LEED BD+C: New Construction | v2009

Low-emitting interiors

EQpc21 | Possible 1 point

Glossary

Intent

Pilot Credit Closed
This pilot credit is closed to new registrations

To reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment.

Requirements

This credit includes requirements for product manufacturing as well as project teams. It covers both the VOC content of materials and the methods by which VOC emissions are determined in indoor air. Different materials have different requirements that must be met in order to be considered compliant for this credit. To determine total level of compliance,this credit organizes the building interior and exterior[1] into seven categories, each with different thresholds of compliance:

If some products in a category do not meet the criteria, project teams may use the budget calculation method. Project teams may combine calculation methodologies.

Budget Calculation Method

The budget method organizes the building interior into six assemblies:

1. Flooring
2. Ceilings
3. Walls
4. Thermal and Acoustic Insulation
5. Furniture
6. *Healthcare and Schools projects only*: Exterior Applied Products.

If furniture is included in the scope of the work, include furniture in the credit calculations. Walls, ceilings, and flooring are defined as building interior products[3] where each layer of the assembly, including paints, coatings, adhesives, and sealants must be evaluated for compliance. Insulation is tracked separately.

Surface area shall be calculated based upon manufacturer's documentation for how to apply products.

If 90% of a system meets the criteria, the system shall count as 100% compliant. If less than 50% of a system meets the criteria, the system shall count as 0% compliant.

Emission & Content Requirements

To demonstrate compliance, a product or layer must meet all of the following requirements, as applicable:

Manufacturers' claims
Both first-party and third-party claims regarding product compliance shall follow the guidelines in CDPH SM V1.1-2010, Section 8. Organizations certifying manufacturers' claims regarding product compliance with the tests specified within this credit shall be ISO Guide 65 accredited.

Laboratory requirements
Laboratories conducting the tests specified within this credit shall be ISO/IEC 17025 accredited with relevant test methods included in their scopes of accreditation.

Inherently non-emitting sources
Products that are inherently non-emitting sources of VOCs – specifically stone, ceramics, powder-coated metals, plated metals or anodized metals, glass, concrete, clay brick, and unfinished/untreated solid wood flooring – are considered fully compliant without any VOC emissions testing if they do not include integral organic-based surface coatings, binders, or sealants.

General Emissions Evaluation
Building products shall be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method V1.1-2010 using the applicable exposure scenario. The default scenario shall be the private office scenario. A manufacturer or third-party certification claiming compliance of a product with any of the accepted standards stated above shall state the exposure scenario used to determine compliance. For wet-applied products the claim of compliance shall state what thicknesses are included and, if applicable, what tints are included within the claim.

Manufacturers stating compliance with the above requirements must also state which range of TVOCs the product falls under after 14 days (336 hours), measured as specified in the CDPH Standard Method v1.1:

[a] less than or equal to 0.5 mg/m^3

- between 0.5 and 5.0 mg/m^3
- greater than or equal to 5.0 mg/m^3

For LEED projects outside North America, testing and evaluation with either the CDPH standard method or the German AgBB Testing and Evaluation Scheme (2010)[6] together with ISO 16000parts 3, 6, 9 and 11, or DIBt testing method, or the 2013 implementation of the CEN/TC351 will be accepted[7]. U.S. projects must follow the CDPH standard method.

If the CDPH standard method does not specify testing details for a product group for which there are details specified in ISO 16000-11, then the specifications in ISO 16000-11 shall be used. If ISO 16000-11 does not specify testing details for a product group for which there are details specified in CDPH standard method, then the specifications in CDPH standard method shall be used.

Additional VOC Content Requirements for Wet Applied Products
In addition to the above specified general requirements with focus on building occupant exposure to VOC emissions from large surfaces, on-site wet applied products shall not contain excessive levels of VOC for minimizing impacts on installers and other tradesduring and immediately after application of the involved products. To demonstrate compliance, a product or layer must meet the following requirements, as applicable:

- All paints and coatings wet applied on-site shall meet the applicable respective VOC limits of the California Air Resources Board (CARB) 2007 Suggested Control Measure (SCM) for Architectural Coatings or the South Coast Air Quality Management District (SCAQMD) Rule 1113 effective June 3, 2011.
- All adhesives and sealants wet applied on-site shall meet the applicable chemical content requirements of SCAQMD Rule 1168 as of July 1, 2005, “Adhesive and sealant applications” as analyzed by the methods specified in Rule 1168. The provisions of SCAQMD Rule 1168 shall not apply to adhesives and sealants subject to state or federal consumer product VOC regulations.
- For LEED projects outside North America, all paints, coatings, adhesives and sealants wet applied on-site shall conform to the technical requirements of either the above regulations, or they shall be in compliance with applicable national VOC control regulations, e.g. the European "Decopaint" Directive (2004/42/EC), the Canadian VOC Concentration Limits for Architectural Coatings or the Hong Kong Air Pollution Control (VOC) Regulation.
- If the applied regulation requires subtraction of exempt compounds, then any content of intentionally added exempt compounds larger than 0.5% weight by mass (total exempt compounds) shall be disclosed. For LEED projects in North America, the carcinogenic listed exempt VOCs methylene chloride and perchloroethylene may not be intentionally added in paints, coatings, adhesives or sealants.
- Disclosure of VOC content shall be done by declaration of manufacturer. If testing is performed then it shall follow the test method as specified in the respective regulation.
- For purposes of hazard evaluation and product selection, manufacturers shall clearly indicate the flashpoint and flammability category for product as supplied and as prepared for use consistent with GHS SDS regulations.
- If the test method specified in above regulations is not reasonably applicable to a specific product then testing of VOC content shall be done as specified in any of the following standards: ASTM D2369-10, ISO 11890 part 1, ASTM D6886-03, or ISO 11890-2

Healthcare and Schools Projects only: Additional Insulation Requirements
Batt insulation products shall contain no added formaldehyde, including urea formaldehyde, phenol formaldehyde, and urea-extended phenol formaldehyde.

Composite Wood
Compliance is determined based on the following criteria intended to limit the sources of indoor VOC contaminants.

- Composite woods constituting all or a portion of a product must be constructed with materials documented to have low formaldehyde emissions that meet the California Air Resources Board ATCM for formaldehyde requirements for UltraLow-Emitting Formaldehyde (ULEF) resins or No-Added Formaldehyde based resins.
- Salvaged and re-used architectural millwork more than one-year old at the time of occupancy is considered compliant provided it meets the requirements for any site-applied paints, coatings, adhesives, and sealants.

Furniture
New furniture and furnishing items shall be tested following ANSI/BIFMA Standard Method M7.1-2011. Comply with BIFMA e3-2011 Furniture Sustainability Standard, Sections 7.6.1 and 7.6.2 using either the concentration modeling approach or the emission factor approach. Model the test results using the open plan, private office, or seating scenario in ANSI/BIFMA M7.1 as appropriate. For classroom furniture, use the standard school classroom model in CDPH Standard Method v1.1. Documentation submitted for furniture shall state which modeling scenarios were used to determine compliance.

Salvaged and re-used furniture more than one-year old at the time of use is considered compliant provided they meet the requirements for any site-applied paints, coatings, adhesives, and sealants.

Healthcare and Schools projects only:

Exterior[8] Applied Products
Adhesives, sealants, coatings, roofing and waterproofing materials applied on-site shall meet the VOC limits of California Air Resources Board (CARB) 2007 Suggested Control Measure (SCM) for Architectural Coatings and South Coast Air Quality Management District (SCAQMD) Rule 1168 effective July 1, 2005. The provisions of this section shall not apply to small containers of adhesives and sealants subject to state or federal consumer product VOC regulations.

For LEED projects outside North America, either the jurisdictional VOC content requirements or compliance with the European "Decopaint" Directive (2004/42/EC, to be updated to most current version when available) Phase II, water-borne coatings, as analyzed by the methods specified in ISO 11890 parts 1 and 2, will be accepted as an

alternative to referenced CARB and SCAQMD regulatory standards.

The following are prohibited and do not count toward total % compliant:

- Projects shall not use hot-mopped asphalt installation techniques for roofing.
- Parking lots and other paved surfaces shall not use coal tar sealants.

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[1]The building interior is defined as everything within the waterproofing membrane. The building exterior is defined as everything outside and inclusive of the primary and secondary weatherproofing system, including waterproofing membranes and air and water resistive barrier materials.
[2]The furniture and furnishings category is comprised of all the stand-alone furniture items purchased for the project including: individual and group seating; open-plan and private-office workstations; desks of all types, tables of all types; storage units, credenzas, bookshelves, filing cabinets and other case goods; wall-mounted, visual display products (e.g., markerboards and tackboards, excluding electronic display products); and miscellaneous items such as easels, mobile carts, freestanding screens, and movable partitions. Movable partitions include office furniture system cubicle panels that are typically integrated with work surfaces, desks, and storage furniture. Hospitality furniture is included as applicable to the project. Office accessories, such as desk top blotters, trays, tape dispensers, waste baskets, and all electrical items such as lighting and small appliances are excluded from the scope of this credit.
[3]Interior finish is defined as interior wall, ceiling, and floor finish. Interior wall and ceiling finish is defined
as all the layers comprising the exposed interior surfaces of buildings including fixed walls, fixed partitions, columns, exposed ceilings, and interior wainscoting, paneling, interior trim or other finish applied structurally or for decoration, acoustical correction, surface fire resistance, or similar purposes. Interior floor finish is defined as all the layers applied over a finished sub-floor or stairs, including stair treads and risers, ramps, and other walking surfaces. Interior finish excludes building structural members such as beams, trusses, studs, subfloors, or similar items. Interior finish also excludes non-full spread wet coatings or adhesives.
[4]For areas with multiple plane ceilings, all planes must be calculated.
[5]Products meeting both criteria may be counted for each, but the total % compliant for furniture may not exceed 100%.
[6]AGBB, Ausschuss zur gesundheitlichen Bewertung von Bauprodukten, Evaluation Procedure for VOCs from Building Products, Committee for Health-related Evaluation of Building Products –May 2010. www.umweltbundesamt.de/produkte-e/bauprodukte/agbb.htm and www.agbb-nik.de/index_en.php.
[7]The formaldehyde limit value of 10 µg/m^3 at 28 days must also be met when using the AGBB alternative, as specified for class A+ in French compulsory VOC emissions class labeling. See the Décret no 2011-321 du 23 mars 2011 relatif à l'étiquetage des produits de construction ou de revêtement de mur ou de sol et des peintures et vernis sur leurs émissions de polluants volatils and the Arrêté relatif à l'étiquetage des produits de construction ou de revêtement de mur ou de sol et des peintures et vernis sur leurs émissions de polluants volatils (http://www.developpement-durable.gouv.fr/Chapitre-II-Industriels-comment...).
[8]The building interior is defined as everything within the waterproofing membrane. The building exterior is defined as everything outside and inclusive of the primary and secondary weatherproofing system, including waterproofing membranes and air and water resistive barrier materials.

Submittals

General

REGISTER FOR THE PILOT CREDIT

- Participate in the LEEDuser pilot credit forum
- Complete the feedback survey:

CREDITS 1-14

CREDITS 15-27

CREDITS 28-42

CREDITS 43-56

CREDITS 57-67

CREDITS 68-82

CREDITS 83-103

Credit specific

1. Provide supporting documentation to confirm that each material is within the requirements prescribed for this credit
2. Maintain a list of all interior materials used that fall under the scope of this credit. Include the manufacturer's name, product name, and specific VOC data for each product, as well as the corresponding allowable VOC from the referenced standard. Track the amount of product used, using a consistent metric per system. Confirm that each material is within the requirements prescribed for the credit.
3. Maintain a list of each composite wood and agrifiber product installed in the building interior. Confirm that each product within this system category is within the requirements prescribed for the credit.
4. Maintain a list of all furniture products installed in the building interior. Confirm that each product within this system category is within the requirements prescribed for the credit.
5. If you used the budget calculation method, explain why.

Additional questions

1. The goal of this revision is to provide for a systems approach to addressing materials emissions. How does the presentation of the requirements in the Pilot Credit Library compare to the credits as proposed in EQc4.1-4.6 within LEED 2009?
2. How did the systems approach to interior materials aid the project? Please explain any barriers to addressing interior materials from a systems perspective.
3. Please reflect on the usefulness and clarity of the table providing calculations for the system category.
4. What supplemental guidance would be helpful for project teams pursuing this credit?

Changes

- Changes made for 2nd Public Comment (08/01/2011):

Simplified calculation
Additional requirement for manufacturers to state which threshold of
TVOCs their product falls under
Default testing scenario changed from classroom to private office
Removed VOC content criteria for paints, coatings, adhesives, and sealants
Revised formaldehyde emission limits from CARB Phase 2 to CARB
ULEF
Updated furniture requirements to ANSI/BIFMA M7.1
Added Healthcare requirements

- Changes made for 3rd Public Comment (03/01/2012):
  Changed calculation methodology to align to LEED 2009 categories;
  made the second public comment calculation methodology an optional
  budget calculation methodology
  Harmonized ANSI/BIFMA
  Additional VOC content requirements for wet applied products
- Changes made for 08/01/2013:
  Added to documentation requirements: Provide supporting documentation to confirm that each material is within the requirements prescribed for this credit