

Issue: Gravel roofing system

Background:

(1) Legislation: SB 2836 - 2007

(1) Before eliminating gravel or stone roofing systems in the Florida Building Code, the Florida Building Commission shall determine and document:

(a) Whether there is a scientific basis or reason for eliminating this option;

(b) Whether there is an available alternative that is equivalent in cost and durability;

(c) Whether eliminating this option will unnecessarily restrict or eliminate business or consumer choice in roofing systems; and

(d) In consultation with the Fish and Wildlife Conservation Commission, whether eliminating this option will negatively affect the nesting habitat of any species of nesting bird.

(2) Notwithstanding s. 553.73, Florida Statutes, the Florida Building Commission may adopt provisions to preserve the use of gravel roof systems in future editions of the Florida Building Code, if necessary to address the determination of the issues addressed in this section.

(2) Available research:

- Gravel used in built-up roofing is susceptible to blow-off in wind speeds lower than the design (basic) wind speeds for the State.
- Parapets with sufficient height (3-ft or higher) can have an influence in reducing the wind-induced loads.
- Attached is the draft embedded gravel report. The report is not final and additional information regarding available research is being incorporated into the report.

(3) 2007 Florida Building Code – requirements (see attached matrix)

(4) 2007 supplement to the 2006 I – Codes - requirements (see attached matrix)

(5) Background on the code change proposals submitted to the ICC on the subject of roof gravel. (See attached)

(6) Facts:

- Ballasted low-slope roof systems (roof slope < 2:12) are allowed in accordance with SPRI RP-4. Size of aggregate is governed by ASTM D 448 (#4 - 1-1/2 in ... and #2 - 2-1/2 in). Limited to wind speed of 140 mph and building height of 150 feet. #2 is required in Wind Borne Debris Regions.
- The gravel prohibition does not apply to the 2007 Florida Building Code, Residential.
- The gravel prohibition is limited to aggregate (crushed stone, crushed slag or water worn gravel) as defined in ASTM D 1863 (# 6 – 3/4 to 3/8 in, #67 – 3/4 in to #4, #7 – 1/2 to #4).
- Built-up roofs are the main roof system impacted by the gravel prohibition.
- The 2007 Supplement to the 2006 I-Code provides a number of clarifications that should be considered (see attached matrix).
- Section 1609.1.2 of the 2007 FBC, Building allows glazing over 60 feet above the ground and over 30 feet above aggregate surface roofs located within 1,500 feet of building to be unprotected.

Recommendations:

Option #1: Affirm the prohibition regarding the use of aggregate.

Option #2: Clarify the current provisions of the 2007 FBC as follows:

- To future clarify the prohibition; it is advisable that the relevant provisions of the 2007 Supplement to the 2006 I-code be adopted.
- Amend the definition of “Aggregate” to reference ASTM D 1863. This will clarify the definition/size of aggregate.

Option #3: Provide for an exception for fully embedded aggregate:

- Add an exception to Section 1504.8 to allow for aggregate embedded into the asphalt or coal tar flood coat. The exception is consistent with the Broward edition of the South Florida Building Code (1999) (see attached).

Option #4: Provide for an exception for roof with parapets of sufficient height:

- Add an exception to Section 1504.8 for aggregate roofs with parapets of sufficient height (3-ft or higher).

Option #5: Provide for an exception for partially embedded aggregate:

- See Section 1519.12 of the 2007 FBC, Building (HVHZ) (see attached).

Option #6: Limit the prohibition to the Wind Borne Debris Region:

- In the interim and until more research is conducted on this subject, limit the prohibition to aggregate roofs of a building located in wind borne debris region and apply Table 1504.8 to areas outside the wind borne debris region. (This is consistent with the ASCE 7 approach to the issue).