How to Find Indoor airPLUS Compliant Low-Emission Products

The Low-Emission Materials requirements contained in Section 6 of the Indoor airPLUS Construction Specifications address composite wood products, interior paints and finishes, and carpets and carpet adhesives used in the construction of Indoor airPLUS qualified homes. Products meeting the referenced standards are generally widely available in the market. This document is intended to help builders, designers, and Raters identify and locate compliant products.
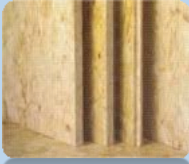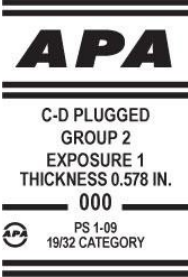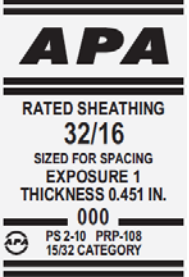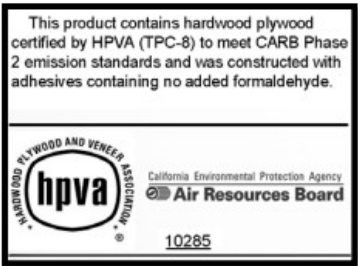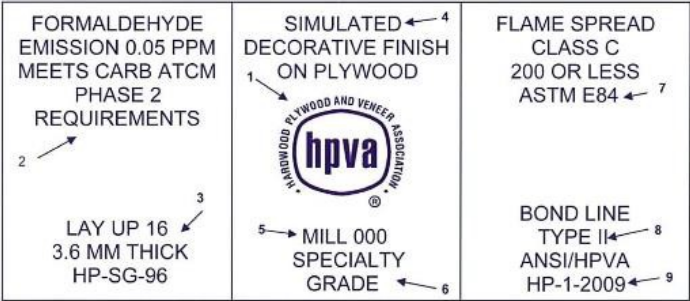
Basic Information:

1. **Your product supplier and/or product manufacturers are likely to be the best source of information about low emission products.**

2. Many of the certifications and labels identified below meet multiple and/or overlapping standards. **A single listed label or certification for a specific product is sufficient to comply with Indoor airPLUS requirements.**

3. **The certification marks displayed in the table below are EXAMPLES only**. Other certifications that meet the underlying referenced standards may also be compliant with the Indoor airPLUS requirements. In addition, the listed programs and standards may have different or additional labels, and other certification marks may be used by the programs listed below. For more background on these standards and labels, see "Additional Information on Referenced Standards and Programs" on pages 7-10.

4. **Use caution in selecting "green" product labels.** Other labels may claim to be healthier or more eco-friendly, but they may not comply with the Indoor airPLUS Construction Specifications.

To request that other compliant certifications or programs be added to this resource or for additional questions about these or other Indoor airPLUS Construction Specifications, please contact Indoor_airPLUS@epa.gov. For complete information about Indoor airPLUS, visit the Indoor airPLUS website at https://www.epa.gov/indoorairplus.

6.1 Composite Wood

Note: The following requirements pertain to ALL composite wood products installed in the home during construction. Examples include but are not limited to: structural panels, cabinetry, shelving, trim, doors, stair treads, flooring, etc.

Structural plywood and oriented strand board (OSB)

Requirement: Use only products certified as compliant with PS1 or PS2, as appropriate, and made with moisture-resistant adhesives as indicated by "Exposure 1" or "Exterior" on the American Plywood Association (APA) trademark.

Meet either standard below	How to find compliant products
PS 1-09 or **PS 2-10**	**Look for the APA PS1 or PS2 label.** Building codes in the U.S. require use of PS-1 or PS-2 panels when used for structural purposes. These products are widely available. List of manufacturers that produce APA PS1 or PS2 products: http://www.apawood.org/plywood

Hardwood Plywood

Requirement: Use only hardwood plywood products certified as compliant with Formaldehyde emissions requirements of ANSI/HPVA HP-1-2009; **OR** CA Airborne Toxics Control Measure (ATCM) to Reduce Formaldehyde Emissions from Composite Wood Products.

Meet either standard below	How to find compliant products
ANSI/HPVA HP-1-2009	**Look for the HPVA HP-1 label on products, packaging, and/or spec sheets.** The HPVA HP-1 certification label demonstrates compliance below California ATCM for formaldehyde and HUD Title 24 formaldehyde levels. Find HPVA / TPC-8 CARB Compliant Composite Wood Products Manufacturers here: http://www.hpva.org/sites/default/files/CARB%20TPC8%20LIST%202015-6-4.pdf

CA Airborne Toxics Control Measure (ATCM) to Reduce Formaldehyde Emissions from Composite Wood Products	**Look for products labeled by manufacturers as "California 93120 Compliant for Formaldehyde" or "California Phase 2 Compliant," as well as "No added formaldehyde" (NAF) or "Ultra low-emitting formaldehyde" (ULEF).** Any composite wood product that is compliant with the California ATCM for formaldehyde, including products specifically *exempted* from the CA ATCM such as PS-1 and PS-2 structural panels and No added formaldehyde or Ultra low-emitting formaldehyde products meet the Indoor airPLUS specification. Mills that have been identified by a CARB-approved Third Party Certifier as producers of CARB compliant composite wood products: http://www.arb.ca.gov/toxics/compwood/tpc/listofmills.htm List of approved No added formaldehyde (NAF) or Ultra low-emitting formaldehyde (ULEF) mills: http://www.arb.ca.gov/toxics/compwood/naf_ulef/listofnaf_ulef.htm *Note: Mills listed in the links above can be used as a resource, but partners should request confirmation from the manufacturer or supplier that the product lines they are using are indeed compliant.*

Particleboard and Medium Density Fiberboard (MDF) Products

Requirement: Use only particleboard and MDF products certified as compliant with the California ATCM to Reduce Formaldehyde Emissions for Composite Wood Products, **OR** formaldehyde emissions requirements of ANSI A208.1 and A208.2, respectively, **OR** certified compliant with the ECC Sustainability Standard by the Composite Panel Association (CPA), **OR** certified as GREENGUARD or GREENGUARD GOLD.

Meet at least one standard below	How to find compliant products
ANSI A208.1-2009 (Particleboard) **ANSI A208.2-2009 (MDF)**	**Look for ANSI A208.1 or ANSI A208.2 on products, packaging, and/or spec sheets.** Note: These standards are also incorporated into other listed programs and labels. Sample Industrial Board Bundle Tag For Particleboard Certified to 0.20 PPM Standard. Tag Size 4"x5" Designates Standard Reference in Building Code CONFORMS TO PARTICLEBOARD FORMALDEHYDE EMISSION REQUIREMENTS OF BOTH ANSI A208.1-1999, TABLE B AND HUD 24 CFR 3280 Grademark of Certification Agency — C P A CERTIFIED — MILL 000 / Mill Number COMPANY LOCATION PRODUCTION DATE/SHIFT
Eco-Certified Composite (ECC) Sustainability Standard by the Composite Panel Association (CPA) CPA 4-11	**Look for ECC label on products, packaging, and/or spec sheets.** ECC Certified Companies: http://www.decorativesurfaces.org/cpa-green/ecc-certified-companies.html Companies and facilities that offer "no added formaldehyde" (NAF), ultra-low emission formaldehyde (ULEF), and/or CARB Phase 2 certified emission levels as part of their product offerings can be found here: http://www.decorativesurfaces.org/cpa-green/naf-nauf-ulef.html *Note: Products only labeled as "No added urea formaldehyde" (NAUF) are not addressed by CARB and are not compliant with Indoor airPLUS.*

GREENGUARD or GREENGUARD Gold Certification	For a list of GREENGUARD or GREENGUARD Gold certified products, visit: http://productguide.ulenvironment.com/SearchResults.aspx?CertificationID=1

Cabinetry

Requirement: Use Cabinetry made with component materials (plywood, particleboard, MDF) that are certified to comply with the appropriate standards above; **OR** registered brands or products produced in plants certified under the Kitchen Cabinet Manufacturers Association's (KCMA) Environmental Stewardship Certification Program (ESP 05-12); **OR** GREENGUARD or GREENGUARD Gold Certification for Cabinetry.

Meet at least one standard below	How to find compliant products
Cabinet components must comply with the appropriate standard above	**Look for:** • **ANSI A208.1 or ANSI A208.2, OR** • **the ECC label, OR** • **GREENGUARD or GREENGUARD GOLD.**
KCMA's Environmental Stewardship Program (ESP 05-12)	**Look for the KCMA-ESP label on cabinets (often sink bases), product packaging, and/or spec sheets.** For a list of KCMA certified manufacturers that produce compliant cabinets, visit: http://www.kcma.org/Members/ESP_Certified_Manufacturers *Note: Manufacturers listed in the link above can be used as a resource, but partners should request confirmation from the manufacturer or supplier that the product lines they are using are indeed compliant.*
GREENGUARD or GREENGUARD Gold Certification for Cabinetry	For a list of GREENGUARD or GREENGUARD Gold certified cabinetry, visit: http://productguide.ulenvironment.com/SearchResults.aspx?CategoryID=47

6.2 Interior Paints and Finishes

Requirement: At least 90 percent of the interior surface area covered by site-applied paints and coatings shall use low-VOC or no-VOC products certified by one of the following third-party standards or certifications:

Meet at least one of the standards below	How to find compliant products
GREENGUARD or GREENGUARD GOLD Certification for Paints and Coatings	**Look for GREENGUARD labels on products, packaging, or spec sheets**: Search for GREENGUARD and GREENGUARD Gold certified paint and coating products at: http://productguide.ulenvironment.com/SearchResults.aspx?CategoryID=15&SubCategoryID=28
Scientific Certification Systems (SCS) Standard EC-10.2-2007 or Indoor Advantage Gold	**Look for the Indoor Advantage Gold label on products, packaging, or spec sheets.** OR find Scientific Certification Systems certified products at: http://www.scsglobalservices.com/certified-green-products-guide?scscertified=1
CA Section 01350 (CDPH Standard Method V1.1-2010)	**Look for low-emitting products found in the CHPS database.** CA 01350 Certified products can be found in the Collaborative for High Performance Schools searchable high performance product database under the category "Interior Finish and Trim" with attribute "Low Emitting Material: http://www.chps.net/dev/Drupal/node/445
Green Seal Standard GS-11	**Look for the Green Seal label on products, packaging, or spec sheets:** Green Seal Standard GS -11 products: http://www.greenseal.org/FindGreenSealProductsandServices.aspx?vid=ViewProductDetail&cid=0&sid=6
Green Wise and Green Wise Gold products	**Look for the Green Wise labels on products, packaging, or spec sheets.** Find Green Wise and Green Wise Gold products: http://greenwisepaint.com/products/interior-top-coat
Master Painters Institute (MPI) Green Performance ® Standards X-Green, GPS-1 or GPS-2.	**Look for the MPI labels on products, packaging, or spec sheets:** Find MPI approved products: http://www.paintinfo.com/mpi/approved/Specification_index.shtml

6.3 Carpet and Carpet Adhesives

Requirement: At least 90 percent of the surface area covered by carpet and carpet adhesives must use products labeled with, or otherwise documented as meeting, the Carpet and Rug Institute (CRI) Green Label PLUS testing program criteria.

For carpet cushion (i.e., padding), use only products certified to meet the CRI Green Label Plus or Green Label testing program criteria.

Meet at least one standard below	How to find compliant products
CRI Green Label Plus (Carpet and Carpet Adhesives)	**Look for the CRI Green Label Plus on carpet and carpet adhesive products, packaging, or spec sheets.** Find Carpet and Rug Institute's Green Label Plus products here: http://www.carpet-rug.org/CRI-Testing-Programs/Green-Label-Plus/Carpet,-Adhesive-Cushion/GLP-Carpet-Products.aspx *NOTE: Green Label Plus carpet cushion (i.e., padding) products can also be found at the website above and, while not currently required for Indoor airPLUS, are highly recommended.*
CRI Green Label (Carpet Cushion)	**Look for the CRI Green Label on carpet cushion products, packaging, or spec sheets.** Green Label carpet cushion products can be found here: http://www.carpet-rug.org/CRI-Testing-Programs/Green-Label-Cushion/Green-Label-Cushion-Products.aspx

6.4 Adhesives and Sealants

Advisory: While not currently required by Indoor airPLUS, EPA recommends that at least 90 percent of site-applied interior adhesives and sealants be low-VOC or no-VOC products certified by one of the following third-party standards or certifications: A third-party low-emitting product list based on CA Section 01350 (CDPH Standard Method V1.1-2010), OR Green Seal GS-36.

Recommended but not required	How to find products
CA Section 01350 (CDPH Standard Method V1.1-2010)	CA 01350 Certified products can be found in the Collaborative for High Performance Schools searchable high performance building product database: http://www.chps.net/dev/Drupal/node/445
Green Seal GS-36	Green Seal GS-36 Adhesives for Commercial Use: http://www.greenseal.org/GreenBusiness/Standards.aspx?vid=ViewStandardDetail&cid=0&sid=22
GREENGUARD or GREENGUARD Gold Certification	GREENGUARD or GREENGUARD Gold adhesives and sealants: http://productguide.ulenvironment.com/SearchResults.aspx?CertificationID=1&CategoryID=23

Additional Information on Referenced Standards and Programs

Composite Wood

Formaldehyde is traditionally used as part of the adhesive, or "binding agent," in composite wood products such as particleboard, plywood, medium density fiberboard (MDF), and oriented strand board (OSB). Elevated levels of formaldehyde, which becomes a gas at room temperature, can cause burning sensations in the eye, nose, and throat, as well as nausea or difficulty breathing. It can also exacerbate symptoms in people with asthma.

CA Airborne Toxics Control Measure (ATCM) to Reduce Formaldehyde Emissions From Composite Wood Products.	Previously referenced by Indoor airPLUS as "CA Title 17," the California Airborne Toxics Control Measure to Reduce Formaldehyde Emissions From Composite Wood Products is currently the most stringent formaldehyde emission limit in the U.S. Many product manufacturers across the country manufacture and sell "CARB-compliant" products that are widely available. For more information on the California ATCM to Reduce Formaldehyde Emissions, visit the CARB website: http://www.arb.ca.gov/toxics/compwood/compwood.htm U.S. EPA is in the process of finalizing regulations to implement the Formaldehyde Standards for Composite Wood Products Act, or Title VI of the Toxic Substances Control Act. This act requires EPA to set emission standards equivalent to the California ATCM for formaldehyde. On June 10, 2013, EPA proposed rules to implement national formaldehyde emissions standards for a range of composite wood products. Learn more about proposed rules for formaldehyde emissions from composite wood products: http://www2.epa.gov/formaldehyde/formaldehyde-emission-standards-composite-wood-products
No-added formaldehyde (NAF) based resins or ultra-low-emitting formaldehyde (ULEF) resins	Any composite wood product meeting or specifically exempted from the California formaldehyde ATCM because they use no-added formaldehyde (NAF) based resins or ultra-low-emitting formaldehyde (ULEF) resins complies with the Indoor airPLUS Rev 03 specifications. In the ATCM, special provisions were provided for manufacturers of hardwood plywood, particleboard, and medium density fiberboard who plan to use no-added formaldehyde (NAF) based resins (section 93120.3(c)) or ultra-low-emitting formaldehyde (ULEF) resins (section 93120.3(d)). NAF based resins are resins formulated with no added formaldehyde as part of the resin cross linking structure, and include resins made from soy, polyvinyl acetate, or methylene diisocyanate. ULEF resins are formaldehyde containing resins formulated such that the formaldehyde emissions from composite wood products are consistently below applicable Phase 2 emission standards. For more information on NAF and ULEF products, visit the CARB website: http://www.arb.ca.gov/toxics/compwood/naf_ulef/naf_ulef.htm
ANSI/HPVA HP-1-2009	As a Third-Party Certifier (TPC), the Hardwood Plywood & Veneer Association (HPVA) certifies those who demonstrate through testing and inspections, that they meet the restrictions of CARB, HUD, and/or ANSI standards for hardwood plywood. U.S. HUD Title 24, Part 3280 and ANSI/HPVA HP-1-2009 standards both limit formaldehyde emissions to 0.3 parts per million (ppm) for industrial plywood and to 0.2 ppm for simulated decorative finish on plywood. California

	Title 17 ATCM limits formaldehyde emissions to 0.05 ppm for Hardwood Plywood with a veneer core or a composite core. The HPVA HP-1 certification label demonstrates compliance below California ATCM for formaldehyde and HUD Title 24 formaldehyde levels. http://www.hpva.org/hpva-national-consensus-standards
PS 1-09 or PS 2-10 Structural Wood Panels	**PS 1-09** is a product standard covering the requirements for American plywood intended for structural (loadbearing) use. It includes the wood species, veneer grading, adhesive bonds, panel construction and workmanship, dimensions and tolerances, marking, moisture content and packaging. The standard also covers performance-based test methods and criteria for most grades of panel. http://apawood-europe.org/wp-content/uploads/2013/07/PS-1-09-+APA-trademarks.pdf. **PS 2-10** is a performance-based standard which defines the end use application of a wood-based panel, such as plywood, OSB or composite panels. It defines the requirements for the use of wood-based panels as structural components which are recognized throughout North America. The APA has a technical guide to PS 2-10 structural plywood found at: http://apawood-europe.org/official-guidelines/us-ps1-and-ps-2-standards/us-product-standard-ps-2-10/ **PS 1-09 and PS 2-10 structural wood panels are exempt from the CA ATCM for formaldehyde because of their low formaldehyde emissions.** For American Plywood Association information on formaldehyde emissions and structural wood panels, see: http://www.performancepanels.com/lower-formaldehyde-emissions
ANSI A208.1 (Particleboard)	The Composite Panel Association (CPA) sponsors the key product standards for the industry and addresses technical issues bearing on product acceptance. ANSI A208.1-2009 sets requirements and test methods for dimensional tolerances, physical and mechanical properties and formaldehyde emissions for particleboard. http://www.compositepanel.org/education-resources/store/standards/ansi-2081-2009-particleboard-standard.html
ANSI A208.2 (Medium density fiberboard for interior applications)	ANSI A208.2-2009 sets requirements and test methods for dimensional tolerances, physical and mechanical properties and formaldehyde emissions for medium density fiberboard (MDF). http://www.compositepanel.org/education-resources/store/standards/ansi-a2082-2009-mdf-standard.html
Eco-Certified Composite (ECC) Sustainability Standard by the Composite Panel Association (CPA)	The CPA Grademark Certification Program requires that products be periodically tested for compliance to government regulations or voluntary product standards. The CPA Formaldehyde Emissions Grademark Certification Program has been developed to provide independent certification of formaldehyde emission levels from wood panel products. The HCHO Program includes requirements for initial qualification for product certification, plant quality control procedures and periodic inspections by CPA--all designed to reasonably assure that certified unfinished (including sanded) composite panel products meet the emission limits specified in applicable regulations (e.g. CARB ATCM 93120) or standards (e.g. ANSI A208.1 Particleboard and ANSI A208.2 Medium Density Fiberboard for Interior Applications). For more information:

	http://www.compositepanel.org/certification-testing/certification-programs/ and http://www.decorativesurfaces.org/cpa-green/go-ecc-green.html
KCMA's Environmental Stewardship Program (ESP 05-12)	Particleboard, MDF, and plywood used in cabinetry that are certified under KCMA-ESP meet formaldehyde emissions levels of ANSI A208.1-2009, ANSI A208.2-2009, ANSI/HPVA HP-1 2009 and the California ATCM to reduce formaldehyde emissions (i.e., CARB 2).
	The Kitchen Cabinet Manufacturers Association (KCMA) is a voluntary, non-profit trade association representing North American cabinet manufacturers and suppliers to the industry. The program has many attributes, including standards for recycled content, sustainable forestry guidelines, a manufacturer energy conservation program and community service guidelines. For more information on KCMA's Environmental Stewardship Program: http://www.kcma.org/Professionals/Environmental_Stewardship_Program

Paints and Coatings	
Interior paints and finishes may contain Volatile Organic Compounds (VOCs). VOCs include a variety of chemicals, some of which may have short- and long- term adverse health effects. Paints, sealants, coatings and adhesives are building products that traditionally contain VOCs. However, there is an increasing supply of low- and no-VOC alternatives, and often manufacturers will supply both an original formula as well as a low-VOC formula. Although some contractors may express concern as to the adhesive quality of low- or no-VOC products, this concern is not necessarily founded, and working with the product supplier can help to ensure an equivalent low-emission product is selected.	
GREENGUARD Certification for Paints and Coatings	GREENGUARD Certification helps manufacturers create – and helps buyers identify – interior products and materials that have low chemical emissions, improving the quality of the air in which the products are used. For more information: http://greenguard.org/files/GGPS.EC.016EmissionCriteriaPaints&Coatings.pdf
Scientific Certification Systems (SCS) Standard EC- 10.2-2007, Indoor Advantage Gold,	The SCS Indoor Advantage certification program certifies compliance with rigorous indoor air quality emission requirements. The program is designed for interior building materials, furnishings and finish systems. Indoor Advantage is compliant with California's Section 01350 standards. For more information: http://www.scsglobalservices.com/indoor-air-quality-certification
CA Section 01350 (CDPH Standard Method V1.1-2010)	California's Section 01350 *third-party low-emitting product list* covers environmental and public health considerations for building projects. It establishes goals and provides an overview of special environmental requirements. Some key elements of Section 01350 are procedures to ensure good indoor air quality to protect human health. The Collaborative for High Performance Schools (CHPS) High Performance Products Database helps schools and others meet CHPS and other green building criteria, including Indoor airPLUS, and deliver environmental and health benefits to their occupants. The database expands on the CHPS low-emitting materials list to include other attributes, such as recycled content, rapidly renewable material content, organically grown material content, Forest Stewardship Council (FSC) Certified wood products, and life cycle and multiple attribute claims. The verification code for this document is 693077
	The standard that CHPS uses to determine which products are approved for low-emitting prerequisites and credits in the CHPS Criteria is the California Department of Public Health (CDPH) Standard Method for the Testing and Evaluation of

	Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1-2010, also known as Section 01350: https://www.cdph.ca.gov/programs/IAQ/Documents/cdph-iaq_standardmethod_v1_1_2010%20new1110.pdf.
	When this standard was revised in February 2010, it included a new section – Section 8 – with guidance on using the standard method as the basis for a product claim. The new section built the framework for how to best select representative products from a product group so that similar products that are expected to perform similarly might not each need to be tested. For more information: http://www.chps.net/dev/Drupal/self-certified-low-emitting-products
Green Seal Standard GS-11	Green Seal Standard GS-11 establishes requirements for paints and coatings including interior paints and finishes. The standard includes product performance requirements and environmental and health requirements such as reduced use of hazardous substances and requires low volatile organic compound (VOC) content. http://www.greenseal.org/Portals/0/Documents/Standards/GS-11/GS-11_Ed3-1_Paints_and_Coatings.pdf
Green Wise and Green Wise Gold products	Green Wise Gold products have been tested and certified to pass the indoor air quality requirements of the California's Section 01350 Small Chamber Emissions Test, and to contain less than 5 grams VOC per liter, even after tinting with specified colorants. For more information: Green Wise: http://greenwisepaint.com/ Green Wise Gold: http://greenwisepaint.com/green-wise-gold
Master Painters Institute (MPI) Green Performance ® Standards X-Green, GPS-1 or GPS-2.	The MPI Green Performance Standard requires that all products shall meet or exceed the performance requirements of the applicable MPI product standard, evidence by current listing in the MPI Approved Products List. The X-Green standard requires compliance with GPS-2 and California's Section 01350 emissions requirements. For more information: MPI Green Products web site: http://specifygreen.com/ MPI Green Products Fact Sheet: http://www.paintinfo.com/GPS/GPS-01%20GPS-2%20Oct%202012.pdf

Carpet, Carpet Cushion, Carpet Adhesives	
CRI Green Label Plus	Green Label Plus is an independent testing program that identifies carpet, carpet adhesives, and carpet cushion with low emissions of VOCs to help improve indoor air quality. It is an outgrowth of, and enhancement to the CRI Green Label Carpet Testing Program. For more information: http://www.carpet-rug.org/Documents/Factsheets/GLP-Fact-Sheet.pdf http://www.carpet-rug.org/CRI-Testing-Programs/Green-Label-Plus/Carpet,-Adhesive-Cushion/GLP-Cushion-Products.aspx http://www.carpet-rug.org/CRI-Testing-Programs/Green-Label-Cushion.aspx http://www.carpet-rug.org/CRI-Testing-Programs/Green-Label-Cushion/Green-Label-Cushion-Products.aspx