STEELBUILT CURTAINWALL® SYSTEMS

Envision expansive window openings, with more glass and less frame. Imagine a curtainwall system that only requires frame profiles one-third the size of traditional aluminum systems.

Now that dream is a reality with the new SteelBuilt Curtainwall® Systems from Technical Glass Products (TGP). SteelBuilt Curtainwall Systems give you all the advantage of steel: greater strength, superior performance and improved aesthetics. Utilized throughout Europe for many years, SteelBuilt Curtainwall Systems have been tested to North American standards and are now available to open tremendous new design opportunities.

For specifications, photographs and additional information contact:

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CSI-SPECIFICATION

Full copies of our detail drawings and CSI format Specifications can be downloaded from our Web site or obtained from our office.

This Architectural Specification Manual provides a summary of the specification, design and applications that can be achieved with SteelBuilt Curtainwall® Systems. Many special finishes and components are available, please consult Technical Glass Products.

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Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. TGP does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Metric (SI) conversion figures are included throughout these details for reference. Numbers in parentheses ( ) are millimeters unless otherwise noted.

The following metric (SI) units are found in these details:
- m – meter
- cm – centimeter
- mm – millimeter
- s – second
- Pa – pascal
- MPa – megapascal

TGP reserves the right to change configurations without prior notice when deemed necessary for product improvement.
FEATURES
• Offers all the advantage of steel: greater strength, superior performance and improved aesthetics
• Narrow sight line of 1-3/4" (45 mm) or 2-3/8" (60 mm)
• Variety of system depths
• Infill options up to 2"
• Stainless steel or anodized cover caps available
• Painted finishes in standard and custom choices
• Concealed fastener joinery creates smooth, monolithic appearance
• Shear block fabrication method
• Compatible with SteelBuilt Window & Doors® Systems
• Silicone compatible glazing materials for long-lasting seals

Optional Features
• Stainless steel cover caps
• Custom aluminum cover caps available
• Steel reinforcing available

Product Applications
• Ideal for low to mid-rise applications where large glass and narrow sight lines are desired
• Ideal choice for high span applications
• Coastal environments that benefit from the durability of stainless steel
45 mm SYSTEM
1. Vertical Mullion
2. Horizontal Mullion
3. Full-width Mullion Gasket
4. Front Gasket
5. Shear Block
6. Glass Setting Pad
7. Pressure Plate
8. Cover Cap
9. Intersection Cover
10. Connecting Plate
11. Spacer
12. Sealing Washer
13. Guide Bushing
14. Fastening Screw
15. Self Drilling Screw
45 mm System Profile Overview

Profile Overview - 45 mm System
45 mm System
Overview SteelBuilt Door System in Curtainwall

Overview SteelBuilt Door System - 45 mm System
Reference Details - 45 mm System
3. **Horizontal Mullion Section at Slab Edge**

- Line of Interior Finish
- Horizontal Shear Clip
- Floor Slab
- Mullion Anchors per Project Requirements (Typ)
- Pressure Plate & Clamping Screws
- Divert Gasket
- Silicone Setting Blocks
- In-Fill Panel or Spandrel Unit
- Interior and Exterior Glazing Gaskets
- Dwellight Opening

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**45 mm System Reference Details**

- TGPameRica.com
- 800.426.0279
45 mm System Reference Details

- Horizontal Shear Clip
- Line of Vertical Mullion Sill Anchor Per Project Requirements (Typ.)
- Insulated Glass Unit
- Perimeter Spacer

Jamb Section Shown at Sill
45 mm System Reference Details

8 VERTICAL MULLION SECTION SHOWN AT SILL
45 mm System Reference Details

STUD WALL / SHEATHING W/ WATERPROOFING MEMBRANE

EXTRUDED SILICONE MEMBRANE (BY TGP), SET IN SEALANT AT BOTH EDGES

EXTRUDED ALUMINUM / ALODINE FINISH (MIN), SUPPLIED LOOSE BY TGP FOR FIELD INSTALLATION

HORIZONTAL SHEAR CLIP

INSULATED GLASS UNIT

JAMB SECTION (PERIMETER ALTERNATE)

½" [19mm] ½" [12mm] DAYLIGHT OPENING

11/03/14
45 mm System
Reference Details

VERTICAL MULLION SECTION AT SLAB

MULLION ANCHORS
PER PROJECT
REQUIREMENTS
(TYP.)

IN-FILL PANEL OR
SPANDREL UNIT

LINE OF BUILDING
OR SLAB

EXTRUDED ALUMINUM /
ALODINE FINISH (MIN,
SUPPLIED LOOSE BY TGP
FOR FIELD INSTALLATION

3⁄4" [19mm] 3⁄4" [19mm]

9/16" [14.3mm] 9/16" [14.3mm]

DAYLIGHT OPENING
45 mm System
Reference Details

VERTICAL MULLION SECTION AT SLAB
DOOR CURTAINWALL HEADER & BOTTOM RAIL

FLEXIBLE SILICONE MEMBRANE USED IN EXTERIOR APPLICATIONS

WALL CONSTRUCTION BY OTHER TRADES

MULLION HEAD ANCHOR PER PROJECT REQUIREMENTS (TYP.)

REFER TO STEELBUILT DOOR SYSTEM PRODUCT DOCUMENTATION FOR ADDITIONAL INFORMATION ABOUT FRAMING AND GLAZING
15 DOOR JAMB AT LEVER
45 mm System
Reference Details

NEOPRENE SETTING BLOCKS

DOOR CLOSER

REFER TO STEELBUILT DOOR SYSTEM PRODUCT DOCUMENTATION FOR ADDITIONAL INFORMATION ABOUT FRAMING AND GLAZING

DOOR HEADER & SILL

16
45 mm System
Reference Details

REFER TO STEELBUILT DOOR SYSTEM PRODUCT DOCUMENTATION FOR ADDITIONAL INFORMATION ABOUT FRAMING AND GLAZING

[Diagram of a door jamb at lever with various annotations and dimensions]

DOOR JAMB AT LEVER

18
Refer to STEELBUILT Door System Product Documentation for additional information about framing and glazing.
45 mm System
Reference Details

Refer to STEELBUILT Door System Product Documentation for Additional Information about Framing and Glazing.

- Push Side
- Egress Side
- Exit Device

Daylight Opening

Door Opening

Frame Dimension

Rough Opening

20 ACTIVE / ACTIVE MEETING RAIL
REFER TO STEELBUILT DOOR SYSTEM PRODUCT DOCUMENTATION FOR ADDITIONAL INFORMATION ABOUT FRAMING AND GLAZING

ACTIVe / FIXED MEETING RAIL
45 mm System
Corner Details

22 90 DEGREE OUTSIDE CORNER
90 DEGREE OUTSIDE CORNER OPTION
45 mm System
Corner Details

90 DEGREE OUTSIDE CORNER OPTION
25 ANGLED OUTSIDE CORNER
125 DEGREE SHOWN
90 DEGREE INSIDE CORNER
90 Degree Inside Corner Option

45 mm System
Corner Details
45 mm System
Corner Details

28 ANGLED INSIDE CORNER
125 DEGREE SHOWN

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WIND LOAD CHARTS
Mullions are designed for deflection limitations in accordance with AAMA TIR-A11 of L/175 up to 13'-6" and L/240 +1/4" above 13'-6". These curves are for mullions WITH HORIZONTALS and are based on precise engineering calculations for stress and deflection. Allowable wind load stress for STEEL 30,000 p.s.i. (207MPa.). Charted curves, in all cases are for the limiting value. A 4/3 increase in allowable stress has not been used to develop these curves. For special situations not covered by these curves, contact your TGP representative for additional information.

DEAD LOAD CHARTS
Horizontal or deadload limitations are based upon 1/8" (3.2), maximum allowable deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for 1" (25.4) thick insulating glass or 1/4" (6.35) thick glass supported on two setting blocks placed at the loading points shown.

SILICONE GLAZING CHART
Structural silicone glazing is used primarily to eliminate the need or appearance of exterior pressure plates and caps. The size of the silicone bond line, used to structurally retain the glass to the building and the curtain wall frame, is based on the size of the individual lites of glass, the wind load requirements of a given project, and the design pressure of 20 psi capacity allowed by most silicone sealant manufacturers. The accompanying chart is meant to give the maximum wind load pressure based on either a ½" or ¾" weather joint between lites of glass, and the shortest dimension of the individual lite of glass. This chart is not meant to dictate final silicone bond line or loading requirements. While TGP can assist in determining the bond line dimension, the silicone sealant manufacturers must review and approve the final details, typically done during the shop drawing phase of most projects.

THERMAL CHART
Thermal transmittance (U-Value) is a measure of the rate of heat loss of a building component. The test method measures the thermal characteristics of the system under steady-state conditions.
Single Span

Single Span Reinforced

Twin Span

Twin Span Reinforced

CURVE 'A' - 10 PSF
CURVE 'B' - 20 PSF
CURVE 'C' - 30 PSF
CURVE 'D' - 40 PSF
CURVE 'E' - 50 PSF

RP-1787

W/ (2) 1-3/4" x 1/2" Steel Bars
Wind Load Charts

Single Span

Single Span Reinforced

Twin Span

Twin Span Reinforced

CURVE 'A' - 20 PSF
CURVE 'B' - 30 PSF
CURVE 'C' - 40 PSF
CURVE 'D' - 50 PSF
CURVE 'E' - 60 PSF

RP-1788

W/ (2) 2-3/4" x 1/2" Steel Bars
Wind Load Charts

**Single Span**

- CURVE 'A' - 20 PSF
- CURVE 'B' - 30 PSF
- CURVE 'C' - 40 PSF
- CURVE 'D' - 50 PSF
- CURVE 'E' - 60 PSF

**Single Span Reinforced**

**Twin Span**

**Twin Span Reinforced**

RP-1789

W/(2) 3-1/2" x 1/2" Steel Bars
Wind Load Charts

Single Span

Single Span Reinforced

Twin Span

Twin Span Reinforced

CURVE 'A' - 20 PSF
CURVE 'B' - 30 PSF
CURVE 'C' - 40 PSF
CURVE 'D' - 50 PSF
CURVE 'E' - 60 PSF

RP-1790

W/ (2) 4-1/2" x 1/2" Steel Bars
**Wind Load Charts**

### Single Span

- **CURVE A** - 20 PSF
- **CURVE B** - 30 PSF
- **CURVE C** - 40 PSF
- **CURVE D** - 50 PSF
- **CURVE E** - 60 PSF

### Twin Span

- **CURVE A** - 20 PSF
- **CURVE B** - 30 PSF
- **CURVE C** - 40 PSF
- **CURVE D** - 50 PSF
- **CURVE E** - 60 PSF

---

**Single Span Reinforced**

- 5.846" [148.50]
- 1.772" [45.00]
- 0.500" [12.70]

**Twin Span Reinforced**

- 0.500" [12.70]
- 1.772" [45.00]

RP-1815

W/ (2) 5" x 1/2" Steel Bars
Dead Load Charts (Tubular)

1/4" Glass

A = 1/4 POINT LOADING
B = 1/8 POINT LOADING

1" Glass
Dead Load Charts (Tubular)

1/4" Glass

A = 1/4 POINT LOADING
B = 1/8 POINT LOADING

1" Glass

A = 1/4 POINT LOADING
B = 1/8 POINT LOADING
Dead Load Charts (Tubular)

**1/4" Glass**

A = 1/4 POINT LOADING  
B = 1/8 POINT LOADING

**1" Glass**

A = 1/4 POINT LOADING  
B = 1/8 POINT LOADING

---

**A = 1/4 POINT LOADING**  
B = 1/8 POINT LOADING
SILICONE GLAZING CHARTS

**CHAR**

1. Select the row based on dimension column “B.” This is the exterior weather joint between the lites of glass, the width is either 12 mm or 19 mm.
2. To determine the sealant contact width, move to the right across the selected row to column “E” (sealant contact width).
3. To determine the maximum wind load in psf follow this row further to the right until you reach the appropriate narrowest glass dimension column (top row).

   **Note:** To determine the narrowest glass dimension, use narrowest dimension of either glass width or height, rounded up to the nearest foot.

**EXAMPLE:**

1. For 45 mm mullion width system, select the 19 mm weather joint width (column B, row 2).
2. Follow row to sealant contact bond width column “E” (9.0 mm / 5/16”)
3. The largest lite on the project is 68” x 120”. The narrowest measurement is 68”, round up to 72” (6’)
4. Continue across the row to the right and look up to the narrowest glass dimension in feet until you get to the 6’ column. 28 psf is the maximum wind load.

**NOTE:** Chart and detail show possible configurations, exact conditions can vary project by project. Contact TGP or sealant manufacturer for specific questions about a given set of conditions or project.
## Thermal Transmittance \(^1\) (btu/hr + ft\(^2\) + °F)

<table>
<thead>
<tr>
<th>Glass U-Factor(^1)</th>
<th>Stainless Steel Cover Cap</th>
<th>Aluminum Cover Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.48</td>
<td>0.51</td>
<td>0.51</td>
</tr>
<tr>
<td>0.44</td>
<td>0.49</td>
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<td>0.247</td>
<td>0.31</td>
<td>0.32</td>
</tr>
<tr>
<td>0.123</td>
<td>0.19</td>
<td>0.20</td>
</tr>
</tbody>
</table>

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. Glass properties are based on center of glass values and are obtained from your glass supplier.
3. Overall U-Factor is based on the standard NFRC specimen size of matrix 2000 mm wide by 2000 mm high (78-3/4" by 78-3/4").