

GG170-14

408.3.2

Proponent: Thomas Slabe, USEPA, representing USEPA and Jennifer Boussetol, Colorado State University

Revise as follows:

408.3.2 Vegetative roofs. Vegetative roofs, where provided in accordance with Section 408.3, shall comply with the following:

1. All plantings shall be selected and placed in accordance with the following
 - 1.1 Plantings shall be selected based on their hardiness zone classifications in accordance with USDA MP1475 and shall be capable of withstanding the climate conditions of the jurisdiction and the micro climate conditions of the building site including, but not limited to, wind, precipitation and temperature. ~~Planting density shall provide foliage coverage, in the warm months, of not less than 80 percent within two years of the date of installation unless a different time period is established in the approved design. Plants shall be distributed to meet the coverage requirements.—~~ *Invasive plant species* shall not be planted.
 - 1.2 Plants shall be selected and placed to provide foliage coverage of not less than 50 percent within two years of the date of installation;
 - 1.3 Construction documents shall be submitted that show the planting location and anticipated two-year foliage coverage of the plantings; and
 - 1.4 Coverage calculations shall be shown on the construction documents demonstrating compliance with this section and shall include only those areas that will be directly beneath the plants within a two-year growth period. Duplicate coverage credit shall not be granted for those areas where multiple plants cover the same area.
2. The engineered soil medium shall be designed for the physical conditions and local climate to support the plants and shall consist of nonsynthetic materials. The planting design shall include measures to protect the engineered soil medium until the plants are established. Protection measures include, but are not limited to, installation of pregrown vegetated mats or modules, tackifying agents, fiber blankets and reinforcing mesh. The maximum wet weight and water holding capacity of an engineered soil medium shall be determined in accordance with ASTM E 2399.
3. Where access to the building facades is provided from locations on the perimeter of the roof, nonvegetated buffers adequate to support associated equipment and to protect the roof shall be provided.
4. Nonvegetated clearances as required for fire classification of vegetative roof systems shall be provided in accordance with the *International Fire Code*.
5. Plantings shall be capable of being managed to maintain the function of the vegetative roof as provided in the documents required by Section 904.3.

Reason: This proposal aims to correct a number of problems with the requirements in this section, including:

The specified time period of “the warm months” requires a definition. Unfortunately, such a definition could be difficult to write, as “the warm months” vary greatly from location to location. Moreover, it is not clear what the authors intended with those words. (The three warmest months of the year in the given region? All months when the average temperature is above 75°F in that region?)

The foliage coverage requirement would demand that a building official visit the site two years after the plant installation in order to ensure that the required foliage coverage had been met. This is unrealistic.

The specification of a set of months for measuring foliage coverage does not recognize the great differences in foliation across plants and climate zones. Not all plants show their foliage in the warmest months. For instance, the Mediterranean climate can be extremely dry “in the warm months” when plants will enter their dormant period, when plant coverage will tend to decrease. Plant coverage in Mediterranean and hot, dry climates is likely to increase during the region’s colder season. Moreover, foliage among groups of plants may come at staggered intervals, with some plants gaining and losing their leaves much earlier than do others.

The requirement for 80% foliage coverage may be too high for hot, dry climates and for vegetative roofs where the builder’s goals for the roof go beyond heat island mitigation.

In hot and dry areas of Climate Zones 1-3 (especially 1b, 2b, and 3b), the lack of moisture is unlikely to support 80% foliage coverage without regular irrigation and maintenance, which is at odds with the code’s water efficiency goals.

A builder may want to use plants that are of particular value to local birds and pollinating insects. Some such plants, however, may not offer the same level of foliage provided by sedums and other plants more typical to vegetative roofs. Their root systems may be extensive and still absorb stormwater, however. The 80% foliage requirement minimizes the level of flexibility that a builder would have in achieving alternative goals, however beneficial they may be.

The revisions suggested here are intended to address these gaps. They draw from IgCC Section 408.2.3, Shading by trees, which is written in such a way as to provide the building official the required information up-front, but does not require that the building official revisit the site in later years to ensure that the required coverage has been met.

Cost Impact: Will not increase the cost of construction. This proposal adds flexibility to the text of IgCC and could potentially lower the costs of compliance.

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