

May 4, 2020

Cornell Iron Works
24 Elmwood Ave
Mountaintop, PA 18707
Attn: Matthew Novotny



RE: Review, Evaluation, and Certification of Code Compliance

***Project #CIW050420 Florida Building Code: Exterior Rolling Overhead Doors
(CP0005 Slats)***

Includes non-insulated slats rated for up to 50 FPS impact velocity conditions.

To whom it may concern:

Moment Engineering + Design has performed a comprehensive structural review of the Cornell Iron Works Rolling Overhead Door product lines described above, for typical installations in the State of Florida.

Statement of Compliance:

When constructed and installed per the conditions and design criteria described herein, the Rolling Overhead Door product lines described above are compliant with applicable sections of the design reference documents noted below.

Design Reference Documents:

- 2017 Florida Building Code
- 2015 International Building Code
- FBC Test Protocols TAS 201, 202, and 203
- ASCE/SEI 7-10 – Minimum Design Loads for Buildings & Other Structures
- Proprietary load test data and evaluation (see technical documentation below)
- Proprietary sections and materials properties as noted

Overview:

The doors described in this report consist of a continuous door panel made of interlocking cold-formed steel door slats suspended from an overhead drum roller. The drum roller serves to store the curtain in a coiled configuration when the door is opened. Note that evaluation of the drum roller assembly is not included in this report.

The sides of the curtain are constrained from lateral movement along their vertical edges by steel guides 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 force resisting system of the existing structure and are usually constructed of steel, concrete, or concrete masonry units. Resistance of existing structures to design loads from proposed overhead rolling doors is not included in the scope of this analysis and should be evaluated by a registered design professional where required by the authority having jurisdiction.

Details of door assembly and associated components appear in the following documents:

Table 1. Rolling door systems evaluated, with applicable drawings by Cornell Iron Works

| <i>Configuration</i> | <i>Impact Rating</i> | <i>Drawing No.</i> | <i>Revision Date</i> | <i>Detail Sheets</i> | <i>Configuration Table Sheets</i> |
|----------------------|----------------------|--------------------|----------------------|----------------------|-----------------------------------|
| Non-Insulated | 50 FPS | ES-16-75-CIW | 03/03/2020 | 1-5 | - |

Allowable configurations of this door assembly under applicable wind loads are tabulated in the configuration tables sheets noted above.

Door Slats:

CP0005 Slats:

All non-insulated doors covered in this report use a CP0005 slat with a minimum thickness of 0.0236". The nominal dimensions of the formed slats are approximately 1-1/2" height by 1/2" depth for all CP0005 slats.

Slats may be manufactured using galvanized steel sheet, ASTM A653 HSLAS, grade 40; ASTM A653 HSLAS-F, grade 40; or ASTM A653 structural steel, grade 40. Stainless steel slats may use Type 201, 304, 316, or 430 alloys with minimum specified yield strength of 40 ksi.

A rational analysis was made on each tabulated door to determine the structural requirements of the curtain, guide, windlock attachments, and guide attachments for each of the indicated design wind pressures. A comparison with test results was made to substantiate analysis results.

Technical Documentation:

Test results were used to substantiate the analysis procedure. The following information was considered in a comparative analysis of the design:

I. Door Tests with Non-Insulated Slats

1. TAS 201-94, 202-94, 203-94 – Testing of roll-up door assembly with 0.0236" CP0005 slat profiles per FBC HVHZ and Miami-Dade County requirements. Parameters: 14'-5" width, 10' height, design wind pressures ± 40 psf and large missile impact testing. Conducted by Architectural Testing, Inc. Report No: D7854.01-109-18, dated 06/20/2014. Miami-Dade County Notification No.: ATI 14021.

II. Research Slat Tests:

1. ASTM E330-02 test, 7-0" clear span (CP0005 slats). Conducted by Architectural Testing, Inc. Report No. C4840.01-109-44-R1, dated 04/10/2013.

Installation Requirements:

Installation requirements are described in the document "Installation Instructions, Counter Door", ES 10-481, Rev. 0, dated 07/08/2019.

In addition, the drawing referenced above in **Table 1** includes specific installation geometry.

Impact Resistance:

Doors with CP0005 slats (0.0236") have pass the FBC Protocols TAS 201 and TAS 203 for impact on both sides of the door, permitting installation on either the inside or the outside of the wall. These tests were conducted on the lightest gage curtain doors shown in the detail drawings designed for impact resistance for an impact velocity of 50 FPS. All doors shown in drawings ES-16-75-CIW may be considered to be impact resistant.

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 6th Edition (2017) Florida Building Code – do not exceed the 40 psf rated design wind loads of the door as shown on the Cornell drawings.

The maximum width is limited to 14'-5". The maximum height for all doors is limited to 10 ft. The doors covered by this report are designated for use in the High Velocity Hurricane Zone (HVHZ). Manufacturing of doors described in this report is limited to those plants that have met the Product Approval quality assurance requirements.

Certification of Independence:

I, Shawn P. Kelley, President, certify that Moment Engineering + Design, operates as an independent limited liability company providing professional engineer services. Neither I nor Moment Engineering + Design has a financial interest in – nor intent to obtain financial interest in – any company manufacturing or distributing products for which it has issued or will issue evaluation or code-compliance reports.

Neither I nor Moment Engineering + Design has nor will acquire a financial interest in any other entity involved in the approval process for this product.

We appreciate the opportunity to assist you with this project. Should you have any further questions regarding this review, please feel free to contact me directly at 703-988-2350.

Best Regards,

Shawn P. Kelley, P.E.

Principal, Structural Engineer

moment ENGINEERING + DESIGN

www.msegllc.com

Phone: 703-988-2350

Email: spkelley@msegllc.com



Attachments:

1. Signed and sealed copy of Cornell Drawing No. ES-16-75-CIW, dated 03/03/2020