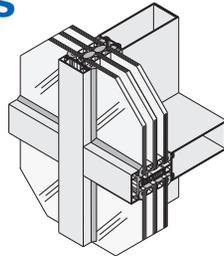
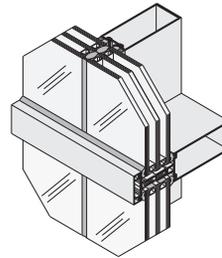


# CURTAIN WALLS

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**SERIES HP3253**  
High Performance Captured  
Vertical Glazed Curtain Wall



**SERIES HP3253SG**  
High Performance Structural Silicone  
Vertical Glazed Curtain Wall

## High Performance Thermally Broken

- Series HP3253
- Series HP3253SG

Patent No. 7,975,442

## Section J5

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Project: Knoxville Convention Center; Knoxville, TN

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

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# CURTAIN WALLS

## Specifications

### 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, and trim. (Specifier list other exclusions). Related Work Specified Elsewhere: (Specifier list)

#### QUALITY ASSURANCE

Drawings and specifications are based on the High Performance Triple Glaze Series HP3253 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.

#### PERFORMANCE REQUIREMENTS

**Air Infiltration:** shall be tested in accordance with ASTM E283. Infiltration shall not exceed .06 CFM per square foot (.0003m<sup>3</sup>/ sm<sup>2</sup>) fixed area when tested at 6.24 psf (300 Pa).

**Water Infiltration:** shall be tested in accordance with ASTM E331. No water penetration at test pressure of 15 psf (718 Pa).

**Structural Performance:** shall be tested in accordance with ASTM E330 and based on:

- Maximum deflection of L/175 of the span
- Allowable stress with a safety factor of 1.65

The system shall perform to this criteria under a windload of (Specify) psf. System shall exceed maximum seismic lateral displacement requirements specified in section 1628.8.2 of the Uniform Building Code, 1994 edition.

Upon successful completion of the Phase I seismic testing, the curtain wall shall once again be subjected to and must successfully pass the air and water infiltration tests specified above before proceeding to Phase II testing.

**Thermal Performance:** Series HP3253 shall be tested in accordance with NFRC. NFRC's Condensation Resistance rating is NOT equivalent to a Condensation Resistance Factor (CRF) determined in accordance with AAMA 1503, and NFRC-100.

**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-T6 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. For vertical silicone glazing, system shall provide conventional glass support at horizontal and perimeter members, and structural silicone support at intermediate verticals. Horizontal members and jamb configurations shall allow for pockets to receive E.P.D.M. elastomeric extruded glazing gaskets. Interior vertical glass spacers shall be extruded silicone compatible E.P.D.M. All materials that come in contact with the silicone should be tested for compatibility. Samples of aluminum vertical mullions should be submitted to the silicone manufacturer for adhesion evaluation.

#### 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

## High Performance Thermally Broken

- Series HP3253
- Series HP3253SG

Patent No. 7,975,442

- \_\_\_\_\_ #22 Dark Bronze anodic coating
  - \_\_\_\_\_ #33 Black anodic coating
- 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 polyurethane 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). Overall depth of system shall be (Specify). System shall provide for two piece horizontal framing so that all fasteners at intersection of horizontal and vertical members will be concealed.

#### III. EXECUTION INSTALLATION

All glass framing shall be set in correct locations 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.

# CURTAIN WALLS

## Technical Data

### High Performance Thermally Broken

- Series HP3253
- Series HP3253SG

Patent No. 7,975,442

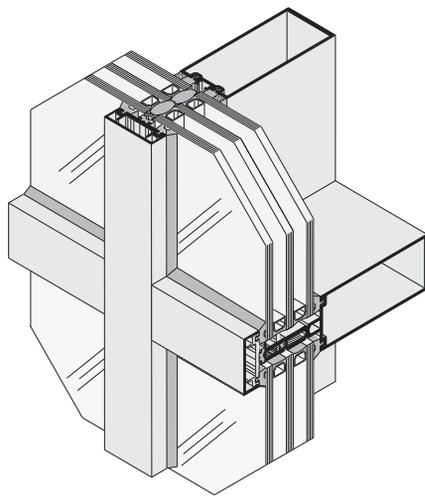
Series HP3253 Curtain Wall System brings ultra high thermal performance to your curtain wall options. Series HP3253 system utilizes 2" (51) triple pane glazing, and Series HP3253SG combines the horizontal mullions of the HP3253 with structural glazed vertical mullions.

HP3253 Size Specific U-Factor Matrix	
Center of Glass U-Factor	Overall* U-Factor
0.26 to 0.09	0.32 to 0.17

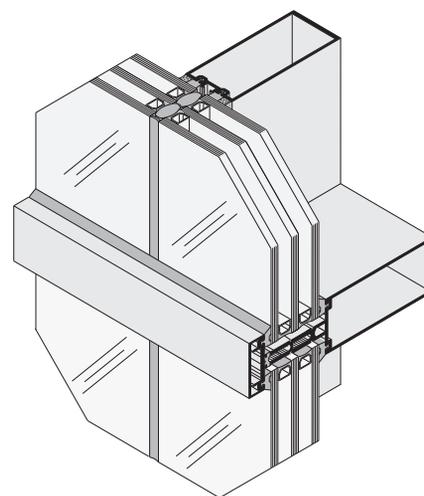
HP3253 Size SHGC Matrix	
Center of Glass SHGC	Overall* SHGC
0.65 to 0.05	0.60 to 0.06

HP3253 Size VT Matrix	
Center of Glass SHGC	Overall* SHGC
0.65 to 0.05	0.59 to 0.05

Size Specific U-Factor, SHGC, and VT Matrices are based on the standard Glazed Wall specimen size of 78.75" wide by 78.75" high (2000 mm x 2000 mm).\* This represents 90.1% Vision Area / Total Area. Based on NFRC-100.



**SERIES HP3253**  
High Performance Captured Vertical Glazed Curtain Wall



**SERIES HP3253SG**  
High Performance Structural Silicone Vertical Glazed Curtain Wall

SERIES	WIDTH	DEPTHS#	GLAZING INFILL	APPLICATIONS
<b>HP3253</b> <b>HP3253SG</b>	2-1/2" (63.5)	8" (203.2)	2" (51) Triple Pane Vision 1" (25) Double Pane Spandrel or 1/4" (6) Spandrel	Low-Rise to Mid-Rise Buildings Where High Performance Exterior Glazing is Required

# Other depths available upon request

GLASS SIZES##	
Glass Width and Height	= Daylight Opening + 1" (25.4)

## These formula do not take into account glass tolerances. Consult glass manufacturer before ordering glass.

# CURTAIN WALLS

## Special Features

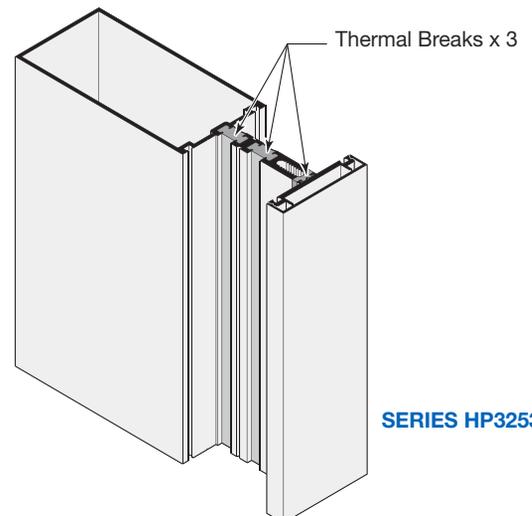
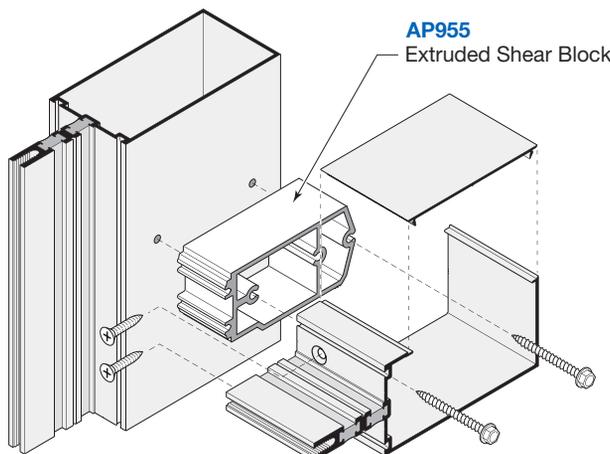
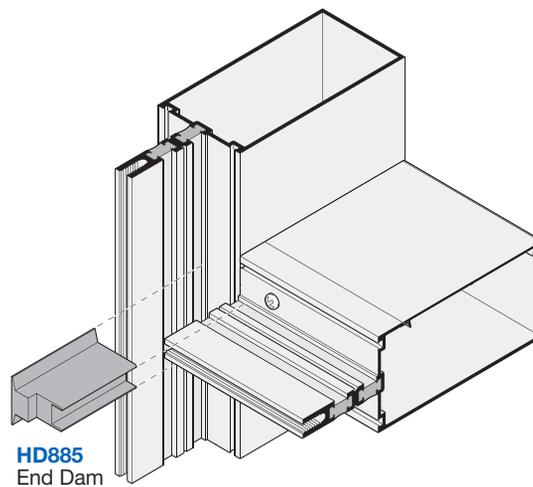
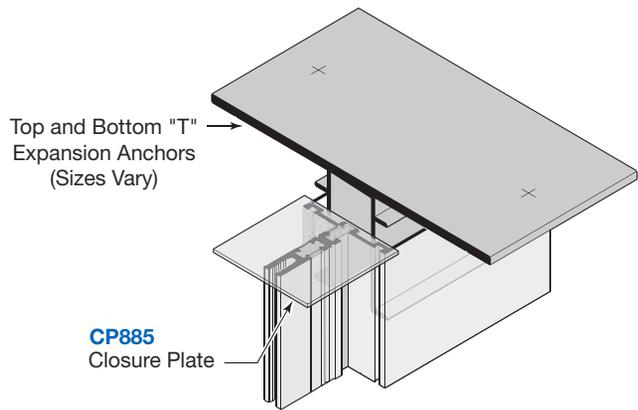
- Extruded Aluminum Mullion Anchors
- Extruded Shear Blocks are Furnished to Ensure Extra Strong Horizontal to Vertical Joinery
- Injection Molded End Dams and Closure Plates Used for Controlling Water Infiltration

Complementing the efficiency of insulated glass, Series HP3253 High Performance Curtain Wall Systems are Thermally Broken by a continuous Thermal Spacer interlocked with pressure plates and our Fill and Debridge Technology. The HP3253 uses two Fill and Debridge pockets with the Thermal Spacer providing Three Thermal Break Points. 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 joinery without exposed screws. These joint intersections also have Concealed Injection Molded End Dams for controlling any infiltrated water. See page 14-J5 for additional information on accessories.

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

## High Performance Thermally Broken

- Series HP3253  
Patent No. 7,975,442



# CURTAIN WALLS

## Typical Details

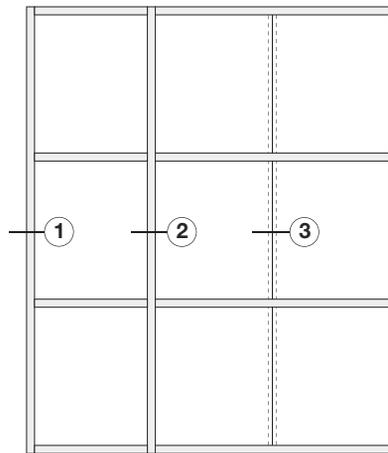
### VERTICAL MULLIONS FOR 2" (51) TRIPLE GLAZING

**NOTE:** Part numbers shown are available in 24' (7.3 m) stock lengths. Visit [usalum.com](http://usalum.com) for more information.

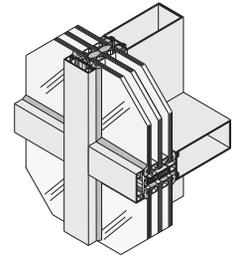
## High Performance Thermally Broken

- Series HP3253
- Series HP3253SG

Patent No. 7,975,442

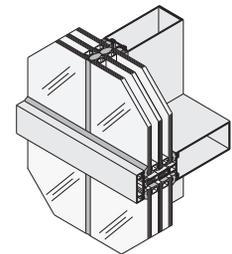


TYPICAL ELEVATION



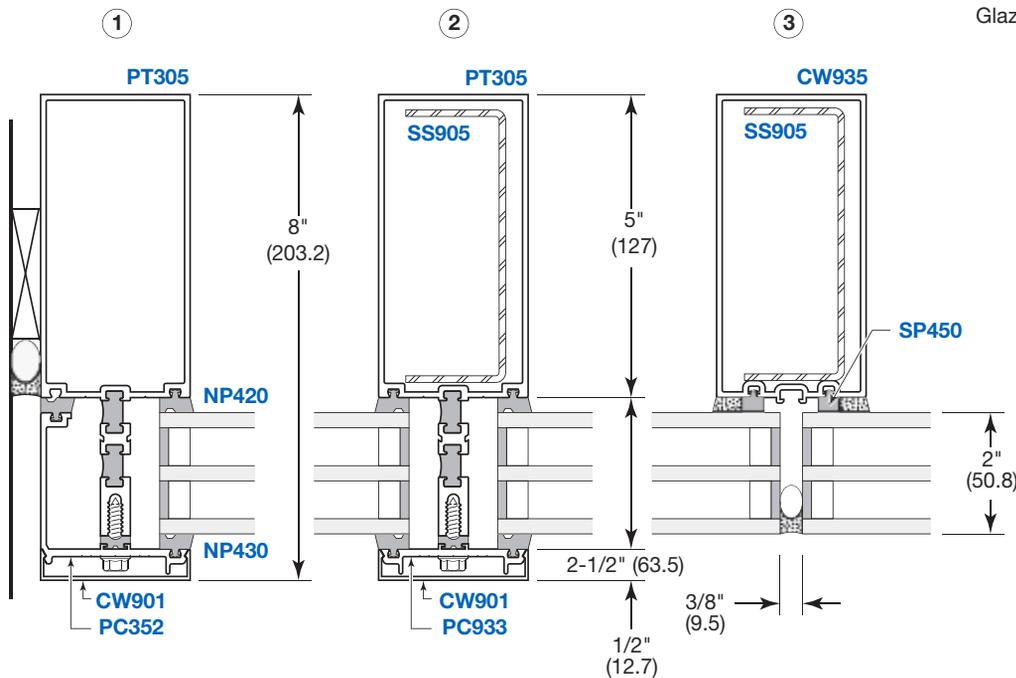
**SERIES HP3253**

Captured Vertical Glazed Curtain Wall



**SERIES HP3253SG**

Structural Silicone Vertical Glazed Curtain Wall



NOT TO SCALE

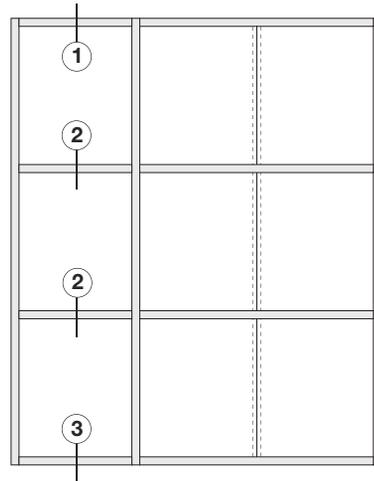
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 Online [crlaurence.com](http://crlaurence.com) By Phone (800) 421-6144 Ext. 5305

# CURTAIN WALLS

## Typical Details

### 5" (127) OPEN BACK AND TUBULAR HORIZONTAL HORIZONTAL MULLIONS FOR 2" (51) TRIPLE GLAZING

**NOTE:** Part numbers shown are available in 24' (7.3 m) stock lengths. Visit [usalum.com](http://usalum.com) for more information. Other size back members available upon request.

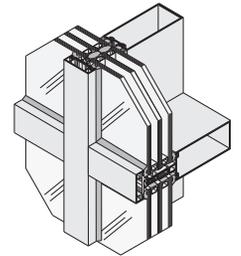


TYPICAL ELEVATION

## High Performance Thermally Broken

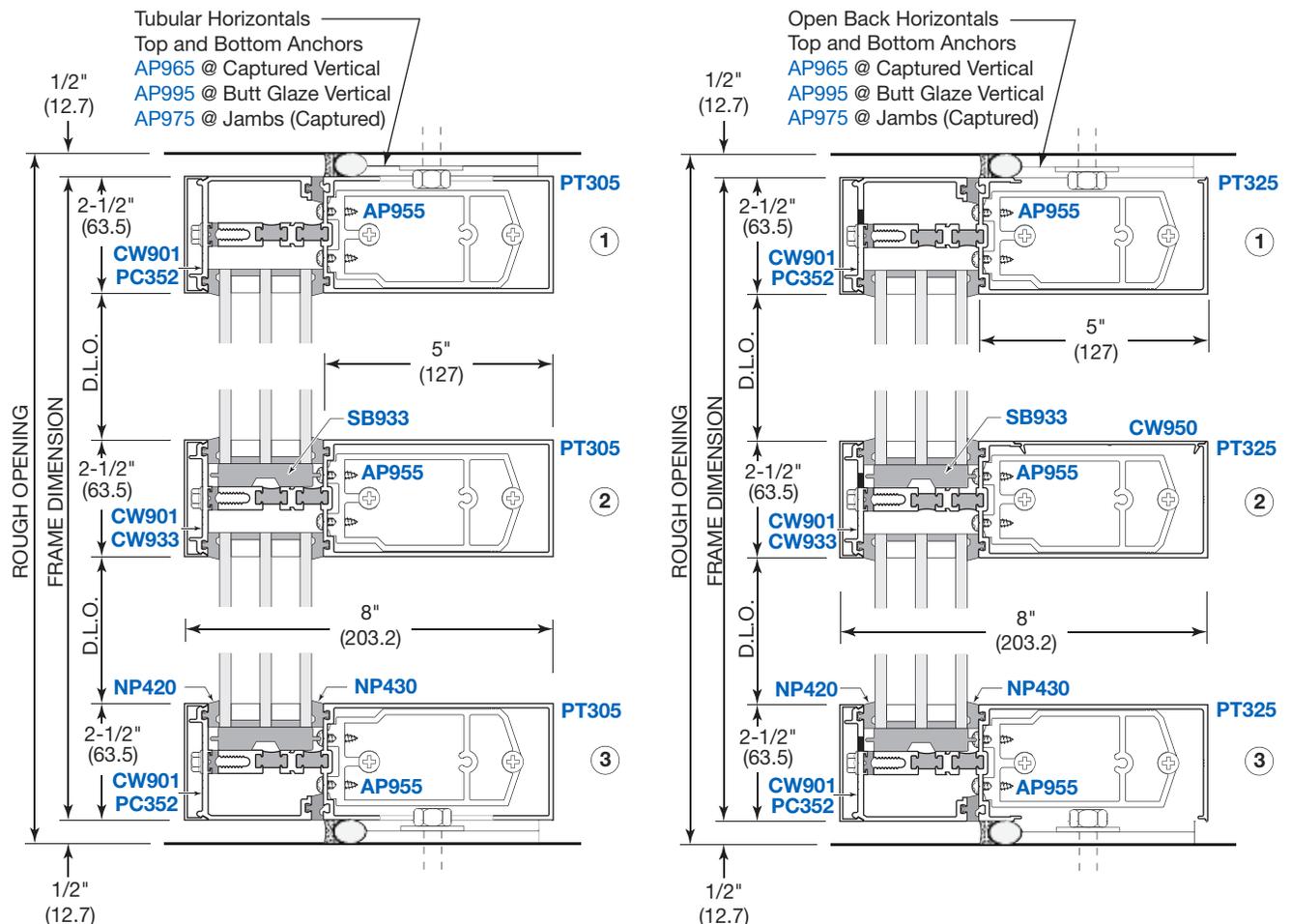
### • Series HP3253

Patent No. 7,975,442



**SERIES HP3253**  
Captured Glazed  
Curtain Wall

**NOTE:** Tubular Horizontals Must be Used When Span Exceeds 6'-0" (1.83m) or if Deadload Exceeds 250 lbs. (113.4 Kg).



NOT TO SCALE

# CURTAIN WALLS

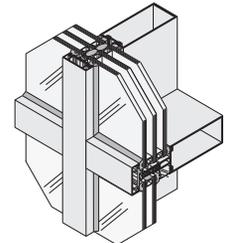
## Typical Details

### 2" (51) TO 1" (25) TRANSITION GLAZING

5" (127) Back Member Shown; Other Sizes Available Upon Request. Transitions are Similar.

## High Performance Thermally Broken • Series HP3253

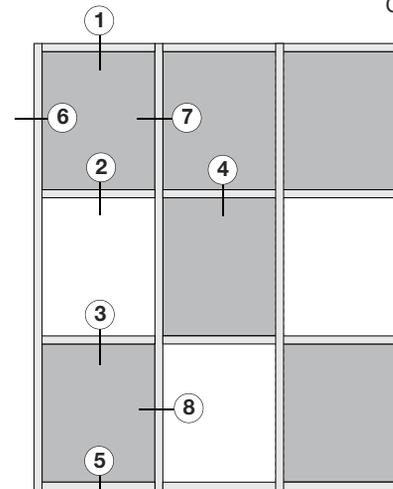
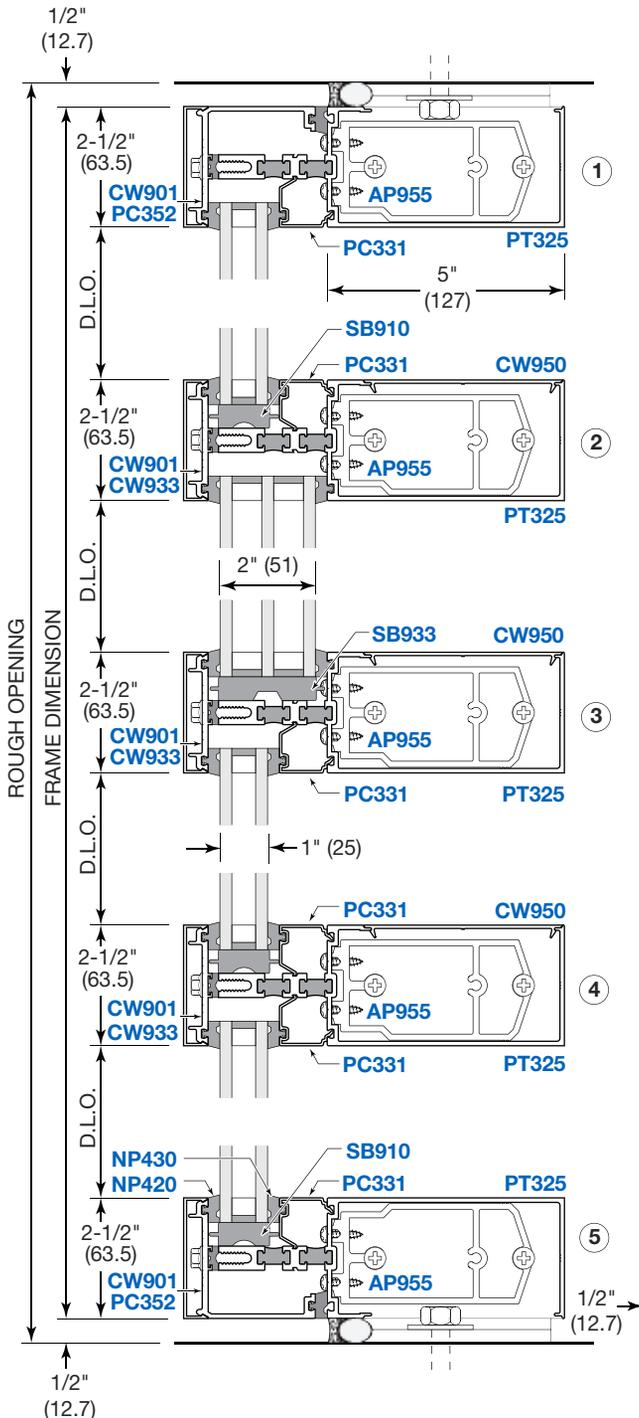
Patent No. 7,975,442



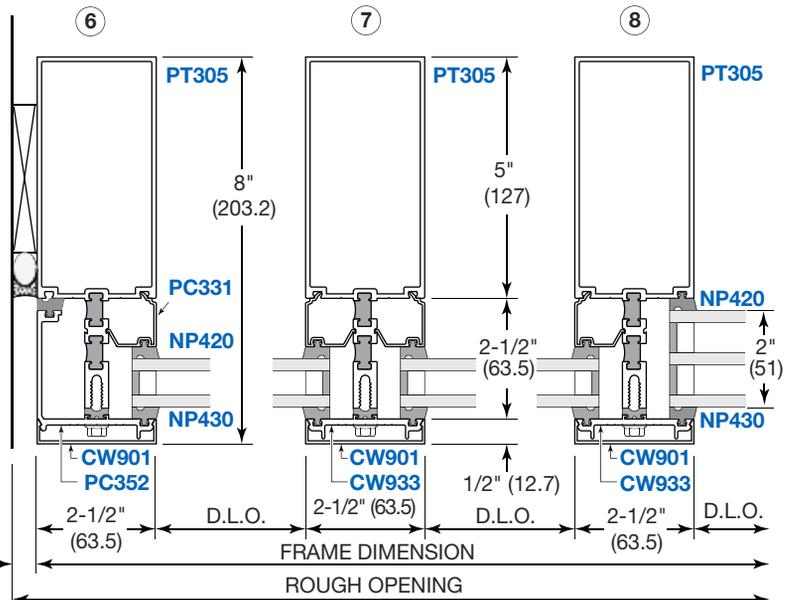
**SERIES HP3253**

Captured Vertical Glazed  
Curtain Wall

**NOTE:** Part numbers shown are available in 24' (7.3 m) stock lengths. Visit [usalum.com](http://usalum.com) for more information.



TYPICAL ELEVATION



NOT TO SCALE

# CURTAIN WALLS

## Typical Details

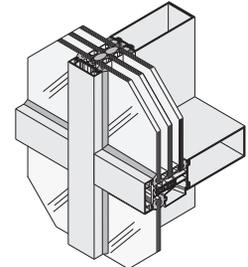
### 2" (51) TO 1/4" (6) TRANSITION GLAZING

5" (127) Back Member Shown; Other Sizes Available Upon Request. Transitions are Similar.

### High Performance Thermally Broken

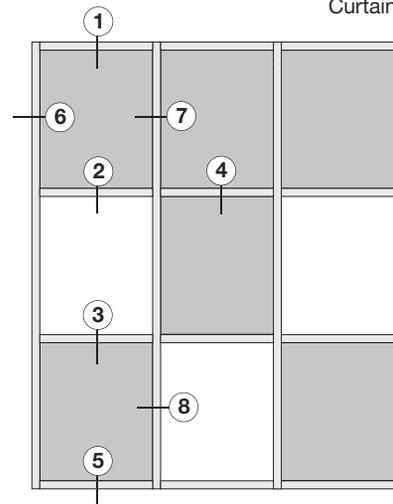
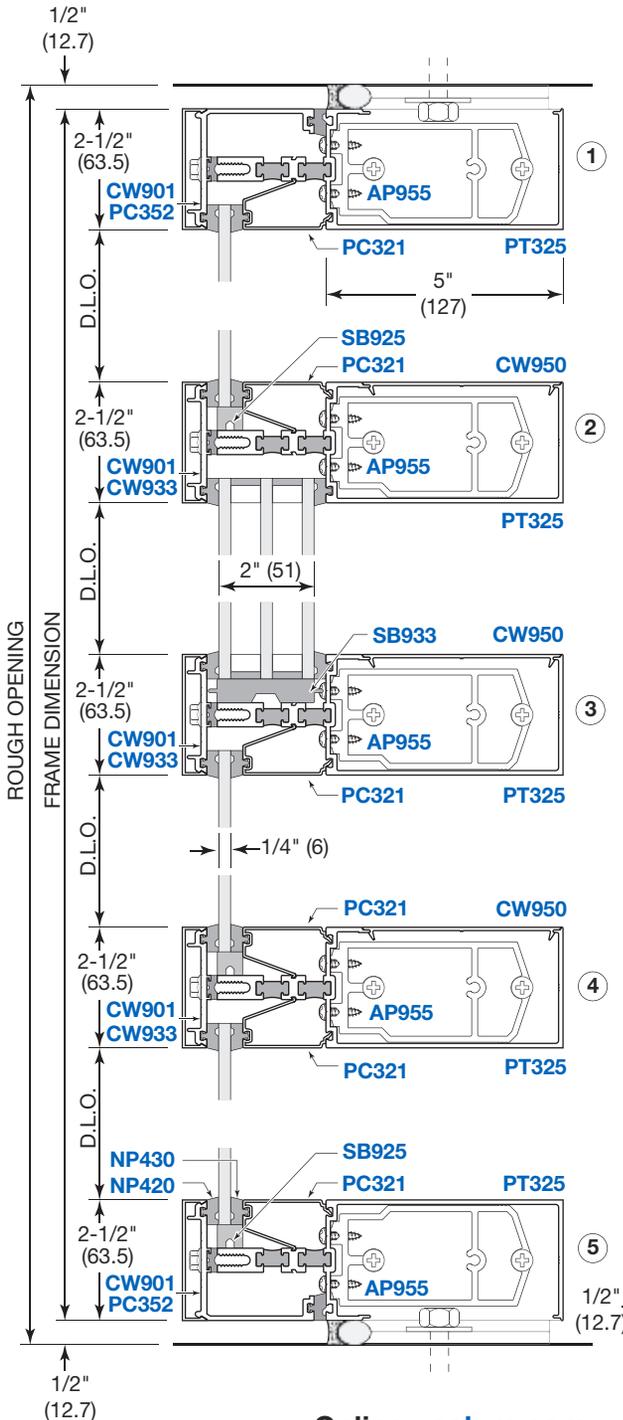
• Series HP3253

Patent No. 7,975,442

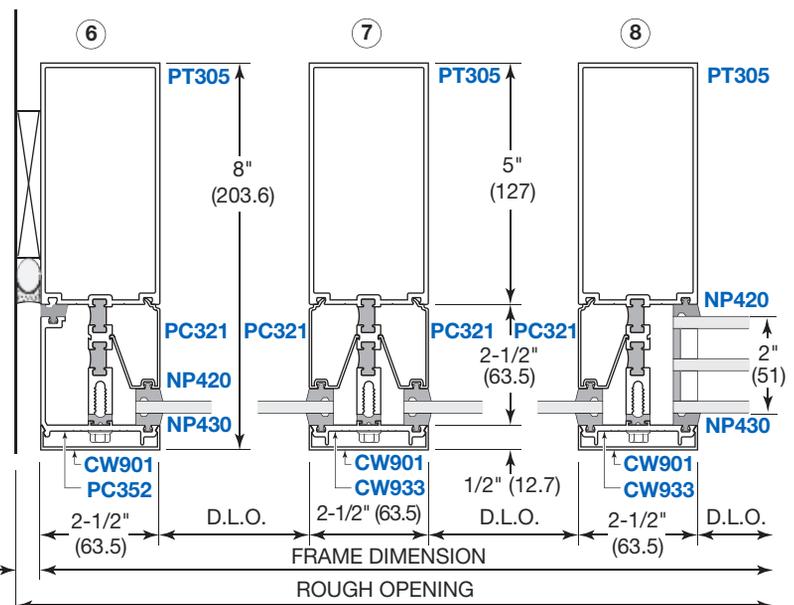


**SERIES HP3253**  
Captured Glazed  
Curtain Wall

**NOTE:** Part numbers shown are available in 24' (7.3 m) stock lengths. Visit [usalum.com](http://usalum.com) for more information.



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# CURTAIN WALLS

## Typical Details

### THERMAL ENTRANCE WITH SUB-FRAME

## High Performance Triple Thermally Broken

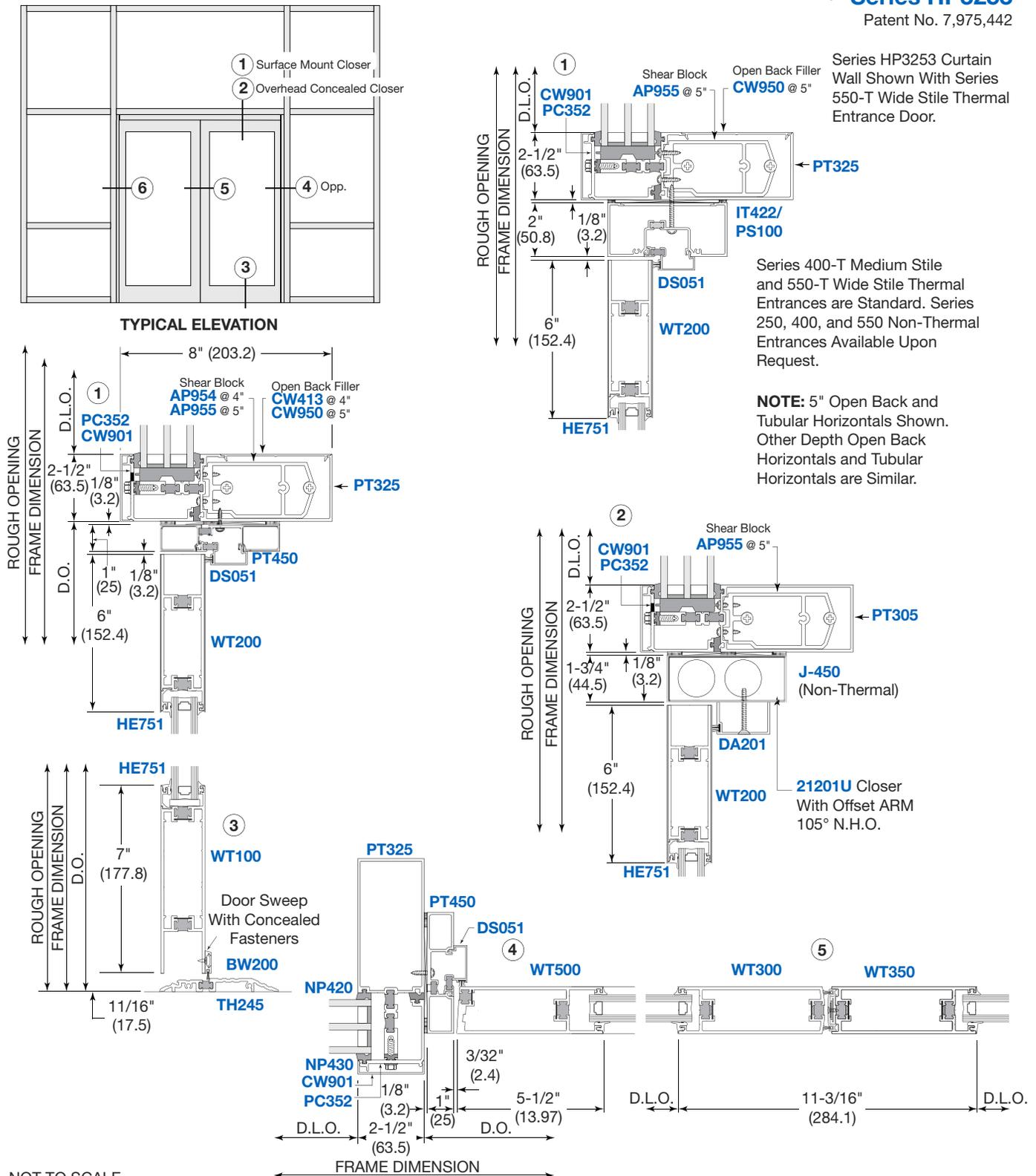
• **Series HP3253**

Patent No. 7,975,442

Series HP3253 Curtain Wall Shown With Series 550-T Wide Stile Thermal Entrance Door.

Series 400-T Medium Stile and 550-T Wide Stile Thermal Entrances are Standard. Series 250, 400, and 550 Non-Thermal Entrances Available Upon Request.

**NOTE:** 5" Open Back and Tubular Horizontals Shown. Other Depth Open Back Horizontals and Tubular Horizontals are Similar.



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# CURTAIN WALLS

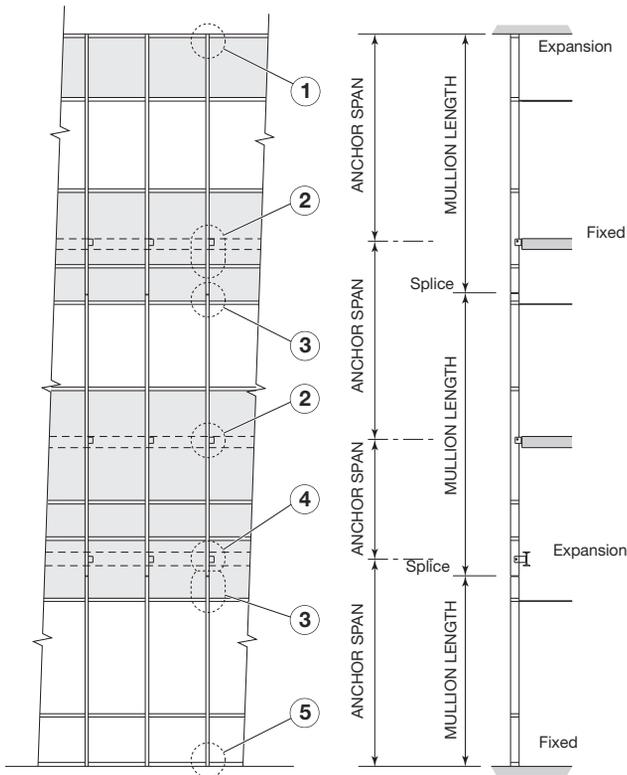
## Typical Details

### MID-SPAN ANCHORS AND MULLIONS SPLICE

## High Performance Thermally Broken

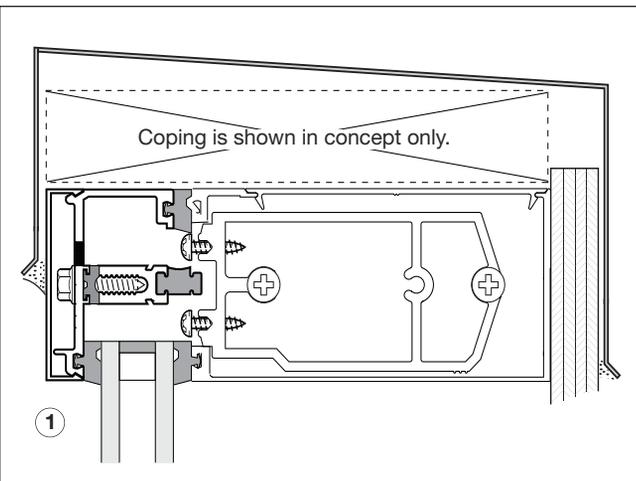
- Series HP3253
- Series HP3253SG

Patent No. 7,975,442

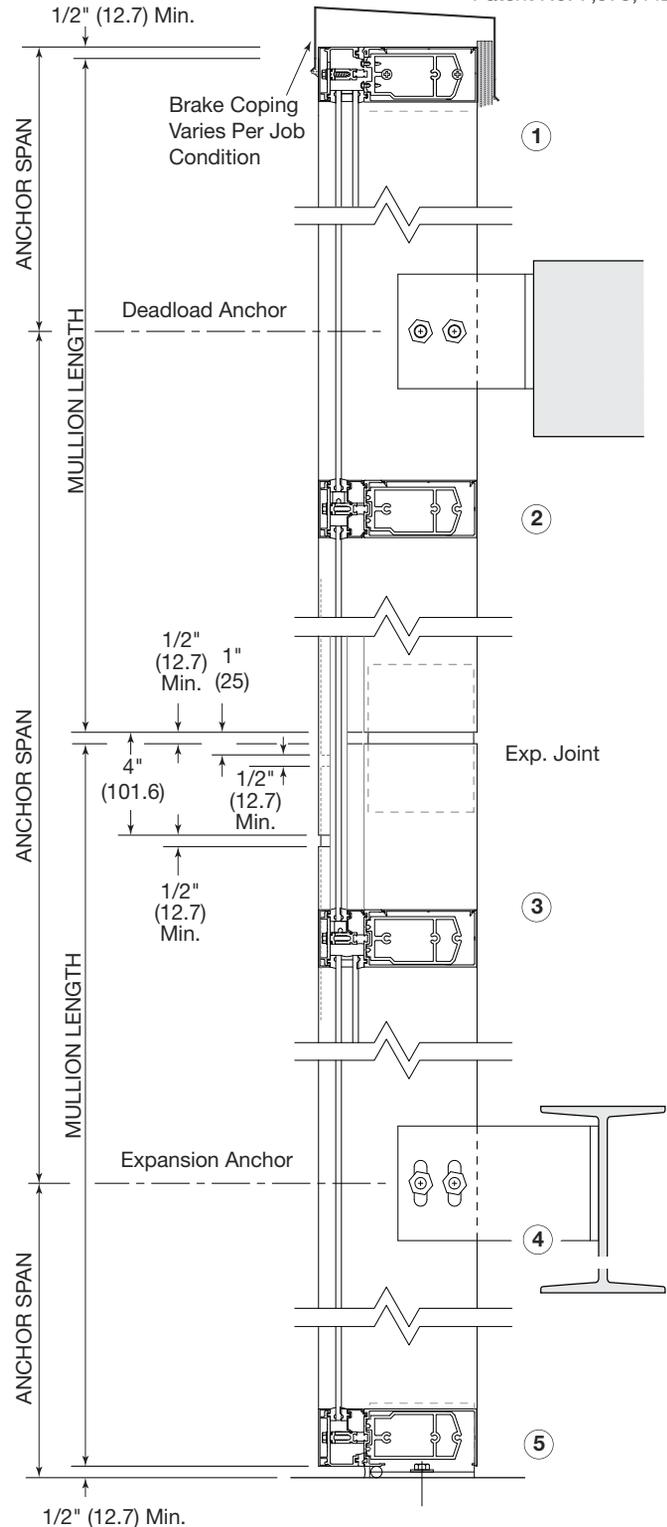


TYPICAL ELEVATION

SECTION DETAIL



PARAPET DETAIL



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## Windload Charts

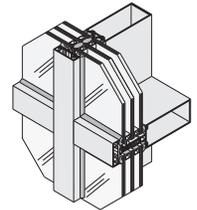
### CAPTURED VERTICAL MULLIONS FOR 2" (51) TRIPLE GLAZING

Deflection criteria to be in accordance with AAMA TIR-A11 - L/175 or L/240 + 1/4" (6.4 mm) for spans greater than 13'-6" (4.1 m) but less than 40'-0" (12.2 m). Codes and specifications may vary. No single lite of glass shall deflect more than 3/4" (19 mm). Glass is not considered as contributing to resistance of deflection. Aluminum alloy 6063-T6 allowable stress for windload is 15,200 psi. (89 MPa), and steel reinforcing allowable stress for windload is 21,600 psi. (183 MPa).

These charts include unbraced length analysis and are based on at least one horizontal being placed at the midpoint of the span. For other applications, please contact U.S. Aluminum Technical Sales at (800) 262-5151, or visit our web site at [usalum.com](http://usalum.com).

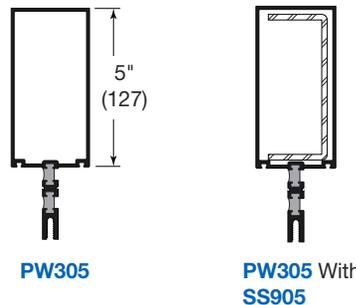
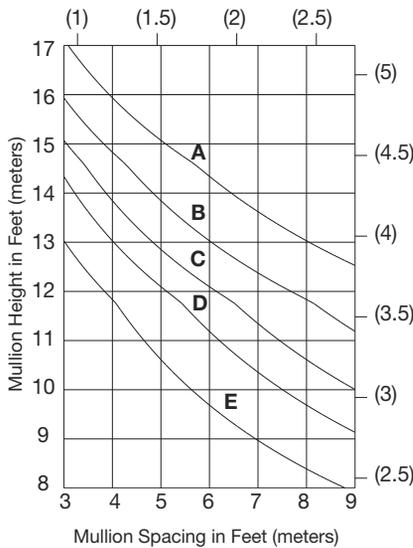
### High Performance Thermally Broken

- Series HP3253
- Series HP3253SG



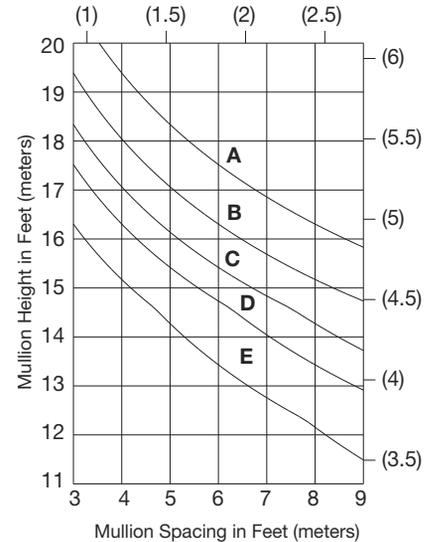
#### SERIES HP3253

High Performance Captured Vertical Glazed Curtain Wall

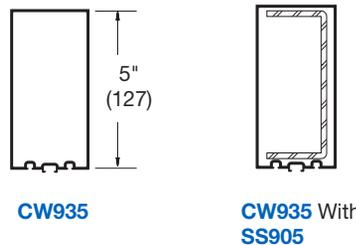
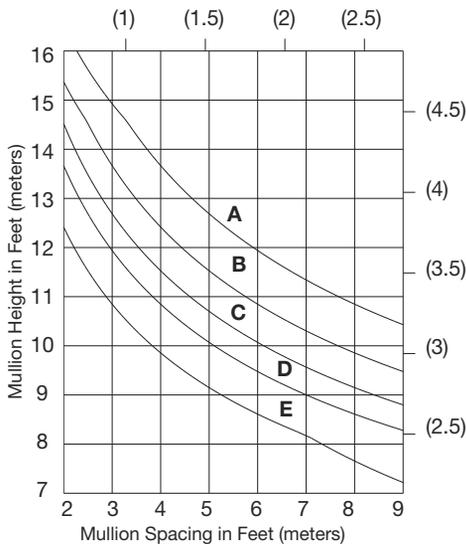


$I = 8.707 (362.41 \times 10^4)$   
 $S = 2.270 (37.20 \times 10^3)$   
 Steel Stiffener  
 $I = 3.571 (148.64 \times 10^4)$   
 $S = 1.587 (26 \times 10^3)$   
 $I_{AL+STL} = 19.080 (798.18 \times 10^4)$

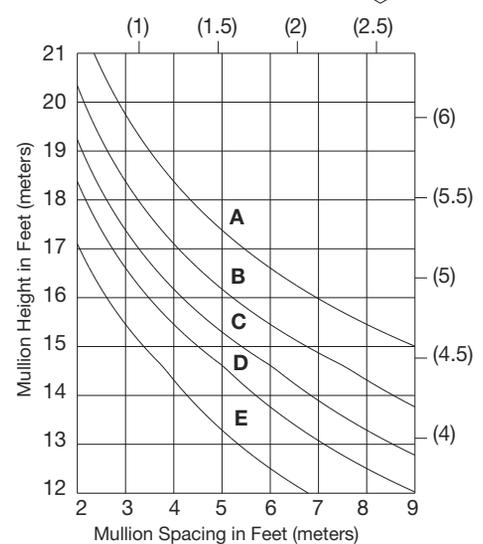
Limitation of vertical mullions for:  
 CURVES **A** = 15 PSF (718 Pa)  
 CURVES **B** = 20 PSF (957 Pa)  
 CURVES **C** = 25 PSF (1197 Pa)  
 CURVES **D** = 30 PSF (1436 Pa)  
 CURVES **E** = 40 PSF (1915 Pa)



### CAPTURED VERTICAL MULLIONS FOR 1" (25) GLAZING

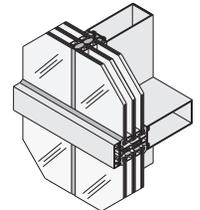


$I = 5.025 (209.15 \times 10^4)$   
 $S = 1.890 (30.97 \times 10^3)$   
 Steel Stiffener  
 $I = 3.571 (148.64 \times 10^4)$   
 $S = 1.587 (26 \times 10^3)$   
 $I_{AL+STL} = 15.398 (640.93 \times 10^4)$



#### SERIES HP3253SG

Structural Silicone High Performance Vertical Glazed Curtain Wall



# CURTAIN WALLS

## Deadload Charts

### OPEN BACK HORIZONTAL MULLIONS FOR 2" (51) TRIPLE GLAZING

Deadload charts are based on 1/8" (3.2) maximum deflection at the centerpoint of the horizontal member and on a glass weight of 9.75 psf (47.60 Kg/m<sup>2</sup>)

Glass shall rest on two setting blocks located at:

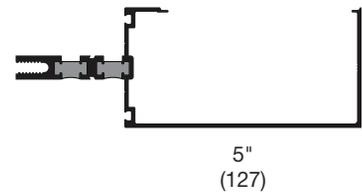
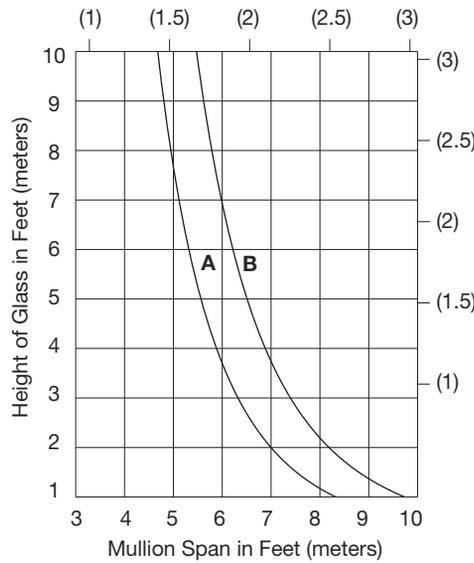
CURVES A: 1/4 points

CURVES B: 1/8 points or 8" (203.2) from corners, whichever is larger

### High Performance Thermally Broken

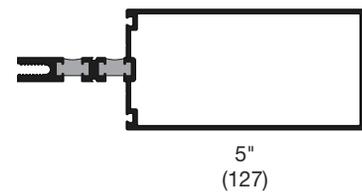
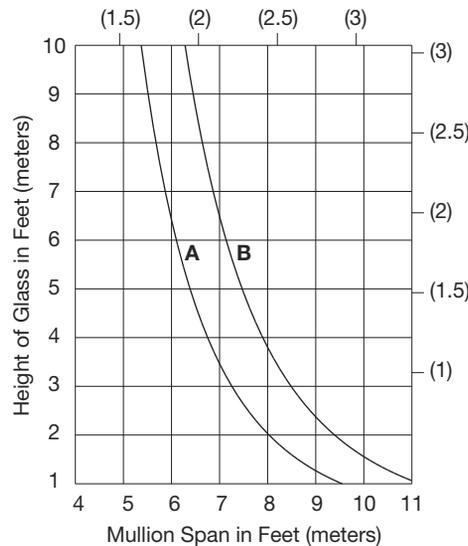
- Series HP3253
- Series HP3253SG

Patent No. 7,975,442



**PT325**  
 $I_{yy} = 0.952$   
 $S_{yy} = 0.630$

### TUBULAR HORIZONTAL MULLIONS FOR 2" (51) TRIPLE GLAZING



**PT305**  
 $I_{yy} = 1.605$   
 $S_{yy} = 1.274$

# CURTAIN WALLS

## Accessories

FOR 5" (127) MULLION DEPTH

## High Performance Thermally Broken

- Series HP3253
- Series HP3253SG

Patent No. 7,975,442

PART NO.	DETAIL	DESCRIPTION	PKG. QTY.
AP965		Intermediate Vertical Anchor at Head and Sill for PT605	12
AP995		Intermediate Vertical Anchor at Head and Sill for CW935	12
AP975		Wall Jamb Anchor at Head and Sill for PT605	6
AP960		Outside 90 Degree Corner Anchor at Head and Sill for CW960	12
SL945		Mullion Splice Sleeve for PT605	12
SL935		Mullion Splice Sleeve for CW935	12
SL960		Outside 90 Degree Corner Mullion Splice Sleeve for CW960	5
NP430		Exterior Gasket	250' Roll
NP420		Interior Gasket	250' Roll
SP450		Spacer Gasket for Butt Glaze	250' Roll
RG720		Temporary Glass Retainer for 2" (51) Butt Glaze. Patent No. D295,952	50
AW901		Edge Block 1-7/16" x 2-1/2" (36.5 x 63.5)	100
AW900		Edge Block 11/16" x 2-1/2" (17.5 x 63.5)	50

PART NO.	DETAIL	DESCRIPTION	PKG. QTY.
AP955		Intermediate Shear Block for 5" (127) Back Members (Includes Screws)	20
AP926		Shear Block Inside and Outside Corners (Includes Screws)	20
HD885		End Dam for Captured Mullions For 2" (51) Glass	50
ED503		End Dam for Butt Glaze Mullions for 2" (51) Glass	50
CP885		Closure Plate for Captured Mullions	50
CP948		Closure Plate for Vertical Mullions	50
CP953		Closure Plate for Outside Corner	10
CW368		Temporary Glass Retainer for Captured Mullions	50
WD961		Water Dam for Outside Corner	10
MS222		Screw for Pressure Bar 1/4"-20 x 1"(25) HWHCS with SRG5	200
SB933		Setting Block for 2" (51) Glass; 4" (101.6) Long	100
SB910		Transition Glazing Setting Block for 1" (25) Glass; 4" (101.6) Long	100
SB925		Transition Glazing Setting Block for 1/4" (6) Glass; 4" (101.6) Long	100

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