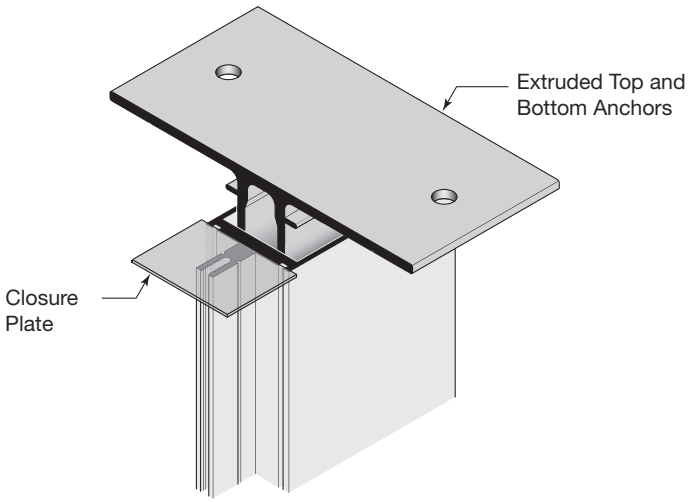
* These formulae do not take into account glass tolerances. Consult glass manufacturer before ordering glass.

STORM WALL™

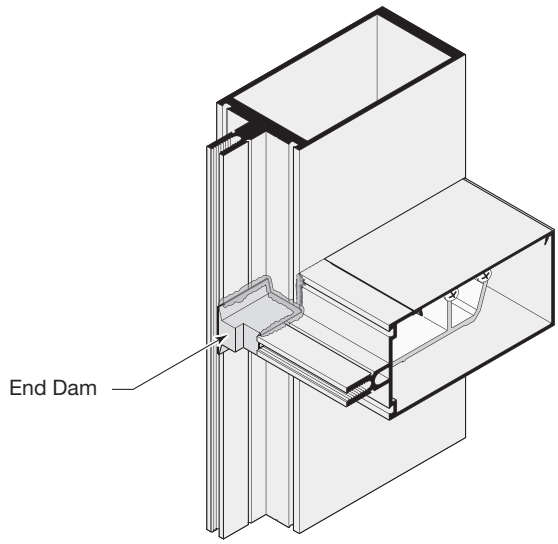
Special Features

Hurricane (Impact) Resistant Curtain Walls
• Series IW3250

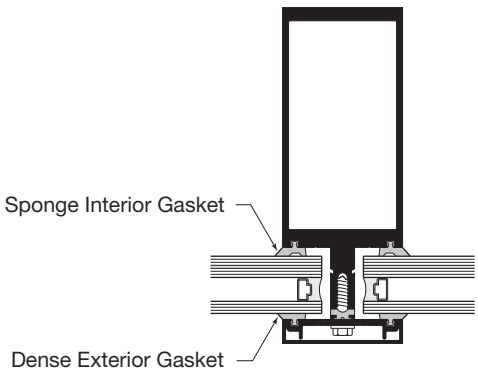
The Series IW3250 Curtain Wall System has been engineered specifically to withstand high winds and wind-borne debris, now required in glass wall systems used in coastal areas. IW3250 is an extension of the Series 3250 curtain wall system utilizing many of the same components and assembly procedures. IW3250 requires that impact resistant glass be used, either 7/16" (11) or 1-3/16" (30) laminated glass.



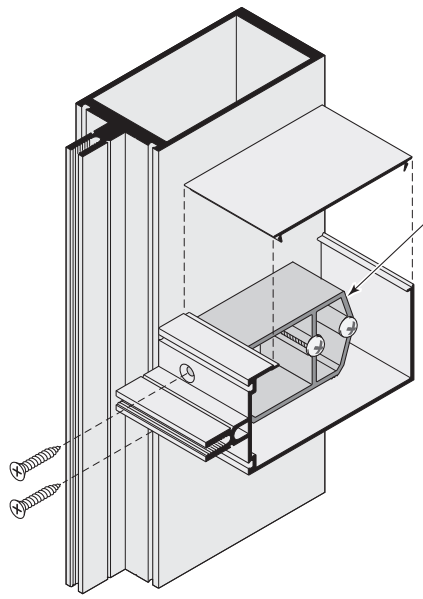
Injection Molded Closure Plates at top and bottom of verticals prevents perimeter seal failure. Easily installed Top and Bottom Anchors facilitate a quick and accurate installation. See pages 12-M1 and 13-M1 for more information.



Injection Molded End Dams at vertical and horizontal intersections control any infiltrated water. See page 13-M1 for more information.



Unlike other Impact Resistant Wall Systems that require structural silicone to hold the glass in place, IW3250 utilizes Gaskets, offering a much faster and more economical installation without sacrificing system integrity. See page 12-M1 for more information.



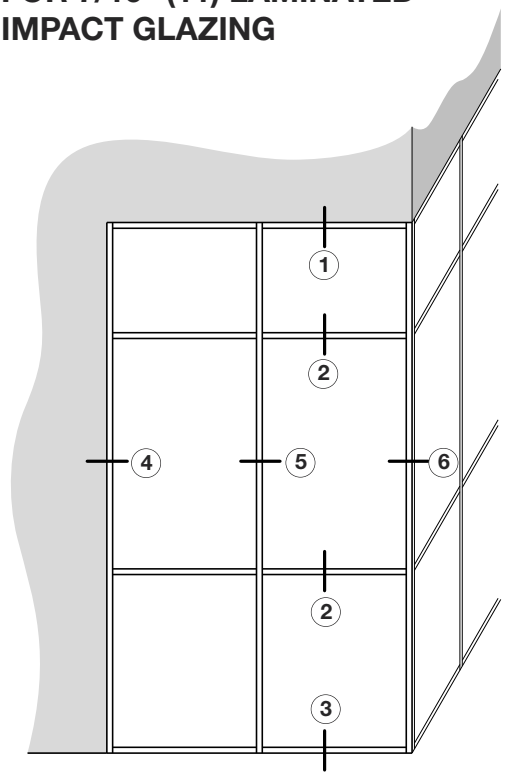
Extruded aluminum Shear Blocks for tight horizontal to vertical joinery with no exposed screws. See page 13-M1 for more information.

NOTE: To accelerate installation times with pinpoint accuracy of Horizontal Shear Blocks to Curtain Wall Mullions see pages 56-P1 and 57-P1.

STORM WALL™

Typical Details

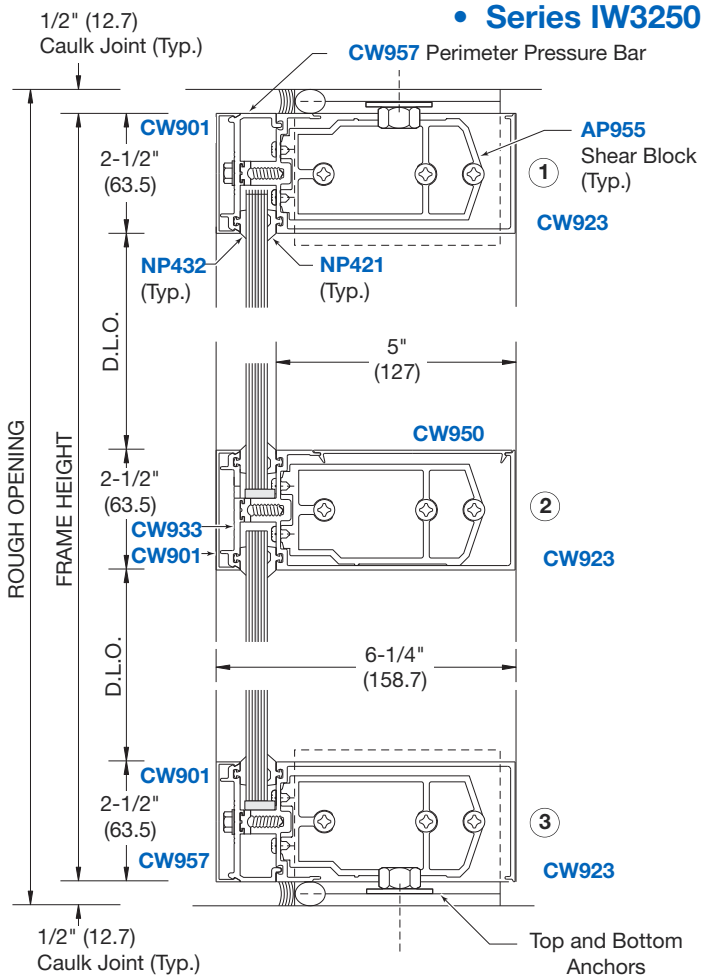
VERTICAL AND HORIZONTALS FOR 7/16" (11) LAMINATED IMPACT GLAZING

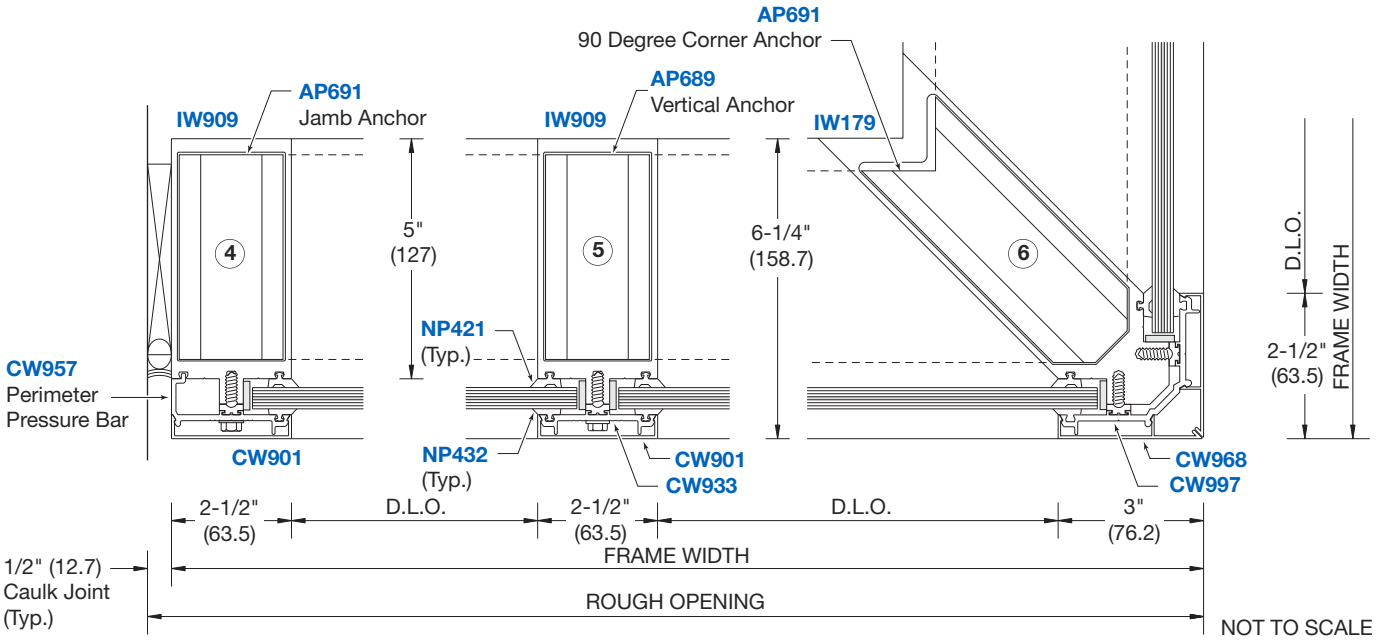


TYPICAL ELEVATION

Hurricane (Impact) Resistant Curtain Walls

• Series IW3250

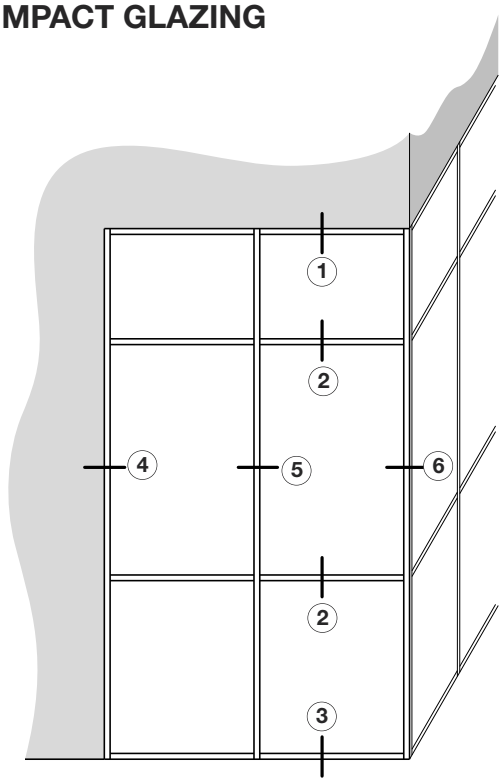




STORM WALL™

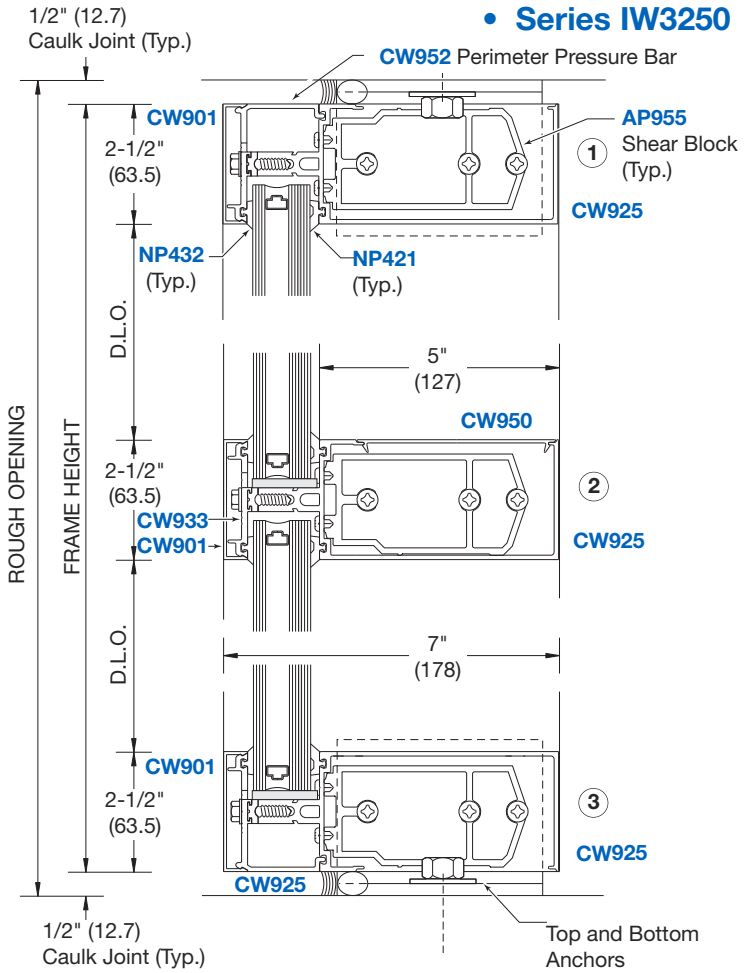
Typical Details

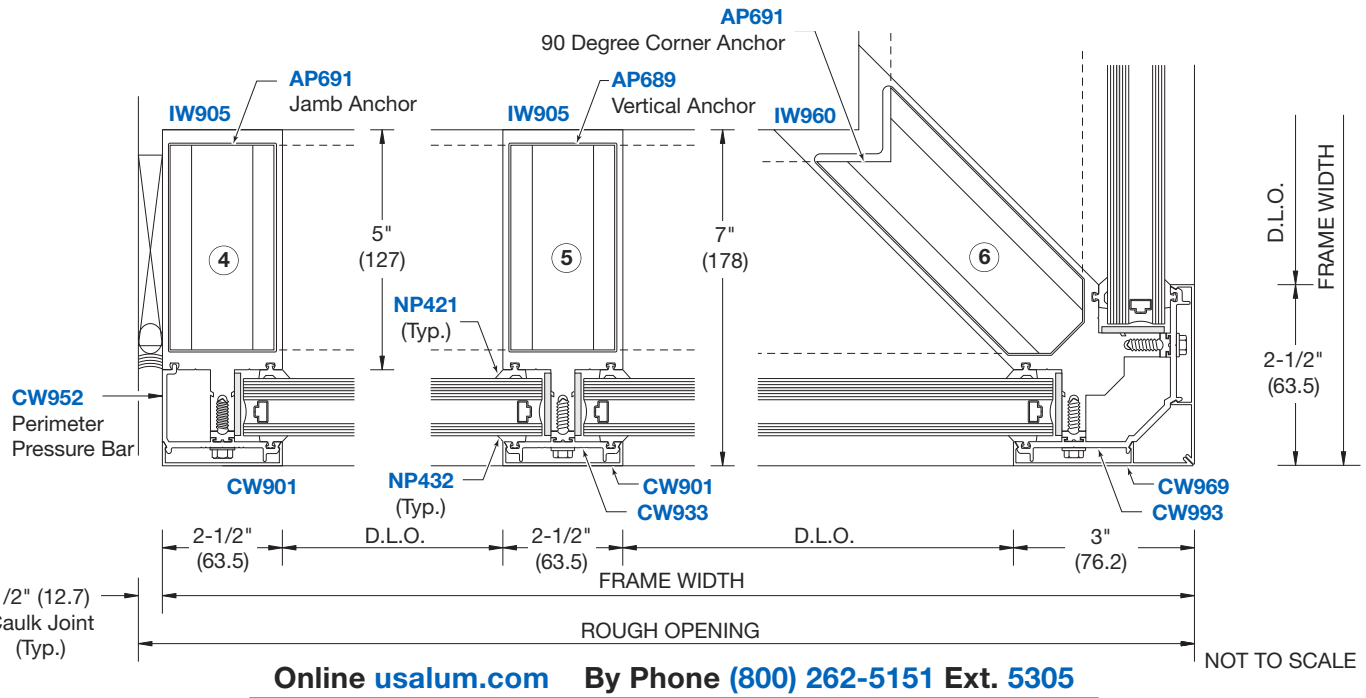
VERTICAL AND HORIZONTALS FOR 1-3/16" (30) LAMINATED IMPACT GLAZING



TYPICAL ELEVATION

Hurricane (Impact) Resistant Curtain Walls
• Series IW3250



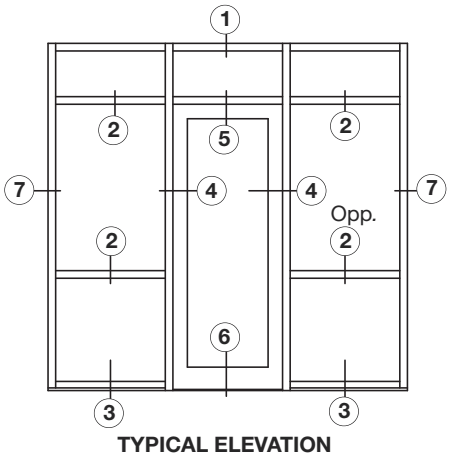


STORM WALL™

Typical Details

DOOR FRAMING FOR 1-3/16" (30) GLAZING

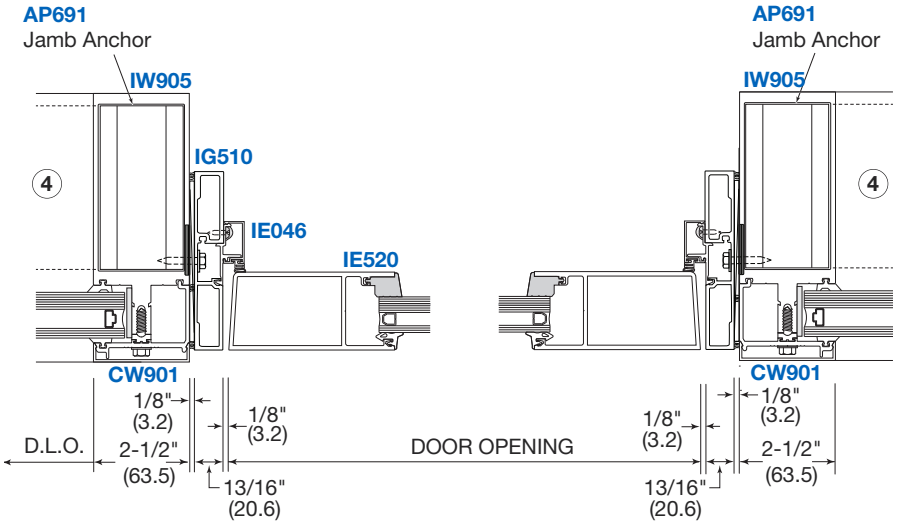
Series IW3250 Curtain Wall Shown with Series IG600 Entrance Door.

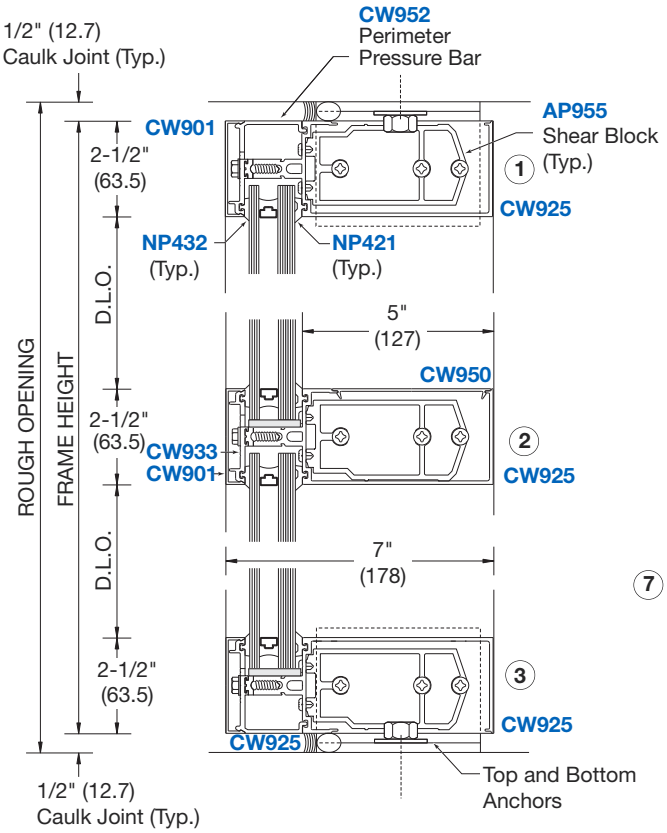


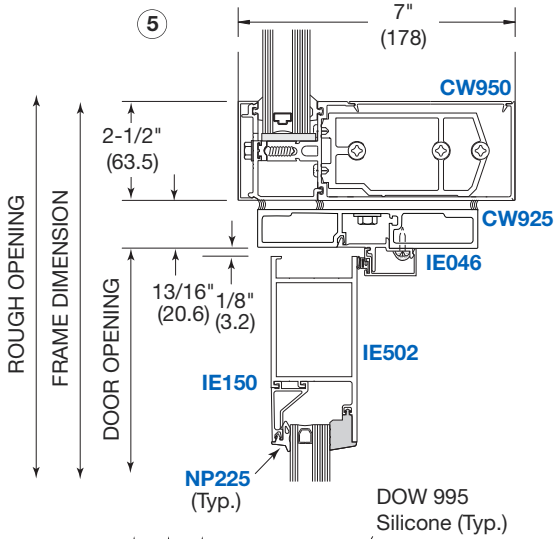
TYPICAL ELEVATION

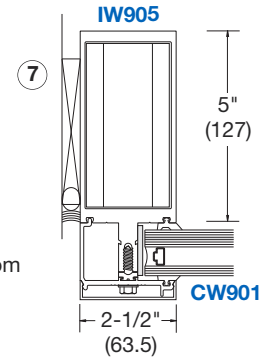
Hurricane (Impact) Resistant Curtain Walls

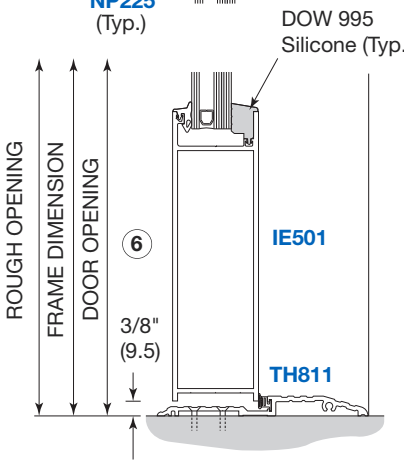
• Series IW3250











M

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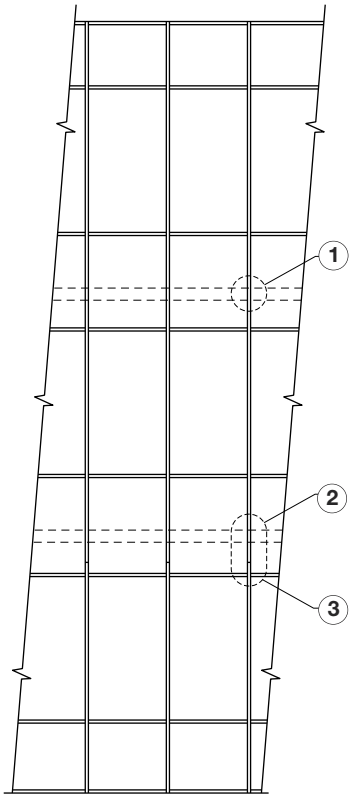
STORM WALL™

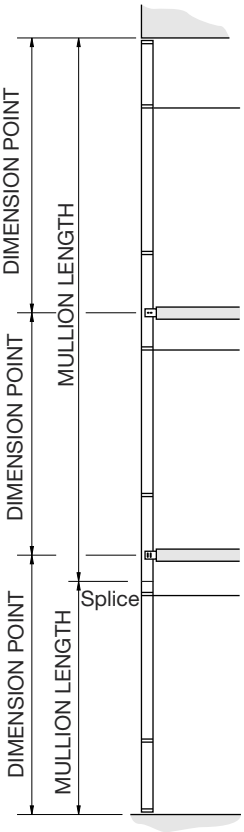
Typical Details

Hurricane (Impact) Resistant Curtain Walls
• Series IW3250

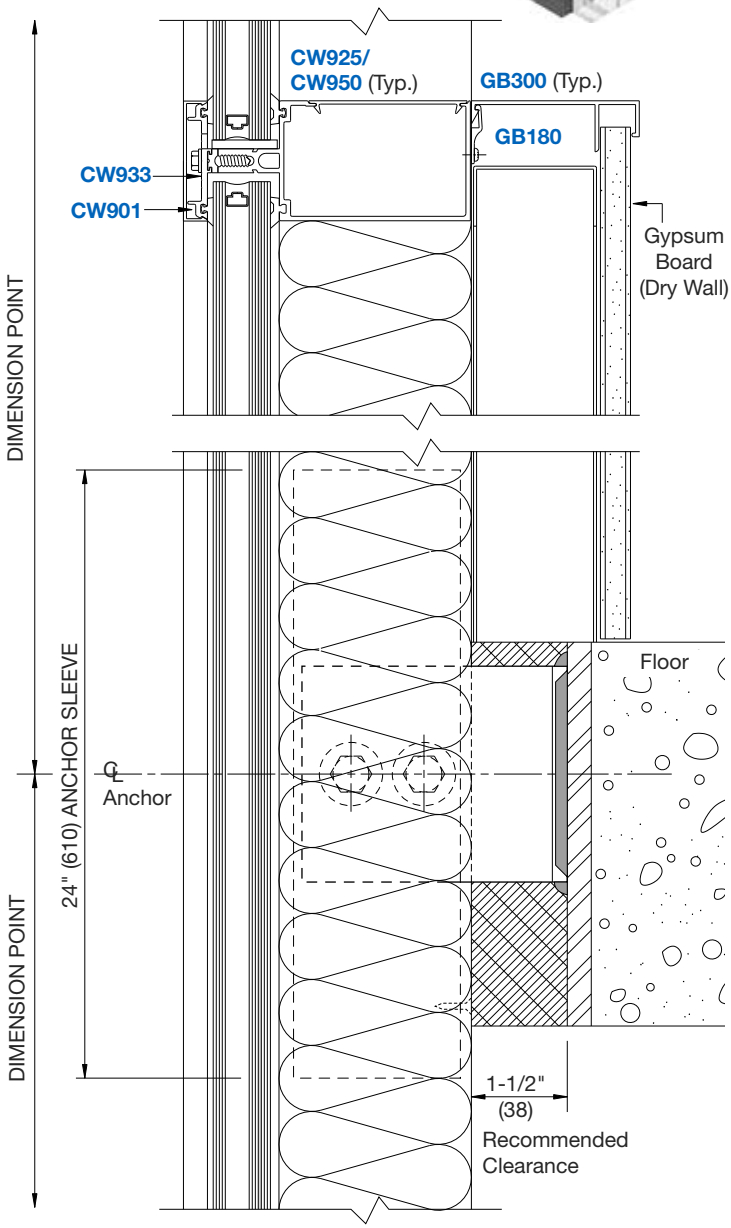
MID-SPAN ANCHORS AND MULLION SPLICE



TYPICAL ELEVATION



SECTION DETAIL



NOT TO SCALE

1

DEADLOAD ANCHOR

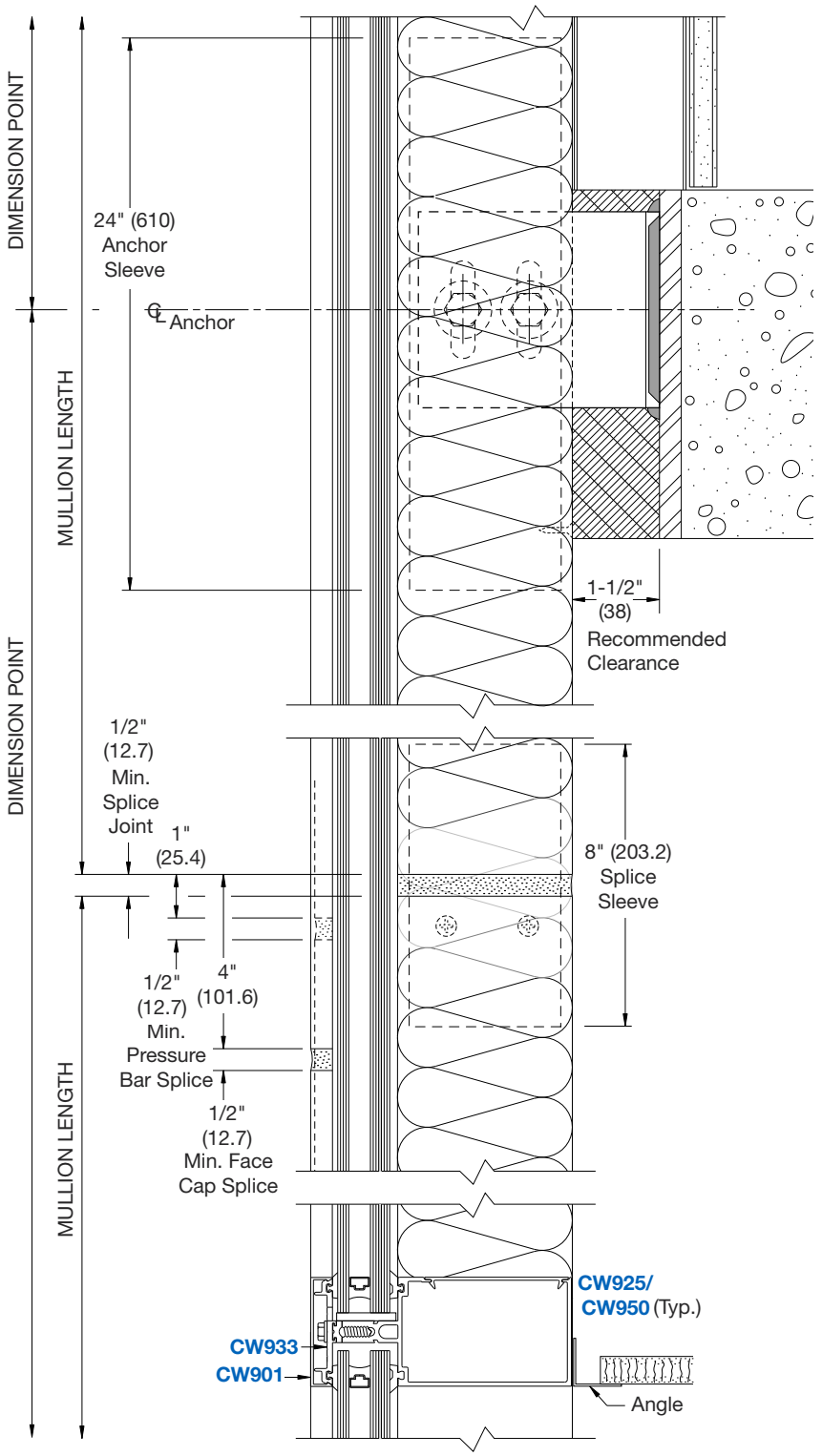
M

STORM WALL™

Typical Details

MID-SPAN ANCHORS AND MULLION SPLICE

Hurricane (Impact) Resistant Curtain Walls
• Series IW3250



② **EXPANSION ANCHOR (WINDLOAD ANCHOR)**

NOTE: Anchor Type and Size Varies Per Job Requirements.

③ **SPLICE JOINT**

NOTE: Joint Width Should be Based on Mullion Length and Temperature Differential. A 1/2" (12.7) Gap Allows for 1/4" (6.4) Movement.

NOT TO SCALE

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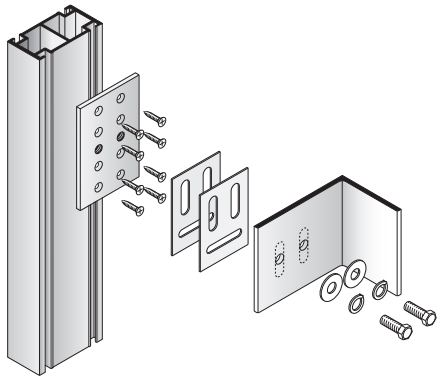
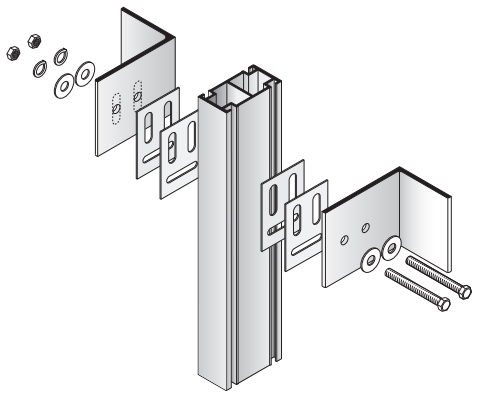
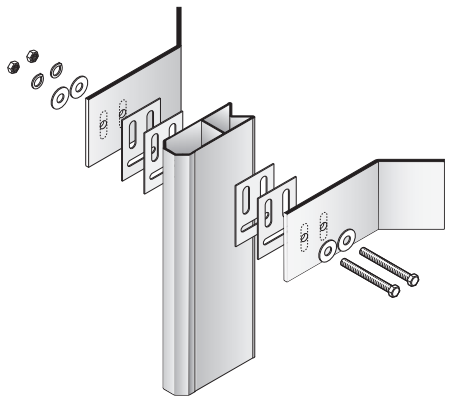
STORM WALL™

Accessories

MID-SPAN ANCHORS

Hurricane (Impact) Resistant Curtain Walls
• Series IW3250

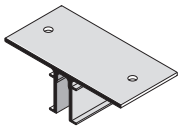
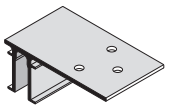
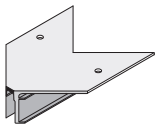
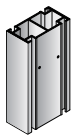
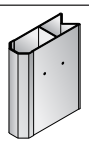
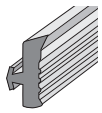
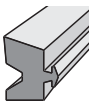
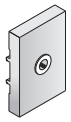
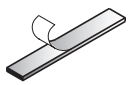
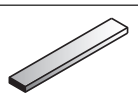
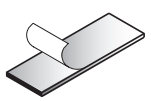
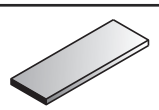
PART NO.	DESCRIPTION	PKG. QTY.	FOR GLAZING INFILLS	
			7/16" (11)	1-3/16" (30)
AP681	 **Anchor for Wall Jamb** **Includes:** (1) TB681 Aluminum Tapping Bar (2) AP360 Nylatron Slip Pads (2) MF335 1/2 -13 x 1-1/2" (38.1) GR-5 HH Bolts (2) MF257 Flat Washers (2) MF258 Lock Washers (8) ST277 #12 x1" (25) FH Screws (1) SL907 Reinforcement Insert	6	●	●
AP682	 **Anchor for Intermediate Vertical** **Includes:** (4) AP360 Nylatron Slip Pads (2) MF351 1/2 -13 x 4-1/2" (114.3) GR-5 HH Bolts (4) MF257 Flat Washers (2) MF258 Lock Washers (2) MF261 1/2 -13 Hex Nut w/Nylon Lock (1) SL907 Reinforcement Insert	12	●	●
AP683	 **Anchor for Corner Vertical** **Includes:** (4) AP360 Nylatron Slip Pads (2) MF351 1/2 -13 x 4-1/2" (114.3) GR-5 HH Bolts (4) MF257 Flat Washers (2) MF258 Lock Washers (2) MF261 1/2 -13 Hex Nut w/Nylon Lock (1) SL977 Reinforcement Insert	6	●	●

M

STORM WALL™

Accessories

Hurricane (Impact) Resistant Curtain Walls
• Series IW3250

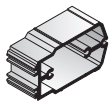
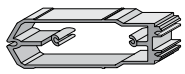
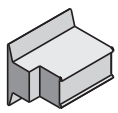
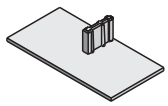
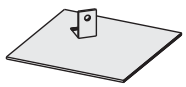
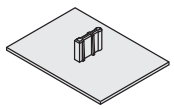
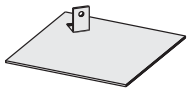
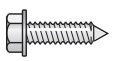
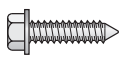
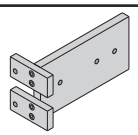
PART NO.	DETAIL	DESCRIPTION	PKG. QTY.	FOR GLAZING INFILLS	
				7/16" (11)	1-3/16" (30)
AP689		Intermediate Mullion Anchor	12	●	●
AP691		Wall Jamb Anchor	6	●	●
AP690		Corner Mullion Anchor	6	●	●
SL909		Mullion Splice Sleeve	12	●	●
SL979		Corner Mullion Splice Sleeve	5	●	●
NP432		Exterior Gasket	500' Roll	●	●
NP421		Interior Gasket	500' Roll	●	●
CW368		Temporary Glass Retainer	50	●	●
WB902		Edge Block for 7/16" (11) Glass; 5/8" x 4" (15.9 x 101.6)	50	●	
SB902		Setting Block for 7/16" (11) Glass; 1/2" x 4" (12.7 x 101.6)	100	●	
WB901		Edge Block for 1-3/16" (30) Glass; 1-3/8" x 4" (34.9 x 101.6)	50		●
SB901		Setting Block for 1-3/16" (30) Glass; 1-3/8" x 4" (34.9 x 101.6)	100		●

CRL U.S. ALUMINUM

STORM WALL™

Accessories

Hurricane (Impact) Resistant Curtain Walls
• Series IW3250

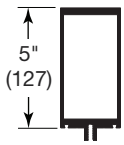
PART NO.	DETAIL	DESCRIPTION	PKG. QTY.	FOR GLAZING INFILLS	
				7/16" (11)	1-3/16" (30)
AP695		Shear Block (Includes Screws)	20	●	●
AP696		Corner Shear Block (Includes Screws)	8	●	●
HD973		End Dam for 7/16" (11) Glass	50	●	
HD975		End Dam for 1-3/16" (30) Glass	50		●
CP925		Closure Plate for 7/16" (11) Glass	50	●	
CP965		Corner Closure Plate for 7/16" (11) Glass	10	●	
CP900		Closure Plate for 1-3/16" (30) Glass	50		●
CP901		Corner Closure Plate for 1-3/16" (30) Glass	10		●
MS212		Screw for Pressure Bar for 7/16" (11) Glass; 1/4"-20 x 3/4" (19) HWHCS with SRG5	200	●	
MS222		Screw for Pressure Bar for 1-3/16" (30) Glass; 1/4"-20 x 1" (25) HWHCS with SRG5	200		●
DJ960		Drill Jig for Vertical Mullions	1	●	●

M

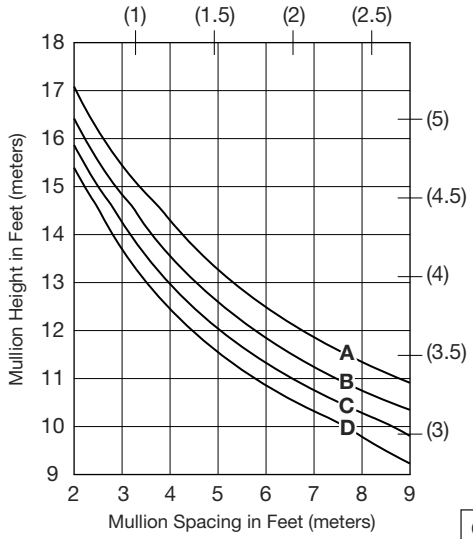
STORM WALL™

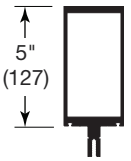
Windload Charts
FOR VERTICALS

Hurricane (Impact) Resistant Curtain Walls
• Series IW3250

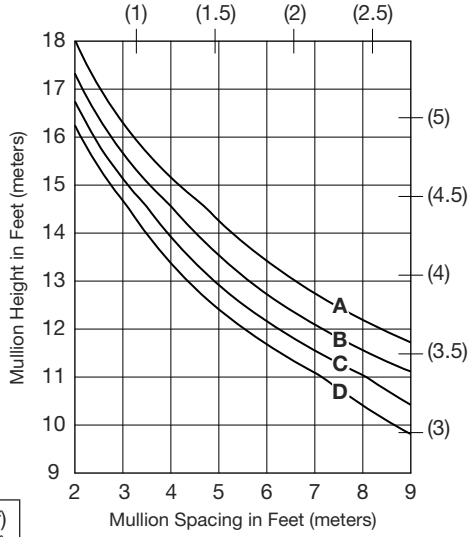


IW909 for 7/16" (11)
Laminated Impact Glazing
Ixx = 11.122 (452.98 x 10^4)
Sxx = 3.983 (65.26 x 10^3)



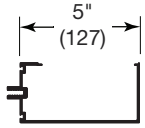


IW905 for 1-3/16" (30)
Laminated Impact Glazing
Ixx = 13.795 (574.25 x 10^4)
Sxx = 4.501 (73.75 x 10^3)



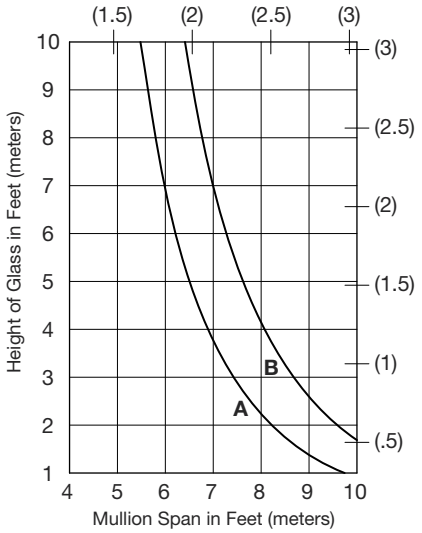
CURVES **A** = 106 mph wind (29 psf)
CURVES **B** = 115 mph wind (34 psf)
CURVES **C** = 123 mph wind (39 psf)
CURVES **D** = 130 mph wind (44 psf)

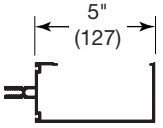
Deadload Charts
FOR HORIZONTALS



CW923 for 7/16" (11)
Laminated Impact Glazing
Iyy = .851 (35.42 x 10^4)

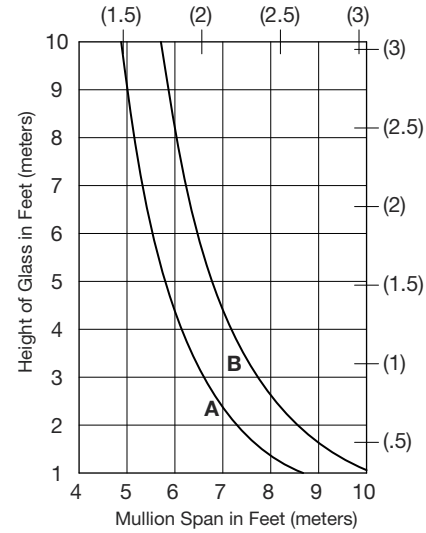
Glass weight calculated at 5 psf.
(2) 3/16" Glass + (1) .1" laminate interlayer.





CW925 for 1-3/16" (30)
Laminated Impact Glazing
Iyy = .934 (38.88 x 10^4)

Glass weight calculated at 8.25 psf.
(1) 1/4" Glass + 1/2" Air + (2) 1/8" Glass + (1) .030" laminate interlayer.



Curve **A** for 1/4 point setting block locations

Curve **B** for 1/8 point setting block locations