

SECTION 01 81 11

SUSTAINABLE DESIGN REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This Section describes general requirements and procedures to comply with various federal mandates and U.S. Department of Veterans Affairs (VA) policies for sustainable design, including the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings required by Executive Orders 13423 and 13514; Energy Policy Act of 2005 (EPA 2005); and the Energy Independence and Security Act of 2007 (EISA 2007).

1.2 OBJECTIVES

- A. General:
1. Maximize resource efficiency and reduce the environmental impacts of construction and operation.
 2. Select products that minimize consumption of energy, water and non-renewable resources, while minimizing the amounts of pollution resulting from the production and employment of construction technologies.
 3. Include environmental considerations as part of the normal purchasing process.
 4. Emphasize pollution prevention early in the purchasing process.
 5. Examine multiple environmental attributes throughout a product's or service's life cycle.
 6. Compare relevant environmental impacts when selecting products and services.
 7. Collect and base purchasing decisions on accurate and meaningful information about environmental performance.
 8. Preserve and restore the site ecosystem and biodiversity; avoid site degradation and erosion. Minimize offsite environmental impact.
 9. Reduce construction waste through reuse, recycling, and supplier take-back.
 10. Consider the durability, maintainability, and flexibility of building systems.
- B. Conform to the Federal Guiding Principles for Federal Leadership in High Performance and Sustainable Building as per the Memorandum of Understanding, as follows:
1. Employing integrated design: As specified and as follows:
 - a. ASTM E2348, Standard Guide for Framework for a Consensus-based Environmental Decision making Process.
 - b. ASTM E2432 Standard Guide for General Principles of Sustainability Relative to Buildings.
 2. Protecting and conserving water: As specified and as follows:
 - a. Water stewardship: EPA WaterSense, and FEMP Best Management Practices for Water Conservation.

3. Reducing the environmental impact of materials: As specified and as follows:
 - a. Recycled Content Products: EPA Comprehensive Procurement guidelines.
 - b. Biobased Content Products: USDA Biopreferred.
 - c. Electronics stewardship: Federal Electronics Challenge; Electronic Product Environmental Assessment Tool (EPEAT).
 - d. Environmental Management System protocols: ISO 14001 or equivalent.
- C. The Design Professional has selected materials and utilized design processes that achieve the above objectives to the extent currently possible and practical. The Contractor is responsible to maintain and support these objectives in developing means and methods for performing the Work and in proposing product substitutions and/or changes to specified processes. By submitting a change or substitution of materials or processes, the Contractor must demonstrate its diligence in performing the level of investigation and comparison encouraged under the Federal mandates and VA policies.

1.3 RELATED DOCUMENTS

- A. Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT.

1.4 DEFINITIONS

- A. Biobased Product: As defined in the Farm Security and Rural Investment Act, a product determined by the Secretary to be a commercial or industrial product (other than food or feed) that is composed, in whole or in significant part, of biological products or renewable domestic agricultural materials (including plant, animal, and marine materials) or forestry materials.
- B. Biobased Content: The weight of the biobased material divided by the total weight of the product and expressed as a percentage by weight.
- C. Construction and Demolition (C&D) Waste: Includes solid wastes, such as building materials, packaging, rubbish, debris, and rubble resulting from construction, remodeling, repair and demolition operations. A construction waste management plan is to be provided by the Contractor as defined in Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT.
- D. Recycled Content Materials: Products that contain pre-consumer or post-consumer materials as all or part of their feedstock.
- E. Post-Consumer Recycled Content: The percentage by weight of constituent materials that have been recovered or otherwise diverted from the solid-waste stream after consumer use.
- F. Pre-Consumer Recycled Content: Materials that have been recovered or otherwise diverted from the solid-waste stream during the manufacturing process. Pre-consumer content must be material that would not have otherwise entered the waste stream as per Section 5 of the FTC Act, Part 260 "Guidelines

for the Use of Environmental Marketing Claims”:
www.ftc.gov/bcp/grnrule/guides980427.

- G. Regional Materials: Materials that are extracted, harvested, recovered, and manufactured within a radius of 500 miles from the Project site.
- H. Salvaged or Reused Materials: Materials extracted from existing buildings or site in order to be reused in other buildings or site without being manufactured.
- I. Sealant: Any material that fills and seals gaps between other materials.
- J. Volatile Organic Compounds (VOCs): Any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. Compounds that have negligible photochemical reactivity, listed in EPA 40 CFR 51.100(s), are also excluded from this regulatory definition.

1.5 SUBMITTALS

- A. Sustainability Action Plan:
 - 1. Within 30 days of after Preconstruction Meeting, the General Contractor must provide a narrative plan for complying with the objectives, product requirements and construction operations' environmental controls stipulated within this Section.
 - 2. The plan must make reference to the following sustainable design submittals defined by this Section and either attached to report or provided within time periods allowed:
 - a. Project Materials Cost Data spreadsheet.
 - b. Construction Waste Management Plan.
- B. Sustainable Design Submittals:
 - 1. Heat Island Effect:
 - a. Site Paving: Provide manufacturer's cut sheets for all impervious paving materials, highlighting the Solar Reflectance Index (SRI) of the material.
 - 2. Irrigation Systems: Provide manufacturer's cut sheets for all permanent landscape irrigation system components.
 - 3. Salvaged or Reused Materials: Provide documentation that lists each salvaged or reused material, the source or vendor of the material, the purchase price, and the replacement cost if greater than the purchase price.
 - 4. Recycled Content: Submittals for all materials with recycled content must include the following documentation: Manufacturer's product data, product literature, or a letter from the manufacturer verifying the percentage of post-consumer and pre-consumer recycled content (by weight) of each material or product.
 - a. An electronic spreadsheet that tabulates the Project's total materials cost and combined recycled content value (defined as the sum of the post-consumer recycled content value plus one-half of the pre-consumer recycled content value) expressed as a percentage of total materials cost. Submit this spreadsheet every

- third month with the Contractor's Certificate and Application for Payment. Indicate, on an ongoing basis, line items for each material, including cost, pre-consumer recycled content, post-consumer recycled content, and combined recycled content value.
5. Regional Materials: Submittals for all products or materials expected to contribute to the regional calculation must include the following documentation:
- a. Cost of each material or product, excluding cost of labor and equipment for installation.
 - b. Location of product manufacture and distance from point of manufacture to the Project site.
 - c. Location of point of extraction, harvest, or recovery for each raw material in each product and distance from the point of extraction, harvest, or recovery to the Project site.
 - d. Manufacturer's product data, product literature, or a letter from the manufacturer verifying the location and distance from the Project site to the point of manufacture for each regional material.
 - e. Manufacturer's product data, product literature, or a letter from the manufacturer verifying the location and distance from the Project site to the point of extraction, harvest, or recovery for each regional material or product, including, at a minimum, gravel and fill, planting materials, concrete, and masonry.
 - f. An electronic spreadsheet that tabulates the Project's total materials cost and regional materials value, expressed as a percentage of total materials cost. Submit this spreadsheet every third month with the Contractor's Certificate and Application for Payment. Indicate on an ongoing basis, line items for each material, including cost, location of manufacture, distance from manufacturing plant to the Project Site, location of raw material extraction, and distance from extraction point to the Project site.
- C. Project Materials Cost Data: Provide a spreadsheet in an electronic file indicating the total cost for the Project and the total cost of construction materials used for the Project, as follows:
1. Not more than 30 days after the Preconstruction Meeting, provide preliminary schedule of materials cost to the CO/COR for all materials used for the Project organized by Specification section. Exclude labor costs. Include the following:
 - a. Identify each reused or salvaged material, its cost, and its replacement value.
 - b. Identify each recycled-content material, its post-consumer and pre-consumer recycled content as a percentage the product's weight, its cost, its combined recycled content value (defined as the sum of the post-consumer recycled content value plus one-half of the pre-consumer recycled content value), and the total combined recycled content value for all materials as a percentage of total materials costs.
 - c. Identify each regional material, its cost, its manufacturing location, the distance of this location from the Project site, the source location for each raw material component of the material, the distance of these extraction locations from the Project site, and

the total value of regional materials as a percentage of total materials costs.

2. Provide final versions of the above spreadsheets to the CO/COR not more than 14 calendar days after Substantial Completion.
- D. Construction Waste Management: See Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT for submittal requirements.
- E. Sustainable Design Progress Reports: Concurrent with each Application for Payment, submit reports for the following:
 1. Construction Waste Management: Waste reduction progress reports and logs complying with the requirements of Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT.

1.6 QUALITY ASSURANCE

- A. Preconstruction Meeting: After award of Contract and prior to the commencement of the Work, schedule and conduct meeting with the CO/COR and all Subcontractors to discuss the Sustainability Action Plan content as it applies to Construction Waste Management Plan and all other Sustainable Design Requirements. The purpose of this meeting is to develop a mutual understanding of the Project's Sustainable Design Requirements and coordination of the Contractor's management of these requirements with the CO and the Construction Quality Manager.
- B. Construction Job Conferences: The status of compliance with the Sustainable Design Requirements of these Specifications will be an agenda item at all regular job meetings conducted during the course of Work at the site.

1.7 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by the basic designation only. Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
- B. American Society for Testing and Materials (ASTM):
E2348-06(2010) Framework for a Consensus-based Environmental Decision-making Process
- C. Business Institutional Furniture Manufacturers Association (BIFMA):
ANSI M7.1-2011 Standard Test Method for Determining VOC Emissions
- D. San Joaquin Valley Air Pollution Control District (SJVAPCD)

PART 2 - PRODUCTS

2.1 PRODUCT ENVIRONMENTAL REQUIREMENTS

- A. Site Clearing: Topsoil to be provided by the Contractor from on-site material which has been stockpiled for reuse. Off-site borrow should only be used when on-site sources are exhausted. Chip and/or compost on site all vegetated material identified for removal.
 - 1. Material must meet the requirements of Section 31 20 00, EARTH MOVING and 32 90 00, PLANTING.
- B. Do not burn rubbish, organic matter, etc. or any material on the site; dispose of such material legally in accordance with Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT.
- C. Herbicides and Pest Control: Herbicides are not permitted; pest control measures must utilize EPA-registered biopesticides only.
- D. Salvaged or Reused Materials: No substitutions permitted for specified salvaged and reused materials and products.
 - 1. Salvaged Materials: Use of salvaged materials reduces impacts of disposal and manufacturing of replacements.
- E. Recycled Content of Materials:
 - 1. Provide materials with recycled content such that post-consumer recycled content value plus half the pre-consumer recycled content value constitutes a minimum of 20 percent of the cost of materials used for the Project, exclusive of labor and delivery costs. Make all attempts to maximize the procurement of materials with recycled content.
 - a. Determine the post-consumer recycled content value of a material by dividing the weight of post-consumer recycled content by the total weight of the material and multiplying by the cost of the material.
 - b. Do not include labor and delivery costs in the calculations.
 - c. Recycled content of materials is defined according to the Federal Trade Commission's "Guide for the Use of Environmental Marketing Claims," 16 CFR 260.7 (e).
 - 2. Contractor is obligated by Contract to satisfy Federal mandates for procurement of products and materials meeting recommendations for post-consumer content and recovered materials content; the list of designated product categories with recommendations has been compiled by the EPA - refer to <http://www.epa.gov/wastes/conserve/tools/cpg/products/>.
 - a. Complying with the mandate requirements may exceed the minimum limits set by this section; otherwise, additional product and material selections with recycled content must be provided, as determined by Contractor's Sustainability Action Plan.
 - b. The EPA website includes lists prepared for the Federal Comprehensive Procurement Guidelines; the website also provides tools such as a Product Supplier Directory search engine and product resource guides.

- c. EPA Categories include, but not limited to:
 - 1) Cement and concrete.
 - 2) Flowable fill.
 - 3) Nonpressure pipe.
 - 4) Compost and fertilizer made from recovered organic materials.
 - 5) Hydraulic mulch.
 - 6) Lawn and garden edging.
 - 7) Plastic lumber landscaping timbers and posts.
 - 8) Park benches and picnic tables.
 - 9) Plastic fencing.
- F. Biobased Content:
 - 1. Subject to conformance with Drawings and Specifications, provide products designated by the USDA's BioPreferred program; provide other products and material made from biobased materials to the maximum extent possible without jeopardizing the intended end use or detracting from the overall quality delivered to the VA. Supplies and materials must be of a type and quality that conform to applicable Specifications and standards.
 - 2. Biobased products that are designated for preferred procurement under USDA's BioPreferred program must meet the required minimum biobased content. Refer to <http://www.biopreferred.gov/ProductCategories.aspx> for the product categories and <http://www.biopreferred.gov/bioPreferredCatalog/faces/jsp/catalogLandin g.jsp> for the BioPreferred Catalog. Submit data for the biobased products to include biobased content and source of biobased material; indicating the name of the manufacturer, cost of each material, and the intended use of each of the materials that are to be used in carrying out the requirements of the Contract.
 - 3. Provide biobased products to the greatest extent possible.
- G. Construction Operations' Environmental Aspects, Impacts and Controls: Monitor environmental aspects and impacts of Contractor's operations (including identification and pursuit of controls on and mitigation of adverse impacts) and as follows:
 - 1. Climate Change and Air Pollution Control: Environmental aspects of and controls on Contractor operations related to climate change include Greenhouse Gas (GHG) emissions associated with construction equipment. Environmental aspects of and controls on Contractor operations related to criteria air pollutants include particulate matter (PM) and nitrogen oxides (NOx) emissions associated with construction equipment.
 - a. Documentation: Maintain the following records for review on request basis.
 - 1) For diesel powered equipment, indicate number and type of construction equipment that utilizes emission control technologies complying with 2008 pollution requirements for new diesel engines.
 - 2) GHG emissions: Document estimated GHG emissions of equipment used on the project. Calculate GHG emissions

- from mobile combustion in accordance with the EPA Climate Leaders protocols
<http://www.epa.gov/climateleaders/resources/>. Indicate quantity of fuel by type used and provide estimate for comparison to industry standard.
- 3) Air Pollution Control: Document the current emissions of the equipment. Calculate the emissions reduced with the selected option applied to the equipment in accordance with the Diesel Emissions Quantifier (www.epa.gov/cleandiesel) protocols. Indicate the change in emissions.
2. Water Stewardship: Environmental aspects of and controls on Contractor operations related to water stewardship include quantity and quality of discharges to surface water and ground water. Refer to soil and erosion control requirements within the Drawings and Specifications.
3. Noise Control: Perform operations to minimize noise; perform noise-producing Work with heavy equipment during less sensitive hours of the day or week.
- a. The noise source cannot exceed 60 dBA from 7:00 a.m. to 6:00 p.m.
- b. Operations in other times must be performed under the constraints established at the need of each occurrence.
4. Air Resources:
- a. Prevent creation of dust, air pollution, and odors.
- b. Sequence construction to avoid disturbance to site to the greatest extent possible.
- c. Use mulch, water sprinkling, temporary enclosures, and other appropriate methods to limit dust and dirt rising and scattering in air to lowest practical level. Do not use water when it may create hazardous or other adverse conditions such as flooding and pollution.
- d. Store volatile liquids, including fuels and solvents, in closed containers.
- e. Properly maintain equipment to reduce gaseous pollutant emissions.
- f. Dust Suppressants:
- 1) Products formulated to reduce or eliminate the spread of dust associated with gravel roads, dirt parking lots, or similar sources of dust, including products used in equivalent indoor applications.
- 2) If employing these materials, products must include minimum 85 percent biobased content.
- g. Provide construction dust control to comply with SJVAPCD Rules.

END OF SECTION