

October 26, 2020

Cornell Iron Works
24 Elmwood Ave
Mountaintop, PA 18707
Attn: Chris Rebarchak



RE: Review, Evaluation, and Certification of Code Compliance
Project #CIW-INS; 97 FBC: Exterior Rolling Overhead Doors
(CP0001 Slats)
Includes insulated doors rated “Impact Resistant”

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:

- 2018 International Building Code
- 2018 International Residential Code
- 2020 Florida Building Code
- FBC Test Protocols TAS 201, 202, and 203
- ASCE/SEI 7-16 – Minimum Design Loads for Buildings & Other Structures
- Proprietary load test data and evaluation (see technical documentation below)
- Proprietary sections and materials properties as noted

Product Description:

Doors covered by this report consist of a continuous door panel made of interlocking cold-formed steel 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.

All doors covered by this report use a CP0001 slat. The minimum thickness of the front slat is 0.0405”. The dimensions of the formed slats are approximately 3” height by 3/4” depth for all CP0001 slats.

Slats may be manufactured using galvanized steel sheet, ASTM A653 HSLAS Type A, grade 40; ASTM A653 HSLAS Type B, 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.

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, associated components, and analysis thereof 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> |
|----------------------|----------------------|--------------------|----------------------|----------------------|-----------------------------------|
| Insulated | 80 FPS | ES-16-97-CIW | 04/20/2020 | 1-7 | 8 |

Table 2. Supporting Calculations

| <i>Configuration</i> | <i>Impact Rating</i> | <i>Calculation No.</i> | <i>Revision Date</i> | <i>Pages</i> |
|------------------------|----------------------|------------------------|----------------------|--------------|
| Insulated - 546 | Non-Impact | CP0001 546 | 04/20/2020 | 1-25 |

Allowable configurations of door assembly under applicable loads (as validated by calculations noted) are tabulated in the configuration tables sheets listed in Table 1.

Structural Analysis:

An engineering analysis was made on each tabulated door configuration to determine the structural requirements of the curtain, guides, windlock attachments, and the guide attachments for each of the indicated design wind pressures.

A comparison with test results was made 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. FBC / TAS 201-94, 202-94, 203-94 – Testing of roll-up door assembly with 0.0405" front slat and 0.0220 back slat, CP0001 slat profiles. Parameters: 15'-5" width, 10' height, design wind pressures ± 50 psf and large missile impact testing. Conducted by Intertek - ATI, Inc., 130 Derry Court, York, PA 17406, Report No: J1739.01-109-18, dated 10/10/2019. Miami-Dade County Notification No.: ATI 18072.

Installation Requirements:

Installation requirements are described in the document “Installation Instructions, Service Door (Insulated and Non-Insulated)”, ES 10-476, Rev. 0, dated 07/08/2019.

Drawings referenced above include design tables specifying allowable installation geometry for door panels under various applicable design wind loads. Specific requirements are shown for selected door widths.

Impact Resistance:

Doors with slat thicknesses of 0.0405” have passed the 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.

Door assemblies shown in drawings ES-16-97-CIW meet the design criteria for a large missile impact with design velocity of 80 fps in a HVHZ.

Limitations and Conditions of use:

The use of the door is limited to installations for which the design wind loads do not exceed the rated loads of the door as shown on the referenced drawings listed in Table 1.

The maximum width limitations for each style are shown in the attached tables. The maximum height for all doors is limited to 30 ft. The doors covered by this report are for use in the High Velocity Hurricane Zone (HVHZ). Manufacturing of doors described in this report are limited to those plants that have met the Product Approval quality assurance requirements.

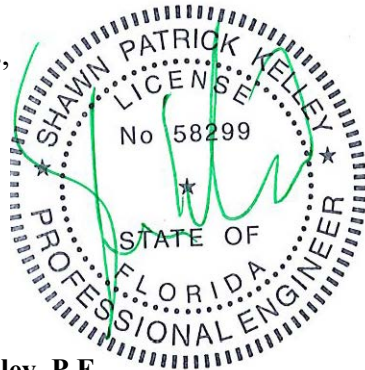
Certification of Independence:

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, Professional Engineer

moment ENGINEERING + DESIGN

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Attachments:

1. Signed and sealed copy of Cornell Drawing No. ES-16-97-CIW, dated 04/20/2020