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

Online usalum.com  By Phone (800) 262-5151 Ext. 5305
Online crlaurence.com  By Phone (800) 421-6144 Ext. 5305
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 Series 4500 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 ASTM E 283. Infiltration shall not exceed .06 CFM per square foot (.003m³/sm²) of fixed area when tested at 6.24 psf (300 Pa).
Water Infiltration: shall be tested in accordance with ASTM E 331. No water penetration at test pressure of 20 psf (958 Pa).
Structural Performance: shall be tested in accordance with ASTM E 330. All exterior and interior members shall be internally joined with a non-reversible and non-conductive connector capable of withstanding a direct pull of not less than 350 pounds (159 kg) each. The system shall have an integral extruded internal flashing for the head and all intermediate horizontals to provide continuous flashing of any infiltrated water to the exterior through pressure relieved horizontal weep holes.

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
Framing members shall provide for straight-in glazing on all sides with through sight lines and no projecting stops or face joints. Glass and panel framing shall be two part construction consisting of a back member and face section. The system shall provide for complete thermal isolation. Vertical and horizontal framing members shall have a nominal face dimension of 2-1/4” (57.2). Overall depth shall be (Specify).

All exterior and interior members shall be internally joined with a non-reversible and non-conductive injection molded thermoplastic connector capable of withstanding a direct pull of not less than 350 pounds (159 kg) each. The system shall have an integral extruded internal flashing for the head and all intermediate horizontals to provide continuous flashing of any infiltrated water to the exterior through pressure relieved horizontal weep holes.

Face clips shall be such a design as to provide for the exterior face member to be engaged by pushing it straight into the clip. The face clips shall be designed so they can be easily removed for deglazing.

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.
The Series 4500 and 4500SG Curtain Walls feature pressure relieved horizontals with a unique, integral UNiflash™ System to literally sweep infiltrated water to the exterior. UNiflash™ eliminates the secondary operation of installing rigid vinyl internal flashing in horizontals as required by similar systems. Exterior and interior members are internally joined with a non-conductive injection molded thermoplastic connector providing total thermal isolation which allows superior thermal performance. Dual colors can be achieved by specifying different finishes for exterior face members and interior mullions. The system features either stick or panel type erection with no exposed joint fasteners.

Series 4500SG is offered in stick or panel erected systems combining the horizontal members of Series 4500 with structural silicone glazed vertical mullions. The two-sided silicone system creates the appearance of a glass wall with horizontal feature strips.

### Technical Data

<table>
<thead>
<tr>
<th>SERIES</th>
<th>FACE WIDTH</th>
<th>BACK MEMBER DEPTH</th>
<th>OVERALL DEPTH</th>
<th>GLAZING INFILL</th>
<th>GLAZING METHOD</th>
<th>APPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4500</td>
<td>2-1/4&quot; (57.2)</td>
<td>4&quot; (101.6)</td>
<td>6&quot; (152.4)</td>
<td>1/4&quot; (6) or 1&quot; (25)</td>
<td>Exterior</td>
<td>Low to Mid-Rise Buildings Where Exterior Glazing is Desired</td>
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<tr>
<td>4500SG</td>
<td>2-1/4&quot; (57.2)</td>
<td>5&quot; (127)</td>
<td>7&quot; (177.8)</td>
<td>Exterior</td>
<td>Applications</td>
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<tr>
<td></td>
<td>2-1/4&quot; (57.2)</td>
<td>8&quot; (203.2)</td>
<td>10&quot; (254)</td>
<td>Exterior</td>
<td>Applications</td>
<td></td>
</tr>
</tbody>
</table>

### Glass Sizes

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

Refer to Details for Glass Bites at Structural Silicone Mullions

* This formula does not take into account glass tolerances. Consult glass manufacturer before ordering glass.
Special Features

Injection Molded End Dams at vertical to horizontal joints ensure any moisture that gets in the system is flushed out. For more information on accessories, see pages 24-J7 through 29-J7.

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

The two-piece vertical adds the versatility of screw race joinery and panel installation for window wall applications. A tubular horizontal attaches to the vertical and filler plate through screw splines. Open back head and sill horizontals allow for easy access for anchorage.
Injection Molded Water Diverter continue the patented integral UNiflash™ design in the silicone glazed system. See page 28-J7 for additional information.

Reusable Twist-In Temporary Glass Retainers are used to support the glass until the structural silicone has fully cured in accordance with silicone manufacturer’s recommendations. See page 28-J7 for additional information.

**GLAZING OPTIONS**

<table>
<thead>
<tr>
<th>GLAZING</th>
<th>EXTERIOR GASKETS</th>
<th>INTERIOR GASKETS</th>
<th>POCKET REDUCER</th>
<th>HORIZONTAL FACE CAPS</th>
<th>VERTICAL FACE CAPS</th>
<th>SETTING BLOCK</th>
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<tbody>
<tr>
<td>1/4&quot; (6)</td>
<td>NP726</td>
<td>NP716</td>
<td>TW709</td>
<td>TW917</td>
<td>TW912</td>
<td>SB725</td>
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<tr>
<td>1&quot; (25)</td>
<td>NP726</td>
<td>NP716</td>
<td>TW709</td>
<td>TW917</td>
<td>TW912</td>
<td>SB710</td>
</tr>
</tbody>
</table>
Typical Details

SHEAR BLOCK ASSEMBLY FOR 1" (25) GLAZING

Refer to Page 24-J7 for Top and Bottom Anchor Numbers

TW917

TW543
TW443
TW545/
PS100
TW445/
PS100

TW546
TW446

TW550
TW410

TW541
TW441

TW516
TW416

NOT TO SCALE

ROUGH OPENING

FRAME HEIGHT

TW912

NC900 (Typ.)

SB710 Setting Block (Typical)

SP250

NP716

NP726

NP726

Optional Jamb Anchor AP626

D.L.O.

AP531
Shear Block (Typical @ 5" [127])

AP431 (Dash)
Shear Block (Typical @ 4" [101.6])

SERIES 4500
Captured Vertical Glazed Curtain Wall

SERIES 4500SG
Structural Silicone Vertical Glazed Curtain Wall

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Typical Details

PANEL ASSEMBLY FOR 1” (25) GLAZING

ROUGH OPENING

FRAME HEIGHT

1/2” (12.7)

2-1/4” (57.2)

D.L.O.

5” (127)

4” (101.6)

TW917

TW763/ TW704

TW563/ TW504 (Dashed)

TW766/ TW704

TW566/ TW504 (Dashed)

SB710 Setting Block (Typical)

TW917

NC900 (Typ.)

ROUGH OPENING

FRAME WIDTH

1/2” (12.7)

2-1/4” (57.2)

D.L.O.

2-1/4” (57.2)

D.L.O.

2-1/4” (57.2)

D.L.O.

15/16” (Typ.) (23.8)

Heavy-Duty

NOT TO SCALE

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Typical Details

HIGH PERFORMANCE "SUPER MULLION" FOR 1" (25) GLAZING

Refer to Page 24-J7 for Top and Bottom Anchor Numbers

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**CURTAIN WALLS**

**Typical Details**

**90 DEGREE CORNERS**

- **7" (177.8)**
- **6" (152.4)**
- **TW818**
- **TW719**
- **TW420**
- **TW560**
- **TW541**
- **TW441**
- **NC900** (Typ.)
- **TW912**
- **TW724**
- **TW912**
- **TW841**
- **TW841**
- **TW560**
- **TW823**
- **TW719**
- **TW818**

**Thermally Isolated**

- **Series 4500**
- 7" (177.8) and 10" (254) System in Bold
- 6" (152.4) System Dashed

- **Serie 4500 Captured Vertical Glazed Curtain Wall**
- Aluminum Brake Metal Cover

- **Aluminum Angle**
- **Metal Cover**
- **A-100**

**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

STRUCTURAL SILICONE GLAZED CORNER
CONDITIONS FOR 1” (25) GLAZING

90 DEGREE CORNERS

135 DEGREE CORNERS

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

DOUBLE ACTING CENTER HUNG DOORS AND FRAMING - 1" (25) GLAZING

Thermally Isolated • Series 4500

7" (177.8) System in Bold
6" (152.4) System Dashed

NOTE: 5" (127) Back Members Shown; 4" (101.6) and 8" (203.2) Members Similar

TYPICAL ELEVATION

Top Portion of Center Pivot for Surface Mounted or Floor Closers Applications

NOT TO SCALE
Typical Details

OFFSET PIVOT OR BUTT HUNG DOORS
AND FRAMING - 1" (25) GLAZING

Thermally Isolated
• Series 4500

7" (177.8) System in Bold
6" (152.4) System Dashed

NOTE: 5" (127) Back Members Shown;
4" (101.6) and 8" (203.2) Members Similar

NOT TO SCALE
**CURTAIN WALLS**

**Typical Details**

1" (25) TO 1/4" (6)

**TRANSITION GLAZING**

1. TW917
2. TW709
3. TW917
4. TW704
5. TW504
6. TW709
7. NC900

**NOT TO SCALE**

**Thermally Isolated**

- **Series 4500**
- **Series 4500SG**

7" (177.8) System in Bold
6" (152.4) System Dashed
Typical Details

STRUCTURAL SILICONE GLAZED CORNER CONDITIONS FOR 1" (25) TO 1/4" (6) TRANSITION GLAZING

90 DEGREE CORNERS

DIMENSION POINT

TW580

TW470 (Dashed)

TW470 (Dashed)

TW580

OG592

OG591

GT425 Glazing Tape (Typ.)

1-7/8" Glass Bite

1-1/8" Glass Bite

5/8" (15.9)

1-7/8" (47.6)

3-1/4" (82.6)

D.L.O.

135 DEGREE CORNERS

DIMENSION POINT

TW581

TW471 (Dashed)

TW471 (Dashed)

TW581

OG537

OG538

1-7/8" Glass Bite

1-1/16" Glass Bite

15/16" (23.8)

1-7/8" (47.6)

3-1/4" (82.6)

D.L.O.

NOT TO SCALE

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CURTAIN WALLS

Typical Details

MID-SPAN ANCHORS AND MULLION SPLICE

NOTE: Series 4500 Details Shown; Series 4500SG Similar.

TYPICAL ELEVATION

SECTION DETAIL

1. FIXED ANCHOR (DEADLOAD ANCHOR)

NOTE: Anchor Type and Size Varies Per Job Requirements

NOT TO SCALE
Typical Details

MID-SPAN ANCHORS AND MULLION SPLICE

NOTE: Anchor Type and Size Varies Per Job Requirements

EXPANSION ANCHOR (WINDLOAD ANCHOR)

NOTE: Anchor Type and Size Varies Per Job Requirements

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

Steel Clip Angle With Vertical Slotted Hole

1/2" (12.7) Min. Splice Joint

5" (127) Min. Face Cap Splice

6" (152.4) Sleeve

Splice Joint With Splice Sleeve

1/2" (12.7) Min. Splice Joint

1/2" (12.7) Min. Face Cap Splice

NOT TO SCALE
CURTAIN WALLS

Windload Charts
CAPTURED VERTICAL MULLIONS FOR 1" (25) 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.

SHEAR BLOCK ASSEMBLY

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)

steel stiffener

I = 4.046 (168.41 x 10^4)
S = 1.274 (20.88 x 10^3)

IAL+STL = 8.187 (340.78 x 10^4)

I = 1.428 (59.44 x 10^4)
S = 0.846 (13.86 x 10^3)

IAL = 8.187 (340.78 x 10^4)

Panel Assembly

Thermally Isolated Series 4500
Captured Vertical Glazed Curtain Wall
Windload Charts

**CAPTURED VERTICAL MULLIONS**

FOR 1" (25) 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.

### SHEAR BLOCK ASSEMBLY

**TW541 With SS501**

<table>
<thead>
<tr>
<th>Mullion Spacing in Feet (meters)</th>
<th>Mullion Spacing in Feet (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>1.5</td>
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<tr>
<td>I = 6.599 (274.67 x 10^3)</td>
<td>S = 2.077 (34.04 x 10^3)</td>
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<tr>
<td>I = 2.556 (106.39 x 10^3)</td>
<td>S = 1.186 (19.44 x 10^3)</td>
</tr>
<tr>
<td>IAL+STL = 14.011 (583.18 x 10^4)</td>
<td></td>
</tr>
</tbody>
</table>

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)

### PANEL ASSEMBLY/HEAVY WALL MULLIONS

**TW502/TW504 With SS401**

<table>
<thead>
<tr>
<th>Mullion Spacing in Feet (meters)</th>
<th>Mullion Spacing in Feet (meters)</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>I = 5.476 (227.93 x 10^3)</td>
<td>S = 1.389 (22.77 x 10^3)</td>
</tr>
<tr>
<td>I = 1.428 (59.44 x 10^3)</td>
<td>S = 0.846 (13.86 x 10^3)</td>
</tr>
<tr>
<td>IAL+STL = 9.617 (400.30 x 10^4)</td>
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</tbody>
</table>
CURTAIN WALLS

Windload Charts

CAPTURED VERTICAL MULLIONS
FOR 1" (25) 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.

Panel Assembly

Panel Assembly/Heavy Wall

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)

Steel Stiffener
I = 2.556 (106.39 x 10^4)
S = 1.186 (19.44 x 10^3)
I_{AL+STL} = 13.804 (574.58 x 10^4)

Steel Stiffener
I = 2.556 (106.39 x 10^4)
S = 1.186 (19.44 x 10^3)
I_{AL+STL} = 16.216 (674.98 x 10^4)
Windload Charts

CAPTURED HIGH PERFORMANCE VERTICAL MULLIONS FOR 1" (25) 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.

<table>
<thead>
<tr>
<th>Mullion Height in Feet (meters)</th>
<th>Mullion Spacing in Feet (meters)</th>
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<tbody>
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<td>(8)</td>
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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)

Project: Kaiser Permanente, Downey, CA

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CURTAIN WALLS

Windload Charts

STRUCTURAL SILICONE GLAZED VERTICAL MULLIONS FOR 1" (25) 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.

SHEAR BLOCK ASSEMBLY

Mullion Spacing in Feet (meters)

<table>
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<tr>
<th>Mullion Spacing in Feet (meters)</th>
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</tr>
<tr>
<td>(2.5)</td>
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<td></td>
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</tbody>
</table>

TW550
I = 5.339 (222.23 x 10^6)
S = 2.149 (35.22 x 10^3)
Steel Stiffener
I = 2.556 (106.39 x 10^6)
S = 1.186 (19.44 x 10^3)
IAL+STL = 12.751 (530.75 x 10^6)

TW550 With SS501

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)

PANEL ASSEMBLY/HEAVY WALL

Mullion Spacing in Feet (meters)

<table>
<thead>
<tr>
<th>Mullion Spacing in Feet (meters)</th>
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<td>(2.5)</td>
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</table>

TW715/TW704
I = 5.372 (233.60 x 10^6)
S = 2.174 (35.63 x 10^3)
Steel Stiffener
I = 2.556 (106.39 x 10^6)
S = 1.186 (19.44 x 10^3)
IAL+STL = 12.784 (532.13 x 10^6)

TW715/TW704 With SS501

I = 5.339 (222.23 x 10^6)
S = 2.149 (35.22 x 10^3)
Steel Stiffener
I = 2.556 (106.39 x 10^6)
S = 1.186 (19.44 x 10^3)
IAL+STL = 12.751 (530.75 x 10^6)
Windload Charts

STRUCTURAL SILICONE GLAZED VERTICAL MULLIONS FOR 1" (25) 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 usalam.com.

PANEL ASSEMBLY/HEAVY WALL

I = 3.120 (129.86 x 10^4)
S = 1.587 (26 x 10^3)
Steel Stiffener
I = 1.428 (59.44 x 10^4)
S = 0.846 (13.86 x 10^3)
IAL+STL = 7.261 (302.23 x 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)
Deadload charts are based on 1/8" (3.2) maximum allowable deflection at the center point of the horizontal member and on a glass weight of 6.5 psf (31.74 Kg/m²) for 1" (25) glass.

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

<table>
<thead>
<tr>
<th>Height of Glass in Feet (meters)</th>
<th>Mullion Span in Feet (meters)</th>
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<tr>
<td>1</td>
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<td>7</td>
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<tr>
<td>8</td>
<td>9</td>
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</table>

**SHEAR BLOCK ASSEMBLY**

- TW445: Iyy = 0.567 (23.60 x 10^4)
- TW545: Iyy = 0.813 (33.42 x 10^4)
- TW528: Iyy = 1.276 (53.11 x 10^4)
- TW828: Iyy = 2.440 (101.56 x 10^4)

**PANEL ASSEMBLY**

- TW428: Iyy = 1.076 (44.79 x 10^4)
- TW528: Iyy = 1.276 (53.11 x 10^4)
- TW828: Iyy = 2.440 (101.56 x 10^4)
## Accessories

FOR 1/4" (6) AND 1" (25) GLAZING

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DETAIL</th>
<th>DESCRIPTION</th>
<th>PKG. QTY.</th>
<th>FOR MULLION DEPTHS</th>
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<tbody>
<tr>
<td></td>
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<td>4&quot; (101.6)</td>
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<tr>
<td>AP514</td>
<td><img src="AP514.png" alt="Diagram" /></td>
<td>Intermediate Vertical Anchor for TW441</td>
<td>12</td>
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<tr>
<td>AP513</td>
<td><img src="AP513.png" alt="Diagram" /></td>
<td>Intermediate Vertical Anchor for TW410</td>
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<tr>
<td>AP707</td>
<td><img src="AP707.png" alt="Diagram" /></td>
<td>Intermediate Vertical Anchor for TW541</td>
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<tr>
<td>AP712</td>
<td><img src="AP712.png" alt="Diagram" /></td>
<td>Intermediate Vertical Anchor for TW550</td>
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<tr>
<td>AP812</td>
<td><img src="AP812.png" alt="Diagram" /></td>
<td>Intermediate Vertical Anchor for TW810</td>
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<tr>
<td>AP604</td>
<td><img src="AP604.png" alt="Diagram" /></td>
<td>Intermediate Vertical Anchor for TW841</td>
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<tr>
<td>AP516</td>
<td><img src="AP516.png" alt="Diagram" /></td>
<td>Wall Jamb Anchor for TW441 and TW416</td>
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<tr>
<td>AP511</td>
<td><img src="AP511.png" alt="Diagram" /></td>
<td>Wall Jamb Anchor for TW410</td>
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<tr>
<td>AP634</td>
<td><img src="AP634.png" alt="Diagram" /></td>
<td>Wall Jamb Anchor for TW516 and TW541</td>
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<tr>
<td>AP711</td>
<td><img src="AP711.png" alt="Diagram" /></td>
<td>Wall Jamb Anchor for TW550</td>
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<tr>
<td>AP811</td>
<td><img src="AP811.png" alt="Diagram" /></td>
<td>Wall Jamb Anchor for TW810</td>
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<td>•</td>
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<tr>
<td>AP607</td>
<td><img src="AP607.png" alt="Diagram" /></td>
<td>Wall Jamb Anchor for TW841</td>
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<tr>
<td>AP626</td>
<td><img src="AP626.png" alt="Diagram" /></td>
<td>Optional Perimeter Anchor for all Jamb Mullions</td>
<td>12</td>
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Thermally Isolated
- Series 4500
- Series 4500SG

FOR 1/4" (6) AND 1" (25) GLAZING
## CURTAIN WALLS

### Accessories

**FOR 1/4" (6) AND 1" (25) GLAZING**

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<th>PKG. QTY.</th>
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<td>4&quot; (101.6)</td>
<td>5&quot; (127)</td>
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<tr>
<td>SL511</td>
<td>[Image]</td>
<td>Mullion Splice Sleeve for TW441</td>
<td>12</td>
<td>[•]</td>
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<tr>
<td>SL710</td>
<td>[Image]</td>
<td>Mullion Splice Sleeve for TW541</td>
<td>12</td>
<td>[•]</td>
</tr>
<tr>
<td>SL512</td>
<td>[Image]</td>
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<td>12</td>
<td>[•]</td>
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<tr>
<td>SL711</td>
<td>[Image]</td>
<td>Mullion Splice Sleeve for TW550</td>
<td>12</td>
<td>[•]</td>
</tr>
<tr>
<td>SL811</td>
<td>[Image]</td>
<td>Mullion Splice Sleeve for TW841 and TW810</td>
<td>12</td>
<td>[•]</td>
</tr>
<tr>
<td>SL572</td>
<td>[Image]</td>
<td>Mullion Splice Sleeve for TW470</td>
<td>12</td>
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<tr>
<td>SL772</td>
<td>[Image]</td>
<td>Mullion Splice Sleeve for TW580</td>
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<tr>
<td>SL823</td>
<td>[Image]</td>
<td>Mullion Splice Sleeve for TW823</td>
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<tr>
<td>SL521</td>
<td>[Image]</td>
<td>Mullion Splice Sleeve for TW420</td>
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<tr>
<td>SL721</td>
<td>[Image]</td>
<td>Mullion Splice Sleeve for TW560</td>
<td>5</td>
<td>[•]</td>
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<tr>
<td>SL573</td>
<td>[Image]</td>
<td>Mullion Splice Sleeve for TW471</td>
<td>5</td>
<td>[•]</td>
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<tr>
<td>SL773</td>
<td>[Image]</td>
<td>Mullion Splice Sleeve for TW581</td>
<td>5</td>
<td>[•]</td>
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<tr>
<td>AP890</td>
<td>[Image]</td>
<td>Shear Block for 90 Degree Corners (Includes One Left Block, One Right Block, and Screws)</td>
<td>1 Set</td>
<td>[•]</td>
</tr>
</tbody>
</table>

**Thermally Isolated**
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**Online** [usalam.com](http://usalam.com)  **By Phone** (800) 262-5151 Ext. 5305
**Online** [crlaurence.com](http://crlaurence.com)  **By Phone** (800) 421-6144 Ext. 5305
## Accessories

### FOR 1/4" (6) AND 1" (25) GLAZING

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DETAIL</th>
<th>DESCRIPTION</th>
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<tr>
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<td>1 Set</td>
<td>5&quot; (127) ●</td>
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<tr>
<td>AP528</td>
<td><img src="image" alt="Shear Block for Inside 135 Degree Corners" /></td>
<td>1 Set</td>
<td>8&quot; (203.2) ●</td>
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</tr>
<tr>
<td>AP524</td>
<td><img src="image" alt="Shear Block for Outside 135 Degree Corners" /></td>
<td>1 Set</td>
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<tr>
<td>AP709</td>
<td><img src="image" alt="Shear Block for Inside 90 Degree Corners" /></td>
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<tr>
<td>AP708</td>
<td><img src="image" alt="Shear Block for Outside 90 Degree Corners" /></td>
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<tr>
<td>AP727</td>
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<td>AP726</td>
<td><img src="image" alt="Shear Block for Outside 135 Degree Corners" /></td>
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<td>DJ751</td>
<td><img src="image" alt="Drill Jig for Screw Spline Assembly" /></td>
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<td>DJ750</td>
<td><img src="image" alt="Drill Jig for Shear Block Assembly" /></td>
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**Online** crlaurence.com  By Phone (800) 421-6144 Ext. 5305
## CURTAIN WALLS

### Accessories

**FOR 1/4" (6) AND 1" (25) GLAZING**

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<th>PART NO.</th>
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<th>PKG. QTY.</th>
<th>FOR MULLION DEPTHS</th>
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<td><strong>FOR 4&quot; (101.6) 5&quot; (127) 8&quot; (203.2)</strong></td>
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<td>SL506</td>
<td><img src="Image" alt="Vertical Wall Jamb Splice Sleeve" /></td>
<td>Vertical Wall Jamb Splice Sleeve for TW416</td>
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<tr>
<td>SL706</td>
<td><img src="Image" alt="Vertical Wall Jamb Splice Sleeve" /></td>
<td>Vertical Wall Jamb Splice Sleeve for TW516</td>
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<tr>
<td>SL834</td>
<td><img src="Image" alt="Vertical Wall Jamb Splice Sleeve" /></td>
<td>Vertical Wall Jamb Splice Sleeve for TW816</td>
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<tr>
<td>SL712</td>
<td><img src="Image" alt="Vertical Face Cap Splice Sleeve" /></td>
<td>Vertical Face Cap Splice Sleeve for TW912</td>
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<td>SL717</td>
<td><img src="Image" alt="Horizontal Face Cap Splice Sleeve" /></td>
<td>Horizontal Face Cap Splice Sleeve for TW917</td>
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<tr>
<td>SL618</td>
<td><img src="Image" alt="Vertical Corner Face Cap Splice Sleeve" /></td>
<td>Vertical Corner Face Cap Splice Sleeve for TW818</td>
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<td>WD719</td>
<td><img src="Image" alt="Water Deflector" /></td>
<td>Water Deflector Outside 90 Degree Corners</td>
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<td>WD524</td>
<td><img src="Image" alt="Water Deflector" /></td>
<td>Water Deflector 135 Degree Corners</td>
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<td>● ● ●</td>
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<tr>
<td>AP431</td>
<td><img src="Image" alt="Shear Block" /></td>
<td>Shear Block for 4&quot; (101.6) Members (Includes Screws)</td>
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<td>●</td>
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<tr>
<td>AP531</td>
<td><img src="Image" alt="Shear Block" /></td>
<td>Shear Block for 5&quot; (127) Members (Includes Screws)</td>
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</tr>
<tr>
<td>AP830</td>
<td><img src="Image" alt="Shear Block" /></td>
<td>Shear Block for 8&quot; (203.2) Head and Sill (Includes Screws)</td>
<td>20</td>
<td>●</td>
</tr>
<tr>
<td>AP854</td>
<td><img src="Image" alt="Shear Block" /></td>
<td>Shear Block for 8&quot; (203.2) Intermediate Horizontals (Includes Screws)</td>
<td>20</td>
<td>●</td>
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<tr>
<td>MS212</td>
<td><img src="Image" alt="Screw for Attaching" /></td>
<td>Screw for Attaching TW719 to TW420 or TW560 1/4&quot;-20 x 3/4&quot; (19) HWHCS with SRG5</td>
<td>200</td>
<td>● ●</td>
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<tr>
<td>MS229</td>
<td><img src="Image" alt="Screw for Attaching" /></td>
<td>Screw for Attaching TW823 to TW560 1/4&quot;-20 x 4-1/2&quot; (114.3) HHCS, Zinc Plated</td>
<td>50</td>
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<tr>
<td>PART NO.</td>
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<td>DESCRIPTION</td>
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<td>FOR MULLION DEPTHS</td>
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<td>NC900</td>
<td>Face Cap Retainer Clip</td>
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<td>4&quot; (101.6)</td>
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<tr>
<td>RG700</td>
<td>Temporary Glass Retainer for Butt Glaze</td>
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<td>Patent No. D295,952</td>
<td>4&quot; (101.6)</td>
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<tr>
<td>WD710</td>
<td>End Dam for Intermediate Horizontals</td>
<td>50</td>
<td>4&quot; (101.6)</td>
<td>5&quot; (127)</td>
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<tr>
<td>WD711</td>
<td>End Dam for Sill</td>
<td>50</td>
<td>4&quot; (101.6)</td>
<td>5&quot; (127)</td>
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<tr>
<td>WD704</td>
<td>Water Diverter for Butt Glaze Sill</td>
<td>50</td>
<td>4&quot; (101.6)</td>
<td>5&quot; (127)</td>
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<tr>
<td>WD705</td>
<td>Water Diverter for Butt Glaze Head</td>
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<td>4&quot; (101.6)</td>
<td>5&quot; (127)</td>
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<tr>
<td>WD703</td>
<td>Water Diverter for Butt Glaze Horizontal</td>
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<td>5&quot; (127)</td>
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<td>CP700</td>
<td>Closure Plate for Wall Jamb</td>
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<td>5&quot; (127)</td>
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<tr>
<td>AP778</td>
<td>Shear Block for Head and Sill at 90 Degree Corners (Includes One Left Block, One Right Block, and Screws)</td>
<td>1 Set</td>
<td>4&quot; (101.6)</td>
<td>5&quot; (127)</td>
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<tr>
<td>ST251</td>
<td>Screw for Screw Spline Assembly #10 x 1&quot; (25) HWH SMS</td>
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<td>5&quot; (127)</td>
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<td>Screw for Shear Block Assembly #12 x 2&quot; (51) PHL, PH, SMS, Zinc Plated</td>
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<td>4&quot; (101.6)</td>
<td>5&quot; (127)</td>
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<tr>
<td>ST217</td>
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<td>4&quot; (101.6)</td>
<td>5&quot; (127)</td>
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</table>
## CURTAIN WALLS

### Accessories

**FOR 1/4" (6) AND 1" (25) GLAZING**

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<td>Interior Gasket</td>
<td>500' Roll</td>
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<td>NP726</td>
<td><img src="image" alt="Exterior Gasket" /></td>
<td>Exterior Gasket</td>
<td>250' Roll</td>
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<tr>
<td>SP450</td>
<td><img src="image" alt="Spacer Gasket for Butt Glaze" /></td>
<td>Spacer Gasket for Butt Glaze</td>
<td>250' Roll</td>
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<tr>
<td>GT425</td>
<td><img src="image" alt="Spacer Tape for Butt Glaze Corners" /></td>
<td>Spacer Tape for Butt Glaze Corners 1/4&quot; (6) x 3/4&quot; (19)</td>
<td>50' Roll</td>
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<tr>
<td>WB701</td>
<td><img src="image" alt="Edge Block" /></td>
<td>Edge Block 1-1/4&quot; (32) x 5/16&quot; (8) x 4&quot; (101.6)</td>
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<tr>
<td>SB710</td>
<td><img src="image" alt="Setting Block" /></td>
<td>Setting Block 4&quot; (101.6) Long</td>
<td>100</td>
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<tr>
<td>SS401</td>
<td><img src="image" alt="Steel Stiffener for Use With 4&quot; (101.6) Back Members. ASTM A-559" /></td>
<td>Steel Stiffener for Use With 4&quot; (101.6) Back Members. ASTM A-559</td>
<td>16' (4.88 m) Stock Length</td>
<td>●</td>
</tr>
<tr>
<td>SS501</td>
<td><img src="image" alt="Steel Stiffener for Use With 5&quot; (127) Back Members. ASTM A-559" /></td>
<td>Steel Stiffener for Use With 5&quot; (127) Back Members. ASTM A-559</td>
<td>16' (4.88 m) Stock Length</td>
<td>●</td>
</tr>
<tr>
<td>SS801</td>
<td><img src="image" alt="Steel Stiffener for Use With 8&quot; (203.2) Back Members. ASTM A-559" /></td>
<td>Steel Stiffener for Use With 8&quot; (203.2) Back Members. ASTM A-559</td>
<td>16' (4.88 m) Stock Length</td>
<td>●</td>
</tr>
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