SECTION 018113

SUSTAINABLE DESIGN REQUIREMENTS

1. GENERAL
   * + 1. GENERAL PROVISIONS
          1. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
       2. DESCRIPTION OF WORK
          1. Section includes general requirements and procedures for compliance with certain prerequisites and credits needed for Project to obtain "LEED Version 4 for Building Design and Construction" (LEED v4 BD+C) [**Certified**] [**Silver**] [**Gold**] [**Platinum**] certification based on USGBC's LEED v4 BD+C.

Specific requirements for LEED are also included in other Sections.

Some LEED prerequisites and credits needed to obtain LEED certification depend on product selections and may not be specifically identified as LEED requirements. Compliance with requirements needed to obtain LEED prerequisites and credits may be used as one criterion to evaluate substitution requests and comparable product requests.

A copy of the LEED Project checklist is attached at the end of this Section for information only.

Some LEED prerequisites and credits needed to obtain the indicated LEED certification depend on aspects of Project that are not part of the Work of the Contract.

Definitions included in the "LEED Version 4 for Building Design and Construction" (LEED v4 BD+C) Reference Guide and online amendments apply to this Section.

* + - * 1. Related Work: The following items are not included in this Section and are specified under the designated Sections:

Section 013233 - PHOTOGRAPHIC DOCUMENTATION for photographic documentation requirements.

Section 013300 - SUBMITTAL PROCEDURES for general submittal requirements.

Section 015000 - TEMPORARY FACILITIES AND CONTROLS for temporary construction facilities, protection, and controls.

Section 017419 - Construction Waste Management.

Section 017823 - OPERATION AND MAINTENANCE DATA.

Section 018119 - Construction Indoor Air Quality (IAQ) Management.

Section 019113 - GENERAL COMMISSIONING REQUIREMENTS.

Divisions 01 through 49 Sections for LEED requirements specific to the work of each of these Sections. Requirements may or may not include reference to LEED.

The following list of definitions is already included in the LEED Reference Guide. It is repeated here for clarity, but may be deleted per specifier’s preference.

* + - 1. DEFINITIONS
         1. Bio-Based Materials: Materials that meet the Sustainable Agriculture Network's Sustainable Agriculture Standard. Bio-based raw materials shall be tested using ASTM D 6866 and be legally harvested, as defined by the exporting and receiving country.
         2. CDPH Standard Method v1.1: California Department of Public Health (CDPH) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, v. 1.1–2010, for the emissions testing and requirements of products and materials.
         3. Chain-of-Custody (COC): A procedure that tracks a product form the point of harvest or extraction to its end use, including all successive stage of processing, transformation, manufacturing, a distribution.
         4. Chain-of-Custody Certificates: Certificates signed by manufacturers and fabricators certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001.
         5. Composite Wood and Agrifiber: Products made of wood particles and/or plant material pressed and bonded with adhesive or resin such as particleboard, medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates, and door cores.
         6. Corporate Sustainability Report: A third-party verified report that outlines the environmental impacts of extraction operations and activities associated with the manufacturer’s product and the product’s supply chain.
         7. Environmental Product Declaration (EPD): An independently verified report based on life-cycle assessment studies that have been conducted according to a set of common rules for each product category and peer-reviewed.

Product-Specific Declaration: A product with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that has at least a cradle to gate scope.

Industry-Wide (Generic) EPD: Provide products with third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator. EPD must conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 and have at least a cradle to gate scope.

Product-Specific Type III EPD: A product with a third-party certification, including external verification, in which the manufacturer is explicated recognized by the program operator. EPD must conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 and have at least a cradle to gate scope.

* + - * 1. Extended Producer Responsibility (EPR): Measures undertaken by the maker of a product to accept its own and sometimes other manufacturers’ products as postconsumer waste at the end of the products’ useful life.
        2. Health Product Declaration Open Standard (HPD): A standard format for reporting product content and associated health information for building products and materials.
        3. Indoor Air Quality (IAQ) Management Plan: Plan developed by the Contractor to provide a healthy indoor environment for workers and building occupants during construction. Plan must meet or exceed the recommendations of the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) "IAQ Guidelines for Occupied Buildings Under Construction."
        4. Leadership Extraction Practices: Products that meet at least one of the responsible extraction criteria, which include: extended producer responsibility; bio-based materials; FSC wood products; materials reuse; recycled content; and other USGBC approved programs.
        5. Material Cost: The dollar value of materials being provided to the site, after Contractor mark-ups, including transportation costs, taxes, fees, and shop labor, but excluding field equipment and field labor costs.
        6. Materials Reuse: Reuse includes salvaged, refurbished, or reused products.
        7. Multi-Attribute Optimization: Third party certified products that demonstrate impact reduction below industry average in at least three of the following six categories: global warming potential; stratospheric ozone depletion; acidification; eutrophication; tropospheric ozone creation; nonrenewable resource depletion.
        8. Passive (As Related to MEP): Not part of the active portions of the Mechanical, Electrical, and Plumbing systems, for example piping, pipe insulation, ducts, duct insulation, conduit, plumbing fixtures, faucets, showerheads, and lamp housings.
        9. Recycled Content: Recycled content is the sum of postconsumer recycled content plus one-half the preconsumer recycled content, based on cost.

"Postconsumer" material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product, which can no longer be used for its intended purpose.

"Preconsumer" material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials, such as rework, regrind, or scrap, generated in a process and capable of being reclaimed within the same process that generated it.

* + - * 1. Regional Materials: Materials that are extracted, harvested, recovered, and manufactured within a radius of 100 miles from the Project site.
        2. Volatile Organic Compounds (VOC) Emissions Test: Refer to CDPH Standard Method v1.1 definition.
      1. ADMINISTRATIVE REQUIREMENTS
         1. Work of this project includes completed building and application for LEED certification. Work is not complete until Owner has accepted USGBC’s final review of LEED certification.

Provide documentation required by LEED and LEED review.

* + - * 1. Provide materials and procedures necessary to obtain LEED prerequisites and credits required in this Section. Other Sections may specify requirements that contribute to LEED prerequisites and credits. Refer to other sections for additional materials and procedures necessary to obtain LEED prerequisites and credits.
        2. Respond to questions and requests for additional information from Architect and the USGBC regarding LEED credits until the USGBC has made its determination on the project's LEED certification application.
        3. LEED Online Submittals: Upload LEED documentation submittal data directly to USGBC project “LEED Online” website. Complete online forms at least monthly and as necessary to document LEED credits for submittals required in this Section.
        4. LEED Conference: Schedule and conduct a conference at a time convenient to Owner and Architect within 21 days prior to commencement of the work. Advise Architect, Owner's Commissioning Authority, and Owner’s Project Manager of scheduled meeting dates.

Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Owner’s Project Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

Agenda: LEED goals for the project, Contractor’s action plans, and discussion of targeted LEED Prerequisites and Credits.

Minutes: Record and distribute minutes to attendees and other entities with responsibilities for obtaining LEED Credits.

* + - 1. ACTION SUBMITTALS
         1. General: Submit additional LEED submittals required by other Specification Sections.

Submit each LEED submittal simultaneously with applicable product submittal.

Various LEED credits require photographic documentation. If you don’t have a separate division 01 section for that, consider adding requirements here.

* + - * 1. LEED Documentation Submittals:

General, Sustainable Materials Attributes Form: Project submittals must be accompanied by a completed Sustainable Materials Attributes Form. Submittal packages must also include highlighted documentation supporting the sustainability claims made on the Sustainable Materials Attributes Form.

Provide location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material.

for EAp2, EAc3, and EAc4, consider adding demand response credit and sub-metering requirements here, unless they are already included in Division 01 Commissioning or MEP Sections.

EAp3, Building-Level Energy Metering: Product data for meters, sensors, and data collection system used to provide continuous metering of building energy-consumption performance.

MRp2/MRc5, Construction and Demolition Waste Management: Comply with submittal requirements of Section 017419 - Construction Waste Management.

MRc2, Building Product Disclosure and Optimization: Environmental Product Declarations complying with LEED requirements.

MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials: Option 1, Raw Material Source and Extraction Reporting.

Corporate sustainability reports for products that comply with LEED requirements for raw material and source extraction reporting.

MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials: Option 2, Leadership Extraction Practices.

Extended Producer Responsibility: Product data and certification letter from product manufacturers, indicating participation in an extended producer responsibility program and statement of costs.

Bio-Based Materials: Product data and certification for bio-based materials, indicating that they comply with requirements. Include statement of costs.

Certified Wood: Product data and chain-of-custody certificates for products containing certified wood. Include statement indicating cost for each certified wood product.

Materials Reuse: Receipts for salvaged and refurbished materials used for Project, indicating sources and costs.

Recycled Content: Product data and certification letter from product manufacturers, indicating percentages by weight of postconsumer and preconsumer recycled content for products having recycled content. Include statement of costs.

MRc4, Building Product Disclosure and Optimization, Material Ingredients: Option 1, Material Ingredient Reporting.

Material ingredient reports for products that comply with LEED requirements for material ingredient reporting, including but not limited to the following:

Manufacturer Inventory.

Health Product Declaration.

Cradle to Cradle certifications.

Declare product labels.

UL Product Lens certifications.

Furniture may be included, providing it is included consistently in all MR Credits.

ANSI/BIFMA e3 Furniture Sustainability Standard.

MRc4, Building Product Disclosure and Optimization, Material Ingredients: Option 2, Material Ingredient Optimization.

Documentation for products that comply with LEED requirements for material ingredient optimization, including but not limited to the following:

GreenScreen Benchmarks.

Cradle to Cradle certifications.

REACH optimizations.

EQp2/EQc3/EQc4, Indoor Air Quality: Comply with submittal requirements of Section 018119 - Construction Indoor Air Quality (IAQ) Management.

EQc2, Low-Emitting Materials: Product data, indicating VOC content and emissions testing documents showing compliance with requirements for low-emitting materials, for the following materials:

Paints and coatings.

Adhesives and sealants.

Flooring.

Products containing composite wood or agrifiber products or wood glues.

Ceilings, walls, thermal, and acoustic insulation.

Include paragraph below for LEED v4 BD+C Schools and LEED v4 BD+C Healthcare credit for exterior applied products.

Exterior applied materials.

Furniture may be included, providing it is included consistently in all MR Credits.

Furniture.

* + - 1. INFORMATIONAL SUBMITTALS
         1. Qualification Data: For LEED coordinator.
         2. Project Materials Cost Data: Provide statement indicating total cost and shop labor for materials used for Project. Costs exclude site labor, overhead, and profit. Include breakout of costs for the following categories of items:

Wood construction materials.

Furniture.

Passive plumbing materials.

Passive mechanical (HVAC) materials.

Passive electrical materials.

Earthwork and exterior improvements, hard costs.

"LEED Action Plans" Paragraph below requires Contractor to make early submittals indicating how certain LEED requirements will be met. This action can provide reassurance that Contractor understands the LEED requirements and can help to clear up misunderstandings before they become a bigger problem.

* + - * 1. LEED Action Plan Components: Provide preliminary submittals within 30 days of date established for commencement of the Work indicating how the following requirements will be met:

MRp2/MRc5, Waste management plan, complying with Section 017419 - Construction Waste Management.

EQp2/EQ3/EQ4, Indoor air quality plan, complying with Section 018119 - Construction Indoor Air Quality (IAQ) Management.

"LEED Progress Reports" Paragraph below requires the contractor to provide periodic updates indicating how certain LEED requirements are being met. This action can provide reassurance that Contractor understands and is processing the LEED requirements throughout the construction period.

* + - * 1. LEED Progress Reports: Concurrent with each Application for Payment, submit reports comparing actual construction and purchasing activities with LEED action plans for the following:

MRp2/MRc5, Waste reduction progress reports complying with Section 017419 - Construction Waste Management.

MRc2, Building product disclosure and optimization – environmental product declarations.

MRc3, Building product disclosure and optimization – sourcing of raw materials.

General: Manufacturing locations.

Option 1: Corporate sustainability reports.

Option 2:

Extended producer responsibility.

Bio-based materials.

Certified wood products.

Materials reuse.

Recycled content.

MRc4, Building product disclosure and optimization – material ingredients.

EQc2, Low emitting materials.

Low Emitting Materials Tracking Sheet monitoring the project’s progress towards targeted LEED Indoor Environmental Quality Credits. Tracking Sheet to be presented at construction meetings.

EQc3, Indoor air quality, during construction, complying with Section 018119 - Construction Indoor Air Quality (IAQ) Management.

EQc4, Indoor air quality assessment, complying with Section 018119 - Construction Indoor Air Quality (IAQ) Management.

* + - 1. QUALITY ASSURANCE
         1. LEED Coordinator: Engage an experienced LEED-Accredited Professional to coordinate LEED requirements. LEED coordinator may also serve as waste management coordinator.

1. PRODUCTS
   * + 1. MATERIALS, GENERAL
          1. Provide products and procedures necessary to obtain LEED credits required in this Section. Although other Sections may specify some requirements that contribute to LEED credits, the Contractor shall determine additional materials and procedures necessary to obtain LEED credits indicated. Contractor to determine a combination of credit options best suited for achieving credits required.

Exclusions: Special equipment, such as elevators, escalators, process equipment, and fire suppression systems, is excluded from the credit calculations. Also excluded are products purchased for temporary use on the project, like formwork for concrete.

* + - 1. BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION
         1. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD): Option 1. Provide at least 20 permanently installed products (sourced from at least 5 different manufacturers) which meet one of the disclosure criteria:

Product-Specific Declaration: Valued as one quarter (1/4) of a product.

Industry-Wide (Generic) EPD: Valued as one half (1/2) of a product.

Product-Specific Type III EPD: Valued as one whole product.

MRc2 BPDO, Multi-Attribute Optimization, Option 2, is not included here, because there is no clear path to credit acheivement at this time.

* + - * 1. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials: Option 1, Raw Material Source and Extraction Reporting. Provide at least 20 permanently installed products (sourced from at least 5 different manufacturers) which meet one of the disclosure criteria:

Corporate sustainability reports.

* + - * 1. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials: Option 2, Leadership Extraction Practices. Provide products that meet at least one of the responsible extraction criteria below for at least 25%, by cost, of the total value of permanently installed building products in the project:

Extended producer responsibility program.

Bio-based materials.

Certified Wood: Wood-based materials include, but are not limited to, the following materials when made from wood, engineered wood products, or wood-based panel products:

Rough carpentry.

Miscellaneous carpentry.

Heavy timber construction.

Wood decking.

Metal-plate-connected wood trusses.

Structural glued-laminated timber.

Finish carpentry.

Architectural woodwork.

Wood paneling.

Wood veneer wall covering.

Wood flooring.

Wood lockers.

Wood cabinets.

Furniture may be included, providing it is included consistently in all MR Credits.

Furniture.

Materials Reuse credits are very unlikely to be achieved.

Materials Reuse: The following materials may be salvaged, refurbished, or reused materials:

As directed by Architect.

Recycled content.

Furniture may be included, providing it is included consistently in all MR Credits.

Exceptions: Do not include [**furniture,**]fire protection, operational plumbing, operational mechanical, and operational electrical components, and specialty items, such as elevators and equipment, in the calculation.

* + - * 1. MRc4, Building Product Disclosure and Optimization, Material Ingredients: Option 1, Material Ingredient Reporting.

Use at least 20 different permanently installed products from at least five different manufacturers that use any of the following programs to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm), which meet one of the following disclosure criteria:

Manufacturer Inventory.

Health Product Declarations (HPDs).

Cradle to Cradle (C2C) certifications.

Declare product labels.

UL Product Lens certifications.

Furniture may be included, providing it is included consistently in all MR Credits.

ANSI/BIFMA e3 Furniture Sustainability Standard.

* + - * 1. MRc4, Building Product Disclosure and Optimization, Material Ingredients: Option 2, Material Ingredient Optimization.

Use products that document their material ingredient optimization using the paths below for at least 25%, by cost, of the total value of permanently installed products in the project, which meet one of the following disclosure criteria:

GreenScreen benchmarks.

Cradle to Cradle certifications.

REACH optimizations.

MRc4 BPDO, Product Manufacturer Supply Chain Optimization, Option 3, is not included here, because there is no clear path to credit acheivement at this time.

* + - 1. LOW-EMITTING MATERIALS
         1. EQc2, Low-Emitting Materials, General Emissions Requirements: Products must demonstrate they have been tested and determined compliant in accordance with California Department of Public Health, (CDHP), Standard Method v1.1-2010, using the applicable exposure scenario. Manufacturer’s documentation demonstrating compliance must state the range of total VOCs (tVOC) after 14 days measured as specified in the CDPH Standard Method v1.1 as follows:

0.5mg/m3 or less,

between 0.5 and 5.0 mg/m3 or,

0.50 mg/m3 or more.

Delete option in first paragraph below for LEED v4 BD+C Schools and LEED v4 BD+C Healthcare credit for exterior applied products.

* + - * 1. EQc2, Low-Emitting Materials, Paints and Coatings: For field applications[**that are inside the weatherproofing system**], use paints and coatings that comply with the limits for VOC content when calculated according to 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.

|  |  |
| --- | --- |
| Product Type: | Allowable VOC Content (g/L): |
| Bond Breaker | 350 |
| Clear wood finishes - Varnish | 275 |
| Clear wood finishes – Sanding Sealer | 275 |
| Clear wood finishes - Lacquer | 275 |
| Colorant – Architectural Coatings, excluding IM coatings | 50 |
| Colorant – Solvent Based IM | 600 |
| Colorant - Waterborne IM | 50 |
| Concrete – Curing compounds | 100 |
| Concrete – Curing compounds for roadways & bridges | 350 |
| Concrete surface retarder | 50 |
| Driveway Sealer | 50 |
| Dry-fog coatings | 50 |
| Faux finishing coatings - Clear topcoat | 100 |
| Faux finishing coatings – Decorative Coatings | 350 |
| Faux finishing coatings - Glazes | 350 |
| Faux finishing coatings - Japan | 350 |
| Faux finishing coatings – Trowel applied coatings | 50 |
| Fire-proof coatings | 150 |
| Flats | 50 |
| Floor coatings | 50 |
| Form release compounds | 100 |
| Graphic arts (sign) coatings | 150 |
| Industrial maintenance coatings | 100 |
| Industrial maintenance coatings – High temperature IM coatings | 420 |
| Industrial maintenance coatings – Non-sacrificial anti-graffiti coatings | 100 |
| Industrial maintenance coatings – Zinc rich IM primers | 100 |
| Magnesite cement coatings | 450 |
| Mastic coatings | 100 |
| Metallic pigmented coatings | 150 |
| Multi-color coatings | 250 |
| Non-flat coatings | 50 |
| Pre-treatment wash primers | 420 |
| Primers, sealers and undercoaters | 100 |
| Reactive penetrating sealers | 350 |
| Recycled coatings | 250 |
| Roof coatings | 50 |
| Roof coatings, aluminum | 100 |
| Roof primers, bituminous | 350 |
| Rust preventative coatings | 100 |
| Stone consolidant | 450 |
| Sacrificial anti-graffiti coatings | 50 |
| Shellac- Clear | 730 |
| Shellac – Pigmented | 550 |
| Specialty primers | 100 |
| Stains | 100 |
| Stains, interior | 250 |
| Swimming pool coatings – repair | 340 |
| Swimming pool coatings – other | 340 |
| Traffic Coatings | 100 |
| Waterproofing sealers | 100 |
| Waterproofing concrete/masonry sealers | 100 |
| Wood preservatives | 350 |
| Low solids coatings | 120 |

* + - * 1. EQc2, Low-Emitting Materials, Paints and Coatings: For field applications that are inside the weatherproofing system, paints and coatings shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

Adhesives and sealants are required in many Specification Sections where, without being specifically mentioned, they may be specified only by the requirement to install products according to manufacturer's written instructions. For this reason, it is probably best to retain both "Adhesives and Sealants" paragraphs below if this credit is required.

Delete option in first paragraph below for LEED v4 BD+C Schools and LEED v4 BD+C Healthcare credit for exterior applied products.

* + - * 1. EQc2, Low-Emitting Materials, Adhesives and Sealants: For field applications[**that are inside the weatherproofing system**], use adhesives and sealants that comply with the limits for VOC content when calculated according to South Coast Air Quality Management District (SCAQMD) Rule #1168, requirements in effect on July 1, 2005, and rule amendment date January 7, 2005:

|  |  |
| --- | --- |
| Architectural Applications: | Allowable VOC Content (g/L): |
| Indoor carpet adhesives | 50 |
| Carpet pad adhesives | 50 |
| Outdoor carpet adhesives | 150 |
| Wood flooring adhesives | 100 |
| Rubber floor adhesives | 60 |
| Subfloor adhesives | 50 |
| Ceramic tile adhesives | 65 |
| VCT and asphalt tile adhesives | 50 |
| Dry wall and panel adhesives | 50 |
| Cove base adhesives | 50 |
| Multipurpose construction adhesives | 70 |
| Structural glazing adhesives | 100 |
| Single ply roof membrane adhesives | 250 |
| Specialty Applications: |  |
| PVC welding | 510 |
| CPVC welding | 490 |
| ABS welding | 325 |
| Plastic cement welding | 250 |
| Adhesive primer for plastic | 550 |
| Computer diskette manufacturing | 350 |
| Contact adhesive | 80 |
| Special purpose contact adhesive | 250 |
| Tire retread | 100 |
| Adhesive primer for traffic marking tape | 150 |
| Structural wood member adhesive | 140 |
| Sheet applied rubber lining operations specialty | 850 |
| Top and Trim adhesive | 250 |
| Substrate Specific Applications: |  |
| Metal to metal substrate specific adhesives | 30 |
| Plastic foam substrate specific adhesives | 50 |
| Porous material (except wood) substrate specific adhesives | 50 |
| Wood substrate specific adhesives | 30 |
| Fiberglass substrate specific adhesives | 80 |
| Sealants: |  |
| Architectural sealant | 250 |
| Marine deck sealant | 760 |
| Nonmember roof sealant | 300 |
| Roadway sealant | 250 |
| Single-ply roof membrane sealant | 450 |
| Other sealant | 420 |
| Sealant Primers: |  |
| Architectural non-porous sealant primer | 250 |
| Architectural porous sealant primer | 775 |
| Modified bituminous sealant primer | 500 |
| Marine deck sealant primer | 760 |
| Other sealant primer | 750 |
| Other |  |
| Other adhesives, adhesive bonding primers, adhesive primers or any other primers | 250 |

Exception: The provisions of SCAQMD Rule 1168 do not apply to adhesives and sealants subject to state or federal consumer product VOC regulations.

* + - * 1. EQc2, Low-Emitting Materials, Adhesives and Sealants: For field applications that are inside the weatherproofing system, adhesives and sealants shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
        2. EQc2, Low-Emitting Materials, Flooring: Flooring shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
        3. EQc2, Low-Emitting Materials, Composite Wood: Composite wood, agrifiber products, and adhesives shall be made using ultra-low-emitting formaldehyde (ULEF) resins as defined in the California Air Resources Board's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or shall be made with no added formaldehyde.
        4. EQc2, Low-Emitting Materials, Ceilings, Walls, Thermal, and Acoustic Insulation: Ceilings, walls, and thermal insulation shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

Include paragraphs below for LEED v4 BD+C Schools and LEED v4 BD+C Healthcare credit for exterior applied products.

* + - * 1. EQc2, Low-Emitting Materials, Exterior Applied Materials: Exterior applied materials, measured by volume, shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

The following materials are prohibited and do not count toward total percentage compliance:

Hot-mopped asphalt for roofing.

Coal tar sealants for parking lots and other paved surfaces.

Furniture may be included, providing it is included consistently in all MR Credits.

* + - * 1. EQc2, Low-Emitting Materials, Furniture: Furniture, measured by cost, shall be tested in accordance with ANSI/BIFMA Standard Method M7.1-2011; comply with ANSI/BIFMA e3-2011 Furniture Sustainability Standard, Sections 7.6.1 and 7.6.2, using either the concentration modeling approach or the emissions factor approach; and model the test results using the open plan, private office, or seating scenario in ANSI/BIFMA M7.1, as appropriate.

Keep the following paragraph for all LEED v4 projects:

* + - * 1. Additional Low-Emitting Requirements:

If the applicable regulation requires subtraction of exempt compounds, any content of intentionally added exempt compounds larger than 1% weight by mass (total exempt compounds) must be disclosed.

If a product cannot reasonably be tested as specified above, testing of VOC content must comply with ASTM D2369-10; ISO 11890, part 1; ASTM D6886-03; or ISO 11890-2.

Methylene chloride and perchloroethylene may not be intentionally added in paints, coatings, adhesives, or sealants.

* + - 1. INDOOR WATER USE REDUCTION
         1. WEp2, Indoor Water Use Reduction, Appliances: Provide US EPA ENERGY STAR labeled or performance equivalent appliances, where applicable.
         2. WEp2/WEc2, Indoor Water Use Reduction, Plumbing Fixtures: Do not exceed water flow requirements indicated in Division 22 - PLUMBING.

Provide US EPA WaterSense labeled plumbing fixtures, where applicable.

1. EXECUTION
   * + 1. NONSMOKING BUILDING
          1. EQp2, Environmental Tobacco Smoke Control: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor-air intakes.

Refer to Section 018119 - Construction Indoor Air Quality (IAQ) Management.

* + - 1. CONSTRUCTION WASTE MANAGEMENT
         1. MRp2/MRc5, Construction and Demolition Waste Management: Comply with Section 017419 - Construction Waste Management.
      2. CONSTRUCTION INDOOR-AIR-QUALITY MANAGEMENT
         1. EQc3/EQc4, Construction Indoor Air Quality Management Plan: Comply with Section 018119 - Construction Indoor Air Quality (IAQ) Management.

Remember to add LEED v4 Checklist and LEEDv4 Submittal Forms following this Section.

END OF SECTION