

BCAB

Building Code Advisory Board of Palm Beach County

TO: Palm Beach County Building Officials
and Construction Industry

FROM: Palm Beach County Building Code Advisory Board
Rebecca D. Caldwell, Technical Advisor

DATE: January 17, 2002

RE:

- Fastening of Asphalt Shingles in \geq 110mph Wind Zones
- Authorized by BCAB 1/16/02

The Florida Building Code requires “special methods of fastening” for asphalt shingles roofs in areas where the basic wind speed is 110mph or greater. This “basic wind speed” is now in three-second gusts. Palm Beach County is 140mph in the eastern half. The shingle attachments must conform with either ASTM D 3161 (modified to 110mph), or M-DC PA 107-95 (the Miami/Dade test). In both of these testing protocols, the shingle roof assembly must successfully withstand a sustained wind load of 110mph for a period of two hours. Due to the substantial wind load being applied for an extended time period; the test is deemed appropriate for shingles to be used in areas with up to 140mph three-second gusts, the maximum designated wind speed within Palm Beach County.

Data originating from the Asphalt Roofing Manufacturers Association (ARMA) is included in the attached memorandum issued by Florida Roofing, Sheet Metal and Air Conditioning Contractors Association, Inc. (FRSA). The memorandum provides further information in a helpful “Question and Answer” format. Although there is some discussion of the “High Velocity Hurricane Zone”, this zone includes Broward and Dade County only, and is not applicable in Palm Beach County.

Attach: FRSA 12/17/01 Memorandum

December 17, 2001

TO: Selected Building Departments

No. Pages: 2

FROM: Steve Munnell, FRSA Executive Director

Asphalt Shingles and the New Florida Building Code...

Over the past decade, the **Asphalt Roofing Manufacturers Association [ARMA]** through its Residential Roofing/Research Committee has been actively involved in the development of the Unified Florida Building Code (FBC) that is scheduled to take effect March 1, 2002. Chapter 15 (Roof Assemblies and Rooftop Structures) of the FBC is divided into two major parts. Sections 1501 through 1511 is based on the 1999 Standard Building Code and applies in all areas of the state **except** the High Velocity Hurricane Zone (Dade and Broward counties only). Sections 1512 through 1525 are based on Chapter 34 of the South Florida Building Code and apply **only** in the High Velocity Hurricane Zone (Dade and Broward counties only).

The 2001 FBC now includes specific requirements for the performance and attachment of asphalt shingles. This article focuses on these requirements and has been prepared in a "Question and Answer" format so that the changes may be easily understood. ARMA intends to continue to collect and disseminate additional code information, as the transition to the 2001 FBC progresses. The ARMA Residential/Research Committee thanks the FRSA for the opportunity to share this valuable information with its members.

Q1. What does the 2001 Florida Building Code say about using asphalt roofing shingles in various wind zones?

A1. Section 1507.3 of the 2001 FBC requires that fiber glass shingles meet ASTM D3462 and gives specific direction on their attachment in three general wind zones: (1) Less than 110-mph, (2) 110-mph and greater and (3) The High Velocity Hurricane Zone (defined by the FBC as Dade and Broward counties only).

Q2. Why does the 2001 FBC wind map have higher basic wind speeds?

A2. The new wind map for Florida (FBC Figure 1606) appears to show higher wind speeds than previous versions. This is because the 2001 FBC has been updated to reflect ASCE 7-98, which includes a new way of quantifying wind speeds. It is now based on a "3-second gust" while earlier versions of the wind map used the "fastest mile" basis. As a "rule of thumb", the difference between the fastest mile basic wind speed and the 3-second gust wind speed is about 20 mph, so that areas that had been in a 90-mph zone are now likely to be 110 mph. This does not mean that the expected wind speeds have changed – only the manner in which the theoretical wind speeds are communicated. For purposes of code compliance, Figure 1606 should be used when designing buildings and selecting appropriate products. Counties that contain several wind zones are now in the process of identifying recognizable geographic features where the wind zones can be defined. Always consult the local building department for the latest wind zone updates.

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Q3. What are the wind test requirements for roofing shingles?

A3. The minimum wind zone in Florida is 100 mph. In this wind zone, no additional wind testing other than that included in ASTM D3462 is required.

In wind zones of 110-mph or greater, the shingles must pass one of two tests; either ASTM D 3161(modified to 110-mph) OR Miami-Dade PA 107.

In the High Velocity Hurricane Zone -- Dade and Broward Counties only -- shingles must pass *both* Miami-Dade PA 107 and PA 100 [Wind-driven rain] tests.

Q4. How many roofing nails are required to apply roofing shingles?

A4. Section 1507.3.7 of the 2001 FBC lists the asphalt shingle fastening requirements.

In wind zones below 110-mph, asphalt strip shingles must be attached with a minimum of 4 nails per strip shingle.

In wind zones of 110-mph or greater, the number of nails that were used to pass either of these wind tests dictates how many nails should be used in those wind zones. Consult the shingle manufacturer to ascertain the number of nails that were used for their various shingles to pass the test.

In the High Velocity Hurricane Zone -- (i.e. Dade and Broward Counties only) strip shingles must be installed with at least 6 nails.

Q5. If the Wind Map indicates a Local Basic Wind Speed greater than 110-mph, must the shingles pass testing at the higher wind speed?

A5. NO. Section 1507.3.7 of the FBC specifically states that, "...where the basic wind speed ... is 110-mph or greater...special methods of fastening are required". All that is needed is testing at 110-mph and proper fastening. The test methods required in the 2001 FBC involve a 2-hr wind exposure and are viewed as rigorous tests. For example, Dade County, which now has a basic wind speed of 146-mph, continues to require testing of shingles by PA 100 and PA 107, both of which use a 110-mph wind exposure.

Q6. Does using a shingle meeting current Miami-Dade County requirements mean you are in compliance with the new Florida Building Code statewide?

A6. YES. Currently, all shingles that have a valid Miami Dade Notice of Acceptance may be used throughout the entire State of Florida.

Q7. Are there any other pertinent changes to the asphalt shingle section of the FBC?

A7. The other clarification is that asphalt shingles must have self-seal strips or be interlocking and they must comply with either Standards Specification ASTM D225 for organic asphalt shingles or ASTM D3462 for fiberglass asphalt shingles.

The FBC may be viewed and purchased on the web at www.FloridaBuilding.org. Updated information on the Code may also be found at the website of the Building Officials Association of Florida at www.boaf.net.

The Asphalt Roofing Manufacturers Association is the North American trade association representing the manufacturers and suppliers of bituminous-base residential and commercial fiberglass and organic asphalt shingle roofing products roll roofing, built-up [BUR] roofing systems, and modified bitumen roofing systems. For additional information concerning ARMA, its involvement in the new Florida Building Code, or other ARMA and industry programs and activities, contact ARMA at: [202] 207-0917; fax: [202] 223-9741; or visit the ARMA web site at: www.asphaltroofing.org.