

X06 VOC RESTRICTIONS | O

WELL Certification: 4 Pt | WELL Core: 4 Pt

Intent: Minimize the impact of volatile organic compounds (VOCs) emitted by products on indoor air quality.

Summary: This WELL feature requires adherence to emission thresholds for materials placed inside the building envelope.

Issue: VOCs encompass a wide group of volatile substances of both natural and artificial origins which have a wide range of health effects from nose, eye and throat irritation, headaches and nausea to liver, kidney and central nervous system damage.¹ Furthermore, some select VOCs are known or suspected carcinogens.¹ While these compounds are present outside, buildings are a net source due to human activities, cleaning practices and emissions from materials.² Newly installed furniture, insulation, flooring as well as wet-applied products such as paints, adhesives, sealants and coatings can significantly introduce VOCs into living spaces³ for approximately one to two years,⁴ and sometimes causing elevated concentrations in enclosed spaces like wardrobes.⁵ These compounds can react in many ways to form new compounds and respirable particles, even seemingly impacting air pollution outdoors.²

Solutions: The selection of products with low or no VOC emissions is instrumental to prevent worsening in air quality. When VOCs are emitted, careful material selection in newly built spaces has been shown to accelerate VOCs reduction (i.e. off-gassing) to background levels.⁶ Reducing level of toxic compound emission will also help to reduce the demands of ventilation.⁴ Off-gassed products (e.g., reused furniture) also limit further emissions.

Part 1 Limit VOCs from Wet-Applied Products

WELL Certification: 2 Pt | WELL Core: 2 Pt

For All Spaces:

Newly installed interior wet-applied paints, coatings, adhesives, sealants and finished poured floorings used inside the building envelope (minimum 10 distinct products or applied to at least 10% of project area) meet the following:

- a. All products are tested by a third-party laboratory to meet testing methods and thresholds established in one of the following standards and/or regulations for VOC content:
 1. SCAQMD Rule 1168 (Adhesives and Sealants, 2017).
 2. GB 33372-2020 (Adhesives).
 3. 2019 CARB SCM for Architectural Coatings.⁷
 4. EU Ecolabel for indoor and outdoor paints and varnishes.
 5. HJ 2537-2014 (Paints).
 6. Any other standard listed in the 'VOC content evaluation' section of the 'Low-Emitting Materials' credit of the LEED v4.1 standard.⁸
- b. At least 75% of products (by surface area or volume) are tested by a third-party laboratory to meet testing methods and thresholds established in one of the following standards and/or regulations for VOC emissions:
 1. California Department of Public Health (CDPH) Standard Method v1.2.
 2. AgBB.⁹
 3. European Union LCI VOC thresholds¹⁰ following EN 16516-1:2018 testing methods.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

Part 2 Restrict VOC Emissions from Furniture, Architectural and Interior Products

WELL Certification: 2 Pt | WELL Core: 2 Pt

For All Spaces:

Products within one or more categories and corresponding thresholds in Table 1 meet one of the following compliance requirements, earning points as shown in Table 2: Table 1:

Product Category (from Appendix X1)	Threshold for Compliance
Flooring	90% of cost or surface area
Furniture, millwork and fixtures	75% by cost

Insulation, ceiling and wall panels	75% by cost or surface area
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Table 2:

Achievement	Points
One compliant product category	1
At least two compliant product categories	2

- a. Tested per methods and VOC emission thresholds established in one of the following:
 1. California Department of Public Health (CDPH) Standard Method v1.2.
 2. AgBB.⁹
 3. European Union LCI VOC thresholds¹⁰ following EN 16516-1:2018 testing methods.
 4. ANSI/BIFMA e3-2014, sections 7.6.1 or 7.6.2 (Furniture).
- b. Made exclusively with one or a combination of (without organic additives): metal, untreated wood, glass, ceramic or stone.
- c. If custom-made or refurbished, wet-applied and wood-based materials used in fabrication or refurbishing meet the following:
 1. All paints, coatings, sealants and adhesives applied to the product are verified as low-VOC emitting by one of the applicable standards listed in Part 1.
 2. All composite wood panels, including medium-density fiberboard, plywood and particle wood panels meet the 'Formaldehyde emissions evaluation' criterium of the 'Low-Emitting Materials' credit of the LEED v4.1 standard,⁸ or meet one of the following: US EPA TSCA Title VI, Europe E1, Japan Four-star.
- d. Installed for at least 6 months before project registration or manufactured and unmodified at least one year before project registration.

WELL Core Guidance: Meet these requirements for the extent of developer buildout.

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