

## **SECTION 01 81 13**

### **SUSTAINABLE DESIGN REQUIREMENTS**

#### **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.

##### **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 USGBC's "LEED 2009 for Healthcare: New Construction & Major Renovations."
  - 1. Other 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 depend on Architect's design and other aspects of Project that are not part of the Work of the Contract.
  - 3. Specific requirements for LEED are included in greater detail in other Sections.

##### **1.3 DEFINITIONS**

- A. 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 manufacturer is certified for chain of custody by an FSC-accredited certification body.
- B. Regional Materials: Materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.

- C. 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.

#### **1.4 ADMINISTRATIVE REQUIREMENTS**

- A. Respond to questions and requests from Architect and the USGBC 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 USGBC has made its determination on the project's LEED certification application. Document responses as informational submittals.

#### **1.5 ACTION SUBMITTALS**

- A. General: Submit additional LEED submittals required by other Specification Sections.
- B. LEED submittals are in addition to other submittals. If submitted item is identical to that submitted to comply with other requirements, submit duplicate copies as a separate submittal to verify compliance with indicated LEED requirements.
- C. LEED Documentation Submittals:
  - 1. Credit SS 7.2: Product data indicating solar reflectance index (SRI) equal or great than the required values. Or product data of vegetated roof that covers at least 50% roof area. Or products data of high-albedo and vegetated roof surfaces combine that meets the required criteria.
  - 2. Credit SS 8:
    - a. Interior Light: Product data of light input power or providing shielding of all applicable nonemergency interior luminaries.
    - b. Exterior Light: Product data of light power densities required.
  - 3. Credit WE 3: Product data of appliances, equipment and fixtures water usage and flow rate.
  - 4. Credit EA 3:

- a. Implement or have a contract in place to implement enhanced commissioning.
  - b. A system manual for future operating staffs.
  - c. Report of training operating personnel and building occupants.
  - d. Thermal envelope commissioning work plan and schedule.
  - e. Performance test and inspection schedules.
  - f. Final report.
5. Credit EA 5: Product data and wiring diagrams for sensors and data collection system used to provide continuous metering of building energy-consumption performance over a period of time of a minimum of two years of postconstruction occupancy.
6. Credit MR 2: Comply with Section 017419 "Construction Waste Management and Disposal."
7. Credit MR 3: Product data and certification letter from product manufacturers indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content. Include statement indicating material cost for each product having recycled content. Or indicating product is regionally sourced materials within 500 miles of project site.
8. Credit MR 3: Product data for regional materials indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.
9. Credit MR 3: Product data and chain-of-custody certificates for products containing certified wood. Include statement indicating cost for each certified wood product.
10. Credit MR 4.1: Product data of long lasting reduced mercury fluorescent lamps.
11. Credit MR 4.2: Product data for PBT Source Reduction for lead, cadmium and copper.
12. Credit MR 5: Product data for Furniture and Medial Furnishings including the chemical properties of all major textiles, finishes and dyes.
13. Credit IEQ 1: Outdoor air delivery monitoring plan.
14. Credit IEQ 2:
  - a. Sound isolation and speech privacy descriptor measurement report.
  - b. Report of calculation or measurement of sound levels in rooms and spaces of each type.
  - c. Product data showing materials, systems installation details and other design features meeting the required Sound Absorption Coefficients.
15. Credit IEQ 3.1:
  - 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.

16. Credit IEQ 3.2:
  - a. Signed statement describing the building air flush-out procedures including the dates when flush-out was begun and completed and statement that filtration media was replaced after flush-out.
  - b. Product data for filtration media used during flush-out and during occupancy.
  - c. 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.
17. Credit IEQ 4, Group 1: Product data for adhesives and sealants used inside the weatherproofing system indicating VOC content of each product used.
18. Credit IEQ 4, Group 2: Product data for paints and coatings used inside the weatherproofing system indicating VOC content of each product used. Product data for ceiling tiles, acoustical tiles, and wall coverings shall comply with the California Department of Public Health Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions From Indoor Sources Using Environmental Chambers version 1.1 (CDPH/EHLB/M-500 Standard Method v1.1).
19. Credit IEQ 4, Group 3: Product data for carpet and all hard surface flooring.
20. Credit IEQ 4, Group 4: Product data for products containing composite wood or agrifiber products or wood glues indicating that they do not contain urea-formaldehyde resin. Product data for laminating adhesives indicating they contain no added urea-formaldehyde. Product data for batt insulation indicating they do not contain urea formaldehyde, phenol formaldehyde, and urea-extended phenol formaldehyde.

## **1.6 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For LEED coordinator.
- B. Project Materials Cost Data: Provide statement indicating total cost for materials used for Project. Costs exclude labor, overhead, and profit. Include breakout of costs for the following categories of items:
  1. Furniture.
  2. Plumbing.
  3. Mechanical.
  4. Electrical.
  5. Specialty items such as elevators and equipment.
  6. Wood-based construction materials.
- C. LEED Action Plans: Provide preliminary submittals within 14 days of date established for the Notice to Proceed indicating how the following requirements will be met:
  1. Credit MR 2: Waste management plan complying with Section 017419 "Construction Waste Management and Disposal."

2. Credit MR 3: List of proposed materials with recycled content. Indicate cost, post-consumer recycled content, and pre-consumer recycled content for each product having recycled content.
  3. Credit MR 3: List of proposed regional materials. Identify each regional material, including its source, cost, and the fraction by weight that is considered regional.
  4. Credit MR 3: List of proposed rapidly renewable materials. Identify each product containing rapidly renewable content, including percentage of each material and the cost of the material.
  5. Credit MR 3: List of proposed certified wood products. Indicate each product containing certified wood, including its source and cost of certified wood products.
  6. Credit IEQ 3.1: Construction indoor-air-quality management plan.
- D. 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. Credit MR 2: Waste reduction progress reports complying with Section 017419 "Construction Waste Management and Disposal."
  2. Credit MR 3: Recycled content.
  3. Credit MR 3: Regional materials.
  4. Credit MR 3: Certified wood products.

## **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.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS, GENERAL**

- A. 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.

### **2.2 RECYCLED CONTENT OF MATERIALS**

- A. Credit MR 3: Building materials shall have recycled content such that post-consumer recycled content plus one-half of pre-consumer recycled content for Project constitutes a minimum of 20% percent of cost of materials used for Project.

1. Cost of post-consumer recycled content plus one-half of pre-consumer recycled content of an item shall be determined by dividing weight of post-consumer recycled content plus one-half of pre-consumer recycled content in the item by total weight of the item and multiplying by cost of the item.
2. Do not include plumbing, mechanical and electrical components, and specialty items such as elevators and equipment in the calculation.

## **2.3 REGIONAL MATERIALS**

- A. Credit MR 3: Not less than 10% percent of building materials (by cost) shall be regional materials.

## **2.4 CERTIFIED WOOD**

- A. Credit MR 3: Not less than 50 percent (by cost) of wood-based materials shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
  1. Wood-based materials include, but are not limited to, the following materials when made from wood, engineered wood products, or wood-based panel products:
    - a. Rough carpentry.
    - b. Miscellaneous carpentry.
    - c. Wood decking.
    - d. Finish carpentry.
    - e. Architectural woodwork.
    - f. Wood paneling.
    - g. Wood cabinets.
    - h. Furniture.

## **2.5 LOW-EMITTING MATERIALS**

- A. Credit IEQ 4, Group 1: For field applications that are inside the weatherproofing system, adhesives and sealants shall comply with the following VOC content limits:
  1. Adhesives, Sealants, and Sealant Primers shall comply with South Coast Air Quality Management District (SCAQMD) Rule #1168, effective date of July 1, 2005 and rule amendment date of January 7, 2005.
  2. Aerosol Adhesives shall comply with Green Seal Standard for Commercial Adhesives GS-36 requirements in effect on October, 2000.
  3. Adhesives and sealants shall contain no carcinogen or reproductive toxicant components present at more than 1% of total mass of the product as defined in the California Office of Environmental Health Hazard Assessment's (OEHHA) list entitled "Chemicals Known to the State to Cause Cancer" or the Reproductive

Toxicity, Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).

B. Credit IEQ 4, Group 2:

1. For field applications that are inside the weatherproofing system, paints and coatings shall comply with the following VOC content limits: South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings.
2. Ceiling tiles, including suspended acoustical tiles, and wall coverings shall comply with the testing and product requirements of the California Department of Public Health Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers version 1.1 modeled using the standard office building protocol parameters and certified as compliant by an independent third party.

C. Credit IEQ 4, Group 3:

1. Carpet and all hard surface flooring shall comply with the testing and product requirements of the California Department of Public Health Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers version 1.1, modeled using the standard office building protocol parameters and certified as compliant by an independent third party. Mineral-based flooring products with integral organic-based coatings and unfinished wood flooring qualify without testing. Site-applied adhesives, grouts, and sealers shall be compliant for a mineral-based or unfinished wood product to qualify.
2. Carpet cushion shall comply with the requirements of the Carpet and Rug Institute Green Label program.
3. Floor finishes and sealers shall not exceed VOC limits of the South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, in effect July 1, 2008.

D. Credit IEQ 4, Group 4:

1. Composite wood, agrifiber products, and adhesives, used inside the weatherproofing system, shall not contain urea-formaldehyde resin.
2. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies shall contain no added urea-formaldehyde resins.
3. Batt insulation products shall contain no added formaldehyde, including urea formaldehyde, phenol formaldehyde, and urea-extended phenol formaldehyde.

## PART 3 - EXECUTION

### 3.1 MEASUREMENT AND VERIFICATION

- A. Credit EA 5: Implement measurement and verification plan consistent with [Option B: Energy Conservation Measure Isolation] [Option D: Calibrated Simulation, Savings Estimation Method 2] in the EVO's "International Performance Measurement and Verification Protocol (IPMVP), Volume III: Concepts and Options for Determining Energy Savings in New Construction," and as further defined by the following:

1. <Insert measurement and verification plan design team submitted for credit>.
- B. If not already in place, install metering equipment to measure energy usage. Monitor, record, and trend log measurements.
- C. Evaluate energy performance and efficiency by comparing actual to predicted performance.
- D. Measurement and verification period shall cover at least two years of postconstruction occupancy by Owner.

### **3.2 CONSTRUCTION WASTE MANAGEMENT**

- A. Credit MR 2: Comply with Section 017419 "Construction Waste Management and Disposal."

### **3.3 CONSTRUCTION INDOOR-AIR-QUALITY MANAGEMENT**

- A. Credit IEQ 3.1: Comply with SMACNA's "SMACNA IAQ Guideline for Occupied Buildings under Construction."
  1. If Owner authorizes use of permanent heating, cooling, and ventilating systems during construction period as specified in Section 015000 "Temporary Facilities and Controls," install filter media having a MERV 8 according to ASHRAE 52.2 at each return-air inlet for the air-handling system used during construction.
  2. Replace all air filters immediately prior to occupancy.
- B. Credit IEQ 3.2: Comply with one of the following requirements:
  1. After construction ends, prior to occupancy and with all interior finishes installed, 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 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 to the space. 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 determined in Prerequisite IEQ 1, 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. Air-Quality Testing:
    - a. Conduct baseline indoor-air-quality testing, after construction ends and prior to occupancy, using testing protocols consistent with the EPA's



"Compendium of Methods for the Determination of Air Pollutants in Indoor Air," and as additionally detailed in the USGBC's "Green Building Design and Construction Reference Guide."

- b. Demonstrate that the contaminant maximum concentrations listed below are not exceeded:
  - 1) Formaldehyde: 27 ppb.
  - 2) Particulates (PM10): 50 micrograms/cu. m.
  - 3) Total Volatile Organic Compounds (TVOC): 500 micrograms/cu. m.
  - 4) 4-Phenylcyclohexene (4-PH): 6.5 micrograms/cu. m.
  - 5) Carbon Monoxide: 9 ppm and no greater than 2 ppm above outdoor levels.
- c. 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.
- d. Air-sample testing shall be conducted as follows:
  - 1) 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.
  - 2) Building shall have all interior finishes installed including, but not limited to, millwork, doors, paint, carpet, and acoustic tiles. Nonfixed furnishings such as workstations and partitions are encouraged, but not required, to be in place for the testing.
  - 3) Number of sampling locations varies depending on the size of building and number of ventilation systems. For each portion of building served by a separate ventilation system, the number of sampling points shall not be less than one per 25,000 sq. ft. or for each contiguous floor area, whichever is larger, and shall include areas with the least ventilation and greatest presumed source strength.
  - 4) Air samples shall be collected between 3 and 6 feet from the floor to represent the breathing zone of occupants, and over a minimum four-hour period.

DEPARTMENT OF VETERANS AFFAIRS  
CLC BUILDING 31 – Phase One Expansion  
Expand Community Living Center  
2615 E. Clinton Avenue, Fresno CA

DVA Project No.: 570-218

The General Contractor must return this form, along with required attachments, completed for each special environmental product as required by specific specification sections. Attach additional sheets if necessary. Check specific product requirements below as required by specification sections.

SHEET 1: LEED MATERIALS AND RESOURCES REPORTING

(PROVIDE CUT SHEETS SUPPORTING CLAIMS FOR ALL THE PRODUCTS LISTED BELOW)

PROJECT NAME: \_ CONTRACTOR\_\_ CONTACT NAME: \_\_TEL. NO: \_

SPEC SECTION: \_\_ SUBMITTAL NO: \_\_\_\_

Product Name	Vendor or Manufacturer	REQUIRED for ALL products identified in Specs CSI 2004 Divisions 3-10, 31.60 Foundations, 32.10 Paving, 32.30 Site Improvements, and 32 .90 Planting. MEP excluded	(MRc4) Re-cycled Content <sup>1</sup> (% by weight)		(MRc5) Location and distances from manufacturing point to project site AND raw material harvesting point to project site (miles) <sup>2</sup>	(MRc7) For all wood-based products			
		Total Material Cost (exclude labor & equipment)	% post-consumer	% pre-consumer		% New Wood	% Certified Wood <sup>3</sup> (by cost)	FSC Tracking: COC#	(IEQc4.4) Urea formaldehyde in composites (Y/N) <sup>4</sup>
1.					Harvest: Manufacturer:				
2.					Harvest: Manufacturer:				
3.					Harvest: Manufacturer:				
4.					Harvest: Manufacturer:				

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1. (MRc4) Recycled Content: All percentages by weight. Attach attestation letter signed by a corporate officer of the product manufacturer or third party certification documentation.
2. (MRc5) Regional Materials: Attach an area map showing distance from site of extraction, harvesting or salvaging to job site. Provide invoices and any additional supporting documentation.
3. (MRc7) Certified Wood: Percentage by cost. Attach FSC chain-of-custody certification number from vendor or manufacturer.
4. (IEQc4.4) Low Emitting Materials – Composite Wood and Agrifiber Products: Any wood based products must not contain added urea-formaldehyde.

**CONTRACTOR CERTIFICATION:** I, \_\_a duly authorized representative of\_\_hereby certify that the material information contained herein is an accurate representation of the material qualifications to be provided by us, as components of the final building construction. Furthermore, I understand that any change in such qualifications during the purchasing period will require prior written approval from the Construction Manager, Architect and Owner.

SIGNATURE OF AUTHORIZED REPRESENTATIVE: \_\_DATE: \_\_

p. \_\_\_\_of \_\_\_\_

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(PROVIDE CUT SHEETS SUPPORTING CLAIMS FOR ALL THE PRODUCTS LISTED BELOW)

SHEET 2: LEED VOC REPORTING

PROJECT NAME: \_ CONTRACTOR\_\_ CONTACT NAME: \_\_TEL. NO: \_ SPEC SECTION: \_\_ SUBMITTAL NO: \_\_\_\_

Product type or application	Product name	Vendor or Manufacturer	Greenguard or SCS Certified (Y/N) (provide certificate) Systems Furniture and Seating Only	REQUIRED for ALL indoor field-applied adhesives, sealants, paints & coatings identified in Specs (including those related to MEP work) <sup>1</sup>		
				VOC content (grams per liter)	Corresponding LEED VOC limit	Backup documentation
1.						
2.						
3.						
4.						
5.						
7.						
8.						

The General Contractor must return this form, along with required attachments, completed for each special environmental product as required by specific specification sections. Attach additional sheets if necessary. Check specific product requirements below as required by specification sections.

1. Submit backup documentation from manufacturer indicating VOC content of the product, defined in either grams per liter, or lbs. per gallon (e.g., MSDS sheet, Product Data Sheet):

a) Adhesives and sealants conform to maximum VOC content limits set by South Coast Air Quality Management District Rule #1168 and all sealants and sealant primers conform to Bay

Area Air Quality Management District Regulation 8, Rule 51. Attach MSDS sheet or attestation letter from the manufacturer for all adhesives and sealants used.

b) Opaque topcoat interior paints and coatings conform to maximum VOC content limits set by Green Seal Standard GS-11. Attach a copy of Green Seal certification, MSDS sheet, or attestation letter from the manufacturer for all opaque topcoat interior paints and coatings used.

c) Carpet systems (carpet, cushion, and adhesives) conform to the maximum VOC content limits set by the Carpet and Rug Institute Green Label Testing Program. Attach a copy of CRI Green Label certification, MSDS sheet, or attestation letter from the manufacturer for all carpet systems used.

d) Composite wood and agrifiber products are free of added urea-formaldehyde resins. Attach MSDS sheet or attestation letter from the manufacturer for all composite wood and agrifiber products used.

**CONTRACTOR CERTIFICATION:** I, \_\_a duly authorized representative of\_\_hereby certify that the material information contained herein is an accurate representation of the material qualifications to be provided by us, as components of the final building construction. Furthermore, I understand that any change in such qualifications during the purchasing period will require prior written approval from the Construction Manager, Architect and Owner.

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SIGNATURE OF AUTHORIZED REPRESENTATIVE: \_\_\_\_DATE: \_\_\_\_

END OF SECTION