STATE OF FLORIDA
BUILDING COMMISSION

In the Matter of

JAX APEX TECHNOLOGY, INC.

Petitioner.
_____/

DS 2023-044

DECLARATORY STATEMENT

The following proceeding came before the Florida Building Commission (Commission) by a Petition from Jeffrey P. Arneson, for Jax Apex Technology, Inc. (Petitioner) that was received November 27, 2023. Based on the statements in the petition, the materials submitted, and the request by the Petitioner, the Commission states the following:

Findings of Fact

1. The petition is filed pursuant to, and must conform with the requirements of rule 28-105.002, Florida Administrative Code.

2. Petitioner's representative in this matter is Jeffrey P. Arneson, 9000 Regency Square Boulevard, Jacksonville, FL 32221.

3. Petitioner is a structural engineering company engaged in the design of single family detached dwellings and multifamily townhomes.

4. Petitioner seeks clarification of section R301.2.1.1, Florida Building Code, Residential, 8th Edition (2023), as it pertains to roof deck thickness.

5. Specifically, the Petitioner requests an answer to the following question based upon the project described within the petition for declaratory statement:

> Does section R301.2.1.1 allow performance-based design of roof deck thickness?

Conclusions of Law

6. The Commission has the specific statutory authority pursuant to section 553.775(3)(a), Florida Statutes (2023) to interpret the provisions of the Florida Building Code by issuing a declaratory statement.

7. Section R301.2.1.1, Florida Building Code, Residential, 8th Edition (2023), states:

> **Wind design required.**
> In regions where the ultimate design wind speed, V_{ult}, from Figure R301.2(4) equals or exceeds 115 miles per hour (51 m/s), the design of concrete, masonry, wood and steel buildings for wind loads shall be in accordance with one or more of the following methods:
> 1. AWC *Wood Frame Construction Manual* (WFCM).
> 2. Concrete and masonry walls are permitted to be designed in accordance with ICC *Standard for Residential Construction in High-Wind Regions* (ICC 600).
> 3. ASCE *Minimum Design Loads for Buildings and Other Structures* (ASCE 7).
> 4. AISI *Standard for Cold-Formed Steel Framing—Prescriptive Method For One- and Two-Family Dwellings* (AISI S230).
> 5. *Florida Building Code, Building*; or
> 6. The MAF *Guide to Concrete Masonry Residential Construction in High Wind Areas* shall be permitted for applicable concrete masonry buildings for a basic wind speed of 130 mph (58 m/s) or less in Exposure B and 110 mph (49 m/s) or less in Exposure C in accordance with Figure R301.2(4) as converted in accordance with R301.2.1.3.
>
> **Exceptions:**
> 1. Footings and foundations shall comply with Chapter 4.
> 2. Exterior windows and doors shall comply with Section R609.
> 3. For structural insulated panels, the provisions of this code apply in accordance with the limitations of Section R610.
> 4. Exterior wall coverings and soffits shall comply with Chapter 7.
> 5. Roof sheathing shall be attached in accordance with Section R803.
> 6. Roof coverings shall comply with Chapter 9.
> 7. For concrete construction, the provisions of this code apply in accordance with the limitations of Section R608.2.

> The elements of design not addressed by the methods in Items 1 through 6 shall be in accordance with the provisions of this code.
>
> The provisions of this code are not intended to prevent the

8. Section R801.2, Florida Building Code, Residential, 8th Edition (2023), states:

> **Requirements.**
> Roof and ceiling construction shall be capable of accommodating all loads imposed in accordance with Section R301 and of transmitting the resulting loads to the supporting structural elements.

9. Section R803.2.2, Florida Building Code, Residential, 8th Edition (2023), states:

> **Allowable spans.**
> The minimum thickness and span rating for wood structural panel roof sheathing shall not exceed the values set forth in Table R803.2.2.

10. Table R803.2.2, Florida Building Code, Residential, 8th Edition (2023), provides:

TABLE R803.2.2 MINIMUM ROOF SHEATHING THICKNESS

Rafter/Truss Spacing 24 in. o.c.	WIND SPEED							
	115 mph	120 mph	130 mph	140 mph	150 mph	160 mph	170 mph	180 mph
Minimum Sheathing Thickness, inches (Panel Span Rating) Exposure B	7/16 (24/16)	7/16 (24/16)	7/16 (24/16)	7/16 (24/16)	15/32 (32/16)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)
Minimum Sheathing Thickness, inches (Panel Span Rating) Exposure C	7/16 (24/16)	7/16 (24/16)	15/32 (32/16)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	23/32 (48/24)
Minimum Sheathing Thickness, inches (Panel Span Rating) Exposure D	15/32 (32/16)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	19/32 (40/20)	23/32 (48/24)	23/32 (48/24)

11. In response to Petitioner's question, the answer is yes. Pursuant to section R301.2.1.1, Florida Building Code, 8th Edition (2023), performance-based design (i.e. ASCE 7) is an acceptable option for designing wood buildings and their roof deck thickness for wind load.

DONE AND ORDERED this 28 day of February, 2024, in Fleming Island, Clay County, State of Florida.

MICHAEL BOURRÉ
Chairman, Florida Building Commission

NOTICE OF RIGHT TO APPEAL

Petitioner and all other interested parties are hereby advised of their right to seek judicial review of this Order in accordance with section 120.68(2)(a), Florida Statutes (2023), and Florida Rules of Appellate Procedure 9.110(a) and 9.030(b)(1)(C). To initiate an appeal, a Notice of Appeal must be filed with the Agency Clerk, Department of Business and Professional Regulation, 2601 Blair Stone Road, Tallahassee, Florida 32399-2203 and with the appropriate District Court of Appeal not later than thirty (30) days after this Order is filed with the Clerk of the Department of Business and Professional Regulation. A Notice of Appeal filed with the District Court of Appeal shall be accompanied by the filing fee specified by section 35.22(3), Florida Statutes (2023).

CERTIFICATE OF FILING AND SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing order has been filed with the undersigned and furnished by U. S. Mail to the persons listed below this 19th day of March, 2024.

Brandon M. Nichols

Agency Clerk's Office
Department of Business and Professional Regulation
& Florida Building Commission
2601 Blair Stone Road
Tallahassee, Florida 32399-2203

Via U.S. Mail

Jax Apex Technology, Inc.
Attn: Jeffrey P. Arneson
9000 Regency Square Boulevard
Jacksonville, FL 32221

Via Inter-Office or Email Delivery

Mo Madani, Planning Manager
Codes and Standards Section
Department of Business and Professional Regulation
2601 Blair Stone Road
Tallahassee, Florida 32399
Mo.Madani@myfloridalicense.com

Marjorie Holladay
Joint Administrative Procedures Committee
Pepper Building, Room 680
Tallahassee, Florida 32399-1300

DS 2023-044

Petition for Declaratory Statement Before the Florida Building Commission

Company: Jax Apex Technology, Inc.
Address: 9000 Regency Square Blvd
Jacksonville, FL 32221

Name: Jeffrey P. Arneson
Title: Head of Engineering
Telephone: 904-821-5200 #317
E-Mail: jeff@apextechnology.com

Statute(s), Agency Rule(s), Agency Order(s), and/or Code Section(s) on which the Declaratory Statement is Sought:

2023 Florida Building Code, Residential
Portions of Chapters 3, and 8

Background:

Jax Apex Technology is a structural engineering company that services high volume home builders throughout Florida. We are currently updating our residential base plan designs to the 2023 Building Code. These base plans are wood framed single family detached dwellings and multifamily townhomes. Structural roof framing assemblies consist of either wood framed trusses or rafters supporting wood structural panel roof decks. We engineer the structural building assembly to resist loads as determined using ASCE 7. Due to the volume of homes that we assume responsible charge over, we are seeking clarity on the application of Sections R301.2.1.1., and R803.2.2 Specifically, it is not clear whether performance-based calculations using ASCE 7 or prescriptive Table 803.2.2 governs roof deck thickness.

Section 301: Building Planning:

R301.2.1.1Wind design required.

In regions where the ultimate design wind speed, V_{ult}, from Figure R301.2(4) equals or exceeds 115 miles per hour (51 m/s), the design of concrete, masonry, wood, and steel buildings for wind loads shall be in accordance with one or more of the following methods:

1. 1.AWC *Wood Frame Construction Manual* (WFCM).
2. 2.Concrete and masonry walls are permitted to be designed in accordance with ICC *Standard for Residential Construction in High-Wind Regions* (ICC 600).
3. 3.ASCE *Minimum Design Loads for Buildings and Other Structures* (ASCE 7).
4. 4.AISI *Standard for Cold-Formed Steel Framing—Prescriptive Method for One- and Two-Family Dwellings* (AISI S230).
5. 5.*Florida Building Code, Building*; or
6. 6.The MAF *Guide to Concrete Masonry Residential Construction in High Wind Areas* shall be permitted for applicable concrete masonry buildings for a basic wind speed of 130 mph (58 m/s) or less in Exposure B and 110 mph (49 m/s) or less in Exposure C in accordance with Figure R301.2(4) as converted in accordance with R301.2.1.3.

Exceptions:

1. 1.Footings and foundations shall comply with Chapter 4.
2. 2.Exterior windows and doors shall comply with Section R609.
3. 3.For structural insulated panels, the provisions of this code apply in accordance with the limitations of Section R610.
4. 4.Exterior wall coverings and soffits shall comply with Chapter 7.
5. 5.Roof sheathing shall be attached in accordance with Section R803.
6. 6.Roof coverings shall comply with Chapter 9.
7. 7.For concrete construction, the provisions of this code apply in accordance with the limitations of Section R608.2.

The elements of design not addressed by the methods in Items 1 through 6 shall be in accordance with the provisions of this code.

Section 803: Roof Sheathing:
R803.2.2Allowable spans.
The minimum thickness and span rating for wood structural panel roof sheathing shall not exceed the values set forth in FBC Residential Table R803.2.2.

TABLE R803.2.2
MINIMUM ROOF SHEATHING THICKNESS

Rafter/Truss Spacing24 in. o.c.	WIND SPEED							
	115 mph	120 mph	130 mph	140 mph	150 mph	160 mph	170 mph	180 mph
Minimum Sheathing Thickness, Inches (Panel Span Rating) Exposure B	7/16(24/16)	7/16(24/16)	7/16(24/16)	7/16(24/16)	15/32(32/16)	19/32(40/20)	19/32(40/20)	19/32(40/20)
Minimum Sheathing Thickness, Inches (Panel Span Rating) Exposure C	7/16(24/16)	7/16(24/16)	15/32(32/16)	19/32(40/20)	19/32(40/20)	19/32(40/20)	19/32(40/20)	23/32(48/24)
Minimum Sheathing Thickness, Inches (Panel Span Rating) Exposure D	15/32(32/16)	19/32(40/20)	19/32(40/20)	19/32(40/20)	19/32(40/20)	19/32(40/20)	23/32(48/24)	23/32(48/24)

Currently, Apex performs calculations to determine roof deck thickness by applying ASCE 7 wind loads using the properties of wood structural panel provided in APA Technical Bulletin Q225G. Except for Table R803.2.2, our calculated results meet or exceed the performance requirements of the 8th Edition Florida Building Code, Building and Residential. Results of our calculations for a detached 2-story single family home with long dimension installed perpendicular to roof framing are exampled in Table 1 Below:

Table 1: Apex Performance-Based Design of Roof Deck Thickness (MRH = 25')

Wind Speed (mph)	Exposure Category	Roof Deck Thickness (inches)
140	C	7/16 (24/16)
150	C	7/16 (24/16)

Question: Exception #5 of R301.2.1.1 (highlighted within this petition) only applies to the attachment of the roof deck. As you can see from Table 1, Performance-based design generally results in roof deck thicknesses that are less than those prescribed in Table R803.2.2. Is Apex correct to interpret Section R301.2.1.1 as allowing performance-based design of roof deck thickness?

DocuSigned by: JEFFREY P. ARNESON LICENSE No 58544 STATE OF FLORIDA PROFESSIONAL ENGINEER
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Jeffrey P. Arneson
Head of Engineering
Jax Apex Technology, Inc.