








## Tremco® Structural Silicone Glazing

Structural Silicone Glazing (SSG) is one of the most versatile forms of curtainwall construction in the commercial façade business. SSG has helped architects and designers transform the skylines and downtown landscapes of cities around the world. For generations Tremco has been a market leader in the design, development and manufacturing of glazing products for use in commercial SSG applications.

Over the years, window units have become larger, higher performing glass has been developed and performance standards have increased, all placing ever-increasing demands on the glazing materials used to seal and support the glass to or within the surrounding metal. To insure compatibility of all components and long-term performance to meet the most stringent requirements, Tremco offers a complete line of structural silicones, gaskets, tapes, setting blocks and spacers for single-source, single responsibility solutions for any glazing application.

To complete the package, Tremco supplies compatible perimeter caulking and weatherproofing materials to complement the window or wall system. Information on these types of products can be found at [www.tremcosealants.com](http://www.tremcosealants.com) or by contacting your local Sales Representative.

On the following pages you will find information related to Structural Silicone Glazing and the products and services offered by Tremco that are utilized in SSG applications. Please reference the following for information related to:

- |   |           |   |
|---|-----------|---|
|  | Section 1 | Two-Sided Structural Silicone Glazing<br>Four-Sided Structural Silicone Glazing   |
|  | Section 2 | Tremco Structural Silicone Glazing Product Line <ul style="list-style-type: none"><li>▪ Structural Silicones</li><li>▪ Custom Glazing Extrusions</li><li>▪ Structural Glazing Tapes</li></ul> |
|  | Section 3 | Protective Glazing  |
|  | Section 4 | In-Plant Glazing  |
|  | Section 5 | Tremco Project Profile List   |
|  | Section 6 | Tremco Project Support  |
|  | Section 7 | Contact Us  |

To find your nearest Tremco Sales Representative, call 1-800-321-7906 or on the web at [www.tremcosealants.com](http://www.tremcosealants.com).



**TREMCO**



## Tremco® Structural Silicone Glazing

### Section 1 – Two and Four-Sided SSG

Structural Silicone Glazing (SSG) is a system of bonding glass to a curtainwall's structural framing members utilizing a high strength, high performance silicone sealant specifically designed and tested for structural glazing applications. The dynamic wind loads are transferred from the glass, through the structural silicone sealant, to the curtain wall framing.

In structural glazing, there are many glazing systems in the market from various curtainwall and window fabricators ranging from low-rise to high-rise projects. The designs vary from architects and manufacturers. Tremco is a trusted partner with experience in glazing systems seen throughout the industry.

As a single source supplier, Tremco offers a complete range of single and multi-component structural silicone sealants and fully compatible gaskets, spacers and sorting blocks for use in structural glazing.

The two basic forms of SSG are two-sided and four-sided. Two-sided systems can be designed to be either shop or field glazed. Four-sided systems should be designed to be shop glazed. In-shop glazing or in-plant glazing, the glass is adhered to the extruded aluminum frame in the shop with structural silicone sealant. The assembly is transported to the job site, erected as a unit and then the weather seal is applied to complete the job.

A two-sided system will generally have the opposite two edges of the glass structurally sealed to the curtainwall mullions. The other two edges will be mechanically fastened, supporting the dead load<sup>1</sup> of the panel. The live load<sup>2</sup> is carried on the two edges with structural silicone. Two-sided systems should not be confused with butt-joint glazing which does not provide a structural bond to the framing system. Butt-joint glazing provides a weather seal only on two edges of the glass.

Tremco products recommended for two-sided SSG are Spectrem® 2, Proglaze® II and Proglaze® SSG. Refer to Section 2 of this booklet for further details on these silicone sealants.

**Corporate North,  
Northbrook, IL**

*Consultant:*

**WJE - Mike Scheffler**

*Contractor:*

**Hard Surface Finishers,  
Dario Frank**

*Products:*

**Spectrem® 1, Spectrem® 2,  
Spectrem® 3,  
Tremco custom silicone  
extrusions,  
Spectrem Simple Seal.**



A four-sided system provides no mechanical fasteners to the framing system, but is bonded by the structural silicone on all four sides. Dead loads<sup>1</sup> are supported either mechanically by a horizontal fin or by the silicone sealant, depending on the design of the system. Four-sided systems are sealed continuously around the window perimeter, blocking air and water from entering the building interior.

**25 Shepard Avenue West,  
Toronto, Ontario, Canada**

*Architect:*

**Strong & Associates**

*Wall Mfg:*

**A.F.G. Flass**

*Products Used:*

**Proglaze® II, Spectrem® 2,  
EPDM Gaskets,  
POLYshim® II Tape.**



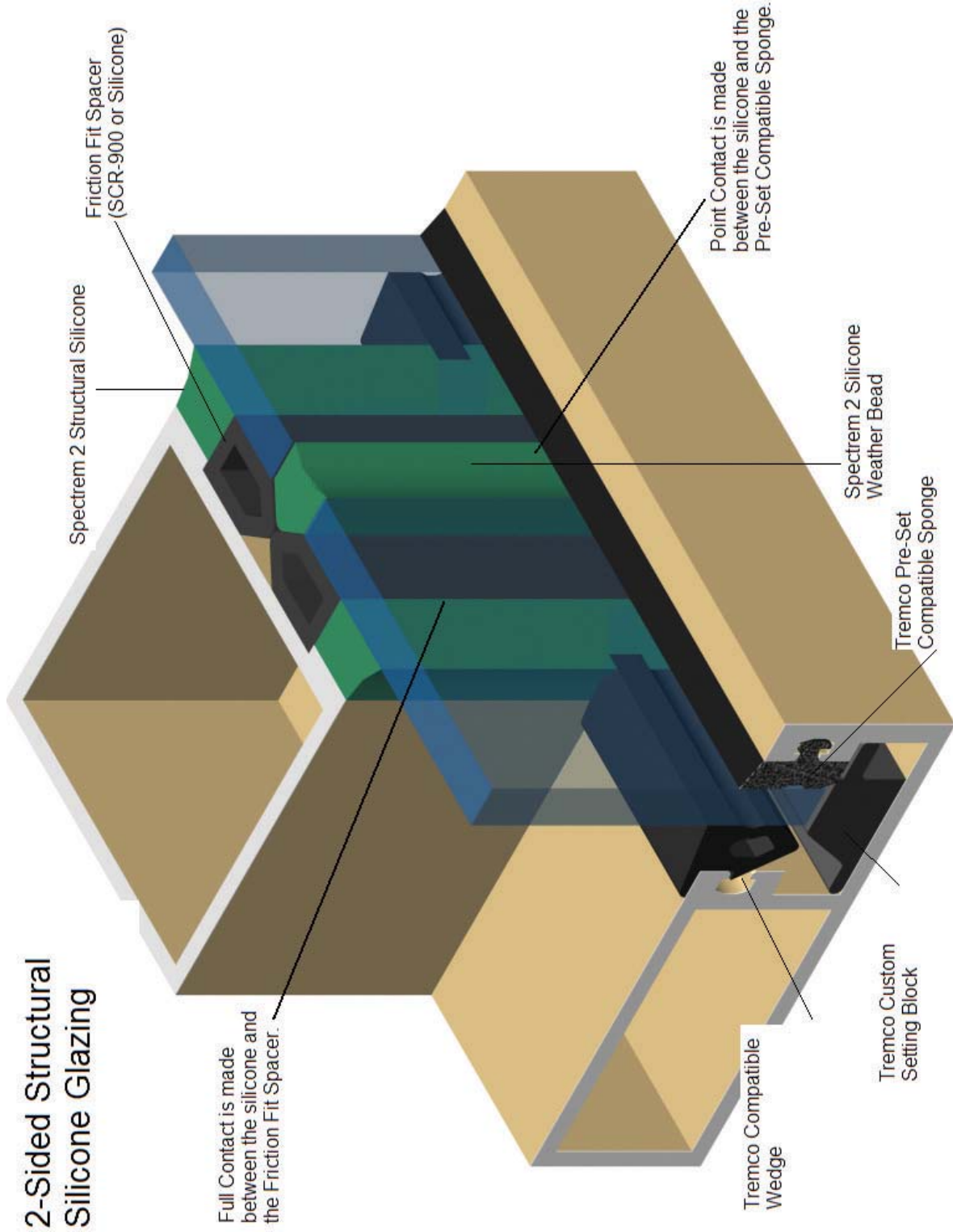
Tremco recommends Proglaze II for in-plant glazing of four-sided SSG units. Proglaze II is a two-part, neutral curing structural silicone that allows a manufacturer to move units quickly, and provides the physical properties required in demanding high or mid-rise buildings.

The following pages illustrate typical two-sided and four-sided Structural Glazing details using Tremco silicones and structural glazing tapes. This is followed by generally accepted guidelines to structural glazing design. These details are generic applications and do not reflect the actual design of a window unit or system

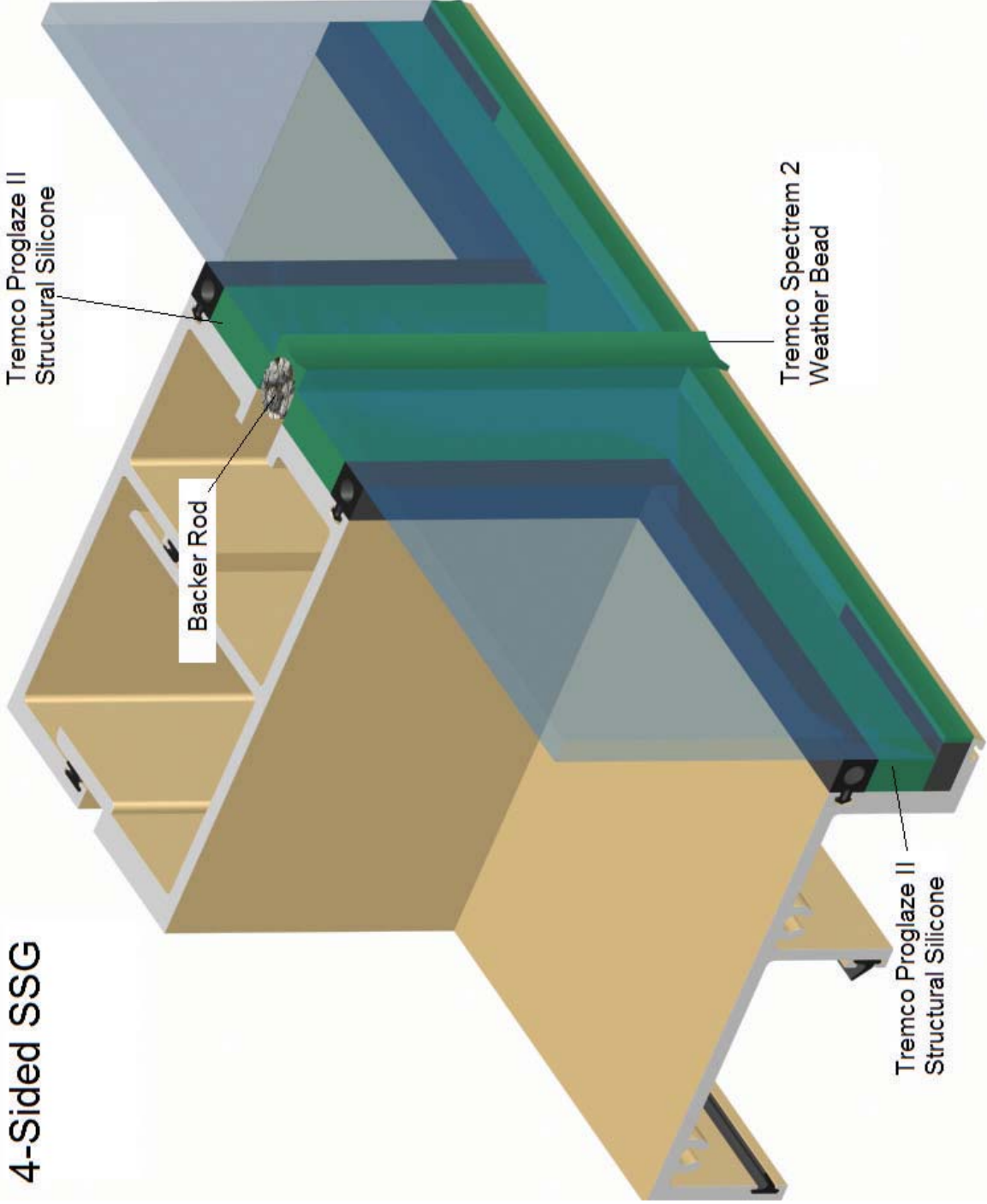
<sup>1</sup> *Dead load is the load due to the mass of the materials.*

<sup>2</sup> *Live load is the weight imposed by use and occupancy. Ex.: snow, wind.*

## 2-Sided Structural Silicone Glazing



4-Sided SSG



Tremco Proglaze II  
Structural Silicone

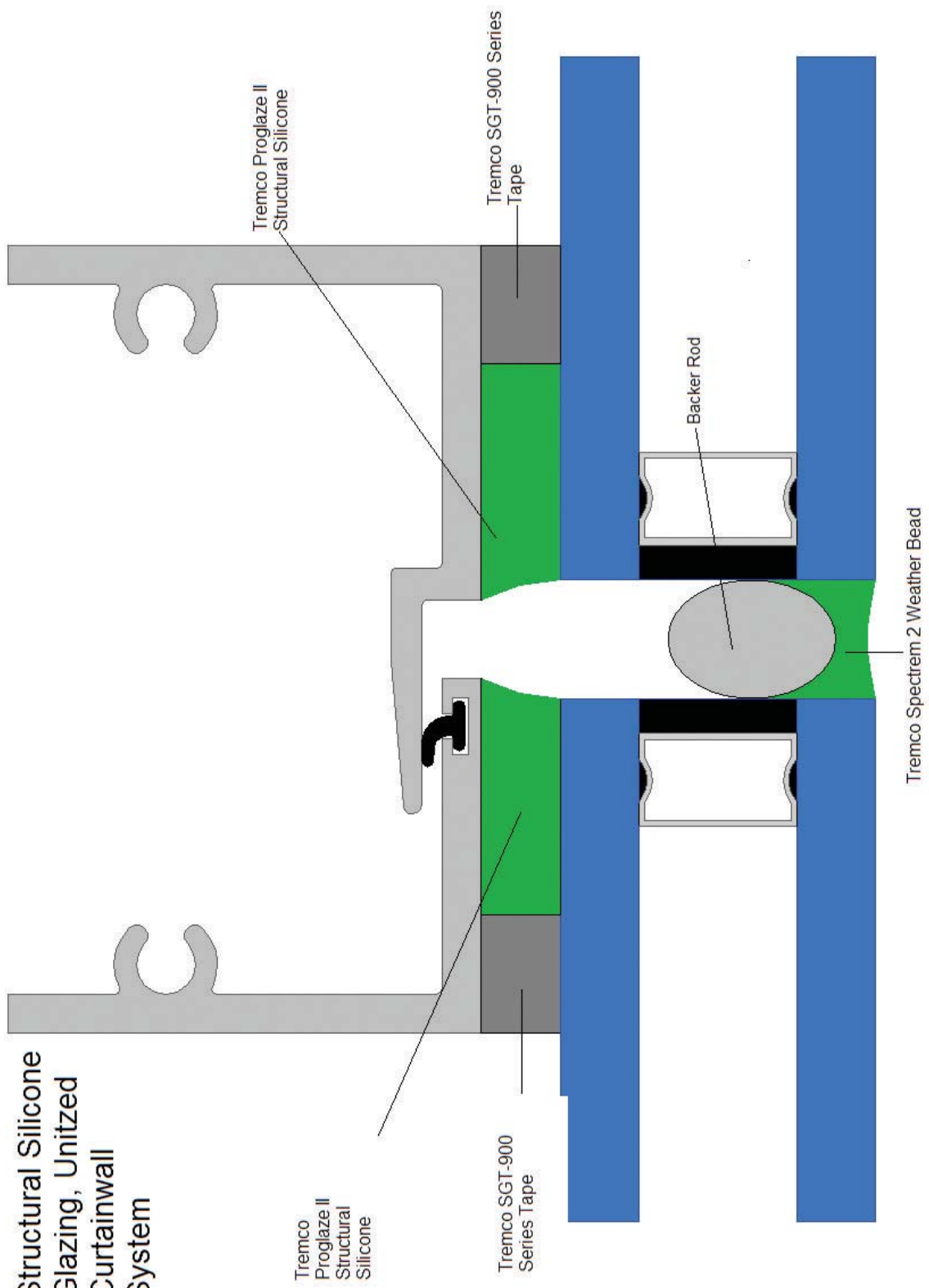
Backer Rod

Tremco Spectrum 2  
Weather Bead

Tremco Proglaze II  
Structural Silicone

Section One

# Structural Silicone Glazing, Unitized Curtainwall System



## Structural Glazing Design Guidelines

1. Structural silicone thickness (face clearance) must not be less than 1/4". A compatible/approved backup spacer (gasket or tape) must be used.
2. Structural bite (sealant contact depth) must not be less than silicone thickness.
3. Structural bite (in) = 
$$\frac{1/2 \text{ Longest short span} \times \text{windload (lb/ft}^2\text{)}}{(20 \text{ lb/in}^2) \times (12 \text{ in/ft})}$$
4. Always round up when using the above equation. For instance, a 4' x 8' lite under a 40 psf windload requires 0.3333" of silicone. This is then rounded up to 3/8". Never round down.
5. The structural sealant joint must be able to be filled using standard caulking practices.
6. The structural joint must not move during cure.

These are only preliminary guidelines for structural glazing details. Tremco® must review all structural glazing details. Tremco must also test all substrates for adhesion. Refer to Section 7 for contact information.

