SECTION 01 8113

SUSTAINABLE DESIGN REQUIREMENTS - LEED v4 NEW CONSTRUCTION AND MAJOR RENOVATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
B. US Green Building Council, LEED Reference Guide for Building Design and Construction v4 and v4.1, April 2021, with addenda.
C. Divisions 01 through 32 Sections for LEED requirements specific to the work of each of these Sections. Requirements may or may not include reference to LEED.
D. Supplement 8113-01: LEED v4 Checklist.

1.2 SUMMARY

A. Section includes general requirements and procedures for compliance with certain USGBC LEED prerequisites and credits needed for Project to obtain LEED Silver certification based on the US Green Building Council, LEED Reference Guide for Building Design and Construction v4 and v4.1, April 2021, with addenda.
    1. 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.
    2. Additional LEED prerequisites and credits needed to obtain the indicated LEED certification level depend on Architect's design and other aspects of Project that are not part of the Work of the Contract.
    3. A copy of the LEED Project checklist is attached at the end of this Section for information only.
    4. Contractor prerequisite requirements:
        a. Sustainable Sites: Construction Activity Pollution Prevention
        b. Materials and Resources: Construction and Demolition Waste Planning
    5. Contractor point requirements:
        a. A minimum of (3) Point(s) from the following credits:
            i. Materials and Resources: Building Product Disclosure and Optimization – Environmental Product Declarations (1 Point)
            ii. Materials and Resources: Building Product Disclosure and Optimization – Sourcing Raw Materials (1 Point)
            iii. Materials and Resources: Building Product Disclosure and Optimization – Material Ingredients (1 Point)
        b. Materials and Resources: Construction and Demolition Waste Management (1 Point)
        c. Indoor Environmental Quality: Low-Emitting Materials (3 Points)
        d. Indoor Environmental Quality: Construction Indoor Air Quality Management (1 Point)
        e. Indoor Environmental Quality: Indoor Air Quality Assessment (1 Point)

6. The above requirement does not prohibit the Contractor from achieving additional construction phase credits to support the required LEED certification level.

1.3 DEFINITIONS

A. GBCI: Green Business Certification Institute. Credentialing body that administers LEED project certifications.
B. USGBC: United States Green Building Council.
C. LEED: Leadership in Energy and Environmental Design.
D. Chain-of-Custody Certificates: Certificates signed by manufacturers 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, "FSC Principles and Criteria for Forest Stewardship." Certificates shall include evidence that the manufacturer and vendor are certified for chain of custody by an FSC-accredited certification body.
E. Product: a “product” or a “permanently installed building product” is defined by its function in the project. A product includes the physical components and services needed to serve the intended function.
    1. An item that arrives on the project site either as a finished element ready for installation or as a component to another item assembled on-site.
    2. The product unit is defined by the functional requirement for use in the project; this includes the physical components and services needed to serve the intended function of the permanently installed building product.
    3. Similar products within a specification that have distinct formulations may contribute as separate products.
F. Product and Material Cost (LEED): Includes taxes and expenses to deliver the material to the project site incurred by the Contractor.
    1. Excludes cost for labor and equipment required for installation after the material is delivered to the site.
G. Location Valuation Factor: For a product to qualify for the location valuation factor, it must meet two conditions: all extraction, manufacture, and purchase (including distribution) of the product and its materials must occur within a 100-mile radius of the project site and the product (or portion of an assembled product) must meet at least one sustainable criteria specified in the credit.
    1. Distance shall be calculated as the crow flies, not by actual travel distance. The point of purchase is considered the location of product distribution.
H. Recycled Content: The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value:
    1. "Post-consumer" 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.
    2. "Pre-consumer" 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.
I. Bio-based Material: Commercial or industrial products (other than food or feed) that are composed in whole, or in significant part, of biological products, renewable agricultural materials (including plant, animal, and marine materials), or forestry materials. For the purposes of LEED, this excludes leather and other animal hides.
    1. Bio-based materials shall meet the Sustainable Agriculture Network’s Sustainable Agriculture Standard. Bio-based raw materials must be tested using ASTM Test Method D6866 and be legally harvested, as defined by the exporting and receiving country.

J. Hazardous Material: Any item or agent (biological, chemical, physical) that has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors.
K. Raw Material: The basic substance from which products are made, such as concrete, glass, gypsum, masonry, metals, recycled materials (e.g., plastics and metals), oil (petroleum polylactic acid), stone, agrifiber, bamboo, and wood.
L. Extended Producer Responsibility: 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. Producers recover and recycle the materials for use in new products of the same type. To count toward credit compliance, a program must be widely available. For carpet, extended producer responsibility must be consistent with NSF/ANSI 140–2015. Also known as closed-loop program or product take-back.
M. Manufacturer Inventory: Publicly available inventory of all product ingredients identified by name and Chemical Abstract Service Registration Number (CASRN)
N. Cradle to Gate Assessment: Analysis of a product's partial life cycle, from resource extraction (cradle) to the factory gate (before it is transported for distribution and sale). It omits the use and the disposal phases of the product.
O. Health Product Declaration: The end use product has a published, complete Health Product Declaration with full disclosure of known hazards in compliance with the Health Product Declaration Open Standard.
P. Environmental Product Declaration: A statement that the item meets the environmental requirements of ISO 14025 and EN 15804, or ISO 21930.
Q. Life-cycle Assessment: An evaluation of the environmental effects of a product from cradle to grave, as defined by ISO 14044 or ISO 14071.
R. Reuse: The reemployment of materials in the same or a related capacity as their original application, thus extending the lifetime of materials that would otherwise be discarded. Reuse includes the recovery and reemployment of materials recovered from existing building or construction sites. Also known as salvage.
S. Building Interior (LEED): Everything within the waterproofing membrane.
T. Building Exterior (LEED): Everything outside of and including the waterproofing membrane.
U. VOC: Volatile Organic Compound.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Respond to questions and requests from Architect and the GBCI regarding LEED credits that are the responsibility of the Contractor, that depend on product selection or product qualities, or that depend on Contractor's procedures until the GBCI has made its determination on the project's LEED certification application. Document responses as informational submittals.
B. LEED Coordination Meetings
    1. Commissioning Kickoff Meeting: Review OPR and all Project commissioning coordination activities. Reference Specification Division 01.
    2. Preconstruction Meeting: Conduct conference at jobsite or other agreed-upon location. Review LEED requirements and action plans for complying with requirements.
    3. Construction Meetings: Review construction status reports and time sensitive construction activities related to LEED credits at least monthly, or as frequently as needed.

1.5 LEED ACTION SUBMITTALS

A. All materials and products between divisions 3-32 that contain a reference or relation to 01 81 13 within their PART 1 General apply to this section.
B. Submit additional LEED submittals required by other Specification Sections, Division 3-10, Division 21-26: piping, pipe insulation, ducts, duct insulation, and conduit, 31 and 32.

C. LEED submittals may be combined with other submittals if the submitted item is identical to that submitted to comply with other requirements. If available, submit product data at the end of each submittal to verify compliance with LEED requirements.
D. Project Materials Cost Data:
    1. Provide materials cost data for products to be installed under each specification section.
E. LEED Action Plans: Provide preliminary submittals within **30** days of date established for the Notice to Proceed and reports according to the following**:**
    1. SS Prerequisite: Construction Activity Pollution Prevention Plan. Project-specific Erosion and Sedimentation Control Plan.
    2. MR Prerequisite and Credit: Construction and Demolition Waste Management Planning. Project-specific Construction Waste Management Plan.
    3. EQ Credit: Construction Indoor Air Quality Management. Project-specific Construction Indoor Air Quality Management Plan.
F. LEED Credit Requirements:
    1. EA Credit Advanced Energy Metering: Provide product data for interval recording meters.
    2. WE Credit Indoor Water Use Reduction: Provide product data for all newly installed toilets, urinals, private lavatory faucets, and showerheads that are eligible as being WaterSense labeled.
    3. SS Credit Heat Island Reduction:
        a. Use roofing materials that meet the following conditions:
            i. For Low-sloped roofs
                A. Slopes < 2:12 pitch
                B. Initial SRI value of at least 82
                C. 3-year aged SRI of at least 64
            ii. For Steep-sloped roofs
                A. Slopes > 2:12 pitch
                B. Initial SRI value of at least 39
                C. 3-year aged SRI of at least 32
        b. If three-year aged value information is not available, use materials that meet the initial SRI value.
    4. MR Prerequisite and Credit Construction and Demolition Waste Management: Comply with Division 01 Section "Construction and Demolition Waste Management."
    5. MR Credit Environmental Product Declaration: Provide a list of products that contribute to the following material categories:
        a. Environmental Product Declaration (EPD)
            i. Use at least 20 different permanently installed products sourced from at least five different manufacturers that meet one of the following disclosure criteria. The project must achieve a minimum whole product value of 20 to comply with credit requirements.
                A. Life-cycle assessment and environmental product declarations
                    1) Products with a publicly available, critically reviewed life-cycle assessment.
                    2) Product-specific Type III EPD
                    3) Industry-wide Type III EPD
                B. Product-specific Type III Environmental Product Declaration (EPD) with third-party certification – valued as 1.5 products.
        b. Embodied Carbon/LCA Optimization
            i. Use products that have a compliant embodied carbon optimization report or action plan separate from the LCA or EPD. Use at least 5 permanently installed products sourced from at least three different manufacturers.

6. MR Credit Building Product Disclosure and Optimization, Sourcing of Raw Materials:
    a. Responsible Sourcing of Raw Materials: Use products that meet at least one of the responsible extraction criteria below for at least 15%, by cost, of the total value of permanently installed building products in the project for 1-point and 30% for 2-points:
        i. Extended Producer Responsibility (EPR) program participation.
        ii. Bio-Based Materials
        iii. Forest Stewardship Council Certification (wood products)
        iv. Material Reuse
        v. Recycled Content
        vi. Regional Content
7. MR Credit Optimization of Material Ingredients:
    a. Material Ingredient Reporting: Use at least 20 different permanently installed products from at least five different manufacturers to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm).
    b. Material Ingredient Optimization: Use products that have a compliant material ingredient report or action plan. Use at least 5 permanently installed products sourced from at least three different manufacturers. Products are valued according to the table below.
        i. Optimization Action Plan
        ii. Cradle to Cradle Certified
        iii. Declare
        iv. Health Product Declaration
        v. Living Product Challenge
        vi. Manufacturer Inventory
8. EQ Credit Low Emitting Materials
    a. Interior Wet-Applied Products: 75% of products wet-applied within the building envelope must meet the applicable emissions evaluation and 100% of the same products must meet the applicable VOC Content limits, and provide volume or surface area for the following categories:
        i. Paints and Coatings
        ii. Adhesives and Sealants
    b. Interior Installed Products: Products installed within the building envelope must applicable emissions evaluations and provide costs or surface area for the following categories:
        i. Flooring, 90% of all flooring materials
        ii. Ceilings, 90% of all ceiling materials
        iii. Insulation, 75% of all insulation materials
    c. Composite Wood Products: Provide cost or surface area for each product. At least 75% of all composite wood must meet one of the following:
        i. Formaldehyde emissions evaluation
        ii. <salvaged and reused materials criteria.>
9. EQ Credit Construction Indoor Air Quality Management Plan:
    a. Construction indoor-air-quality management plan
    b. Product data for temporary filtration media
    c. Product data for filtration media used during occupancy
    d. Construction Documentation: Six photographs at three different times during the construction period, along with a brief description of the SMACNA approach employed, documenting implementation of the indoor-air-quality management measures, such as protection of ducts and on-site stored or installed absorptive materials.
10. EQ Credit Indoor Air Quality Assessment:

a. Signed statement describing the building air flush-out procedures including:
    i. Dates and times of flush-out commencement and completion
    ii. Confirmation that, during period of flush-out, relative humidity did not exceed 60% and internal temperature was at least 60 degrees F and no higher than 80 degrees F
    iii. Statement that filtration media was replaced after flush-out
        A. Product data for filtration media used during flush-out and during occupancy.
b. Report from testing and inspecting agency indicating results of indoor-air-quality testing and documentation showing compliance with indoor-air-quality testing procedures and requirements.

1.6 LEED INFORMATIONAL SUBMITTALS

A. Qualification Data: For LEED coordinator.
B. Project Materials Cost Data:
    1. Provide a total project cost statement, indicating the actual materials cost. This is the cost of all materials being used on the project site, excluding labor but including delivery & taxes.
C. LEED Action Plans: Indicate how the following requirements will be met:
    1. SS Prerequisite: Construction Activity Pollution Prevention.
        a. Implement an erosion and sedimentation control plan for all construction activities associated with the project. The plan must conform to the erosion and sedimentation requirements of the 2012 U.S. Environmental Protection Agency (EPA) Construction General Permit (CGP) or local equivalent, whichever is more stringent. Projects must apply the CGP regardless of size. The plan must describe the measures implemented.
    2. MR Credit: Construction and Demolition Waste Management Planning, in compliance with Division 01 Section "Construction and Demolition Waste Management."
    3. EQ Credit: Construction Indoor Air Quality Management Plan.
        a. Implement an indoor air quality management plan for the construction and preoccupancy phases of the building. The plan must address all the following:
            i. During construction, meet or exceed all applicable recommended control measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd edition, 2007, ANSI/SMACNA 008–2008, Chapter 3.
            ii. Protect absorptive materials stored on-site and installed from moisture damage.
            iii. Do not operate permanently installed air-handling equipment during construction unless filtration media with a minimum efficiency reporting value (MERV) of 8, as determined by ASHRAE 52.2–2007, with errata (or equivalent filtration media class of F5 or higher, as defined by CEN Standard EN 779–2002, Particulate Air Filters for General Ventilation, Determination of the Filtration Performance), are installed at each return air grille and return or transfer duct inlet opening such that there is no bypass around the filtration media. Immediately before occupancy, replace all filtration media with the final design filtration media, installed in accordance with the manufacturer’s recommendations.
            iv. Prohibit the use of tobacco products inside the building and within 25 feet (7.5 meters) of the building entrance during construction.

D. MR Credit Building Product Disclosure and Optimization, Environmental Product Declaration: Provide the following product data and declarations as available for each product:
    1. Environmental Product Declaration (EPD)
        a. Life-Cycle Assessment - Products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle to gate scope.
        b. Industry-wide Type III EPD - Products with third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator. Must conform to ISO 14025, and EN 15804 or ISO 21930 and have at least a cradle to gate scope.
        c. Internally reviewed Product-specific Type III EPD - Products with an internally critically reviewed LCA in accordance with ISO 14071. Products with product-specific internal EPDs which conform to ISO 14025, and EN 15804 or ISO 21930 and have at least a cradle to gate scope.
        d. Externally reviewed Product Specific type III EPDs - must conform to ISO 14025 and EN 15804 or ISO 21930 and have at least a cradle to gate scope.
            i. Products with third-party certification (Type III), including external verification of the LCA and external critical review of the EPD.
    2. Embodied Carbon/LCA Optimization:
        a. Provide third party certification demonstrating impact reduction below industry average in at least three of the following categories
            i. Global warming potential (greenhouse gases), in CO_2e;
            ii. Depletion of the stratospheric ozone layer, in kg CFC-11e;
            iii. Acidification of land and water sources, in moles H+ or kg SO_2e;
            iv. Eutrophication, in kg nitrogen equivalent or kg phosphate equivalent;
            v. Formation of tropospheric ozone, in kg nox, kg O_3 eq, or kg ethene; and
            vi. Depletion of nonrenewable energy resources, in MJ using CML / depletion of fossil fuels in TRACI.

E. MR Credit Sourcing of Raw Materials:
    1. For credit achievement calculation, the base contributing cost of individual products compliant with multiple responsible extraction criteria is not permitted to exceed 100% its total actual cost (before regional multipliers) and double counting of single product components compliant with multiple responsible extraction criteria is not permitted and in no case is a product permitted to contribute more than 200% of its total actual cost.
    2. Provide product data and costs for the following responsible extraction criteria as applicable:
        a. Extended Producer Responsibility (EPR): Products purchased from a manufacturer (producer) that participates in an extended producer responsibility program or is directly responsible for extended producer responsibility. Products meeting extended producer responsibility criteria are valued at 50% of their cost for the purposes of credit achievement calculation.
            i. EPR claims must be made in accordance with ISO 14021.
            ii. The manufacturer and/or programs have provided documentation showing participation in any of the following EPR platforms to contribute to LEED:
                A. Manufacturer Based Programs
                B. Third Party program
        b. Bio-based materials: valued at 100% of their cost for the purposes of credit achievement.
            i. Bio-based materials. Bio-based products and materials other than wood must be tested using ASTM Test Method D6866 or equivalent method ISO 16620-2, or be certified to the USDA BioPreferred Voluntary

Labeling Initiative that includes verification via ASTM 6866 testing. Exclude hide products, such as leather and other animal skin material.

A. Bio-based products that meet the criteria above: value at 50% of cost multiplied by the biobased content of the product for the purposes of credit achievement calculation.
B. Bio-based products that meet the Sustainable Agriculture Network's Sustainable Agriculture Standard in addition to the testing requirements above: value at 100% of cost multiplied by the biobased content of the product for the purposes of credit achievement calculation.

c. Wood Products: Products certified by the Forest Stewardship Council are valued at 100% of their cost for the purposes of credit achievement.
   i. Certificates for Extraction Reporting: Chain-of-custody certificates indicating that interior architectural woodwork complies with forest certification requirements. Include documentation that manufacturer maintains a valid certificate for chain of custody by an FSC-accredited certification body. Upon final sale the invoice for all wood products sold to the project contractors or subcontractors (who do not modify the product off-site) are required to be submitted.
   ii. For all wood products designated in this specification as "FSC certified," provide evidence of compliance with FSC standards as follows:
      A. Demonstrate that products are FSC certified by providing vendor invoices. Invoices will contain the vendor's Chain-of-Custody (COC) number and identify each FSC certified product on a line-item basis. A "vendor" is defined as the company that furnishes wood products to project contractors and/or subcontractors for on-site installation.
      B. Wood products without submittal of acceptable documentation will still be included in calculations but will not contribute to the certified wood weighting.
d. Material Reuse: Products meeting materials re-use criteria are valued at 200% of their cost for the purposes of credit achievement.
   i. Determine the cost of each material. The cost of reused or reclaimed materials is either the actual cost paid or the replacement value, whichever is higher. Core materials must not contain toxic substances and may be eligible to include:
      A. salvaged brick
      B. structural timber
      C. railroad ties
      D. stone
      E. pavers
e. Recycled Content: Products meeting recycled content criteria are valued at 100% of their cost for the purposes of credit achievement.
   i. Documentation is required indicating percentages by weight of post-consumer and pre-consumer recycled content. Include statement indicating cost and qualifying percentage for each product having recycled content.
f. Regional Content: For credit achievement calculation, products sourced (extracted, manufactured, purchased) within 100 miles (160 km) of the project site are valued at 200% of their base contributing cost.
   i. Documentation is required indicating distances including the distribution, purchase locations, and all points of manufacture. Include statement

indicating cost and qualifying percentage for each product having regional content.

F. MR Credit Building Product Disclosure and Optimization, Material Ingredients: Follow one or both of the following options and provide product data and declarations as available for each product:
    1. Material Ingredient Reporting
        a. Provide documentation of the product manufacturer's participation in any of the following programs to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm)
            i. Manufacturer Inventory
            ii. Health Product Declaration
            iii. Cradle to Cradle Certification
            iv. Other USGBC approved program
    2. Material Ingredient Optimization
        a. Provide product data for the following material ingredient optimization criteria as applicable:
            i. Optimization Action Plan
            ii. Advanced Inventory & Assessment:
                A. Cradle to Cradle Certified: certified or Material Health Certificate at Bronze level or higher.
                B. Declare labels designated as Red List Free or LBC Red List Free.
                C. Health Product Declaration that meet optimization and verification criteria.
                D. Living Product Challenge certified products that include a Red List Free or LBC Red List Free Declare label.
                E. Manufacturer Inventory that meet optimization and verification criteria.
            iii. Material Ingredient Optimization.
        b. Cradle to Cradle Certified or Material Health Certificate at Silver level or higher.

G. MR Credit: Construction and Demolition Waste Management Planning, provide waste tickets in compliance with Division 01 Section "Construction and Demolition Waste Management."

H. EQ Credit Low Emitting Materials: Provide a list of products that contribute to the following criteria:
    1. CDPH Emissions Evaluation: Demonstrate General Emissions Evaluation compliance by one of the following standards:
        a. Product has been tested according to California Department of Public Health (CDPH) Standard Method v1.2–2017 and complies with the VOC Content limits in Table 4-1 of the method. Additionally, the range of total VOCs after 14 days (336 hours) was measured as specified in the CDPH Standard Method v1.2 and is reported (TVOC ranges: 0.5 mg/m3 or less, between 0.5 and 5 mg/m3, or 5 mg/m3 or more).
        b. Laboratories that conduct the tests must be accredited under ISO/IEC 17025 for the test methods they use. Products used in any setting other than schools and classrooms must be modeled to private office scenario.
        c. The statement of product compliance must include the exposure scenario(s) used, the range of total VOCs, and must follow the product declaration guidelines in CDPH Standard Method v1.2-2017, Section 8. Manufacturer statements must also include a summary report from the laboratory that is less than three years old and the amount of wet-applied product applied in mass per surface area (if applicable). Organizations that certify manufacturers' claims must be accredited under ISO/IEC 17065.
        d. Inherently non-emitting sources

e. Product is an inherently non-emitting source of VOCs (stone, ceramic, powder-coated metals, plated or anodized metal, glass, concrete, clay brick, and unfinished or untreated solid wood) and has no binders, surface coatings, or sealants that include organic chemicals.
f. CDPH Emissions Evaluation must apply to the following categories:
i. Paints and Coatings, a minimum of 75% by volume
ii. Adhesives and Sealants, a minimum of 75% by volume
iii. Flooring, a minimum of 90% by cost
iv. Walls
v. Ceilings, a minimum of 90% by cost
vi. Insulation, a minimum of 75% by cost

2. Composite Wood Products: At least 75% of all composite wood products, by cost, must be documented to have low formaldehyde emissions that meet one of the following:
a. Certified as ultra-low-emitting formaldehyde (ULEF) product under EPA Toxic Substances Control Act, Formaldehyde Emission Standards for Composite Wood Products (TSCA, Title VI) (EPA TSCA Title VI) or California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM).
b. Certified as no added formaldehyde resins (NAF) product under EPA TSCA Title VI or CARB ATCM.
c. Wood structural panel manufactured according to PS 1-09 or PS 2-10 (or one of the standards considered by CARB to be equivalent to PS 1 or PS 2) and labeled bond classification Exposure 1 or Exterior.
d. Structural wood product manufactured according to ASTM D 5456 (for structural composite lumber), ANSI A190.1 (for glued laminated timber), ASTM D 5055 (for I-joists), ANSI PRG 320 (for cross-laminated timber), or PS 20-15 (for finger-jointed lumber).

3. VOC content:
a. Paints and Coatings: All Paints and Coatings wet-applied on site must meet the applicable VOC Content 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 February 5, 2016.
b. Adhesives and Sealants: All Adhesives and Sealants wet-applied on site must meet the applicable VOC content requirements of SCAQMD Rule 1168, October 6, 2017, Adhesive and Sealant Applications, as analyzed by the methods specified in Rule 1168.
c. Methylene chloride and perchloroethylene may not be intentionally added in paints, coatings, adhesives, or sealants.

I. LEED Progress Reports: Concurrent with each Application for Payment, submit reports comparing actual construction and purchasing activities with LEED action plans for the following:
1. Construction and Demolition Waste Management diversion rates.
2. LEED Product Documentation required to demonstrate project compliance with the LEED MR - Materials and Resources credit requirements.
3. LEED Product Documentation required to demonstrate project compliance with the LEED EQ – Low Emitting Materials credit requirements.

1.7 QUALITY ASSURANCE

A. LEED Coordinator: Engage an experienced LEED-Accredited Professional to coordinate LEED requirements. LEED coordinator may also serve as waste management coordinator.
B. All wood products designated as “FSC certified” in this specification shall be certified according to the rules of the Forest Stewardship Council (www.fscus.org).

C. To review a list of North American Certification Bodies that are accredited by the FSC to certify forest products, go to (https://us.fsc.org/en-us/certification/certifying-bodies-in-the-us)

PART 2 – PARTS

2.1 MATERIALS GENERAL

A. All materials and products between divisions 3-32 that contain a reference or relation to 01 81 13 within their PART 1 General apply to this section. Supplemental tables will determine applicable LEED categories and appropriate submittal actions.

PART 3 – EXECUTION

3.1 REFRIGERANT AND CLEAN-AGENT FIRE-EXTINGUISHING-AGENT REMOVAL

A. Prerequisite EA Fundamental Refrigerant Management: Remove CFC-based refrigerants from existing HVAC&R equipment indicated to remain and replace with refrigerants that are not CFC based. Replace or adjust existing equipment to accommodate new refrigerant as described in Division 23 Sections.

3.2 CONSTRUCTION WASTE MANAGEMENT

A. MR Credit: Construction and Demolition Waste Management Planning, provide waste tickets in compliance with Division 01 Section "Construction and Demolition Waste Management."

3.3 CONSTRUCTION INDOOR-AIR-QUALITY MANAGEMENT PLAN

A. Meet or exceed all applicable recommended control measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd edition, 2007, ANSI/SMACNA 008–2008, Chapter 3.
    1. Coordinate first subparagraph below with Division 01 Section "Temporary Facilities and Controls." Identify air handlers and associated return-air inlets authorized by Owner for use during construction period.
        a. If Owner authorizes use of permanent heating, cooling, and ventilating systems during construction period as specified in Division 01 Section "Temporary Facilities and Controls," install filter media having a MERV 8 according to ASHRAE 52.2-2007 at each return-air inlet for the air-handling system used during construction.
        b. Replace all air filters immediately prior to occupancy.
    2. Protect absorptive materials stored on-site and installed from moisture damage
    3. Prohibit the use of tobacco products inside the building and within 25 feet of the building entrance during construction.

3.4 INDOOR AIR QUALITY ASSESSMENT

A. Option-1 Flush-Out:
    1. After construction ends, prior to occupancy and with all interior finishes (including millwork, doors, paint, carpet, acoustic tiles and moveable furnishings) installed, and major

VOC punch list items completed, perform a building flush-out by supplying a total volume of 14000 cu. ft. of outdoor air per sq. ft. of floor area while maintaining an internal temperature of at least 60 deg F and no greater than 80 deg F, and a relative humidity no higher than 60 percent.

2. If occupancy is desired prior to flush-out completion, the space may be occupied following delivery of a minimum of 3500 cu. ft. of outdoor air per sq. ft. of floor area while maintaining an internal temperature of at least 60 deg F and no greater than 80 deg F, and a relative humidity no higher than 60 percent. Once a space is occupied, it shall be ventilated at a minimum rate of 0.30 cfm per sq. ft. of outside air or the design minimum outside air rate, whichever is greater. During each day of the flush-out period, ventilation shall begin a minimum of three hours prior to occupancy and continue during occupancy. These conditions shall be maintained until a total of 14000 cu. ft./sq. ft. of outside air has been delivered to the space.
3. Commissioning can occur during the flush-out, provided none of the commissioning procedures introduce contaminants into the space and none of the flush-out procedures circumvent the commissioning process. Complete testing and balancing after the flush-out is complete.
4. If partial construction work occurs during the flush-out, the procedure must be started again from the beginning for that space.
5. If multiple discrete HVAC systems operate independently, the team may flush out portions of the building as work is completed in each area served by the given system.
6. If the permanent HVAC system will be used to perform the flush out procedure, first replace used filters with new MERV 13 media and remove any duct coverings installed as part of the construction indoor air quality management plan.>

B. Option-2 Air-Quality Testing:
   1. After construction ends and before occupancy, but under ventilation conditions typical for occupancy, conduct baseline indoor-air-quality testing using protocols consistent with the methods listed in the USGBC's Reference Guide for Building Design and Construction v4 or v4.1 for all occupied spaces. Use current versions of ASTM standard methods, EPA compendium methods, or ISO methods as indicated. Laboratories that conduct tests for chemical analysis of formaldehyde and volatile organic compounds must be accredited under ISO/IEC 17025 for the test methods that they use.
   2. Demonstrate that the contaminant maximum concentrations listed below are not exceeded:
      a. Formaldehyde: 27 ppb.
      b. Particulates
         i. PM10 for all building: 50 micrograms/cu. m.
         ii. PM 2.5 for buildings in EPA nonattainment areas: 15 micrograms/cu. m.
      c. Ozone for buildings in EPA nonattainment areas: .075 ppm
      d. Total Volatile Organic Compounds (TVOC): 500 micrograms/cu. m.
      e. Target chemicals listed in CDPH Standard Method v1.1, table 4-1, except formaldehyde: CDPH Standard Method v1.1-2010 Allowable Concentrations, table 4-1
      f. Carbon Monoxide: 9 ppm and no greater than 2 ppm above outdoor levels.
   3. For each sampling point where the maximum concentration limits are exceeded, conduct additional flush-out with outside air and retest the specific parameter(s) exceeded to indicate the requirements are achieved. Repeat procedure until all requirements have been met. When retesting noncomplying building areas, take samples from same locations as in the first test.
   4. Air-sample testing shall be conducted as follows:
      a. All measurements shall be conducted prior to occupancy but during normal occupied hours, and with building ventilation system starting at the normal daily

start time and operated at the minimum outside air flow rate for the occupied mode throughout the duration of the air testing.

b. Building shall have all interior finishes including millwork, doors, paint, carpet, acoustic tiles and moveable furnishings installed, and major VOC punch list items completed.

c. The building must be thoroughly cleaned, including the ductwork, before testing may begin. Use low-emitting cleaning products to prevent high short-term VOC levels that may affect test results. Use vacuum cleaners with HEPA filtration to capture particulates.

d. Number of sampling locations will vary depending on the size of building and number of ventilation systems but must include all occupied spaces. If sampling is used, all space types must be represented. Use the following methodology to determine how many air testing locations are required:

i. Test at least one location per ventilation system for each occupied space type. There must be a minimum of one test per floor. The locations selected for testing must represent the worst-case zones where the highest concentrations of contaminants of concern are likely to occur.

ii. Test areas no larger than 5,000 sq. ft.

iii. For large open spaces such as school gymnasiums, the number of sampling points shall not be less than one per 50,000 sq. ft.

iv. Project teams may sample identical spaces by testing one in seven; if sampled space fails the test, all seven must be tested.

5. Air samples shall be collected between 3 and 6 feet above the floor.
6. The gravimetric method must be used for testing.
7. Indoor Air Quality Testing Report:

a. Submit narrative describing procedures and how locations were determined.

i. Include dates and results of each test.

ii. Include temperature and humidity levels for dates of each test.

END OF SECTION

A. Supplement 8113-01: LEEDv4 Checklist

VERDACITY

LEEDv4 for BD+C:

New Construction and Major Renovations Project Scorecard

Project Name:	**SENMC Vocational Trades & Technologies**
Project Address:	**1500 E. University Drive, Carlsbad, NM 88220**
Date:	**March 20, 2025**
Target:	**LEED Silver**
Legend:	Critical PR & Credits / Construction Credits

Yes	L	U	No	INTEGRATIVE PROCESS (IP)		1	Company
0	0	1	0				
		1		Credit	Integrative Process	1	Verdacity

Yes	L	U	No	LOCATION AND TRANSPORTATION (LT)		16	Company
3	0	0	13				
1				Credit	Sensitive Land Protection	1	Verdacity
1			1	Credit	High Priority Site	2	Verdacity
			5	Credit	Surrounding Density and Diverse Uses	5	Architect
			5	Credit	Access to Quality Transit	5	Architect
			1	Credit	Bicycle Facilities	1	Architect
			1	Credit	Reduced Parking Footprint	1	Architect
1				Credit	Green Vehicles	1	Architect

Yes	L	U	No	SUSTAINABLE SITES (SS)		10	Company
10	0	0	0				
Y				Prereq	Construction Activity Pollution Prevention	Required	Contractor
1				Credit	Site Assessment	1	Owner
2				Credit	Site Development - Protect or Restore Habitat	2	Architect
1				Credit	Open Space	1	Architect
3				Credit	Rainwater Management	3	Civil Engineer
2				Credit	Heat Island Reduction	2	Architect
1				Credit	Light Pollution Reduction	1	Electrical Engineer

Yes	L	U	No	WATER EFFICIENCY (WE)		11	Company
2	2	2	5				
Y				Prereq	Outdoor Water Use Reduction	Required	Verdacity
Y				Prereq	Indoor Water Use Reduction	Required	Verdacity
Y				Prereq	Building-Level Water Metering	Required	Mechanical Engineer
1			1	Credit	Outdoor Water Use Reduction	2	Architect
	2	2	2	Credit	Indoor Water Use Reduction	6	Architect
			2	Credit	Cooling Tower Water Use	2	Mechanical Engineer
1				Credit	Water Metering	1	Mechanical Engineer

Yes	L	U	No					
7	1	0	25	ENERGY & ATMOSPHERE (EA)			33	Company
Y				Prereq	Fundamental Commissioning and Verification		Required	Cx Agent
Y				Prereq	Minimum Energy Performance		Required	Energy Consultant
Y				Prereq	Building-Level Energy Metering		Required	Electrical Engineer
Y				Prereq	Fundamental Refrigerant Management		Required	Mechanical Engineer
3	1		2	Credit	Enhanced Commissioning		6	Cx Agent
2			16	Credit	Optimize Energy Performance		18	Energy Consultant
1				Credit	Advanced Energy Metering		1	Energy Consultant
			2	Credit	Demand Response		2	Owner
			3	Credit	Renewable Energy Production		3	Energy Consultant
1				Credit	Enhanced Refrigerant Management		1	Mechanical Engineer
			2	Credit	Green Power and Carbon Offsets		2	Owner

Yes	L	U	No					
7	4	0	2	MATERIALS & RESOURCES (MR)			13	Company
Y				Prereq	Storage and Collection of Recyclables		Required	Verdacity
Y				Prereq	Construction and Demolition Waste Management Planning		Required	Verdacity
3			2	Credit	Building Lifecycle Impact Reduction		5	Verdacity
1	1			Credit	Building Product Disclosure and Optimization - Environmental Product D		2	Contractor
1	1			Credit	Building Product Disclosure and Optimization - Sourcing Raw Materials		2	Contractor
1	1			Credit	Building Product Disclosure and Optimization - Material Ingredients		2	Contractor
1	1			Credit	Construction and Demolition Waste Management		2	Contractor

Yes	L	U	No					
8	1	1	6	INDOOR ENVIRONMENTAL QUALITY (EQ)			16	Company
Y				Prereq	Minimum Indoor Air Quality Performance		Required	Mechanical Engineer
Y				Prereq	Environmental Tobacco Smoke (ETS) Control		Required	Owner
2				Credit	Enhanced Indoor Air Quality Strategies		2	Mechanical Engineer
3				Credit	Low-Emitting Materials		3	Contractor
1				Credit	Construction Indoor Air Quality Management Plan		1	Contractor
	1		1	Credit	Indoor Air Quality Assessment		2	Contractor
1				Credit	Thermal Comfort		1	Mechanical Engineer
1			1	Credit	Interior Lighting		2	Electrical Engineer
		1	2	Credit	Daylight		3	Daylighting Consultant
			1	Credit	Quality Views		1	Daylighting Consultant
			1	Credit	Acoustic Performance		1	Acoustician

Yes	L	U	No					
3	2	0	1	INNOVATION (IN)			6	Company
1				Credit	Innovation: Purchasing Lamps		1	Verdacity
	1			Credit	Innovation: Exemplary Perf: BPDO- Material Ingredients		1	Contractor
	1			Credit	Innovation: Exemplary Perf: BPDO- EPDs		1	Contractor
1				Credit	Pilot: Daylighting in Non-regularly occupied spaces_v4.1		1	Verdacity
			1	Credit	Innovation: Exemplary Perf: Building LCIA		1	Verdacity
1				Credit	LEED® Accredited Professional		1	Verdacity

Yes	L	U	No					
4	0	0	2	REGIONAL PRIORITY (RP)			4	Company
1				Credit	Regional Priority: Sensitive Land Protection (Thr: 1 pt)		1	Verdacity
			1	Credit	Regional Priority: Surrounding Density and Diverse Uses (Thr: 2 pts)		1	Verdacity
1				Credit	Regional Priority: Outdoor Water Use Reduction (Thr: 1 pt)		1	Verdacity
1				Credit	Regional Priority: Optimize Energy Performance (Thr: 5 pts)		1	Verdacity
			1	Credit	Regional Priority: Renewable Energy Production (Thr: 1 pt)		1	Verdacity
1				Credit	Regional Priority: Thermal Comfort (Thr: 1 pt)		1	Verdacity

Yes	L	U	No	
44	10	4	54	PROJECT TOTALS (Certification Estimates) 110

Certified: 40-49 points Silver: 50-59 points Gold: 60-79 points Platinum: 80+ points

* Note that an ideal certification range should be 3-6 points above the target certification threshold level

L= Likely, U = Unlikely