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November 4, 2010

Paula Ford, Clerk of the Commission
Department of Community Affairs
Building Codes and Standards Office
2555 Shumard Oak Blvd.
Tallahassee, FL 32399-0300

DCA10-DEC-221
FILING AND ACKNOWLEDGEMENT
FILED, on this date, with the designated
Clerk, receipt of which is hereby
acknowledged.
Paula P. Ford 11/4/10
Paula P. Ford Date
Commission Clerk

Petition for Declaratory Statement
Before the Florida Building Commission

The Petitioner, John H. Kampmann Jr., PE, on behalf of Hurricane Fabric, pursuant to Sections 120.565 and 553.77.(1)(c), Florida Statutes, and the Uniform Rules for Declaratory Statements Chapter 28-105, Florida Administrative Code, hereby submits a request for a declaratory statement from the Florida Building Commission. As grounds for this request the petitioner submits the following:

Petitioner's Name and Address

NAME: John H. Kampmann Jr., PE
President, MEA Engineers Inc.
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Sarasota, FL 34233
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Statutory Provision on which the Declaratory Statement is sought:

As the evaluating engineer of Florida product approvals #FL 11340 for Hurricane Fabric, the petitioner is requesting clarification as to the applicability and scope of Rule 9B-72, Florida Administrative Code (F.A.C.). and I am respectfully requesting that this product approval be reconsidered as satisfactory as submitted and previously approved, or that it be approved for the HVHZ with limitations that the commission deems appropriate.

General Information / Summary:

Product Approvals for Shutter products within the High Velocity Hurricane Zone (HVHZ) which have deflection limits exceeding L/30 have recently been identified for revocation, including this product

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approval. The applicable section of code has been identified as: 1613.1.9. See below for a verbatim quotation of this section.

It is incorrect to assume that shutter products that currently have a Product Approval for the HVHZ in general, and this product approval specifically, which exceed a deflection limit of L/30, are in any way unsafe or unable to perform to the spirit and intent of the HVHZ section of the Florida Building Code 2007. Test data from an approved laboratory, a Product Evaluation Report and a Product Evaluation Document have been submitted, reviewed by experienced Engineers and approved verifying compliance and performance.

In my professional opinion, this Product Approval meets the spirit and intent of the HVHZ section of the Florida Building Code 2007.

Observations:

1. The Florida Building Code in Chapter 16 recognizes that structures and parts thereof, which would include shutters, must be designed and constructed (installed) in accordance with accepted standards which include consideration of the type of material it is made of. See Sections 1604.1 through 1604.3.6 below for examples that the code does recognize this.
2. Deflection is also mentioned several times in Chapter 16. In section 1604.3.1, deflection limits are specified according to material type. The materials listed are: Reinforced Concrete, Steel, Masonry and Aluminum. I note here that Fabrics of any type are not mentioned in this section.
3. Local Product Approvals for the HVHZ (Miami-Dade Notice of Acceptance - NOA) do allow for Wind Abatement Systems, that do not have the deflection requirements but do have the separation to glass requirements of the Florida Building Code 2007 (FBC-07) noted in 1613.1.9. This has led to several instances where the local product approval (NOA) verifies compliance with the Non-HVHZ and HVHZ requirements of the Florida Building Code relative to fabric and other material products similar to this one, and then those products which also exceed L/30 are now being identified for revocation.
4. "Storm shutters" and "fold-down awnings" (1613.1.9) are not defined in the FBC-07. As written, it does not appear that the HVHZ sections of the code anticipated the many new materials and products that have been designed, tested, approved and performed under actual hurricane conditions for the Non-HVHZ. Based on the deflection limit of L/30, the "storm shutter" noted in 1613.1.9 was considered to be a steel shutter, that would likely permanently yield when it exceeded this deflection limit and would then likely not provide sufficient protection. Fabric systems can deflect much greater than the L/30 limitation without permanently deforming and will continue to protect the opening.
5. Rule 9B-72.060 mentions the limited categories of products for statewide product approvals (See Below). This limited list includes (1) Panel Walls, (2) Exterior Doors, (5) Windows, (6)

Shutters, (7) Structural Components and (8) Products comprising a building's envelope introduced as a result of new technology. It is possible that fabric products could be designed and classified in any one of the limited list noted above, and also could perform as shutters.

6. Section 1613.1.9 also mentions "storm shutters and fold-down awnings" in a "closed position", which is also not defined. In this undefined "closed position", the minimum separation to glass requirement is also unclear at best. Taken literally, it says that the separation from glass at maximum deflection SHALL be between 1 and 2 inches. This would mean that any separation to glass exceeding 2 inches is not acceptable.
 - a. *...shall provide a minimum clear separation from the glass of 1 inch (25 mm) but not to exceed 2 inches (51 mm) when the shutter or awning is at its maximum point of permissible deflection... (from 1613.1.9)*

Supporting Documentation

Florida Building Code (2007) – applicable sections:

SECTION 1604

GENERAL DESIGN REQUIREMENTS

1604.1 General. Building, structures and parts thereof shall be designed and constructed in accordance with strength design, load and resistance factor design, allowable stress design, empirical design or conventional construction methods, as permitted by the applicable material chapters.

1604.2 Strength. Buildings and other structures, and parts thereof, shall be designed and constructed to support safely the factored loads in load combinations defined in this code without exceeding the appropriate strength limit states for the materials of construction. Alternatively, buildings and other structures, and parts thereof, shall be designed and constructed to support safely the nominal loads in load combinations defined in this code without exceeding the appropriate specified allowable stresses for the materials of construction.

Loads and forces for occupancies or uses not covered in this chapter shall be subject to the approval of the building official.

1604.3 Serviceability. Structural systems and members thereof shall be designed to have adequate stiffness to limit deflections and lateral drift.

1604.3.1 Deflections. The deflections of structural members shall not exceed the more restrictive of the limitations of Sections 1604.3.2 through 1604.3.5 or that permitted by Table 1604.3.

1604.3.2 Reinforced concrete. The deflection of reinforced concrete structural members shall not exceed that permitted by ACI 318.

1604.3.3 Steel. The deflection of steel structural members shall not exceed that permitted by AISC 360, AISI-NAS, AISI-General, AISI-Truss, ASCE 3, ASCE 8, SJI JG-1.1, SJI K-1.1 or SJI LH/DLH-1.1, as applicable.

1604.3.4 Masonry. The deflection of masonry structural members shall not exceed that permitted by ACI 530/ASCE 5/TMS 402.

1604.3.5 Aluminum. The deflection of aluminum structural members shall not exceed that permitted by AA ADM1.

TABLE 1604.3
DEFLECTION LIMITS^{a, b, c, h, i, j}

| CONSTRUCTION | L | S or W ^f | D + L ^{d,g} |
|---|-------|---------------------|----------------------|
| Roof members: ^e | | | |
| Supporting plaster ceiling | l/360 | l/360 | l/240 |
| Supporting nonplaster ceiling | l/240 | l/240 | l/180 |
| Not supporting ceiling | l/180 | l/180 | l/120 |
| Members supporting screen | --- | --- | l/60 |
| Floor members | l/360 | - | l/240 |
| Exterior walls and interior partitions: | | | |
| With brittle finishes | - | l/240 | - |
| With flexible finishes | - | l/120 | - |
| Farm buildings | - | - | l/180 |
| Greenhouses | - | - | l/120 |

For SI: 1 foot = 304.8 mm.

^a For structural roofing and siding made of formed metal sheets, the total load deflection shall not exceed l/60. For secondary roof structural members supporting formed metal roofing, the live load deflection shall not exceed l/150. For secondary wall members supporting formed metal siding, the design wind load deflection shall not exceed l/90. For roofs, this exception only applies when the metal sheets have no roof covering.

^b Interior partitions not exceeding 6 feet in height and flexible, folding and portable partitions are not governed by the provisions of this section. The deflection criterion for interior partitions is based on the horizontal load defined in Section 1607.13.

^c See Section 2403 for glass supports.

^d For wood structural members having a moisture content of less than 16 percent at time of installation and used under dry conditions, the deflection resulting from L + 0.5D is permitted to be substituted for the deflection resulting from L + D.

- ^e The above deflections do not ensure against ponding. Roofs that do not have sufficient slope or camber to assure adequate drainage shall be investigated for ponding. See Section 1611 for rain and ponding requirements and Section 1503.4 for roof drainage requirements.
- ^f The wind load is permitted to be taken as 0.7 times the "component and cladding" loads for the purpose of determining deflection limits herein.
- ^g For steel structural members, the dead load shall be taken as zero.
- ^h For aluminum structural members or aluminum panels used in skylights and sloped glazing framing, roofs or walls of sunroom additions or patio covers, not supporting edge of glass or aluminum sandwich panels, the total load deflection shall not exceed $l/60$. For aluminum sandwich panels used in roofs or walls of sunroom additions or patio covers, the total load deflection shall not exceed $l/120$.
- ⁱ For cantilever members, l shall be taken as twice the length of the cantilever.
- ^j Screen surfaces shall be permitted to include a maximum of 25% solid flexible finishes.

1604.3.6 Limits. Deflection of structural members over span, l , shall not exceed that permitted by Table 1604.3.

SECTION 1612 **HIGH-VELOCITY HURRICANE ZONES-GENERAL**

1612.1 General design requirements.

1612.1.1 Any system, method of design or method of construction shall admit of a rational analysis in accordance with well-established principles of mechanics and sound engineering practices.

1612.1.2 Buildings, structures and all parts thereof shall be designed and constructed to be of sufficient strength to support the estimated or actual imposed dead, live, wind, and any other loads, both during construction and after completion of the structure, without exceeding the allowable materials stresses specified by this code.

SECTION 1613 **HIGH-VELOCITY HURRICANE ZONES-DEFLECTION**

1613.1 Allowable deflections. The deflection of any structural member or component when subjected to live, wind and other superimposed loads set forth herein shall not exceed the following:

- 9. Storm shutters and fold-down awnings, which in the closed position shall provide a minimum clear separation from the glass of 1 inch (25 mm) but not to exceed 2 inches (51 mm) when the shutter or awning is at its maximum point of permissible deflection $l/30$

SECTION 2413

HIGH-VELOCITY HURRICANE ZONES—STORM SHUTTERS/EXTERNAL PROTECTIVE DEVICES

2413.2 The storm shutters shall be designed and constructed to insure a minimum of 1 inch (25 mm) separation at maximum deflection with components and frames of components they are to protect unless the components and frame are specifically designed to receive the load of storm shutters, and shall be designed to resist the wind pressures as set forth in Chapter 16 (High-Velocity Hurricane Zones) by methods admitting of rational analysis based on established principles of design. Storm shutter shall also be designed to comply with the impact load requirements included within Chapter 16 (High-Velocity Hurricane Zones).

2413.5 Deflection shall not exceed the limits set forth in Chapter 16 (High-Velocity Hurricane Zones).

9B-72.060 Optional Statewide Approval Generally.

Statewide approval of products or revisions to existing statewide product approvals requires evaluation of product compliance with the Code by a method listed in Rule 9B-72.070, F.A.C., validation of the evaluation as required by Rule 9B-72.080, F.A.C., and approval per Rule 9B-72.090, F.A.C.

Validation of compliance with the Code shall be performed by approved Validation Entities. Approval shall be performed by the Commission. All products used in construction covered by the Code shall comply with the provisions or standards contained therein or with the intent of the Code. Approval by the Commission for statewide use shall be limited to the following categories of products:

- (1) Panel Walls;
- (2) Exterior Doors;
- (3) Roofing Products;
- (4) Skylights;
- (5) Windows;
- (6) Shutters;
- (7) Structural components; and
- (8) Products comprising a building's envelope introduced as a result of new technology.

Specific Authority 553.842(1) FS. Law Implemented 553.842(6) FS. History—New 5-5-02, Amended 9-4-03.- 148

comprise definition

com·prise (kəm prɪz')

transitive verb **comprised** -prised', **comprising** -pris'-ing

1. to include; contain
2. to consist of; be composed of: *a nation comprising thirteen states*
3. to make up; form; constitute: in this sense still regarded by a few as a loose usage: *a nation comprised of thirteen states*

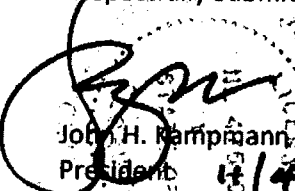
Discussion Items with solutions and/or limitations for modifications of the existing product approval:

1. There is sufficient basis in the FBC 2007 to conclude that fabric products that maintain a sufficient separation to glass meet the spirit and intent of the FBC 2007. A deflection table developed using accepted engineering practices, including factors of safety, will provide sufficient information so as to protect glazing.
2. The deflection limit of L/30 is for steel shutter products. This product approval may be classified under "Products comprising a building's envelope introduced as a result of new technology", which does not have this deflection limitation.
3. This product may be installed in areas where separation to glazing is not an issue. Such areas include lanais, where the product is installed from the exterior roof tie-beams or trusses down to a patio foundation or other foundation structure. Other areas where the product may be installed include vents, doors where there is no glazing, and garage doors.
4. This product may be considered as part of a panel wall system, providing impact protection while maintaining a separation between this product and the panel wall system. As such, it is not subject to the deflection limitation in 1613.1.9.
5. This product is a structural component. As such, it is not subject to the deflection limitation in 1613.1.9.

Request:

I am respectfully requesting that this product approval be reconsidered as satisfactory as submitted and previously approved, or that it be approved for the HVHZ with limitations that the commission deems appropriate.

Respectfully Submitted,


John H. Rappmann, Jr., PE
President 11/4/10
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