



LEED BD+C: Core and Shell | v3 - LEED 2009

Low-emitting materials - flooring systems

EQc4.3 | Possible 1 point

Glossary

Intent

To reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

Requirements

Option 1

All flooring must comply with the following as applicable to the project scope:

- All carpet installed in the building interior must meet one of the following requirements:
 - Meets the testing and product requirements of the Carpet and Rug Institute Green Label Plus¹ program.
 - Maximum VOC concentrations are less than or equal to those specified in the California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda, using the office scenario as defined in Table 7.5 within the practice. The additional VOC concentration limits listed in Section 9.1a must also be met.
 - Maximum VOC concentrations meet the California requirements specified above based on the following:
 - California Department of Public Health (CDPH) Standard Method V1.1-2010 using test results obtained at the 14 day time point
 - Projects outside the U.S. may use the German AgBB/DIBt testing method and all testing methods based on AgBB/DIBt method (GUT, EMICODE, Blue Angel) using test results obtained at the 3 day or 7 day or 14 day time point. For caprolactam, if test results obtained at the 3 day or 7 day time point is used, the emission concentration must be less than ½ of the concentration limit specified above because the emission may not have peaked at the measured time points. If a European testing method (AgBB/DIBt GUT, EMICODE, Blue Angel) had used parameters for calculating test results different from those specified in the referenced California method, then the European test results for carpets or floorings need to be converted into California air concentrations by multiplication with 0.7.
- All carpet cushion installed in the building interior must meet the requirements of the Carpet and Rug Institute Green Label program.
- All carpet adhesive must meet the requirements of IEQ Credit 4.1: Adhesives and Sealants, which includes a volatile organic compound (VOC) limit of 50 g/L (0.4 lb/gal).
- All hard surface flooring installed in the building interior must meet one of the following requirements:
 - Meet the requirements of the FloorScore² standard (current as of the date of this rating system, or more stringent version) as shown with testing by an independent third-party.
 - Demonstrate maximum VOC concentrations less than or equal to those specified in the California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda, using the office scenario as defined in Table 7.5 within the practice.
 - Maximum VOC concentrations meet the California requirements specified above based on the following:
 - California Department of Public Health (CDPH) Standard Method V1.1-2010 using test results obtained at the 14 day time point
 - Projects outside the U.S. may use the German AgBB/DIBt testing method and all testing methods based on AgBB/DIBt method (GUT, EMICODE, Blue Angel) using test results obtained at the 3 day or 7 day or 14 day time point. For caprolactam, if test results obtained at the 3 day or 7 day time point is used, the emission concentration must be less than ½ of the concentration limit specified above because the emission may not have peaked at the measured time points. If a European testing method (AgBB/DIBt GUT, EMICODE, Blue Angel) had used parameters for calculating test results different from those specified in the referenced California method, then the European test results for carpets or floorings need to be converted into California air concentrations by multiplication with 0.7.

Mineral based finish flooring products such as tile, masonry, terrazzo, and cut stone without integral organic-based coatings and sealants and unfinished/untreated solid wood flooring qualify for credit without any IAQ testing requirements. However, associated site-applied adhesives, grouts, finishes and sealers must be compliant for a mineral-based or unfinished/untreated solid wood flooring system to qualify for credit.

- Concrete, wood, bamboo and cork floor finishes such as sealer, stain and finish must meet the requirements of South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.
- Tile setting adhesives and grout must meet South Coast Air Quality Management District (SCAQMD) Rule 1168. VOC limits correspond to an effective date of July 1, 2005 and rule amendment date of January 7, 2005.
- For carpet adhesive, concrete, wood, bamboo and cork floor finishes, and tile setting adhesives, compliance can be demonstrated with test results of:

° Total volatiles fraction, based on one of the following, provided that water and exempt compounds are subtracted from total volatiles test results and the mass VOC content is calculated consistent with SCAQMD Rule 1113 and Rule 1168:

- ° ASTM D2369
- ° EPA method 24
- ° ISO 11890 part 1

° Total volatile organic compounds fraction, based on one of the following, provided that all VOCs with a boiling point up to 280°C (536°F) are included, and exempt compounds are subtracted from total volatiles test results and the mass VOC content is calculated consistent with SCAQMD Rule 1113 and Rule 1168.

- ° ASTM D6886
- ° ISO 11890 part 2

¹ The Green Label Plus program for carpets and its associated VOC emission criteria in micrograms per square meter per hour, along with information on testing method and sample collection developed by the Carpet and Rug Institute (CRI) in coordination with California's Sustainable Building Task Force and the California Department of Public Health, are described in Section 9, Acceptable Emissions Testing for Carpet, DHS Standard Practice CA/DHS/EHLB/R-174, dated 07/15/04.

² FloorScore is a voluntary, independent certification program that tests and certifies hard surface flooring and associated products for compliance with criteria adopted in California for indoor air emissions of Volatile Organic Compounds (VOCs) with potential health effects. The program uses a small-scale chamber test protocol and incorporates VOC emissions criteria, developed by the California Department of Public Health.

OPTION 2

All flooring elements installed in the building interior must meet the testing and product requirements of the California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda. Mineral-based finish flooring products such as tile, masonry, terrazzo, and cut stone without integral organic based coatings and sealants and unfinished/untreated solid wood flooring qualify for credit without any IAQ testing requirements. However, associated site-applied adhesives, grouts, finishes and sealers must be compliant for a mineral-based or unfinished/untreated solid wood flooring system to qualify for credit.

Credit substitution available

You may use the LEED v4 version of this credit on v2009 projects. For more information [check out this article](#).