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**PORTLAND, OREGON**

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**Plan Review Submittal and  
Special Inspections Requirements for Structural Silicone**

**Background:**

Currently the City of Portland does not have Administrative Rules governing the special inspection duties and responsibilities for structural silicone. It is the intention of the City of Portland to create Administrative Rules for structural silicone. Until the Administrative Rules have been written and approved the following guidelines have been prepared to assist the applicant in understanding the submittal requirements for plan review and the minimum special inspections required when structural silicone is used. These requirements are for structural applications only and do not apply when silicone is used solely for the purposes of providing resistance to water penetration. These guidelines are for typical type installations. Additional requirements may apply to atypical applications.

**Guidelines:**

**I. Plan Review Requirements**

Where structural silicone is being used, the following items pertaining to the structural silicone must be submitted for approval with the submittal for the curtain wall / glazing system:

1. Stamped plans and details showing glass types and thicknesses; minimum bite dimensions; minimum bead dimensions; and type of the applied structural silicone.
2. Reports from the structural silicone manufacturer that verify acceptability of the structural silicone on the project including:
  - a. Print review
  - b. Adhesion testing and evaluation
  - c. Compatibility testing and or evaluation
3. Completed and signed Special Inspection Form.
4. Special Inspections requirements shall be listed on the submitted plans.

**II. Inspection Requirements**

Special inspections are those inspections that will be performed by an independent testing agency hired by the owner. They are in addition to and not in lieu of the contractor's and sealant manufacturer's quality control and quality assurance inspections/testing requirements. The special inspections shall be performed in accordance with Chapter 17, State Building Code and the City of Portland Special Inspection Administrative Rules.

## Plan Review and Special Inspection Requirements for Structural Silicone

### **Inspections:**

A. Prior to commencing the sealant work the special inspector shall review the Q/C & Q/A requirements of the manufacturer, the manufacturer's sealant application requirements and all contract documents and city approved drawings and specifications.

B. At the beginning of the work and at the frequency specified below the special inspector shall:

1. Review the documentation for the sealant, primer and substrates approved by the sealant manufacturer.
2. Review the quality control logs and verify shop/field conditions. Verify the sealant manufacturer's Q/C requirements are being followed by the sealant contractor.
3. Observe the substrate cleaning and primer application is in conformance with the manufacturer's requirements.
4. Observe the application of the silicone sealant is in accordance with the manufacturer's requirements and the approved permit documents.
5. Observe the joint configuration and verify that the sealant storage and shelf life complies with the manufacturer's requirements and the approved permit documents.
6. Observe standard adhesion hand pull test performed by the sealant contractor at randomly selected locations.
7. Observe deglazing testing is performed in accordance with the requirements of the sealant manufacturer.

### **C. Frequency:**

Observation and verification by the special inspector for items B (1) through B (6) above, shall be performed a minimum of 2 times for the first 1000 lineal ft of silicone sealant application and additional one per 2000 lineal ft thereafter or one per floor whichever is more restrictive.

The Special Inspector shall observe deglazing testing for item B (7) above, on a minimum of 1 unit out of the first 100 units and 1 unit out of every 200 units thereafter.

### **D. Reports:**

The Special Inspector shall follow the reporting requirements contained in the City of Portland Special Inspection Administrative rules.

When tests show unacceptable results, they shall be reported immediately to the contractor, the engineer responsible for the design of the sealant and the City of Portland. The engineer shall submit recommendations to the City of Portland to (a) support approval of the tested sealant, or (b) provide remedial and repair measures and additional testing and/or special inspections requirements where required. Once approved by the City the contractor shall implement the repair measures and special inspection requirements.