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RESEARCH REPORT: RR 24950
(CSI #07210)

Expires: October 1, 2020
Issued Date: October 1, 2018
Code: 2017 LABC

GENERAL APPROVAL – Renewal and Clerical Modification - Momentive Performance Materials Silpruf, Silglaze Sealants, Ultraglaze (single component), Ultraglaze (two components) and Construction Sealant.

DETAILS

SilPruf and SilGlaze are single component sealants that are approved as non-structural sealants used for weatherproofing building joints.

GE SCS2000 SilPruf® (Single component), UltraGlaze (Single component), UltraGlaze (Dual component) and Construction (Single component) structural glazing sealants are approved for structural sealant glazing systems.

The structural sealants in glazing systems are used to transfer wind loads from the glazing to its perimeter supports by utilizing the cohesive and adhesive strengths of the sealants. The systems are intended to modify the need for metal stops around the perimeter of glazing as required by the Code for conventional systems.

The Momentive Performance Materials' GE SCS2000 SilPruf® silicone sealant complies with ASTM C920 – Standard Specification for Elastomeric Joint. The product was evaluated as Type S, Grade NS, Class 50, Use NT, G and A.

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RE: Silpruf, Silglaze Sealants, Ultraglaze (one component), Ultraglaze (two component) and Construction Sealant.

Momentive Performance Materials structural sealants are approved for structural sealant glazing systems, subject to the following requirements:

1. To partially omit the metal stops required by the Code, use of the structural sealants is limited to supporting and retaining only the vertical edges of glazing for windows. The retention of horizontal edges shall be in accordance with the Code.
2. When structural sealants are used to adhere the vertical glazing edges to mullions, the mullions shall be designed to adequately resist the loads from the glazing. When a mullion is used, the width of the mullion shall not be less than 3/4 inch. Deflections of mullions shall not exceed 1/175 of the span or 3/4-inch, whichever is less.
3. Design of the sealants shall conform to the following criteria:
 - a. To determine the bite or width of bead necessary to hold the edges of glazing to the supports, allowable tensile or bond stress of the sealants shall not exceed 20 psi.
 - b. Width of joints, between vertical edges of adjacent glazing, shall be designed for not less than twice (4 times is recommended) the total anticipated joint movement.
4. During installation, glazing shall be temporarily blocked to prevent it from blowing off from its mounting due to high winds or other causes. The blocking or temporary supports shall be maintained until the sealant has attained its strength to resist design loads.
5. Thickness and size of glazing shall be as limited by the Code. Where a vertical panel joint without any mullion backing or support is used, the glazing shall be designed to span between the horizontal supports. Design stress of the glazing shall not exceed the breaking stress, under uniform loading held for one minute, divided by 3.
6. For each job where the sealants are used structurally:
 - a. Design calculations, installation specifications and details of the glazing system prepared by a civil or structural engineer or architect, registered in California, shall be submitted to Plan Check Division for review and approval.
7. The sealants shall be applied on dry clean surfaces. Special cleaning and priming may be required.
8. Applications of the sealants shall be in accordance with the manufacturer's instructions, a copy of which shall be provided at each construction site. Plans and

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specifications review and compatibility testing of accessory materials and the sealants shall be secured from the manufacturer of the sealants, by the Architect or Designer of the Building.

9. The sealants shall be delivered to construction sites in sealed containers identified by the manufacturer's name and product designation.
10. As a check for adhesion a hand pull test shall be performed on the job site by the installer after the sealant is fully cured. If adhesion is proper, the sealant will tear cohesively in itself before releasing adhesively from the substrate. See manufacturer's instructions for test procedure. The sealant shall be repaired in test area, after test has been performed.

DISCUSSION

The clerical modification is to update the petitioner address, contact person and phone number.

The report is in compliance with the 2017 Los Angeles City Building Code.

This general approval is based on tests. Acceptable test results are on file in the office of the Engineering Research Section.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

Installation shall be strictly as per manufacturer's specifications.

The Ultraglaze (single component), Ultraglaze (two component) and Construction Sealant provide a tensile stress of 20 psi at 25 percent elongation with a minimum factor of safety of five and also provide a tensile stress of 50 psi (without restricting percent of elongation) with a minimum factor of safety of five.

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This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this approval have been met in the project in which it is to be used.



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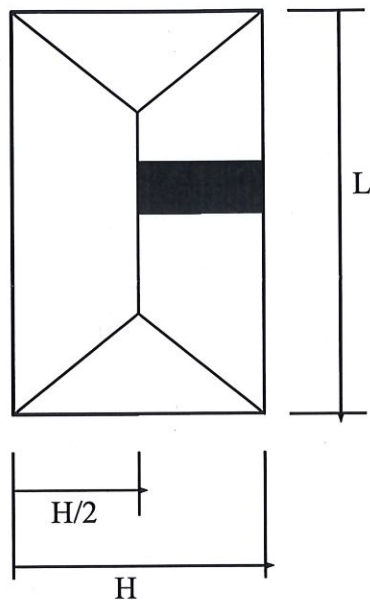
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I. To calculate the sealant surface contact required:

1. The design strength in the sealant is 20 psi.
2. The distribution of the force on a lite of glass is best approximated by the trapezoidal distribution as shown below.



1. Force on the shaded area
Wind force (lbs) = Wind load (psf) x $\frac{1}{2}$ smallest dimension - $H/2$ (ft) x 1ft
2. Sealant surface contact required
Thickness(in) = Wind force (lbs) / {20psi * 12in}

II. Example calculation is:

Given: Glass size 5'x7'
Wind load 50psf

Solved:

1. Wind force = 50psf x (5ft/2) x 1ft = 125 lbs
2. Thickness = 125lbs / {20psi x 12in} = 0.52 in