



# FORTIFIED Multifamily™–Wind New Construction & New Additions Form

This form captures the specific construction details for new construction and new additions to existing buildings. Qualifications for additions are listed in section 3.1.1.2.3 of the *FORTIFIED Multifamily–Wind Standard*.

This form is to be filled out by the project architect, a licensed structural engineer, and the general contractor and/or roofer. It confirms the requirements for the selected FORTIFIED level have been included in the building documents and the contractor and/or roofer is aware of these requirements.

Fill out only the applicable sections. For example, if a low-sloped roof is the only type of roof on the project, do not fill out the steep-slope section—mark the section as not applicable (N/A). Additionally, some portions pertain to only Hurricane or High Wind—fill out accordingly depending on your building’s exposure.

## Compliance Agreement

I, the DESIGNER COMPLETING THIS CHECKLIST, understand and agree that:

1. The *FORTIFIED Multifamily–Wind New Construction & New Additions Form* must be completed FULLY and CORRECTLY for the applicable hazards.
2. I will provide engineered plans (and all other necessary documentation) that verify the structure meets FORTIFIED design criteria BEFORE construction starts. These plans and documents must be:
  - Legible
  - Complete
  - Certified by the Professional of Record
  - Included with this document
3. The plans submitted will comply with all local building codes and with the FORTIFIED Multifamily criteria as detailed in the *FORTIFIED Multifamily–Wind Standard*.

Full Name: \_\_\_\_\_

License/Registration Number: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Hazard and FORTIFIED Level

Select the site-specific hazard<sup>1</sup>:  Hurricane  High Wind

Select the FORTIFIED Commercial Wind level being pursued:

- FORTIFIED Roof™**—Enhanced roof performance
- FORTIFIED Silver™**—FORTIFIED Roof requirements plus building envelope protection and reduction of business operations downtime
- FORTIFIED Gold™**—FORTIFIED Silver requirements plus enhanced structural performance and maintaining business operations

<sup>1</sup> Hurricane-prone regions are areas vulnerable to hurricanes as defined in ASCE 7. See the definition in section 1.4 of the *FORTIFIED Multifamily–Wind Standard* for more information.

## Building Overview

Street Address: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_

Zip Code: \_\_\_\_\_

Please select the option which best describes the building’s proximity to saltwater:

- Within 300 ft
- More than 300 ft but less than 1,000 ft
- More than 1,000 ft but less than 3,000 ft
- More than 3,000 ft

Corrosion protection requirements defined in section 3.1.4 of the *FORTIFIED Multifamily–Wind Standard* have been implemented.

- Yes  No

## Project Status

Tentative Start Date: \_\_\_\_\_

Tentative Completion Date: \_\_\_\_\_

Select the option(s) which best describe the building:

- Stand-Alone New Construction
- Addition(s) to Existing Buildings<sup>2</sup>
  - Extension to existing roof—connected roof structure*  
Existing conditions will need to be verified by the engineer of record. The following verification/ calculations shall be submitted with this form:
    - Existing structural deck and framing members
    - Structural deck attachments
    - Structural interaction between the addition and existing structure.

<sup>2</sup>Multifamily buildings seeking a level other than FORTIFIED Roof may require additional calculations, existing conditions reports/testing, and other information that is defined in FORTIFIED Silver and/or FORTIFIED Gold.



**Extension to existing roof—expansion joint**  
Existing conditions will need to be verified by the engineer of record. The following verification/ calculations shall be submitted using the *FORTIFIED Multifamily—Wind, Existing Construction* form.

- Existing structural deck and framing members
- Structural deck attachments

**Additional roof at a different elevation**  
Existing conditions will need to be verified by the engineer of record. The following verification/ calculations shall be submitted with this form:

- FORTIFIED Multifamily—Wind, Existing Construction form(s)
- Existing structural deck and framing members
- Structural deck attachments

## General Building Characteristic

Number of Stories: \_\_\_\_\_

Roof Slope: \_\_\_\_\_

Gross Square Footage (sq ft): \_\_\_\_\_

Building Dimensions (ft):

Length: \_\_\_\_\_

Width: \_\_\_\_\_

Height: \_\_\_\_\_

Occupancy Type: \_\_\_\_\_

Wall/Framing (gravity system) [select all that apply]:

- Concrete       Masonry
- Steel             Light Gauge
- Wood
- Other: \_\_\_\_\_

Lateral System [select all that apply]:

- Moment Frames or Braced Frames
- Shear Walls
- Other: \_\_\_\_\_

## 2.0 Recommended Protection

### Flood—Recommended Whole-Building Protection (Not Required)

While protecting electrical and mechanical systems from flood is a requirement of FORTIFIED Silver, whole-building protection against the flood hazard is not be required under FORTIFIED Multifamily.

First finished floor elevation (ft): \_\_\_\_\_

FEMA-designated flood zone<sup>3</sup>: \_\_\_\_\_

If located in a FEMA-designated flood zone (V, A, B, D, and X-shaded), please select one of the following options:

- The building’s first finished floor is located above the 500-year flood level.  
500-year flood level (ft): \_\_\_\_\_
- The building’s first finished floors is located 3 ft above the base flood elevation.  
Flood level (ft): \_\_\_\_\_
- Dry flood protection such as flood gates, walls, or doors, inflatable barriers, sand bags, or similar devices are readily available on site to help mitigate water intrusion.
- Not applicable (N/A)

### Hail—Recommended Protection [Not Required]

While hail protection is not required for FORTIFIED Multifamily, if the building is in a hail-prone region as designated in section 2.4.2 of the *FORTIFIED Multifamily—Wind Standard*, it is recommended to provide a hail-resistant roof cover.

Is the building located in a hail-prone region<sup>4</sup>?  Yes  No

If **yes**, select one of the following options for the installed roof cover:

- Roof covers for low-sloped roofs ( $\leq 10^\circ$  or less than 2/12 pitch):
  - FM Approval Standard 4470 with a Class 1-SH or 1-VSH
  - UL 2218 Class 4
  - Not Applicable
- Roof covers for steep-sloped roofs ( $> 10^\circ$  or greater than 2/12 pitch):
  - FM Approval Standard 4473 Class 4
  - UL 2218 Class 4
  - Not Applicable

## 3.0 Building Design Parameters

### Code Specification

Select the applicable code and fill out the corresponding information:

- ASCE 7-05
  - Risk Category II
  - Risk Category III
  - Risk Category IV
  - Importance Factor: \_\_\_\_\_
  - Design wind speed ( $V_{ult}$ ): \_\_\_\_\_ mph
- ASCE 7-10
  - Risk Category II
  - Risk Category III
  - Risk Category IV
  - Design wind speed ( $V_{ult}$ ): \_\_\_\_\_ mph
- ASCE 7-16
  - Risk Category II
  - Risk Category III
  - Risk Category IV
  - Design wind speed ( $V_{ult}$ ): \_\_\_\_\_ mph

<sup>3</sup>Flood zone as defined by FEMA.

<sup>4</sup>See section 2.4.2 of the *FORTIFIED Multifamily—Wind Standard*.



Select the applicable building code:

- IBC 2000       IBC 2012
- IBC 2003       IBC 2015
- IBC 2006       IBC 2018
- IBC 2009

### Exposure Category and Classification

The exposure category per ASCE 7 is:

- C       D

In accordance with the code selected in the above section, please identify the building exposure classification:

- Partially enclosed
- Enclosed
- Open

### Minimum Required Factor of Safety

Please select the minimum factor of safety (FOS) that was applied to the building design pressures. See section 3.1.1.3 of the *FORTIFIED Multifamily-Wind Standard*.

- ASCE 7-05 Allowable Stress Design (ASD) Method: Calculated ASD wind load x 2 (Minimum Required Factor of Safety)
- ASCE 7-05 Load and Resistance Factor Design (LRFD) Method: (Calculated LRFD wind load/1.6) x 2 (Minimum Required Factor of Safety)
- ASCE 7-10 ASD Method: Calculated ASD wind load x 2 (Minimum Required Factor of Safety)
- ASCE 7-10 LRFD Method: Calculated LRFD wind load x 0.6 x 2 (Minimum Required Factor of Safety)
- ASCE 7-16 ASD Method: Calculated ASD wind load x 1.67 (Minimum Required Factor of Safety)
- ASCE 7-16 LRFD Method: Calculated LRFD wind load

### Wind Design Pressures

Select and fill out the appropriate wind pressure table. The base pressure shall be directly calculated from corresponding ASCE 7 edition and the additional factor of safety (FOS) as defined in section 3.1.1.3 of the *FORTIFIED Multifamily-Wind Standard*.

- ASCE 7-05 and 7-10 design pressures (psf) using minimum terrain Exposure C or D and effective wind area of 10 sq ft.

Please select the method used to obtain base pressures:

- ASD       LRFD

Roof Geometry<sup>5</sup>: \_\_\_\_\_

<sup>5</sup>Roof geometry refers to the ASCE 7 profile designation such as mono-sloped (low-sloped), mono-sloped (steep-sloped), hip roof, gable roof, and flat roof. For more roof geometries, see ASCE 7.

<sup>6</sup>Please use the table to describe the different wind zones of the roof. ASCE 7-16 has implemented new wind zone designations so please denote which roofing geometry was used to obtain base pressures.

Zone <sup>6</sup>	Base Design Pressure (psf)	Minimum FOS <sup>7</sup>	Pressure with FOS (psf)
Field (Zone 1)			
Perimeter (Zone 2)			
Perimeter Overhang (Zone 2OH)			
Corner (Zone 3)			
Corner Overhang (Zone 3OH)			

- ASCE 7-16 design pressures (psf) using minimum terrain Exposure C or D and effective wind area of 10 sq ft.

Please select the method used to obtain base pressures:

- ASD       LRFD

Roof Geometry<sup>8</sup>: \_\_\_\_\_

Zone <sup>6</sup>	Base Design Pressure (psf)	Minimum FOS <sup>7</sup>	Pressure with FOS (psf)

### FORTIFIED Roof Roof Configuration

Does the building have more than one roof type?  Yes     No

If **yes**, fill out either the “Low-Sloped System” or “Steep Slope System” section for the corresponding quantity of roof systems<sup>9</sup>.

Number of different roof types: \_\_\_\_\_

Does the building have roofs at multiple heights?  Yes     No

<sup>7</sup>For more information, see section 3.1.1.3.2 of the *FORTIFIED Multifamily-Wind Standard*.

<sup>8</sup>Roof geometry refers to the ASCE 7 profile designation such as mono-sloped (low-sloped), mono-sloped (steep-sloped), hip roof, gable roof, and flat roof. For more roof geometries, see ASCE 7.

<sup>9</sup>Fill out section 4.1 or 4.2 (depending on the roof slope) for as many different roof covers as are on the project.



If **yes**, are the heights different enough that roof systems with different wind ratings are specified?  Yes  No

If **yes**, fill out either the “Low-Sloped System” or “Steep Slope System” section for each roof system with a different wind rating.<sup>8</sup>

### General Information

Roof Type Number: \_\_\_\_\_ Out of: \_\_\_\_\_

Roof Slope (degrees): \_\_\_\_\_

Average Roof Height (ft): \_\_\_\_\_

ASCE 7 Roof Dimension “a” (ft): \_\_\_\_\_

Is there a continuous structural parapet<sup>10</sup>?  Yes  No

Parapet Height: \_\_\_\_\_ ft

Low-Sloped ( $\leq 10^\circ$ ) System: Yes  N/A

If “N/A” was selected, please continue to the next section for steep-sloped roofing ( $>10^\circ$ ).

### Roof System Type

Select the roofing system type:

- Architectural Metal Panels (attached to wood deck)<sup>11</sup>
- Built-up Roofing
  - Gravel fully embedded in asphalt
  - Loose-laid gravel on low-sloped (**High-Wind-Prone Regions Only**)
- Modified Bitumen
- Single-ply Membrane<sup>12</sup>
  - TPO
  - PVC
  - EPDM
  - Ballasted, Roof Pavers and Pedestal Systems (**High-Wind-Prone Regions Only**)
- Structural Metal Panels
- Vegetative Roof Systems (**High-Wind-Prone Regions Only**)

### Approved Low-Sloped System

**Material substitutions and deviations from the approved system’s design criteria are not acceptable.** The entire system must be installed in accordance with the Approval or Product Evaluation description and meets the specified design and limitations for use of the product as well as specified installation methods.  Yes

Please select and complete one of the following low-sloped approved roofing systems:

Florida Product Approval (FPA)

**Note:** The design team must submit a copy of the FPA Evaluation Report for each approved system to the FORTIFIED Multifamily Evaluator. FPA Evaluation Reports can be found by using the Product Approval search tool at: [www.floridabuilding.org/pr/pr\\_app\\_srch.aspx](http://www.floridabuilding.org/pr/pr_app_srch.aspx)

<sup>10</sup>If the parapet is equal to or greater than 3 ft from the top of the roofing structure, it must be adequately braced per ASCE 7 for lateral wind loading  
<sup>11</sup>If selected, skip “Roof System Detail Breakdown” and fill out the information in the “Architectural/Structural Metal Roof Panel Systems” section.

- Multiple Systems
  - **Field**  
Uplift Resistance (psf): \_\_\_\_\_  
FL Number: \_\_\_\_\_
  - **Perimeter**  
Uplift Resistance (psf): \_\_\_\_\_  
FL Number: \_\_\_\_\_
  - **Corner**  
Uplift Resistance (psf): \_\_\_\_\_  
FL Number: \_\_\_\_\_
- Single System  
Uplift Resistance (psf): \_\_\_\_\_  
FL Number: \_\_\_\_\_
- Single System—Enhanced Fastening<sup>13</sup>  
Uplift Resistance (psf): \_\_\_\_\_  
FL Number: \_\_\_\_\_

Describe the enhancements:

Enhancements have been designed for the component and cladding wind pressures and provide uplift resistance with a minimum factor of safety of 2.0 (1.67 for ASCE 7-16 ASD loads) in the field, perimeter, and corners of the roof as described in section Roof Design Load Requirement.  Yes

FM Approved with a current and active [RoofNav](#) Assembly Number

**Note:** The design team must submit a copy of the FM Assembly Report highlighting the selected assembly details for each approved system to the FORTIFIED Multifamily Evaluator. FM Approved roof assemblies can be found by using the RoofNav® search tool located at [www.roofnav.com](http://www.roofnav.com).

- Multiple Systems
  - **Field**  
FM Rating: \_\_\_\_\_  
Roof Nav Assembly #: \_\_\_\_\_
  - **Perimeter**  
FM Rating: \_\_\_\_\_  
Roof Nav Assembly #: \_\_\_\_\_
  - **Corner**  
FM Rating: \_\_\_\_\_  
Roof Nav Assembly #: \_\_\_\_\_
- Single System

<sup>12</sup>See “Additional Single-ply Membrane Requirements” section.  
<sup>13</sup>In some instances, FPA does permit edge (perimeter/corner) enhancements. Enhancements must follow provisions stated in corresponding active FPA Evaluation Report.



FM Rating: \_\_\_\_\_

Roof Nav Assembly #: \_\_\_\_\_

ICC Evaluation Service (ICC-ES)

**Note:** The design team must also submit a copy of the ICC-ES Report for each approved system to the FORTIFIED Multifamily Evaluator. ICC-ES Approved roof assemblies can be found by using the search tool located at [www.icc-es.org/evaluation-report-program/reports-directory](http://www.icc-es.org/evaluation-report-program/reports-directory).

Multiple Systems

▪ **Field**

ESR Report Number: \_\_\_\_\_

Division Number: \_\_\_\_\_

Section Number: \_\_\_\_\_

Table and System Number: \_\_\_\_\_

Uplift Resistance (psf): \_\_\_\_\_

▪ **Perimeter**

ESR Report Number: \_\_\_\_\_

Division Number: \_\_\_\_\_

Section Number: \_\_\_\_\_

Table and System Number: \_\_\_\_\_

Uplift Resistance (psf): \_\_\_\_\_

▪ **Corner**

ESR Report Number: \_\_\_\_\_

Division Number: \_\_\_\_\_

Section Number: \_\_\_\_\_

Table and System Number: \_\_\_\_\_

Uplift Resistance (psf): \_\_\_\_\_

Single System

ESR Report Number: \_\_\_\_\_

Division Number: \_\_\_\_\_

Section Number: \_\_\_\_\_

Table and System Number: \_\_\_\_\_

Uplift Resistance (psf): \_\_\_\_\_

Miami-Dade County (MDCA) with current and active Notice of Acceptance (NOA)

Multiple Systems

▪ **Field**

NOA: \_\_\_\_\_

Uplift Resistance: \_\_\_\_\_

▪ **Perimeter**

NOA: \_\_\_\_\_

Uplift Resistance: \_\_\_\_\_

▪ **Corner**

NOA: \_\_\_\_\_

Uplift Resistance: \_\_\_\_\_

Single System

NOA: \_\_\_\_\_

Uplift Resistance: \_\_\_\_\_

Single System with Edge (Perimeter/Corner) Enhancements

▪ **Field**

NOA: \_\_\_\_\_

Uplift Resistance: \_\_\_\_\_

**Note:** Perimeter and corner enhancements can be made in accordance with the Miami-Dade County Notice of Acceptance.

Describe the enhancements and how they were obtained for both the perimeter and corner:

Texas Department of Insurance (TDI)

**Note:** The design team must also submit a copy of the TDI Product Evaluation Report for each approved system to the FORTIFIED Multifamily Evaluator. TDI Approved roof assemblies can be found by using the Product Evaluation Index at [www.tdi.texas.gov/wind/prod/indexrc.html](http://www.tdi.texas.gov/wind/prod/indexrc.html).

Multiple Systems

▪ **Field**

TDI Evaluation ID: \_\_\_\_\_

Assembly Number: \_\_\_\_\_

Uplift Resistance Range: \_\_\_\_\_

▪ **Perimeter**

TDI Evaluation ID: \_\_\_\_\_

Assembly Number: \_\_\_\_\_

Uplift Resistance Range: \_\_\_\_\_

▪ **Corner**

TDI Evaluation ID: \_\_\_\_\_

Assembly Number: \_\_\_\_\_

Uplift Resistance Range: \_\_\_\_\_

Single System

TDI Evaluation ID: \_\_\_\_\_

Assembly Number: \_\_\_\_\_

Uplift Resistance Range: \_\_\_\_\_

UL Rated

**Note:** The design team must submit a copy of the UL Product Specification Report for each approved system to the FORTIFIED Multifamily Evaluator. Product Specification Reports can be found by using the UL search tool located at <http://productspec.ul.com/index.php>.

Multiple Systems

▪ **Field**

UL Product Number: \_\_\_\_\_

Option Number: \_\_\_\_\_

Uplift Resistance (psf): \_\_\_\_\_



▪ **Perimeter**

UL Product Number: \_\_\_\_\_

Option Number: \_\_\_\_\_

Uplift Resistance (psf): \_\_\_\_\_

▪ **Corner**

UL Product Number: \_\_\_\_\_

Option Number: \_\_\_\_\_

Uplift Resistance (psf): \_\_\_\_\_

**Single System**

UL Product Number: \_\_\_\_\_

Option Number: \_\_\_\_\_

Uplift Resistance (psf): \_\_\_\_\_

**Roof System Detail Breakdown**

Fill in the correct information for the individual parts of the approved system. If it does not apply to the selected approved system, please select N/A.

For architectural and structural metal roof panel systems, do not fill out the information in this section—rather, fill out the information in the “Architectural/Structural Metal Roof Panel Systems” section.

**Cover/Cap Sheet** Yes  N/A

Cover/Cap Sheet Type: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Trade Name: \_\_\_\_\_

**Cover/Cap Sheet Attachment** Yes  N/A

**Adhered**

Manufacturer: \_\_\_\_\_

Trade Name: \_\_\_\_\_

Adhesion Rate: \_\_\_\_\_

**Mechanically Fastened**

Sheet Width (in.): \_\_\_\_\_

Fastener:

Manufacturer: \_\_\_\_\_

Type: \_\_\_\_\_

Plate:

Manufacturer: \_\_\_\_\_

Type: \_\_\_\_\_

Fastener Spacing (in.):

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

Fastener Spacing Along Laps (in.):

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

**Cover Board** Yes  N/A

Select the cover board type:

Polyisocyanurate

Perlite

Fiberglass

Wood Fiber

Other: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Trade Name: \_\_\_\_\_

Thickness (in.): \_\_\_\_\_

Cover Board Attachment:

Adhered  Mechanically Fastened

Details:

**Insulation** Yes  N/A

Select the insulation board(s) type:

Isocyanurate

Perlite

Fiberglass

Wood Fiber

Other: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Trade Name: \_\_\_\_\_

Board Thickness (in.): \_\_\_\_\_

Number of boards: \_\_\_\_\_

Is the insulation board tapered? Yes  No

**Intermediate Layers** Yes  N/A

Select the intermediate layer type:

Isocyanurate

Perlite

Fiberglass

Wood Fiber

Other: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Trade Type: \_\_\_\_\_

Thickness (in.): \_\_\_\_\_

**Insulation Board Fasteners** Yes  N/A

Select the attachment method:

Adhered

Manufacturer: \_\_\_\_\_

Trade Name: \_\_\_\_\_



Application Type<sup>14</sup>: \_\_\_\_\_

Adhesion Rate: \_\_\_\_\_

Mechanically Fastened

Fastener:

Trade Name: \_\_\_\_\_

Diameter (in): \_\_\_\_\_

Length (in): \_\_\_\_\_

Plate:

Plate Name: \_\_\_\_\_

Plate Material:

Metal  Plastic

Other: \_\_\_\_\_

Plate Diameter (in): \_\_\_\_\_

Fastening Pattern<sup>15</sup>:

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

**Base Sheet** Yes  N/A

Base sheet general information:

Base Sheet Manufacturer: \_\_\_\_\_

Thickness (in): \_\_\_\_\_

Base sheet attachment:  Self-Adhered  Mechanically Attached

Fastener:

Trade Name: \_\_\_\_\_

Fastener Type:

Split Shank

Other: \_\_\_\_\_

Diameter (in): \_\_\_\_\_

Length (in): \_\_\_\_\_

Plate (if differs from trade name above):

Plate Name: \_\_\_\_\_

Plate Material:

Metal  Plastic

Other: \_\_\_\_\_

Plate Diameter (in): \_\_\_\_\_

Fastening Pattern<sup>13</sup>:

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

**Additional Single-Ply Membrane Requirements**

Yes  N/A

Single-ply roof covers have a perimeter peel stop with a termination bar or similar located 1–2 ft from the roof edge. Yes  N/A

Mechanically Attached Single-Ply Membrane on Steel Decks—Sheets and fasteners are installed perpendicular to the steel deck ribs.

Yes  N/A

**Hurricane-Prone Regions:** Ballasted, roof pavers, and pedestal systems are NOT being used. Yes

**High-Wind-Prone Regions:** If ballasted, roof pavers, and/or pedestal systems are being used, please complete the following information:

- Ballasted
- Roof Paver
- Pedestal System

Manufacturer specifications must be submitted with this submittal.

System meets the minimum wind uplift requirements as defined in section 3.1.1.3 of the *FORTIFIED Multifamily–Wind Standard*.

The selected system has been installed in accordance with FM Data Sheet 1-29 and ANSI/SPRI RP-4.

**Vegetative Roof Systems (High-Wind-Prone Regions Only)**

Yes  N/A

Vegetative roof systems are permitted only in high-wind-prone regions. Structural calculations, uplift tests, and/or additional documentation may be requested by the FORTIFIED Multifamily Evaluator.

Select the system:

- Extensive
- Simple Intensive (Semi-Intensive)

Provide the appropriate approval rating and number:

FM RoofNav Number: \_\_\_\_\_

Miami-Dade NOA: \_\_\_\_\_

**Architectural/Structural Metal Roof Panel** Yes  N/A

Please indicate the roof system:

- Non-structural architectural metal panel roofs on solid wood sheathing
- Structural metal panel roof systems on open framing members
- Structural Standing Seam
- Through-Fastened (Lap Seam)

Purlin spacing:

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

<sup>14</sup>Refers to the application; fully adhered, strips, ribbons, etc. For example, securement of insulation to concrete deck with an adhesive applied was installed in a serpentine method with a ribbon width of 0.75 in.

<sup>15</sup>Fastening pattern rate shall be in terms of square footage (sq ft) per (1) fastener.



Corner: \_\_\_\_\_

Approved System:

FM Approval Standard 4470 or FM4471

FM RoofNav: \_\_\_\_\_

Miami-Dade County Approved

NOA: \_\_\_\_\_

Attachment:

Clip Spacing (in.):

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

Number of screws per clip: \_\_\_\_\_

Total screw pull out value (lb): \_\_\_\_\_

Other (e.g. through-fastened with wood screw):

Describe: \_\_\_\_\_

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

Lap Seam Fasteners:

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

Attachments include a minimum 2.0 safety factor as described in section 3.1.1.3 of the *FORTIFIED Multifamily-Wind Standard*.

### Structural Roof Deck

Structural roof deck resists the loads and load combinations specified in ASCE 7 as defined in section 3.1.1.3.1 of the *FORTIFIED Multifamily-Wind Standard*.

Structural roof deck attachment capacity meets the pressures defined in section 3.1.1.3 of the *FORTIFIED Multifamily-Wind Standard*.

Select the deck type and specify construction:

Cast-in-place structural concrete with lightweight insulating concrete (LWIC) above structural concrete

Cast-in-place structural concrete without LWIC

Poured concrete on steel form deck with LWIC

Poured concrete on steel form deck without LWIC

Precast concrete "tees"

Panel width (in.): \_\_\_\_\_

Gypsum on bulb "tees"

Panel width (in.): \_\_\_\_\_

Clip trade name: \_\_\_\_\_

Clip spacing (in.): \_\_\_\_\_

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

Cementitious wood fiber

Panel width (in.): \_\_\_\_\_

Clip trade name: \_\_\_\_\_

Clip spacing (in.):

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

LWIC poured on steel form (fill out steel deck information below)

Steel deck

*Specify the details listed below:*

Deck gauge: \_\_\_\_\_

Deck attachment method:

Weld

Weld size (in.): \_\_\_\_\_

Weld spacing (in.): \_\_\_\_\_

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

Screw or  Rivet

Size: \_\_\_\_\_

Head diameter (in.): \_\_\_\_\_

Spacing (in.):

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

Other: \_\_\_\_\_

Spacing (in.):

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

Joist or Beam Spacing (in.):

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Model: \_\_\_\_\_

Type/size: \_\_\_\_\_

Wood Deck

Deck Type:

Plywood

Oriented strand board (OSB) plank





Other: \_\_\_\_\_

Deck Thickness (in.): \_\_\_\_\_

Deck Attachment Method:

Screw ring-shank nail

Spiral nail

Smooth nail

Fastener size: \_\_\_\_\_

Fastener spacing (in.): \_\_\_\_\_

Structural Framing Members:

Wood joists

Wood beams

Glulam beams

Cross laminated timber

Other: \_\_\_\_\_

Structural Framing Member Spacing: \_\_\_\_\_ (in.)

Field: \_\_\_\_\_

Perimeter: \_\_\_\_\_

Corner: \_\_\_\_\_

### Roof Edge Flashing, Coping, and Counter--Flashing

Yes  N/A

All flashing is designed in accordance with ANSI/SPRI/FM 4435/ES-1 for the ASCE 7 design wind pressures as defined in section 3.1.1.3.1 of the *FORTIFIED Multifamily--Wind Standard*.

### Wood Nailers

Yes  N/A

Wood nailers comply with the guidance found in section 2.2.2 of FM Data Sheet 1-49.

Wood Nailer:

Wood Species: \_\_\_\_\_

Width: \_\_\_\_\_

Thickness(in): \_\_\_\_\_

Wood Nailer Securement:

Nail/Bolt Size: \_\_\_\_\_

Corrosion Resistance:

Hot-dipped galvanized steel

Stainless steel

Other: \_\_\_\_\_

Wood nailers have been secured with two rows of staggered fasteners.

### Gutters Systems

Yes  N/A

Select the option which best describes the gutter system.

ANSI-SPRI GD-1 (2010) with the adjustments defined in section 3.1.1.3 of the *FORTIFIED Multifamily--Wind Standard*.

ANSI-SPRI GT-1 (2016) with the adjustments defined in section 3.1.1.3 of the *FORTIFIED Multifamily--Wind Standard*.

### Steep-Sloped (>10°) System

Yes  N/A

#### Asphalt Shingles and Architectural Metal Panel

Select either asphalt shingles or architectural metal panels and fill out the corresponding information.

#### Asphalt Shingles Yes N/A

If the building is less and 60 ft tall, select one of the following options from the table. If not, additional engineering calculations are required and must be submitted with this form.

Selection	Wind Speed (V <sub>asd</sub> )	Wind Speed (V <sub>ult</sub> )	Shingle Testing Standard/ Classification
<input type="checkbox"/>	100 MPH	129 MPH	ASTM D3161 (Class F) or ASTM D7158 (Class G or H)
<input type="checkbox"/>	110 MPH	142 MPH	
<input type="checkbox"/>	120 MPH	155 MPH	
<input type="checkbox"/>	130 MPH	168 MPH	ASTM D3161 (Class F) or ASTM D7158 (Class H)
<input type="checkbox"/>	140 MPH	180 MPH	
<input type="checkbox"/>	150 MPH	194 MPH	

Manufacturer name: \_\_\_\_\_

Number of nails per shingle tab used to install shingles for high wind rating<sup>16</sup>: \_\_\_\_\_

Shingles are installed at eaves using (check one):

Peel-and-stick starter strip

8-in.-wide x ½-in.-thick bed of flashing cement

Shingles are installed at rakes/gable edges using (check one):

8-in.-wide x ½-in.-thick bed of flashing cement

Starter strip set in an 8-in.-wide x ½-in.-thick bed of flashing cement

ASTM D1970 peel-and-stick starter strip with asphaltic adhesive strip

Shingles installed at intersections and valleys:

8-in.-wide x ½-in.-thick bed of flashing cement

Not applicable

### Architectural Metal Panels

Yes  N/A

Select architectural metal panel system approval:

Florida Product Approval

TDI

ICC-ES

UL

Miami-Dade

Provide the documentation number associated with the approved system (i.e., FL Number for FPA):

Multiple systems:

<sup>16</sup>Six nails per shingle are usually required by shingle manufacturers for high wind installation.



Single system: \_\_\_\_\_

Enhancements (describe):

A check in the box beside each requirement indicates that the architectural metal panel installation is in accordance with the standard.

- The architectural metal panels were designed to meet the design wind pressures of ASCE 7 for the building specific parameters as defined in section 3.1.1.3.1 of the *FORTIFIED Multifamily–Wind Standard*.
- The panel attachments were designed for the wind pressures as defined in section 3.1.1.3 of the *FORTIFIED Multifamily–Wind Standard*.
- Attachments are installed per the manufacturer’s guidelines.

### Sealed Roof Deck Options for Asphalt Shingles and Metal Roof Covers

In some areas of the country, the availability of underlayment products that meet these criteria are becoming limited. ASTM D6757 is acceptable in place of ASTM D226 Type II (#30) or ASTM D4869 Type IV (#30) as specified in section 3.1.3.3.1 of the FORTIFIED Multifamily Wind Standards.

Select one of the following options to indicate how the roof deck is sealed:

- OPTION 1A: SELF-ADHERING POLYMER-MODIFIED BITUMEN FLASHING TAPE** at least 4-in. wide meeting ASTM D1970. It shall be applied directly to the roof deck (or primer if required by manufacturer) to all horizontal and vertical joints in the roof deck; then a #30 ASTM D226 Type II felt or #30 ASTM D4869 Type IV felt underlayment or a reinforced synthetic underlayment which has an ICC approval as an alternate to ASTM D226 Type II felt paper installed over the entire roof deck and secured with button cap nails (with 1-in. diameter) at maximum 6 in. o.c. at laps and 12 in. o.c. vertically and horizontally in the field. Horizontal laps must be minimum of 4 in. and end laps must be a minimum of 6 in.<sup>17</sup>
- OPTION 1B: SELF-ADHERING AAMA 711-13, LEVEL 3 (FOR EXPOSURE UP TO 80°C/176°F) COMPLIANT FLEXIBLE FLASHING TAPE**, at least 3¾-in. wide, applied directly to the roof deck (or primer if required by manufacturer) to all horizontal and vertical joints in the roof deck; then a #30 ASTM D226 Type II felt or #30 ASTM D4869 Type IV felt underlayment or a reinforced synthetic underlayment which has an ICC approval as an alternate to ASTM D226 Type II felt paper installed over the entire roof deck and secured with button cap nails at maximum 6 in. o.c. at laps and 2 rows spaced evenly in the field at 12 in. o.c.

- OPTION 2: A FULL LAYER OF SELF-ADHERING POLYMER-MODIFIED BITUMEN MEMBRANE** (“peel-and-stick”) meeting ASTM D1970 is installed over the entire roof deck with a second layer of minimum ASTM D226 Type I felt installed as a “bond break” between the peel-and-stick and the shingles.
- OPTION 3: INSTALL TWO (2) LAYERS OF ASTM D226 TYPE II (#30) OR ASTM D4869 TYPE IV (#30)** underlayment in a shingle fashion, lapped 19 in. on horizontal seams (36-in. roll), and 6 in. on vertical seams. Fasten underlayment at maximum 6 in. o.c. along the laps and at maximum 12 in. oc. in the field of the sheet centered between the side laps. Secure underlayment using annular ring or deformed shank nails with 1-in-diameter caps (button cap nails).<sup>16</sup>

Concrete and Clay Tile Yes  N/A

### Concrete and Clay Tile Material and Installation

A check in the box beside each requirement indicates that the tile installation is in accordance with the standard.

- Tile is installed in accordance with FRSA/TRI Florida High Wind Concrete and Clay Tile Installation Manual for the design wind speed as defined in section 3.1.1.3 of the *FORTIFIED Multifamily–Wind Standard*.<sup>18</sup>
- Clay and concrete tiles are installed over a minimum 15/32-in.-thick plywood.
- Mortar-set tile or mortar-set hip and ridge tiles are not used.
- Metal flashing is installed in accordance with FRSA/TRI Florida High Wind Concrete and Clay Tile Installation Manual.
- Hip and ridge tile structural support and attachment is installed in accordance with FRSA/TRI Florida High Wind Concrete and Clay Tile Installation Manual. NOTE: Mortar set attachment is not acceptable.
- Tile attachment is installed in accordance with FRSA/TRI Florida High Wind Concrete and Clay Tile Installation Manual. NOTE: Mortar set attachment is not acceptable.

### Concrete and Clay Tile Sealed Roof Deck

In some areas of the country, the availability of underlayment products that meet these criteria are becoming limited. ASTM D6757 is acceptable in place of ASTM D226 Type II (#30) or ASTM D4869 Type IV (#30) as specified in section 3.1.3.3.2 of the FORTIFIED Multifamily Wind Standards.

<sup>17</sup> Photographs of product labels and installation required. If ASTM D4869 felt underlayment does not specifically state that it is Type IV, the product must weight 26 lb/100 ft<sup>2</sup> to meet this requirement.

<sup>18</sup> ASCE 7-16 wind loads are not addressed in the FRSA/TRI Installation (Fifth Edition Revise) guidelines. In jurisdictions that require ASCE 7-16 wind loads, follow the tile manufacturer installation guidance and product approvals for the design wind pressures, and, if the roof tile is installed with adhesives, the adhesive manufacturer’s product approval for those wind pressures.



Select one of the following options to indicate how the roof deck is sealed:

- OPTION 1A: SELF-ADHERING POLYMER-MODIFIED BITUMEN FLASHING TAPE** at least 4-in. wide meeting ASTM D1970. It shall be applied directly to the roof deck (or primer if required by manufacturer) to all horizontal and vertical joints in the roof deck; then a #30 ASTM D226 Type II felt or #30 ASTM D4869 Type IV felt underlayment or a reinforced synthetic underlayment which has an ICC approval as an alternate to ASTM D226 Type II felt paper installed over the entire roof deck and secured with button cap nails (with 1-in. diameter) at maximum 6 in. o.c. at laps and 12 in. o.c. vertically and horizontally in the field. Horizontal laps must be minimum of 4 in. and end laps must be a minimum of 6 in.<sup>19</sup>
- OPTION 1B: SELF-ADHERING AAMA 711-13, LEVEL 3 (FOR EXPOSURE UP TO 80°C/176°F) COMPLIANT FLEXIBLE FLASHING TAPE**, at least 3¼-in. wide, applied directly to the roof deck (or primer if required by manufacturer) to all horizontal and vertical joints in the roof deck; then a #30 ASTM D226 Type II felt or #30 ASTM D4869 Type IV felt underlayment or a reinforced synthetic underlayment which has an ICC approval as an alternate to ASTM D226 Type II felt paper installed over the entire roof deck and secured with button cap nails at maximum 6 in. o.c. at laps and 2 rows spaced evenly in the field at 12 in. o.c.
- OPTION 2: A FULL LAYER OF SELF-ADHERING POLYMER-MODIFIED BITUMEN MEMBRANE** (“peel-and-stick”) meeting ASTM D1970 is installed over the entire roof deck with a second layer of minimum ASTM D226 Type I felt installed as a “bond break” between the peel-and-stick and the shingles.

### Other Roof Coverings Yes N/A

Roof type: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Describe how the roof covering meets the design pressures as outline in section 3.1.1.3 and that the attachments meet the design pressures as outline in section 3.1.1.3.1.

If applicable, please describe the sealed roof deck method:

### Structural Roof Deck and Attachment

Select the appropriate structural roof deck and fill out the corresponding information.

Plywood and oriented strand board (OSB) Yes  N/A

Select the structural deck:

- Plywood       OSB

<sup>19</sup> Photographs of product labels and installation required. If ASTM D4869 felt underlayment does not specifically state that it is Type IV, the product must weight 26 lb/100 ft<sup>2</sup> to meet this requirement.

Check the box beside each requirement to indicate that the tile installation is in accordance with the standard.

- Roof sheathing can resist the loads and load combinations specified in ASCE 7 as defined in section 3.1.1.3.1 of the *FORTIFIED Multifamily–Wind Standard*.
- Wood structural panel thickness is not less than 7/16 in. and no less than 15/32 in. for the installation of new clay or concrete roof tiles.

Sheathing Fastening:

Roof member spacing (in.)<sup>20</sup>: \_\_\_\_\_

Sheathing thickness (in.): \_\_\_\_\_

Fastener type

- 8d ring-shank nails
- 10d ring-shank nails
- Other (engineer of record must provide calculations)

**Note:** Smooth-shank nails are not permitted.

Fastener spacing:

Field:     4 in o.c.     6 in. o.c.     Other: \_\_\_\_\_

Perimeter:  4 in. o.c.     6 in. o.c.     Other: \_\_\_\_\_

Corner:     4 in. o.c.     6 in. o.c.     Other: \_\_\_\_\_

### Sawn Lumber or Wood Boards Yes N/A

Check the box beside each requirement to indicate that the sawn lumber or wood boards are in accordance with the standard. Fill out requested information where indicated.

- Sawn lumber or wood board roof deck can resist the loads and load combinations specified in ASCE 7 as defined in section 3.1.1.3.1 of the *FORTIFIED Multifamily–Wind Standard*.

Manufacturer: \_\_\_\_\_

Dimensions:

Width (in): \_\_\_\_\_

Thickness (in): \_\_\_\_\_

Roof member spacing<sup>21</sup>: \_\_\_\_ in.

- Sawn lumber or wood board roof deck attachments can resist the loads and load combinations specified in ASCE 7 as defined in section 3.1.1.3 of the *FORTIFIED Multifamily–Wind Standard*.

Describe the attachment detail:

### Structural Steel Decks Yes N/A

Check the box beside each requirement to indicate that the sawn lumber or wood boards are in accordance with the standard. Fill out requested information where indicated.

<sup>20</sup>For mean roof height less than 30 ft, the maximum allowed roof member spacing is 24 in. o.c. unless calculations are provided by the engineer of record.

<sup>21</sup>Measured from centerline to centerline in inches.



Structural steel deck can resist the loads and load combinations specified in ASCE 7 as defined in section 3.1.1.3.1 of the *FORTIFIED Multifamily–Wind Standard*.

Manufacturer: \_\_\_\_\_

Gauge: \_\_\_\_\_

Profile: \_\_\_\_\_

Roof member spacing (in.): \_\_\_\_\_

Structural steel deck attachments can resist the loads and load combinations specified in ASCE 7 as defined in section 3.1.1.3 of the *FORTIFIED Multifamily–Wind Standard*.

Describe the attachment details:

### Drip Edge (Edge Flashing) Yes N/A

A check in the box beside each requirement indicates that the drip edge is in accordance with the standard. Fill out requested information where indicated.

- Minimum 26 gauge
- Joints are overlapped a minimum of 3 in.
- Drip edge extends ½ in. below sheathing and extends back on the roof a minimum of 2 in.
- Mechanically fastened at 4 in. o.c. and fasteners are alternating (staggered)
- Drip edge is installed **over** the underlayment

### Flashing (All Non-Edge Flashing Applications) Yes N/A

Check the box beside each requirement to indicate that the flashing is in accordance with the standard. Fill out requested information where indicated.

- Meets the 2018 IBC
- Meets the manufacturer’s installation guidelines

### Ridge and Off Ridge Vents Yes N/A

Check the box beside each requirement to indicate that the ridge and off ridge vents are in accordance with the standard. Fill out requested information where indicated.

- Ridge and off ridge vents are TAS 100(A) rated for resisting water intrusion in high winds.
- Attached to the roof per the manufacturer’s installation guidelines.

### Gable End Vents Yes N/A

IBHS recommends against including gable end vents in new commercial buildings built in hurricane-prone regions. If they must be used to meet code they must meet:

- Gable end vents are TAS 100(A) rated for resisting water intrusion in high winds.

Attached to the roof per the manufacturer’s installation guidelines.

### Skylight Yes N/A

Check the box beside each requirement to indicate that the skylights are in accordance with the *FORTIFIED Multifamily–Wind Standard*.

Skylights and their attachments are designed and detailed for the ASCE 7 wind loads and provide an uplift resistance with a minimum factor of safety 2.0 for ASCE 7 ASD loads (1.67 for ASCE 7-16 ASD loads). Installation must meet the air and water infiltration requirements of ASTM E330 and ASTM E331. The curb installation must be confirmed by the engineer of record that it shall meet the required uplift with a minimum factor of safety as described in section 3.1.1.3 of the *FORTIFIED Multifamily–Wind Standard*.

#### Hurricane-Prone Regions Only:

Skylights shall conform to one of the following:

- Current and active FM Approval per ANSI FM 4431 with large missile impact rating.
- Miami-Dade County Approved with a current and active Notice of Acceptance with large missile impact rating.
- When the ASCE 7-05 wind speed is ≥130 mph (ASCE 7-10 and 7-16 when appropriate Risk Category design wind speed is ≥165 mph), skylights shall also meet AAMA 520-09.

### Roof-Mounted Equipment (RME) Yes N/A

Check the box beside each requirement to indicate that the RME are in accordance with the *FORTIFIED Multifamily–Wind Standard*.

All RME and their attachments have been designed with a minimum factor of safety as defined in section 3.1.1.3.2 of the *FORTIFIED Multifamily–Wind Standard*.

All RME and their attachments are in accordance with one of the following:

- ASCE 7-10 Section 29.5.1 ( $h \leq 60$  ft)
- ASCE 7-16 Section 29.4

### Photovoltaic Systems Yes N/A

Photovoltaic (PV) systems and their attachments are designed with a minimum factor of safety defined in section 3.1.1.3.2 of the *FORTIFIED Multifamily–Wind Standard* and in accordance with (select one):

- ASCE 7-16
- SEAOC PV2
- Model-scale wind tunnel study that meets the requirements of ASCE 49-12 (documentation must be submitted)

Provided the wind loads used are consistent with the provisions described above, the following options are acceptable:

- Rigid PV modules that are FM Approved or meet Approval Standard 4478 (wind uplift, combustibility from above the deck).
- Flexible PV modules that are FM Approved or meet Approval Standard 4476.



## Lightning Protection

Yes  N/A

Check the box beside each requirement to indicate that the lightning protection system is in accordance with the *FORTIFIED Multifamily-Wind Standard*.

- The system is designed and installed in accordance with FEMA-Rooftop Attached Lightning Protection Systems in High-Wind Regions.
- Looped conductor connections were used in lieu of pronged connectors.
- Bolted splice connectors were used in lieu of pronged connectors.

## Low-Sloped ( $\leq 10^\circ$ ) Roof-Mounted Safety Rails

Yes  N/A

Check the box beside each requirement to indicate that the Low-Sloped ( $\leq 10^\circ$ ) Roof-Mounted Safety Rails are in accordance with the *FORTIFIED Multifamily-Wind Standard*.

- Rails and their connections were designed in accordance with IBC 2015 and ASCE 7-10.
- A calculation set by the engineer of record must be submitted with this document including all wind design parameters, member selection and design, connection details and capacity verification, and the supporting structural member calculations.

## Low-Sloped ( $\leq 10^\circ$ ) Roof Equipment Screens

Yes  N/A

Check the box beside each requirement to indicate that the Low-Sloped ( $\leq 10^\circ$ ) Roof Equipment Screens are in accordance with the *FORTIFIED Multifamily-Wind Standard*.

- Roof equipment screens and their connections were designed to the parameters of section 3.1.1.3.1 of the *FORTIFIED Multifamily-Wind Standard*.

## FORTIFIED SILVER

All FORTIFIED Roof requirements must be satisfied.

For this section, check the box beside each requirement or respond to the item to indicate that items are in accordance with the *FORTIFIED Multifamily-Wind Standard*.

### Opening Protection

#### Wall Design Pressures

Provide select and fill out the appropriate wind pressures.

- ASCE 7-05 and 7-10 design pressures (psf) using minimum terrain Exposure C or D and effective wind area of 10 sq ft

Please select the method used to obtain base pressures:

- ASD       LRFD

Specify the wind pressures (psf):

Zone 4: \_\_\_\_\_

Zone 5: \_\_\_\_\_

- ASCE 7-16 design pressures (psf) using minimum terrain Exposure C or D and effective wind area of 10 sq ft

Please select the method used to obtain base pressures:

- ASD       LRFD

Specify the wind pressures (psf):

Zone 4: \_\_\_\_\_

Zone 5: \_\_\_\_\_

#### Windows and Glazed Openings

Yes

N/A

Select the types of window systems:

- Single-pane
- Double-pane
- Laminated glass
- Impact-rated laminated window and frame system
- Triple-pane impact-rated laminated window and frame system

Check the box beside each requirement or respond to the item to indicate that the windows are in accordance with the *FORTIFIED Multifamily-Wind Standard*.

- Windows and glazed openings are designed for the load combinations defined in section 3.1.1.3.1 of the *FORTIFIED Multifamily-Wind Standard*.

**Hurricane-Prone Regions:** Fill out the following if you are located in a hurricane-prone region. If you are not located in a hurricane-prone region, continue to high-wind-prone region.

- Labels verifying the impact rating and pressure capacity are visible on the installed windows.

Check the box beside each requirement or respond to the item to indicate that the windows are in accordance with the *FORTIFIED Multifamily-Wind Standard*.

- Glazed openings that do not have impact-rated products installed will be protected from wind-borne debris by permanently or temporarily installed shutter systems such as roll-down, accordion, storm panels, fabric, or screen products.
- All openings located within 30 ft of grade, are specified as impact rated or to be protected with an impact-rated protection system. At a minimum, the specified products or systems meet ASTM E1886 cyclic pressure and ASTM E1996 large missile impact requirements.
- Glazing specified for locations 30 ft or higher above grade are rated for the design pressure and small missile impact.

Openings required to be protected and located at upper levels without access from a porch or balcony shall have permanently installed protection which, at a minimum, shall be an impact rated product or operable from the inside the building.  Yes  N/A

#### Commercial Doors

Yes

N/A

- All commercial doors are designed in accordance with section 3.2.1.1 of the *FORTIFIED Multifamily-Wind Standard*.

**Hurricane-Prone Regions:** Fill out the following if you are located in a hurricane-prone region.

- All commercial doors meet both ASTM E1886 cyclic pressure and ASTM E1996 large missile impact requirements.
- ANSI/DASMA 115, *Standard Method for Testing Sectional Doors, Rolling Doors, and Flexible Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure*





AND/OR

- The Florida Building Code* TAS 201 (Impact Test Procedures), TAS 202 (*Criteria for Testing Impact & Nonimpact Resistant Building Envelope Components Using Uniform Static Air Pressure*), and TAS 203 (*Criteria for Testing Products Subject to Cyclic Wind Pressure Loading*)
- Labels verifying the impact rating and pressure capacity are visible on the installed doors.

**Exterior Personnel Doors** Yes  N/A

- All personnel doors are designed for the load combinations defined in section 3.2.1.1 of the *FORTIFIED Multifamily–Wind Standard*.

**Hurricane-Prone Regions:** Fill out the following if you are located in a hurricane-prone region.

- Exterior personnel doors, with or without windows, located within 30 ft of grade meet both ASTM E1886 cyclic pressure and ASTM E1996 large missile impact requirements.

**Exterior Walls and Wall Protection**

- Wall systems are designed for the load combinations defined in section 3.1.1.3.1 of the *FORTIFIED Multifamily–Wind Standard*.

**Hurricane-Prone Regions:** Fill out the following if you are located in a hurricane-prone region.

- Wall impact resistance meets the requirements of ASTM E1886 and ASTM E1996 for the impact of a 9-lb nominal 2x4 lumber missile impacting end on at 34 mph (50 ft/s) (large missile impact level D).

**Wall Types**

Select all that apply; for hurricane-prone regions, exterior walls must be impact rated (denoted as “IR” below).

- Reinforced concrete block (IR)
- Precast concrete/tilt up panels (IR)
- Cast-in-place concrete (IR)
- Brick veneer over wood or metal frame
- Brick with concrete block backing (IR)
- Metal walls
  - Metal wall systems are designed and tested for resistance in accordance with ASTM E1592. Each assembly shall be tested for a load equal to 1.5 times the design pressure.
- Insulated concrete form
- Sandwich panel wall systems
  - Meets the International Code Council (ICC) Evaluation Service – Acceptance Criteria for Sandwich Panels AC04. Any adhesives used shall comply with ASTM D2559 or the ICC Acceptance Criteria for Sandwich Panel Adhesives AC05.

- Exterior insulating finishing systems (EIFS)

**Note:** EIFS that are not visibly damaged, deteriorated, chipped, cracked, have structurally sound horizontal and vertical seals including around windows and penetrations, are free of leaks, and have at least 5 years of useful life remaining are eligible for a FORTIFIED Silver designation or certificate. EIFS that do not meet these conditions and/or that do not have at least 5 years of useful life remaining shall require repairs or replacement to be eligible for a FORTIFIED Silver designation or certificate.

- Hurricane-Prone Regions Only:** EIFS Installed on a metal or wood frame are not permitted unless they are a Miami-Dade County Approved system.
- Solid insulated concrete forms or ¾-in. plywood or ≥<sup>7</sup>/<sub>16</sub>-in. wood structural panel sheathing with one of the following finishes:
  - ½-in. stucco (IR)
  - ½-in.-thick wood (IR)
  - ½-in. fiber-cement-based planking (IR)
  - ≥<sup>5</sup>/<sub>8</sub>-in.-thick wood structural panel sheathing with vinyl or aluminum siding (IR)

- Other walls

Describe “other” wall system:

- Wall systems are designed for the load combinations defined in section 3.1.1.3.1 of the *FORTIFIED Multifamily–Wind Standard*.

**Hurricane-Prone Regions:** Fill out the following if you are located in a hurricane-prone region.

- Wall impact resistance meets the requirements of ASTM E1886 and ASTM E1996 for the impact of a 9-lb nominal 2x4 lumber missile impacting end on at 34 mph (50 ft/s) (large missile impact level D).

**Parapets** Yes  N/A

Is the parapet taller than 3 ft from base connection to free end?  
 Yes  No

**If yes,** is structural bracing (internal or external) provided and does it meet the minimum ASCE 7 standards?  Yes  No

**Gable Ends** Yes  N/A

- Gable overhangs will not have openings for attic ventilation.
- Gable end walls, wall sheathing, overhangs, and overhang soffit covers will be designed for ASCE 7 ASD wind with a minimum factor of safety as defined in section 3.1.1.3 of the *FORTIFIED Multifamily–Wind Standard*.
- Gable wall vents will be protected against water intrusion.
- Gable overhangs using outlooker framing will have adequate connection at gable wall and at roof framing members. Connections must be designed by a registered PE or developed using prescriptive connection details available from IBHS.



- Box-type soffit overhangs (eave) and gable overhangs with a depth of greater than 12 in. (measured from the back of fascia to exterior wall surface) and covered with aluminum or vinyl material, will have a center brace installed mid-span.
- Gable walls will be sheathed with a minimum of 7/16-in. structural sheathing (Plywood or OSB) or equivalent wall sheathing.
- Gable end walls on gables greater than 48 in. in height will be braced to withstand the ASCE 7 wind loads. A bracing design by a licensed PE is required. Bracing must be installed per design.

As an alternate, bracing details provided in Appendix C of the *International Existing Building Code* or in *The Florida Building Code* may be used.

## Electrical/ Mechanical Systems

### Flood Protection

All electrical and mechanical equipment and connections necessary to operate critical systems are located above the 500-year flood level if known, or at least 3 ft above the known base flood elevation (100-year flood level) or advisory flood elevation.

Yes  N/A

Since the building is located out of a 500-year and 100-year flood zone, all electrical and mechanical equipment and connections necessary to operate critical systems are not exposed to flood waters.

Yes  N/A

### Electrical Connections for Backup Power Yes N/A Recommended—not required

- Transfer switch or docking station (sometimes referred to as a storm switch), that support connection of a generator capable of powering, at a minimum, the critical systems needed to provide continuity of operation.

All electrical connections for backup power are located above the 500-year flood level if known, or at least 3 ft above the known base flood elevation (100-year flood level) or advisory flood elevation.

Yes  N/A

## FORTIFIED Gold

All FORTIFIED Silver requirements must be satisfied.

For this section, check the box beside each requirement or respond to the item to indicate that items are in accordance with the *FORTIFIED Multifamily–Wind Standard*.

### Continuous Load Path

- A continuous and adequate load path from the roof to the foundation of the building exist. The building has positive connections from the roof to foundation as a means to transmit wind uplift and lateral loads safely to the ground. This includes providing roof-to-wall connection hardware (e.g., hurricane straps for wood) with the required roof uplift resistance as determined by the designer or specified in the prescriptive method being used.
- Inter-story connections in multi-story structures have a continuous load path through the wall to the foundation.

### Attached and Accessory Structures

Yes  N/A

- Canopies, carports, porte cocheres or any other vehicle-type drive-through structures will have adequate load path members and connections to resist the loads and load combinations specified in ASCE 7 as defined in section 3.1.1.3.1.

### Chimneys

Yes  N/A

- Chimneys have adequate load path members and connections capable of resisting the loads and load combinations specified in ASCE 7 as defined in section 3.1.1.3.1.

### Backup Power

#### Recommended—not required

IBHS recommends that full facility backup power be provided for buildings, including electric fire pumps and controllers, domestic water systems, and sewage lift systems. IBHS recognizes that it is often not economically feasible to require full facility back up power, in this case the design team should use an incremental analysis and approach by focusing first on providing connections and/or back up power for critical electrical and mechanical systems.

- Backup power shall be available and capable of powering critical electrical and mechanical systems that maintain vital business operations. All equipment shall be installed in accordance with the requirements of “Electrical and Mechanical Systems and Connections—Flood Protection” described in section 3.2.4.