

December 19, 2012

EVALUATION REPORT No.:

ER-12-0004

Reference No.: 32038

Product: Exterior Doors - Rolling Overhead Doors
Non- Impact Resistant Door, C20P slat

Manufacturer: Cornell Iron Works
24 Elmwood Avenue
Mountaintop, PA 18707

Statement of Compliance:

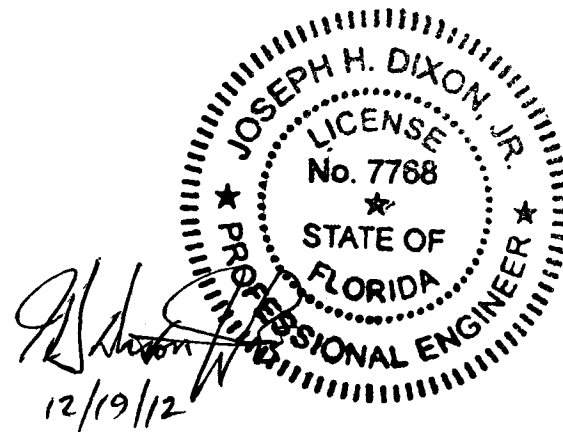
The Rolling Overhead Doors described in this report were evaluated to be in compliance with the 2010 Florida Building Code. The doors are, for the purpose intended, at least equivalent to that required by the Code when manufactured and installed as described below.

Description of the Product:

The doors described in this report consist of a curtain made of interlocking formed steel slats suspended from a drum roller. The slats are approximately $2\frac{5}{8}$ inches net height in the curtain position. All doors in this report are made using C20P flat slats.

The curtain on all models is suspended from a drum roller, and coiling the curtain around the drum raises the curtain. The sides of the curtain are constrained from lateral movement along their vertical edges by steel guides that are attached to the door jambs. This constraint provides resistance to lateral wind forces. Various guide configurations are used for the different door styles included in this report. The lateral wind forces are transferred from the curtain to the guides and then through the attachment elements to the door jamb. The door jambs are part of the main wind frame resisting system and usually are constructed of steel, concrete, or concrete masonry units (CMU).

The doors are fully described on the Cornell drawing, Dwg. No. ES 16 49b-CIW, sheets 1 through 3 dated 12/12/12. The slat used for the test door was a C20P slat with a design steel thickness of 0.0296 inches. Slats with greater thickness may be used. The depth of the formed slat is $\frac{3}{4}$ " for all C20P slats. The test door included installation of 6 vision panes, 10" x 1-5/8" plastic, closely spaced in one slat near the center of the span near mid-height. In my judgment this test verifies the use of single or multiple vision panels at various locations on the curtain. Windlocks were attached to each slat.



Slats may be manufactured using galvanized steel sheet, ASTM A653 SS, grade 40, ASTM A653 HSLAS, grade 40 or ASTM A653 HSLAS-F, grade 40. Stainless steel slats may be manufactured using Type 201, 304, 316, or 430, with a minimum yield strength of 40,000 psi.

Technical Documentation:

The following door test was conducted by Architectural Testing, Inc., York, Pennsylvania

ASTM E330-02, *Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.*

Test Report No.: B8848.02-109-18 dated 11/20/12.

25'-4" wide opening, 0.0296" slat thickness, C20P slat, +/- 60 psf design wind load

A comparative analysis was made using the test door for calibration to determine the design load for doors of various widths, maintaining the same catenary forces as calculated for the test door. Design load values are shown in Table A of this report.

Calculated forces on the jamb produced by the wind load on the door are shown on the drawing. Calculations dated 12/15/12 (31 pages) were prepared by Joseph H. Dixon, Jr. P.E.

Installation Requirements:

Installation requirements are described in the document "Cornell, Service Door (Insulated and Non-Insulated) Installation Instructions, ES 10-341, Rev. 1, 2011-12-12".

Limitations and Conditions of use:

The use of the door is limited to buildings for which the design wind loads for wall components and cladding, determined in accordance with Section 1609 of the 2010 Florida Building Code, do not exceed the rated design wind loads of the door as shown in the following Table A.

As indicated in Table A, for doors attached to CMU jambs, the tabular design wind loads must be reduced by 50%.

The maximum load limitations for various width doors are shown in the attached Table A. The maximum height for all doors is limited to 30 ft.

The doors covered by this report are not for use in the Florida High Velocity Hurricane Zone and are not rated as impact resistant.

Door manufacturing is limited to those plants that have met the 2010 Florida Building Code Product Approval quality assurance requirements.

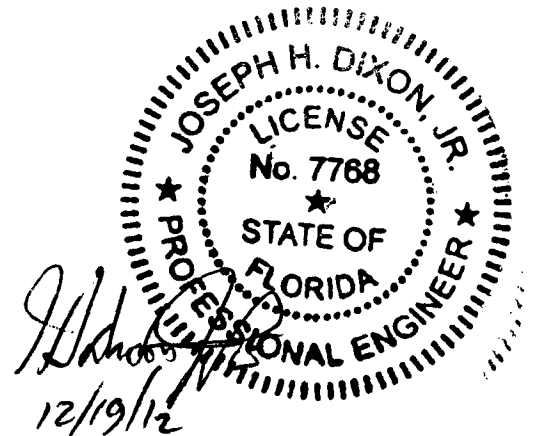
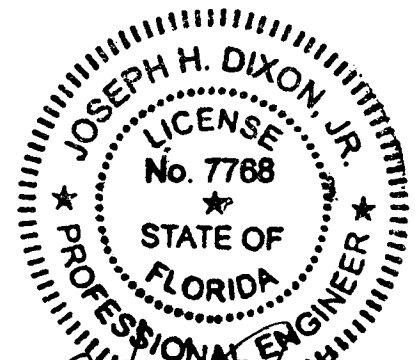


TABLE A
Allowable Transverse Design Wind Loads (psf)
 For all doors attached to CMU jambs, reduce the tabular load by 50%

Max. Door Opening	Max. Door Height (ft)	Windlock slip each end (in)	Slat C20P 0.0296"
6'-4"	30	0.656	+/- 120
7'-4"	30	0.656	+/- 120
8'-4"	30	0.656	+/- 120
9'-4"	30	0.656	+/- 120
10'-4"	30	0.656	+/- 120
11'-4"	30	1.156	+/- 120
12'-4"	30	1.156	+/- 120
13'-4"	30	1.156	+/- 120
14'-4"	30	1.156	+/- 120
15'-4"	30	1.656	+/- 120
16'-4"	30	1.656	+/- 120
17'-4"	30	1.656	+/- 108.7
18'-4"	30	1.656	+/- 99.4
19'-4"	30	1.656	+/- 91.4
20'-4"	30	1.656	+/- 84.4
21'-4"	30	1.656	+/- 78.3
22'-4"	30	1.656	+/- 72.9
23'-4"	30	1.656	+/- 68.1
24'-4"	30	1.656	+/- 63.8
25'-4"	30	1.656	+/- 60.0
26'-4"	30	1.656	+/- 56.6
27'-4"	30	1.656	+/- 53.4
28'-4"	30	1.656	+/- 50.6
29'-4"	30	1.656	+/- 48.0
30'-4"	30	1.656	+/- 45.6
31'-4"	30	1.656	+/- 43.4
32'-4"	30	1.656	+/- 41.4
33'-4"	30	1.656	+/- 39.5
34'-4"	30	1.656	+/- 37.8
35'-4"	30	1.656	+/- 36.2
36'-4"	30	1.656	+/- 34.7
37'-4"	30	1.656	+/- 33.3
38'-4"	30	1.656	+/- 32.0
39'-4"	30	1.656	+/- 30.8
40'-4"	30	1.656	+/- 29.7

Test door shaded



Handwritten signature of Joseph H. Dixon, Jr.
 12/19/12

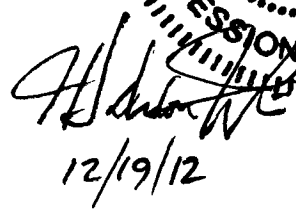
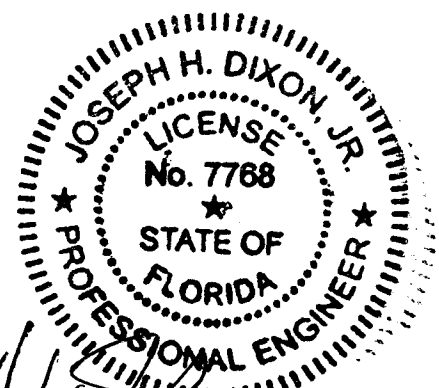
Certification of Independence:

I, Joseph H. Dixon, Jr., certify that I am self-employed and operate as an independent contractor providing professional engineering services. I have no financial interest in nor will I acquire any financial interest in any company manufacturing or distributing products for which evaluation or validation reports have been issued by me.

Likewise, I have no financial interest in nor will I acquire any financial interest in any other entity involved in the approval process of those products for which I have issued reports.



Joseph H. Dixon, Jr. P.E.



Handwritten signature and date: 12/19/12