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RESEARCH REPORT: RR 26084
(CSI #05520)

Expires: April 1, 2018
Issued Date: April 1, 2017
Code: 2017 LABC

GENERAL APPROVAL– Original Application –Circa Glass Railing System

DETAILS

The Circa Glass Railing System assembly consists of the following components:

Top Rail Cap: 1-5/32 in. wide by 1-9/16 in. high, continuous A316 stainless steel channel.

Individual Glass Panels: 8 ft. - 6-1/4 in. wide maximum 4 ft. - 2-3/16 in. high minimum by 11/16" in thick fully-tempered straight or curved design: the panels were constructed of a 1/4 in. Tempered glass / 0.060 in. Sentryglass interlayer 3/8 in. clear tempered.

Support Post: 1/2 in. wide by 2 in. long by 1 ft. - 5-1/2 in. tall A316 stainless steel flat bar which included a 1-1/2in. custom A316 stainless steel bracket at 5-1/2 in. and 1 ft. - 5-1/2 in. secured over post with one M8 x 1.25 set pin and a tack weld on the underside of the top bracket. The glass panels were set onto 1/2 in.- 13 x 1 in. – 1/2 in. all thread, threaded into bracket 1/2 in. with 1/16 in. spacer at interior and exterior face of bracket and around all thread: secured with 1/2 in. -13 custom cap screwed onto exterior face of glass.

Imbed Base Condition: 8 in. by 8 in. A316 stainless steel plate imbed with 1/2 in. diameter by 4-1/2 in. Nelson stud anchors welded to the underside of imbed with full circumference weld. Imbed plate is recessed flush to surface of adjoining material

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(imbed plate design per Castillo Engineering and independent of handrail performance testing). (Reference attachment page 2)

Core Set Base Condition: 1/2 in. thick by 2-1/2 in. wide strap steel imbed 6 in. into grouted curb with post inserted into opening and back filled with minimum 7000 psi non-shrink grout (imbed condition per Castillo Engineering and independent of handrail performance testing). (Reference attachment page 3)

The approval is subject to the following conditions:

- 1) Glazing required shall comply with section 2407.1 of the 2017 LABC.
- 2) The width of the glass panel shall not exceed 102 ¼ inches.
- 3) Height of the glass guard rail system shall be 42-inches minimum to 50 inches maximum from top of baseplate or concrete slab to top of glass.
- 4) Attachments of the Glass Guardrail System to buildings and imbed plate design shall be designed and detailed on plans for each job installation. Plans and calculations signed by a California licensed civil or structural engineer or architect shall be submitted to the Structural Plan Check for review and approval.
- 5) The Glass Guardrail System shall not be installed in parking garages, except for those locations where the railing is not exposed to impact from vehicles.
- 6) Each glass section of the guardrail system shall be identified by a permanent label with the following information:
 - a) Manufacturer's name
 - b) 0.625 inch nominal thickness
 - c) Tempered glass
- 7) The guardrail system may be subject to the requirements of the California State Accessibility Standards such as transitions to stairways or adjacent to ramps. Questions arising from the use of the system for handicap requirements shall be referred to the Disabled Access Section of the Los Angeles City Building Department.

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DISCUSSION

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

The approval is based on lateral load tests per ASTM E935. The guard rail system is deemed adequate for 50 pounds per linear foot uniform load and 200 pounds concentrated load. Calculations were based on a minimum factor of safety of 4.

The post assembly was tested per ASTM E984 for tension, shear and flexural load of 820 lbs.

The support post and base plate assembly was tested per LABC 1709.3.1 for a tension load of 472 lbs. with a factor of safety of 2.5.

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.

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.

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Attachment: Details of Guard Rail System (3-Pages)