

Comparison of Indoor Air Quality Certification Programs

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SUMMARY			
Target Products	Interior Building Products (e.g., wall coverings, ceiling tiles, furniture, casework, insulation)	Interior Building Products (e.g., wall coverings, ceiling tiles, furniture, casework, insulation)	Interior Building Products (e.g., wall coverings, ceiling tiles, furniture, insulation)
Demonstration of Conformity	<ul style="list-style-type: none"> • USGBC LEED EQ4.5 (Furniture and Seating) • USGBC LEED EQ4.1 (Paints and Coatings) • USGBC LEED EQ4.2 (Adhesives and Sealants) • BIFMA X7 Low-Emitting Office Furniture and Seating • Collaborative for High Performance Schools (CHPS) • California 01350 Special Environmental Requirements 	<ul style="list-style-type: none"> • USGBC LEED EQ4.5 (Furniture and Seating) • USGBC LEED EQ4.1 (Paints and Coatings) • USGBC LEED EQ4.2 (Adhesives and Sealants) • BIFMA X7 Low-Emitting Office Furniture and Seating 	<ul style="list-style-type: none"> • USGBC LEED EQ4.5 (Furniture and Seating)
Targeted Action Levels	Health-driven based on Chronic Reference Exposure Levels (CREL) as set by California Office of Environmental Health Hazard Assessment	Based on LEED criteria for EQ4.5, EQ4.1, and EQ4.2 (including South Coast Air Quality Management District)	Equivalent to LEED criteria for EQ4.5 and includes industrial workplace Threshold Limit Values (TLV) set by National Institute for Occupational Safety and Health
Transparency of Requirements	Processes, tests, standards, and criteria are publicly available	Procedures, tests, standards, and criteria are publicly available	Protocols are not available
Cost Control Mechanism	Cost efficient – component-based program, small chamber optimization, supply chain inclusion, and multiple laboratory options	Cost efficient – component-based program, small chamber optimization, supply chain inclusion, and multiple laboratory options	Requires full product testing and sole source laboratory
ADMINISTRATION			
Third-party Auditor	Scientific Certification Systems (SCS)	Scientific Certification Systems (SCS)	Delegated to Air Quality Sciences (AQS)
Approved U.S. Testing Laboratories	<ul style="list-style-type: none"> • Air Quality Sciences • Berkeley Analytical Associates • Materials Analytical Services 	<ul style="list-style-type: none"> • Air Quality Sciences • Berkeley Analytical Associates • Materials Analytical Services 	<ul style="list-style-type: none"> • Air Quality Sciences
TRANSPARENCY			
Publicly Available Emission Chamber Protocols	ASTM D5116 and ASTM D6670 CA/DHS/EHLB/R-174 BIFMA M7.1	ASTM D5116 and ASTM D6670 CA/DHS/EHLB/R-174 BIFMA M7.1	ASTM D5116 and ASTM D6670 EPA RTI-ETV
Publicly Available and Reproducible Modeling Protocols	Detailed in CA/DHS/EHLB/R-174, SCS-EC10-2004, and BIFMA M7.1	Detailed in CA/DHS/EHLB/R-174, SCS-EC10-2004, and BIFMA M7.1	No



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PROTECTION OF PUBLIC HEALTH

Volatile Organic Chemicals (VOC) Thresholds	<p>Furniture and Seating: TVOC: 0.25 – 0.5 mg/m³ 4-PCH: 0.00325 – 0.0065 mg/m³ Paints & Coatings: Flats: 50g/l VOC Non-Flats: 150 g/l Adhesives and Sealants: 50-100 g/l VOC adhesives 250 g/l VOC sealants Individual VOCs: <1/2 CREL*</p> <p><u>*Examples</u></p> <ul style="list-style-type: none"> • Benzene: 30 µg/m³ • Epichlorohydrin: 1.5 µg/m³ • Naphthalene: 4.5 µg/m³ • Phenol: 100 µg/m³ • Toluene: 150 µg/m³ • Trichlorethylene: 300 µg/m³ • Vinyl Acetate: 100 µg/m³ 	<p>Furniture and Seating: TVOC: 0.25 – 0.5 mg/m³ 4-PCH: 0.00325 – 0.0065 mg/m³ Paints & Coatings: Flats: 50g/l VOC Non-Flats: 150 g/l Adhesives and Sealants: 50-100 g/l VOC adhesives 250 g/l VOC sealants</p> <p><u>*Examples</u></p> <ul style="list-style-type: none"> • Individual speciation is not required to meet the criteria in LEED EQ4.5 , EQ4.1, and EQ4.2. 	<p>All products: TVOC: 0.25 – 0.5 mg/m³ 4-PCH: 0.00325 – 0.0065 mg/m³</p> <p>Individual VOCs: <0.1 TLV*</p> <p><u>*Examples</u></p> <ul style="list-style-type: none"> • Benzene: 160 µg/m³ • Epichlorohydrin: 189 µg/m³ • Toluene: 250-500 µg/m³ • Naphthalene: 250-500 µg/m³ • Phenol: 250-500 µg/m³ • Trichlorethylene: 250-500 µg/m³ • Vinyl Acetate: 250-500 µg/m³
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Aldehyde Thresholds	<p>All products: Formaldehyde: 13 ppb (16.5 µg/m³) Acetaldehyde: 7.5 ppb (9 µg/m³)</p>	<p>Furniture and Seating: Formaldehyde: 0.025 – 0.05 ppm Total Aldehydes: 0.05 – 0.1 ppm</p>	<p>All products: Formaldehyde: 0.025 – 0.05 ppm Total Aldehydes: 0.05 – 0.1 ppm</p>
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OVERSIGHT

Requires That Manufacturers Maintain Documented Control System to Ensure Ongoing Compliance	<p>Yes; auditor reviews system for thoroughness</p>	<p>Yes; auditor reviews system for thoroughness</p>	<p>No</p>
Requires 3rd Party certification independent of testing laboratory and manufacturer	<p>Yes</p>	<p>Yes</p>	<p>No; testing and technical oversight functions provided by AQS, the testing laboratory</p>
Requires Selection of 'Worst-Case' Emitting Products	<p>Yes. Detailed in CA/DHS/EHLB/R-174 and SCS-EC10-2004</p>	<p>Yes. Detailed in CA/DHS/EHLB/R-174 and SCS-EC10-2004</p>	<p>Procedures not disclosed</p>
Requires Annual Retesting	<p>Yes</p>	<p>Yes</p>	<p>Yes</p>