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

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Project: Knoxville Convention Center; Knoxville, TN
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 (.0003m3/ sm2) 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

_____#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 horizontal 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.
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 horizontals mullions of the HP3253 with structural glazed vertical mullions.

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.

**These formula do not take into account glass tolerances. Consult glass manufacturer before ordering glass.
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.
**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 for more information.

**TYPICAL ELEVATION**

1. **SERIES HP3253**
   - Captured Vertical Glazed Curtain Wall

2. **SERIES HP3253SG**
   - Structural Silicone Vertical Glazed Curtain Wall

**Structural Silicone Vertical Glazed Curtain Wall**

- Patent No. 7,975,442

**NOT TO SCALE**

**Online usalum.com  By Phone (800) 262-5151 Ext. 5305**

**Online crlaurence.com  By Phone (800) 421-6144 Ext. 5305**
Typical Details

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

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

High Performance Thermally Broken
- Series HP3253

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

Online usalum.com By Phone (800) 262-5151 Ext. 5305
Online crlaurence.com By Phone (800) 421-6144 Ext. 5305
CURTAIN WALLS

Typical Details

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

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

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

High Performance
Thermally Broken
• Series HP3253

Patent No. 7,975,442

SERIES HP3253
Captured Vertical Glazed Curtain Wall

Online usalum.com  By Phone (800) 262-5151 Ext. 5305
Online crlaurence.com  By Phone (800) 421-6144 Ext. 5305
Typical Details

2" (51) TO 1/4" (6)

TRANSITION GLAZING

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

NOTE: Part numbers shown are available in 24' (7.3 m) stock lengths. Visit usalum.com for more information.
Typical Details
INSIDE AND OUTSIDE CORNERS

NOTE: Part numbers shown are available in 24’ (7.3 m) stock lengths. Visit usalum.com for more information.

Top and Bottom Anchors
AP960 @ Outside 90 Degree
AP975 @ Inside 90 Degree 5” (127) Back Member

NOT TO SCALE

Online usalum.com   By Phone (800) 262-5151 Ext. 5305
Online crlaurence.com   By Phone (800) 421-6144 Ext. 5305
Typical Details

THERMAL ENTRANCE WITH SUB-FRAME

1. Surface Mount Closer
2. Overhead Concealed Closer
4. PT325
5. DS051
6. WT200

TYPICAL ELEVATION

ROUGH OPENING

FRAME DIMENSION

D.O.

1/8" (3.2)

2-1/2" (63.5)

11/16" (17.5)

7" (177.8)

8" (203.2)

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


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.

Online usalum.com By Phone (800) 262-5151 Ext. 5305
Online crlaurence.com By Phone (800) 421-6144 Ext. 5305
Typical Details
MID-SPAN ANCHORS AND MULLIONS SPLICE

1. ANCHOR SPAN
2. Splice
3. Expansion
4. ANCHOR SPAN
5. Fixed

1/2" (12.7) Min.

Coping is shown in concept only.

NOT TO SCALE
Windload Charts

CAPTURED VERTICAL MULLIONS FOR 2" (51) TRIPLE GLAZING

CURVE A = 15 PSF (718 Pa)
CURVE B = 20 PSF (957 Pa)
CURVE C = 25 PSF (1197 Pa)
CURVE D = 30 PSF (1436 Pa)
CURVE E = 40 PSF (1915 Pa)

STRUCTURAL SILICONE GLAZE VERTICAL MULLIONS FOR 2" (51) TRIPLE GLAZING

CURVE A = 15 PSF (718 Pa)
CURVE B = 20 PSF (957 Pa)
CURVE C = 25 PSF (1197 Pa)
CURVE D = 30 PSF (1436 Pa)
CURVE E = 40 PSF (1915 Pa)

Online usalum.com By Phone (800) 262-5151 Ext. 5305
Online crlaurence.com By Phone (800) 421-6144 Ext. 5305
CURTAIN WALLS

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

Calculated using glass weight of:
9.75 lbs/sf

TUBULAR HORIZONTAL MULLIONS
FOR 2" (51) TRIPLE GLAZING

Online usalum.com  By Phone (800) 262-5151 Ext. 5305
Online crlaurence.com  By Phone (800) 421-6144 Ext. 5305
## Accessories
FOR 5" (127) MULLION DEPTH

### Part Numbers

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<th>DETAIL</th>
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<td>Closure Plate for Outside Corner</td>
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<tr>
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<tr>
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<td>Water Dam for Outside Corner</td>
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<tr>
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<td>Screw for Pressure Bar 1/4&quot;-20 x 1&quot; (25) HWHCS with SRG5</td>
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<td>SB933</td>
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<tr>
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<td>Wall Jamb Anchor at Head and Sill for PT605</td>
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<td>Spacer Gasket for Butt Glaze 250' Roll</td>
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