

# Federal Sustainability Requirements and LEED® for New Construction™

## LEED for Existing Buildings: Operations & Maintenance™

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### ABSTRACT

The “Federal Leadership in Environmental, Energy, and Economic Performance” Executive Order (EO) 13514 was signed by President Obama in 2009. The stated goal of EO 13514 is “to establish an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions (GHG) a priority for Federal agencies.” Federal buildings that are currently in design/construction phase, until 2020, must meet the High Performance Sustainable Buildings Guiding Principles, established in the 2006 Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU). The MOU establishes a common set of sustainable Guiding Principles, which are similar to (and in many cases based on) U.S. Green Building Council® (USGBC’s) Leadership in Energy and Environmental Design (LEED) green building certification programs.

**Keywords:** Federal, Sustainability, LEED, Energy, Environment

## 1 REQUIREMENTS

EO 13514, signed by President Obama in 2009, was built upon the sustainability requirements for the Federal government set forth by EO 13423 signed in 2007. EO 13514 requires Federal agencies to examine their entire environmental footprint and uses the more comprehensive metric of greenhouse gas emissions (GHG) to quantify their impact. This means that Federal agencies must address:

- greenhouse gas emissions
- energy efficiency
- water use efficiency and management
- pollution prevention and waste elimination
- regional and local integrated planning
- sustainable Federal buildings
- sustainable acquisition
- electronics stewardship
- environmental management

Specifically, Federal agencies must create an inventory and establish a percentage GHG reduction target for FY2020, relative to FY2008, for Scope 1 and 2 (direct emissions) and Scope 3 (indirect emissions).

### 1.1 Scope 1 GHG Emissions

Scope 1 GHG emissions are direct emissions from sources that are owned or controlled by the Federal agency.

### 1.2 Scope 2 GHG Emissions

Scope 2 GHG emissions are also direct emissions that result from the generation of electricity, heat, or steam that is purchased by a Federal agency.

### 1.3 Scope 3 GHG Emissions

Scope 3 GHG emissions are indirect emissions related to agency activities, such as vendor supply chains, delivery services and employee travel, but are not directly controlled by the agency.

## 2 ADDITIONAL REQUIREMENTS

Additional EO requirements for Federal Agencies include the following:

- Reduce petroleum consumption by 2% per year through FY2020.
- Reduce by 2% annually:
  - Potable water intensity by FY2020 (26% total reduction).
  - Industrial, landscaping, and agricultural water intensity by FY2020 (20% total reduction).
- Achieve 50% or higher diversion rate:
  - Non-hazardous solid waste by FY2015.
  - Construction and demolition materials and debris by FY2015.
- Ensure at least 15% of existing buildings and leases (>5,000 gross sq ft) meet the Guiding Principles by FY2015, with continued progress towards 100%.
- Ensure 95% of all new contracts, including non-exempt contract modifications, require products and services that are energy-efficient, water-efficient, bio-based, environmentally preferable, non-ozone depleting, contain recycled-content, non-toxic or less-toxic alternatives.
- Increase renewable energy and renewable energy generation on agency property.

## **ADDITIONAL REQUIREMENTS (CONT.)**

- Pursue opportunities with vendors and contractors to reduce GHG emissions (i.e., transportation options and supply chain activities).
- Reduce building energy intensity.
- Ensure all new Federal buildings that enter the planning process in 2020 and thereafter are designed to achieve zero-net-energy standards by 2030.
- Ensure that all new agency construction meets the Guiding Principles.
- Use low GHG emitting vehicles, including AFVs, and optimize the number of vehicles in agency fleets.
- Implement water management strategies including water-efficient and low-flow fixtures.
- Implement source reduction to minimize waste and pollutant generation.
- Decrease use of chemicals directly associated with GHG emissions.
- Participate in transportation planning and recognize existing infrastructure in regions/communities.
- Ensure procurement preference for EPEAT-registered electronic products.
- Develop and implement innovative, agency-specific policies and practices to reduce scope 3 GHG emissions in agency operations.
- Manage existing buildings to reduce energy, water, and materials consumption.
- Implement and achieve objectives in EPA's Stormwater Management Guidance.
- Reduce paper use and acquire paper containing at least 30% postconsumer fiber.
- Minimize the acquisition, use, and disposal of toxic and hazardous materials.
- Employ environmentally sound practices for the disposition of all agency excess or surplus electronic products.
- Procure Energy Star and FEMP-designated electronic equipment.
- Continue implementation of existing EMS programs.

### **3 STRIVING FOR NET-ZERO**

Many of the above EO requirements relate to the construction, renovation and operation of agency buildings. EO 13514 sets forth the aggressive goal that all new construction projects beginning in 2020 be designed to generate as much energy as they consume. A net-zero-energy building is one that is designed, constructed, and operated to require a reduced quantity of energy for operations and is thus able to meet the balance of energy

needs from sources of energy that do not produce greenhouse gases, resulting in no net emissions of greenhouse gases.

## **4 GUIDING PRINCIPLES**

Buildings that are currently in the design and construction phase, until 2020, must meet the High Performance Sustainable Buildings Guiding Principles, established in the 2006 Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU). Additionally, 15% of existing buildings must meet the Guiding Principles by 2015 with continuing achievement until 100% of an agency's existing buildings comply. The MOU establishes a common set of sustainable Guiding Principles for integrated design, energy performance, water conservation, indoor environmental quality, and materials. Within the five categories above there are items that must be achieved but may not have specific thresholds or implementation details to allow for maximum flexibility. For example, new construction or major renovation projects must specify recycled content and bio-based products, but there are no minimum requirements. There was widespread concern that the original Guiding Principles were not applicable, or possible, to achieve in most existing buildings so in 2008, a new set of Guiding Principles was created to address the unique challenges and circumstances of existing buildings.

## **5 GUIDING PRINCIPLES AND LEED**

The Guiding Principles are similar to U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) green building certification programs. In their Strategic Sustainability Performance Plan (the implementation and tracking document for the EO 13514) many Federal agencies have set a financial threshold for construction projects above which the project will meet a specific level of LEED or other third party rating system. For example, all Department of Energy new construction and major renovation projects above five million dollars must meet a LEED Gold certified standard, and the Department of Health and Human Services sets the threshold for third-party multi-attribute certification at ten million dollars.

## **6 15% BY 2015**

At least 15% of each agency's existing facilities and building leases (above 5,000 gross square feet) must meet the High Performance and Sustainable Buildings (HPSB) Guiding Principles by the end of fiscal year 2015. To meet this goal, most agencies must upgrade at least some portion of their existing building stock. In an effort to streamline and track compliance with the Guiding Principles for Existing Buildings, a Federal High Performance Sustainable Buildings Checklist (or Guiding Principles

Checklist) has been developed. This checklist is available through EPA's ENERGY STAR® Portfolio Manager, which is an interactive web-based tool that allows users to track and assess energy and water consumption across entire building portfolios.

## **7 CONCLUSION**

The LEED green building certification programs, which include LEED for New Construction & Major Renovations™ as well as LEED for Existing Buildings: Operations & Maintenance, are tools that Federal agencies can successfully use to realize the requirements of EO 13514.

### **REFERENCES**

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