**Section I Instructions:** Complete all Section I questions at time of initial GreenCheck.

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|  | | | | Date: | |  | | | |
| **I. GENERAL INFORMATION** | | | | | | | | | |
| 1) Facility and location: | |  | | | | | | | |
| 2) Short project description and SLATE project number: | |  | | | | | | | |
| All projects must employ an integrated planning process across project teams from design stages to deconstruction. *Required by* *EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle I).* | | | | | | | | | |
| 3) EPA project lead: | |  | | 6) Project team members: | | |  | | |
| 4) EPA real estate lead: | |  | |
| 5) SFPB lead: | |  | |
| 7) Type of facility affected by the project: | | ☐ Office ☐ Laboratory ☐ Both office and laboratory ☐ Other (describe): | | | | | | | |
| 8) Facility ownership status: | | ☐ EPA-owned ☐GSA-owned ☐ GSA-leased ☐ Direct lease | | | | | | ☐ Sole tenant ☐ Multiple tenants | |
| 9) Type of project: | | ☐ New construction ☐ Major renovation ☐ Equipment replacement ☐ R&I ☐ Other (describe): | | | | | | | |
| 10) Total building gross or rentable square feet (GSF/RSF) affected: | |  | | 11) Total disturbed site footprint, in square feet: | | |  | | |
| 12) Estimated total B&F project costs (design, construction, commissioning, other): | |  | | 13) Project Design/POR/ GSA Initiation Start Date: | | |  | | |
| 14) Project Construction Start Date: | |  | | 15) Estimated Construction Completion/Occupancy Date: | | |  | | |
|  | | | | | | | | | |
| 16) Will the total area affected be greater than 5,000 GSF or RSF? | | | | | | | ☐ Yes ☐ No | | |
| 17) Will the total estimated B&F project cost exceed $85,000? | | | | | | | ☐ Yes ☐ No | | |
| 18) Will the project increase the impervious area of the site by (or redevelop) more than 5,000 GSF? | | | | | | | ☐ Yes ☐ No | | |
| 19) Is the project/facility new construction or major renovation and (1) has a GSA prospectus and/or (2) has total project cost greater than $2.5 million, adjusted annually for inflation? *This* *determines whether fossil fuel usage reduction targets apply, see Question 36 below.* | | | | | | | ☐ Yes ☐ No | | |
| 20) *If “Yes” is checked to any of the above, the project exceeds the thresholds, continue on to Section II. If “No” is checked for* ***all*** *of the above, please sign, date, and forward to the SFPB Branch Chief.* | | | | | | | | | |
|  | | | | | | | | | |
| Project Lead Signature: |  | | | | Date: | | | |  |
|  |  | |  | |  | | | | |
| Approval (Please Initial) | SFPB Date: | | SFPB Date: | | SFPB Date: | | | | |
|  | AEAMB Date: | | AEAMB Date: | | AEAMB Date: | | | | |

**Section II – VIII Instructions:** Complete all questions highlighted in green at time of initial GreenCheck.

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| **II. High Performance, Sustainable Buildings** | | | | | |
| 21) Is this facility an energy reporting facility (i.e. EPA pays the utility bills)? | | | | | ☐ Yes ☐ No |
| 22) Is this facility on SFPB’s list of existing target facilities to meet the 15% minimum high performance, sustainable buildings goal by FY 2015? *Required by EO 13423 §2(f) and EO 13514 §2(g).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 23) Will this project attempt to obtain LEED® certification under the LEED for New Construction and Major Renovations (LEED NC®) standard? *Required by §2.3 of EPA 2008 Sustainable Buildings Implementation Plan (SBIP) for new construction or major renovation projects of owned buildings or build-to-suit lease competitions affecting over 20,000 GSF.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 23a) What level of LEED NC® certification will be sought? *LEED Gold required unless economically imprudent.* | | | ☐ Certified ☐ Silver ☐ Gold ☐ Platinum ☐ N/A | | |
| 24) Will this project attempt to obtain LEED certification after occupancy under the Existing Buildings: Operations and Maintenance (LEED EB: O&M®) standard? *Required by §3 of EPA SBIP.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 24a) What level of LEED EB: O&M® certification will be sought? | | | ☐ Certified ☐ Silver ☐ Gold ☐ Platinum ☐ N/A | | |
| **Comments:** |  | | | | |
| **III. Energy Consumption/Intensity and Renewable Energy Use** | | | | | |
| 25) Will the project affect energy consumption at the facility? *If “No”, skip to Section IV, Water Consumption.* | | | | | ☐ Yes ☐ No |
| 26) Will the project contribute towards reducing the facility’s energy consumption by 30% or more below the ASHRAE 90.1-2007 energy consumption baseline for new construction or 20% below the FY 2003 facility baseline for major renovations? *Required by §109 of EPAct 2005, EO 13514 §2(g), and EO 13423 §2(f) (Guiding Principle II).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 26a) If “No”, has a life-cycle cost analysis been prepared to support the exemption to OMB? *Required by 10 CFR 436 and the December 4, 2006 Preamble to 10 CFR 434 Interim Final Rule.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 26b) If “No”, are there other projects underway at the facility that will achieve an energy reduction equivalent to the relevant percentage mandated in Question #26? | | | | | ☐ Yes ☐ No ☐ N/A |
| 27) Is ENERGY STAR or FEMP-designated equipment (e.g., HVAC, chillers, boilers, appliances, lighting, motors, etc.) being specified for energy-consuming products? *Required by §104 of EPAct 2005.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 27a) If “No”, has an analysis been prepared indicating that availableENERGY STAR or FEMP-designated equipment is either not life-cycle cost effective or cannot meet the Agency’s functional requirement(s)? *Required by §104 of EPAct 2005.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 27b) If “No”, will the project utilize the most energy-efficient equipment that is life-cycle cost effective (and has an analysis supporting that decision been prepared)? *Required by §434 of EISA 2007.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 28) AreENERGY STAR or FEMP-designated energy saving materials (e.g., high albedo roofing) being specified? *Required by EPA Strategic Sustainability Performance Plan (SSPP) and EPA 2009 Architecture and Engineering* (*A&E) Guidelines.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 29) Will all new building control systems utilizing computers, laptops, and/or monitors be EPEAT-compliant? *Required by EO 13514 §2(i).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 30) Will the project employ commissioning practices for building mechanical and electrical systems, such as using an experienced commissioning provider and including requirements in construction documents? *Required by EISA 2007 and EO 13423 §2(f) (Guiding Principle I).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 31) Is the facility designated as an office building in Question #7? | | | | | ☐ Yes ☐ No |
| 31a) If “Yes”, will it conform to ENERGY STAR standards (i.e., upper 75% in the EPA Target Finder database for commercial office facilities*)*?  *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle II) for new construction and major renovation and by §435 of EISA 2007 for leased office space, exceptions listed in Appendix A.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 32) Is advanced utility-level metering for the following utilities in place or will it be installed during this project: | | | | | |
| 32a) Electricity? *Required by October 1, 2012 pursuant to §103 of EPAct 2005.* | | | | ☐ To Be Installed ☐ In Place ☐ No ☐ N/A | |
| 32b) Natural gas? *Required by October 1, 2016 pursuant to §434 of EISA 2007.* | | | | ☐ To Be Installed ☐ In Place ☐ No ☐ N/A | |
| 32c) Centrally-supplied steam (e.g., from a district energy plant)? *Required by October 1, 2016 pursuant to §434 of EISA 2007.* | | | | ☐ To Be Installed ☐ In Place ☐ No ☐ N/A | |
| 32d) Fuel oil (except emergency generator oil)? *Not currently a requirement, but a parameter that EPA wishes to track at reporting facilities.* | | | | ☐ To Be Installed ☐ In Place ☐ No ☐ N/A | |
| 32e) Chilled water (e.g., from a district energy plant)? *Not currently a requirement, but a parameter that EPA wishes to track at reporting facilities.* | | | | ☐ To Be Installed ☐ In Place ☐ No ☐ N/A | |
| 32f) Potable water? *Required by EPA 2009 A&E Guidelines.* | | | | ☐ To Be Installed ☐ In Place ☐ No ☐ N/A | |
| 33) Will sub-metering be used for cooling tower water and boiler makeup water? *Required by EPA 2009 A&E Guidelines.* | | | | ☐ To Be Installed ☐ In Place ☐ No ☐ N/A | |
| 34) Will the project/facility receive at least 30% of its domestic (i.e. restrooms, kitchens) hot water demand from solar hot water heaters? *Required by §523 of EISA 2007.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 34a) If “No”, has a life-cycle cost analysis justifying the decision been prepared? *Required by §523 of EISA 2007.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 35) Are there any opportunities to utilize other on-site renewable energy sources (geothermal, solar photovoltaics, wind, etc.)? *EPA policy encourages the* *use of on-site renewable energy sources, which would also assist in meeting fossil fuel use reduction requirements (see Question #37).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 36) If answer to Question #19 is “Yes” (i.e., the project is new construction or major renovation and (1) has a GSA prospectus and/or (2) exceeds $2.5 million in total cost, adjusted annually for inflation), will the facility achieve EISA goals for fossil fuel usage reduction (55% for design started by FY 2010, 65% by FY 2015, etc.)? *Required by §433 of EISA 2007.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 37) Will the project employ energy-saving lighting features (e.g. automatic dimming controls, external photo-receptors, energy-saving fixtures)? *Required by* *EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle IV).* | | | | | ☐ Yes ☐ No ☐ N/A |
| **38) Comments:** | |  | | | |
| **IV. Water Consumption** | | | | | |
| 39) Will the project affect water consumption at the facility? *If “No,” skip to Section V, Sustainable Sites.* | | | | | ☐ Yes ☐ No |
| 40) Will all plumbing fixtures meet or exceed International Plumbing Code (IPC) 2006 standards and EPA 2009 A&E Guidelines on plumbing fixtures? *Required by EPA 2009 A&E Guidelines, which surpass EPAct 1992 standards* r*equired by 42 U.S.C. 6295(j), (k), and (l).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 41) Will the project implement water management strategies such as water-efficient fixtures, low-flow fixtures, and efficient cooling towers? *Required by* *EO 13514 §2(g) and EPA 2009 A&E Guidelines.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 42) EPA must reduce potable water consumption by 2% annually (at least 26% by FY 2020) relative to the Agency’s FY 2007 baseline. Will this project assist EPA in meeting this goal (including the implementation of water reuse strategies, consistent with state law)? *Required by EO 13514 §2(d) and EO 13423 §2(f) (Guiding Principle III).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 43) Will the project reduce outdoor potable water consumption by at least 50% relative to the facility’s conventional means? *Required by EO 13514 §2(g) an EO 13423 §2(f) (Guiding Principle III).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 44) Will the project help reduce industrial, landscaping, and agricultural water consumption by 2% annually or 20% by FY 2020 from a FY 2010 baseline? *Required by EO 13514 §2(d).* | | | | | ☐ Yes ☐ No ☐ N/A |
| **45) Comments:** | |  | | | |
| **V. Sustainable Sites** | | | | | |
| 46) If this project is a new construction or a new lease, has the project maximized the use of existing Federal space and resources, and considered sites that are pedestrian friendly, accessible to public transit, near existing employment centers, and/or located in existing or planned city centers? *Required by EO 13514 §2(f) and the Implementing Instructions – Sustainable Locations for Federal Facilities.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 47) Will the project affect stormwater runoff or site landscaping during construction and/or after construction is complete? *If “No”, skip to Section VI, Sustainable Materials.* | | | | | ☐ Yes ☐ No |
| 48) Has an erosion control plan been developed and/or is it being implemented? | | | | | ☐ Yes ☐ No ☐ N/A |
| 49) Will the project increase the impervious area of the site by (or redevelop) more than 5,000 GSF? | | | | | ☐ Yes ☐ No |
| 49a) If “Yes”, has an analysis been prepared to demonstrate that the project will not alter, or will restore, the pre-development hydrology of the site; and will include best management practices to achieve the stormwater runoff goals of §438 EISA 2007? *Required by §438 of EISA 2007, EO 13514 §2(d), and EO 13423 §2(f) (Guiding Principle III).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 50) Will the project follow the best practices and performance goals for the design, construction, and maintenance of sustainable landscapes, as outlined by the *Guidance for Federal Agencies on Sustainable Practices for Designed Landscapes*? *Required by EO 13514 and §438 of EISA 2007.* | | | | | ☐ Yes ☐ No ☐ N/A |
| **51) Comments:** | |  | | | |
| **VI. Sustainable Materials** | | | | | |
| 52) Will the project use materials? *If “No”, skip to the Section VII, Waste Management.* | | | | | ☐ Yes ☐ No |
| 53) Will the project use cement or concrete? | | | | | ☐ Yes ☐ No |
| 53a) If “Yes”, then will the project use fly ash or other recovered mineral additives in the cement and/or concrete? *Required by §108 of EPAct 2005 and EPA Comprehensive Procurement Guidelines (CPGs).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 54) Will the project use materials for which CPGs have been developed? | | | | | ☐ Yes ☐ No |
| 54a) If “Yes”, do all proposed materials meet or exceed the relevant CPGs for recycled content? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle V).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 55) Will the project use materials that are not in EPA’s CPG database? | | | | | ☐ Yes ☐ No |
| 55a) If “Yes”, will all such materials satisfy the following formula based on cost or weight: (Post-consumer recycled content + [0.5 × pre-consumer recycled content]) ≥ 10% of the total cost or weight of materials used on the project? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle V).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 56) Are bio-based products available that are cost effective and meet project requirements? | | | | | ☐ Yes ☐ No |
| 56a) If “Yes”, will the project specify preference for USDA-designated products that meet the highest content level per USDA’s bio-based content recommendations? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle V).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 56b) If “Yes”, will the project specify preference for bio-based products that are made from rapidly renewable resources and/or certified sustainable wood products? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle V).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 57) Excluding consideration of refrigerants, will the project avoid usage of ozone-depleting substances when alternative environmentally preferable products are available? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle V).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 58) Will the project implement refrigerants with the lowest ozone depletion potential that are feasible for relevant cooling systems considering energy efficiency and operating costs? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle V).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 59) Will the project procure materials and products that are environmentally preferable (i.e., produced using significantly less energy and/or water and/or generating less waste)? *Required by §2(d) and §2(f) of EO 13423 (Guiding Principle V).* | | | | | ☐ Yes ☐ No |
| **60) Comments:** | |  | | | |
| **VII. Waste Management** | | | | | |
| 61) Will the project generate solid wastes during construction and/or operation? *If “No”, skip to Section VIII, Indoor Environmental Quality.* | | | | | ☐ Yes ☐ No |
| 62) Will the project affect greater than 20,000 GSF (total or rentable) of building floor space? | | | | | ☐ Yes ☐ No |
| 62a) If “Yes”, will the project recycle at least 75% of construction, demolition, land clearing, and packaging wastes? *Required by §3.5 of EPA SBIP* | | | | | ☐ Yes ☐ No ☐ N/A |
| 62b) If “No” (i.e., the project affects less than 20,000 GSF of building floor space), will the project recycle at least 50% of construction, demolition, land clearing, and packaging wastes? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle V) and §3.5 of EPA SBIP* | | | | | ☐ Yes ☐ No ☐ N/A |
| 63) Will the project reuse, or if not possible, recycle any and all disposed electronics or electronic equipment, including building control systems, security devices (e.g. cameras or card readers), monitors, computers, and electronic components in a manner that meets the Federal Electronic Challenges disposal criteria? *Required by EO 13514 §2(i) and GSA FMR Bulletin B-34.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 64) If demolition is involved, will the project/facility arrange for deconstruction and salvage of valuable building components (e.g., windows and sills, facades, doors, etc.)? *Not currently a regulatory requirement, but normally a good practice for increasing recycling and reducing waste disposal costs.* | | | | | ☐ Yes ☐ No ☐ N/A |
| 65) Will the project/facility include a waste prevention and recycling program during occupancy? *Required by §2(e) of EO 13423.* | | | | | ☐ Yes ☐ No ☐ N/A |
| **66) Comments:** | |  | | | |
| **VIII. Indoor Environmental Quality** | | | | | |
| 67) Will the project affect indoor environmental quality at the facility? *If “No”, the GreenCheck is complete for this project.* | | | | | ☐ Yes ☐ No |
| 68) Will the project/facility meet or exceed the requirements of ASHRAE 55-2004 for thermal comfort? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle IV).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 69) Will the project/facility meet or exceed the requirements of ASHRAE 62.1-2007 for ventilation? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle IV).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 70) Will the project use only low-pollutant emitting adhesives, sealants, paints, furnishings, carpets, and other materials? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle IV).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 71) Will the project, as designed, achieve a minimum daylight factor of 2% (excluding all direct sunlight penetration) in 75% of all spaces occupied for critical visual tasks (e.g., computer work, reading and writing, laboratory testing, etc.)? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle IV).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 72) Will the project include individual controls of lighting, (e.g. task lighting) where applicable, and appropriate glare control? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle IV).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 73) Will the project include strategies to minimize moisture accumulation and prevent mold formation? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle IV).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 74) Will the project plan include a minimum 72-hour flush-out period of affected areas prior to occupancy? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle IV).* | | | | | ☐ Yes ☐ No ☐ N/A |
| 75) Will the project include other best practices (e.g., blocking off ventilation grills, storing volatile materials in sealed containers, etc.) to prevent occupant exposures to potentially harmful substances during construction by following SMACNA Indoor Air Quality Guidelines, 2007? *Required by EO 13514 §2(g) and EO 13423 §2(f) (Guiding Principle IV).* | | | | | ☐ Yes ☐ No ☐ N/A |
| **76) Comments:** | |  | | | |

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| **In addition to the GreenCheck requirements, consider the following sustainability areas detailed in EPA’s 2012 SSPP:** |
| 1. Consider renewable energy investments in areas with energy security and reliability issues. |
| 1. Consider environmental justice and Federal Sustainable Location Guidelines when siting EPA facilities. |
| 1. Focus on water conservation efforts near high-drought areas to reduce EPA’s impact on overburdened water supplies. |
| 1. Ensure energy conservation efforts are promoted in areas with higher pollution levels. |

**Appendix A. GreenCheck Form Instructions**

**Definitions and Acronyms:**

AEAMB – EPA Architecture, Engineering, and Assessment Management Branch

ASHRAE – American Society of Heating, Refrigeration, and Air Conditioning Engineers

B&F – Buildings and Facilities

Btu – British thermal units

CEQ – Council on Environmental Quality

CFCs – Chlorofluorocarbons

CFR – Code of Federal Regulations

CPGs – Comprehensive Procurement Guidelines

DOE – Department of Energy

EO – Executive Order

EISA – Energy Independence and Security Act of 2007

ENERGY STAR – Joint program of EPA and DOE that encourages the purchase of superior energy efficient products.

EPA – Environmental Protection Agency

EPA SBIP – EPA 2008 Sustainable Buildings Implementation Plan

EPAct – Energy Policy Act

EPEAT – Electronic Product Environmental Assessment Tool

FEMP – Federal Energy Management Program

FY – Fiscal Year (October 1 – September 30)

GSA – General Services Administration

GSF – gross square footage

GPM – gallons per minute

Guiding Principles – Guiding Principles contained within the High Performance and Sustainable Buildings Guidance

HCFCs – Hydrochlorofluorocarbons

HFCs – Hydrofluorocarbons

HVAC – Heating, ventilation, and air conditioning

LEED® – Leadership in Energy and Environmental Design, a sustainable building certification system maintained by USGBC

LEED EB: O&M – Leadership in Energy and Environmental Design for Existing Buildings: Operations and Maintenance

LEED NC – Leadership in Energy and Environmental Design for New Construction

OMB – Office of Management and Budget

ODSs – Ozone depleting substances

POR – Program of Requirements

PSI – pounds per square inch

R&I – Repairs and Improvements

RSF – rentable square footage

SFPB – EPA Sustainable Facilities Practices Branch

SMACNA – Sheet Metal and Air Conditioning Contractors’ National Association

SSPP – Strategic Sustainability Performance Plan

U.S.C. – U.S. Code of Laws

USDA – U.S. Department of Agriculture

USGBC – U.S. Green Buildings Council (a non-profit organization, not part of the U.S. Government)

VOCs – Volatile organic compounds

**Instructions:**

1. Provide the facility name and location (city and state).
2. Provide a brief (i.e., one sentence) description of the project and include the project’s identification number from the SLATE database.
3. Provide the name of the AEAMB Project Manager for the project.
4. If applicable, provide the name of the EPA Real Estate manager for this project. This will apply mostly for leased spaces.
5. If applicable, provide the name of the SFPB lead for the project.
6. If applicable, provide the name of the project team members for the project. This will apply mostly to large, more complex, projects.
7. Check the box corresponding to the type of facility at which the project is being conducted. For facility types not listed, check the “Other” box and write/type in the facility type. Note that most EPA laboratories will have some office support space; for those facilities check the “Laboratory” box. The “Both Office and Laboratory” box should only be checked if there are two separate and distinct operations at the site – one involving laboratory functions and the other solely office functions.
8. Enter the facility’s current ownership status. Most EPA facilities will belong in one of the first three categories, i.e., “EPA-owned, “GSA-owned” (i.e., owned by GSA and occupied by EPA), or “GSA-leased” (i.e., leased by GSA from a third party and solely or partially occupied by EPA). Also enter on the right-hand side whether EPA is the sole tenant or one of several tenants.
9. Enter the project type. “Major Renovations” are presently defined by EPA as those exceeding either 20,000 GSF in affected area and/or $85,000 in total cost. Note that for facilities seeking LEED certification, “New Construction” and “Major Renovations” both fall under the LEED for New Construction (LEED NC) system (Note: Major Renovation defined by LEED-NC “As a general rule of thumb, a major renovation involves elements of major HVAC renovation, significant envelope modifications, and major interior rehabilitation,”). “Equipment Replacement” projects may require a GreenCheck because under §434 of EISA 2007, large new energy-related investments such as replacement of heating and cooling systems must employ the most energy-efficient technologies or systems that are life-cycle cost effective. More specifically, §104 of EPAct 2005 requires energy consuming products to be ENERGY STAR or FEMP designated, where cost effective and reasonable available (refer to Question #27). “Repairs and Improvements” (R&I) refers to minor renovation projects in existing space.
10. Enter the total GSF or RSF of the facility that is affected by the project. This includes only indoor GSF/RSF.
11. Enter the total footprint of disturbed site in square feet. This area generally refers to the project’s development footprint but also includes any other area(s) where stormwater runoff would be affected. If the project disturbs more than 5,000 GSF of the site, Section V, Sustainable Sites, must be completed.
12. Enter the total estimated B&F capital investment amount that is estimated to complete all phases of the project. This should include all planning, design, construction, certifications, commissioning, recommissioning, and decommissioning costs applicable to the project.
13. For construction projects, enter the project design start date. For projects involving leased facilities, enter the POR start date or the GSA initiation date.
14. For construction projects, enter the date when construction will begin.
15. For construction and tenant improvement projects, enter the anticipated date for the completion of construction. For projects involving leased facilities, enter the anticipated date of occupancy.
16. If the answer to Question #10 is 5,000 GSF/RSF or more, check “Yes” to signify that a GreenCheck is necessary for this project.
17. If the answer to Question #12 is $85,000 or more, check “Yes” to signify that a GreenCheck is necessary.
18. If the answer to Question #11 is 5,000 square feet or more, check “Yes”
19. Enter whether the facility/project is new construction or major renovation and (1) has a GSA prospectus and/or (2) has a total project cost greater than $2.5 million, adjusted annually for inflation. The $2.5 million threshold is for total project costs, not annual costs, amortized costs, or operation and maintenance (O&M) costs. If “Yes” is checked, answer Question #36 to indicate how the facility/ will reduce fossil fuel usage 55% by FY 2010, 65% by FY 2015, 80% by FY 2020, 90% by FY 2025, and 100% by FY 2030.
20. If the answer to Question #16, 17, 18, or 19 is “Yes”, continue on to Section II, High Performance, Sustainable Buildings. If “No” is checked on all four of these questions the GreenCheck is complete.
21. Identify whether the facility is an energy reporting facility. An “energy reporting facility” is defined as an EPA facility for which EPA directly pays the energy costs (e.g., electricity, natural gas, fuel oil, steam, etc.). (For offices leased for EPA by GSA, EPA typically does not directly pay the energy bills.)
22. Indicate whether the facility is on SFPB’s list of target facilities to meet the 15% minimum high performance sustainable buildings goal in [EO 13423](http://www.fedcenter.gov/_kd/go.cfm?destination=ShowItem&Item_ID=6585). If this is unknown, contact a representative of SFPB to determine the facility’s status.
23. Check “Yes” if the facility is seeking LEED NC® certification. This encompasses both new construction projects as well as major renovations.
    1. If Question #23 is checked “Yes”, provide the level of LEED NC® certification the facility is seeking. The LEED NC® certification levels are: Certified, Silver, Gold, and Platinum.
24. Check “Yes if the facility is seeking LEED EB: O&M® certification after occupancy.
    1. If Question #24 is checked “Yes”, provide the level of LEED EB: O&M® certification the facility is seeking. The LEED EB: O&M ® certification levels are: Certified, Silver, Gold, and Platinum.
25. Indicate whether the project affects energy consumption at the facility. This includes any new construction of building space or space renovations that would cause an increase or decrease in energy consumed. It also includes commissioning of building operations, replacement or addition of lighting systems, roofing or building envelope projects, etc. If “No” is checked, skip to Section IV, Water Consumption.
26. Indicate whether the project will aid in meeting the energy consumption reduction goals for the entire facility that are specified in EPAct 2005 and EO 13423. For Major Renovations, the total facility energy consumption must be reduced by at least 20% compared with the facility’s pre-renovation FY 2003 baseline. Obtain FY 2003 baseline energy consumption from SFPB. Use calculations similar to the example given below for New Construction projects.

For New Construction projects, facilities must reduce energy consumption by 30% compared to the baseline building performance rating per ASHRAE 90.1-2007 standards. Hourly energy simulation models may be used to calculate the baseline total facility energy consumption and the updated consumption after project implementation. Use the calculation below to determine the percentage reduction in energy consumption:

**Percentage Reduction of Energy Consumption** = (ASHRAE Energy Baseline – Post-Project Energy Consumption) ÷ ASHRAE Energy Baseline × 100

Example:

(345,000 Btu/GSF – 225,000 Btu/GSF) ÷ 345,000 Btu/GSF × 100 = 34.8% Reduction of Energy Consumption; therefore, this project complies with EPAct 2005 and EO 13423 energy goals.

* 1. For New Construction projects, if Question #26 is checked “No”, provide whether this has been justified on a life-cycle cost basis. Instructions for conducting a life-cycle cost analysis are contained in [10 CFR 436](http://www.access.gpo.gov/nara/cfr/waisidx_04/10cfr436_04.html) and in [OMB Circular A-94](http://www.whitehouse.gov/omb/circulars/a094/a094.html). Projects that cannot achieve the 30% below ASHRAE 90.1-2007 goal, as justified by life-cycle cost analysis, must reduce energy consumption to the maximum degree possible, per the December 4, 2006 Preamble to New Rulemaking for 10 CFR 433, 434, and 435 (71 Federal Register 232, page 70275-70284). The Preamble specifies that in order to identify the final percent reduction the facility will need to meet, reduce the percentage difference incrementally in 5% steps, i.e., try 25%, then try 20%, etc. until a life-cycle cost-effective alternative is identified, per the [Interim Final Rule on Energy Conservation Standards](http://www.epa.gov/fedrgstr/EPA-IMPACT/2006/December/Day-04/i20439.htm). Note that there is no similar “sliding scale” mechanism in place for existing facilities, i.e., if the facility is designated a high performance, sustainable building (to assist the Agency comply with §2(f) of EO 13423), it must reduce energy consumption by at least 20% below the FY 2003 baseline (Guiding Principle II).
  2. If Question #26 is checked “No”, indicate whether the facility is planning or implementing energy savings projects that would collectively reduce energy consumption by an equivalent amount to the relevant reduction mandated in Question #26.

1. Indicate whether the project will procure only ENERGY STAR or FEMP-designated equipment as part of a Major Renovation or New Construction project.
   1. If Question #27 is checked “No”, indicate whether: (1) a life-cycle cost analysis has been prepared showing ENERGY STAR or FEMP-designated equipment is not cost effective or (2) an analysis has been prepared showing ENERGY STAR or FEMP-designated equipment cannot meet EPA’s functional requirement for the equipment. Instructions for conducting a life-cycle cost analysis are contained in [10 CFR 436](http://www.access.gpo.gov/nara/cfr/waisidx_04/10cfr436_04.html) and in [OMB Circular A-94](http://www.whitehouse.gov/omb/circulars/a094/a094.html). Per §441 of EISA 2007, compare the net present value of using ENERGY STAR or FEMP equipment to non-conforming equipment, over the equipment’s expected life or 40 years (whichever is shorter) and using the average fuel costs and discount rate prescribed by DOE. Life-cycle cost calculations must include all capital costs and operating costs (maintenance, fuel, electricity, etc.) associated with the equipment or system.
   2. If Question #27 is checked “No”, indicate whether an analysis has been prepared showing that the facility will utilize the most energy-efficient equipment that is life-cycle cost effective and meets the Agency’s functional requirement. Instructions for conducting a life-cycle cost analysis are contained in [10 CFR 436](http://www.access.gpo.gov/nara/cfr/waisidx_04/10cfr436_04.html) and in [OMB Circular A-94](http://www.whitehouse.gov/omb/circulars/a094/a094.html).
2. Indicate whether EPA will procure only ENERGY STAR or FEMP-designated materials as part of the Major Renovation or New Construction project. This includes materials which could potentially reduce facility energy consumption, such as high-albedo roofing materials. This is an EPA requirement that supports use of sustainable materials.
3. Indicate whether the any newly-installed building control systems are EPEAT-compliant per the requirements of EO 13514 §2(i).
4. EPA policy mandates commissioning in all projects that affect building mechanical systems per EPA’s 2009 Sustainable Building Implementation Plan. Since FY 2002, EPA has required commissioning of all new major projects and major renovations involving building-wide mechanical and electrical system changes. EISA 2007 requires agencies to conduct commissioning evaluations for 25% of covered facilities each year. EPA uses independent, third-party agents to provide commissioning services on facility projects and requires that contracting A/E firms must have commissioning capabilities usable on projects they do not design.
5. Indicate whether or not the facility is an office building, based on the answer to Question #7.
   1. If Question #31 is checked “Yes”, indicate whether the project and facility will conform to ENERGY STARstandards (i.e. upper 75% in the EPA Target Finder database for commercial office facilities). The Target Finder database is available at <http://www.energystar.gov/index.cfm?c=new_bldg_design.bus_target_finder>. Exceptions per §435 of EISA 2007 are(1) an ENERGY STAR building is not available that meets the agency’s functional needs (2) the agency remains in a building that the agency has occupied previously (3) the agency proposes to lease a building of historical, architectural, or cultural significance (as defined in §3306(a)(4) of title 40, U.S.C.) and (4) the lease is for not more than 10,000 GSF of space.
6. Indicate whether advanced utility-level metering is or will be installed during this project for the utilities listed in subsections (a) – (f). Advanced metering should be installed for any utility line that would bill at more than $10,000 per year (EPA A&E Guidelines).
   1. Indicate whether advanced utility-level metering is or will be installed during this project for electricity. “Advanced metering” is defined in §103 of EPAct 2005 as meter[s] that “provide data at least daily and that measure at least hourly consumption.”
   2. Indicate whether advanced utility-level metering is or will be installed during this project for natural gas. §434 of EISA 2007 added the requirement that advanced metering be provided for natural gas not later than October 1, 2016. The requirements for advanced meters are identical to those for electricity.
   3. Indicate whether advanced utility-level metering is or will be installed during this project for centrally-supplied steam (if applicable at the facility). §434 of EISA 2007 added the requirement that advanced metering be provided for centrally-supplied steam, such as from a district heating plant not later than October 1, 2016. The requirements for advanced meters are identical to those for electricity.
   4. Indicate whether advanced utility-level metering is or will be installed during this project for fuel oil.
   5. Indicate whether advanced utility-level metering is or will be installed during this project for chilled water.
   6. Indicate whether advanced utility-level metering is or will be installed during this project for potable water.
7. Indicate whether sub-metering is or will be installed during this project for cooling tower water and boiler makeup water.
8. Indicate whether the facility will receive at least 30% of its domestic hot water demand from hot water heaters powered by solar energy. This applies to both New Construction and Major Renovation projects.
   1. If Question #34 is checked “No”, indicate whether a life-cycle cost analysis has been performed justifying this decision. Instructions for conducting a life-cycle cost analysis are contained in [10 CFR 436](http://www.access.gpo.gov/nara/cfr/waisidx_04/10cfr436_04.html) and in [OMB Circular A-94](http://www.whitehouse.gov/omb/circulars/a094/a094.html). Calculate life-cycle costs and evaluate cost-effectiveness of solar hot water heating using the same regulations and guidelines specified in Question #28a.
9. Indicate whether there are any opportunities within the project to increase consumption of renewable energy sources such as solar, geothermal, hydro-electric, or wind power. In this context, “geothermal” refers to well fields that use the ground as a heat source or sink depending on the season and not to geothermal springs.) This includes both on- and off-site sources of renewable energy.
10. If the response to Question #19 is “Yes”, indicate whether the project will contribute to achieving EISA goals for reducing fossil fuel consumption. Specifically, for projects in this category, use of fossil fuels must be reduced by 55% for designs started by FY 2010 progressively to 100% by FY 2030 (65% in 2015, 80% in 2020, and 90% in 2025). The baseline for calculating these percentage reductions is the energy consumption by a similar building in FY 2003, as measured by the Commercial Buildings Energy Consumption Survey (CBECS) from the DOE’s Energy Information Administration (EIA).
11. Indicate whether the project will have a plan for reducing energy costs through a comprehensive lighting plan. Some features of this plan may include automatic dimming controls and energy saving light fixtures.
12. Provide a narrative that summarizes the project’s energy efficiency and renewable energy measures. Also, use this space to explain answers given on any questions in Section III, Energy Consumption/Intensity and Renewable Energy.
13. Indicate whether the project will affect water consumption at the facility. This includes, in addition to New Construction, changes in building function and operations, replacement or addition of plumbing/faucet systems, etc. If “No” is checked, skip to Section V, Sustainable Sites.
14. Confirm that all plumbing fixtures in the facility will meet or exceed International Plumbing Code (IPC) 2006 standards and EPA Policy. These include the following: (a) 2.5 gpm at 80 psi for showerheads; (b) 0.25 gallons per cycle for public lavatory metering faucets; (c) 0.5 gpm at 60 psi for public lavatory faucets and aerators (other than metering); (d) 2.2 gpm at 60 psi for sink faucets other than public lavatory; (e) 1.6 gallons per flush (gpf) for water closets; and (f) 1.0 gpf for urinals. In addition, to comply with the implementing instructions of EO 13423, tank-type water closets shall be marked with the WaterSense® label.
15. Indicate whether the project will employ the water management strategies required under EO 13514.
16. Indicate whether potable water consumption will be reduced by 26% (compared to FY 2007 baseline) by FY 2020 as a result of the project. Calculate the baseline, if known, and the new potable water consumption including any effects of the project, such as new water uses. If a baseline has not been calculated for the facility, use the baseline calculation for LEED EB:O&M Water Efficiency Prerequisite Credit 1. Use the calculations below to determine the percentage reduction of indoor water consumption:

**Percentage Reduction of Potable Water Consumption** = (Baseline Potable Water Consumption – Post-Project Water Consumption) ÷ Baseline Water Consumption × 100

*Note: For buildings designated as high-performance, sustainable buildings by EPA, this percentage must be at least 20% to be in compliance with §2(f) of EO 13423 (Guiding Principle III) and 26% by FY 2020 to be in compliance with EO 13514.*

Example:

(422,000 gal/yr – 332,000 gal/yr) ÷ 422,000 gal/yr × 100 = 21.3% Reduction of Potable Water Consumption; therefore this project/facility complies with EO 13423 indoor water consumption goals.

1. Indicate whether outdoor potable water consumption will be reduced by 50% (compared to conventional means) as a result of the project. Calculate the outdoor baseline, if known, and the new outdoor potable water consumption including any effects of the project, such as new water uses. For facilities without a water meter, calculate the outdoor water use baseline based on types and densities of plantings. Use the calculations below to determine the percentage reduction of outdoor potable water consumption:

**Percentage Reduction of Outdoor Potable Water Use** = (Baseline Outdoor Potable Water Use – Post-Project Outdoor Potable Water Use) ÷ Baseline Outdoor Potable Water Use × 100

*Note: For buildings designated as high performance, sustainable buildings by EPA, this percentage must be at least 50% to be in compliance with §2(f) of EO 13423 (Guiding Principle III).*

1. Indicate whether the project will help reduce industrial, landscaping, and agricultural water consumption by 2% annually or 20% by FY 2020 from a FY 2010 baseline.
2. Provide a narrative that summarizes the project’s water conservation and efficiency measures. Also, use this space to explain answers given on any questions in Section IV, Water Consumption.
3. For new construction and lease projects, indicate whether EPA has considered the sustainable siting requirements of [EO 13514](http://edocket.access.gpo.gov/2009/pdf/E9-24518.pdf) and the CEQ-issued [Instructions for Implementing Sustainable Locations for Federal Facilities.](http://www.whitehouse.gov/sites/default/files/microsites/ceq/implementing_instructions_-_sustainable_locations_for_federal_facilities_9152011.pdf)
4. Indicate whether the project will affect in any way the landscape of the site during construction or post-construction. If “No” is checked, skip to Section VI, Sustainable Materials.
5. Indicate whether there is a comprehensive erosion control plan for the construction phase and during occupancy.
6. Indicate whether the total footprint of the project, in square feet of land area, is greater than 5,000 by cross-referencing the answer to Question #11. This area generally refers to the project’s development footprint but also includes any other area(s) where stormwater runoff would be affected.
   1. If Question #49 is checked “Yes”, indicate whether an analysis has been completed to show that the project will not affect, or will restore, the site’s pre-development hydrology with regard to water temperature, rate, volume, and/or duration of flow. Implementation measures to minimize stormwater runoff and associated pollutants in stormwater runoff include green roofing, pervious pavement, and rainwater capture systems. For detailed assistance in complying with this requirement, please refer to the [*Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act*](http://www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf)*.*
7. Indicate whether the project will follow the best practices and performance goals for the design, construction, and maintenance of sustainable landscapes, as described by the *Guidance for Federal Agencies on Sustainable Practices for Designed Landscapes*. Areas of focus include site selection and planning, soil conservation and management, water resource conservation, vegetation, materials selection, human health and well-being, existing historic facilities and cultural landscapes, construction practices, and operations and maintenance. Refer to the CEQ-issued [*Guidance for Federal Agencies on Sustainable Practices for Designed Landscapes*](http://www.whitehouse.gov/sites/default/files/microsites/ceq/recommendations_on_sustainable_landscaping_practices.pdf) for assistance.
8. Provide a narrative that summarizes the project’s strategy and measures for mitigating stormwater runoff. Also, use this space to explain answers given on any questions in Section V, Sustainable Sites.
9. Indicate whether the project will use any materials during the renovation/construction process. If “No” is checked, skip to Section VII, Waste Management. (Note: It is extremely rare that a project would not be using any materials.)
10. Indicate whether the project is planning to use cement or concrete in any quantity throughout the duration of the project.
    1. If Question #53 is checked “Yes”, indicate whether the project will utilize fly ash or other recovered mineral additives in the concrete/cement. “Recovered mineral component” is defined as coal combustion fly ash, granulated ground blast furnace slag (excluding lead slag), and other waste materials or byproducts with similar pozzolanic properties (cement kiln dust and silica fume are common examples).
11. Indicate whether EPA Comprehensive Procurement Guidelines have been developed for the types of materials used in the project. EPA has developed a list of 213 materials for which it recommends minimum recycled material content and/or other “environmentally preferable” characteristics (called the CPGs; refer to [www.epa.gov/cpg/](http://www.epa.gov/cpg/)). More products and materials will likely be added to this list in the future.
    1. If Question #54 is checked “Yes”, indicate whether these materials will meet or exceed EPA CPG requirements.
12. Indicate whether the project will use materials for which EPA CPGs *have not* been developed. Refer to [www.epa.gov/cpg/](http://www.epa.gov/cpg/) to determine the CPG status of a material.
    1. If Question #55 is checked “Yes”, indicate whether the materials used on the project will meet the following requirement: For each material, calculate the Recycled Content Value:

Recycled Content Value ($) = [% post-consumer recycled content (by weight) x material cost] + 0.5 x [% pre-consumer recycled content (by weight) x material cost]

Then, sum the Recycled Content Value for all materials and divide by the Total Materials Cost.

If the sum of the Recycled Content Value divided by Total Material Cost is more than 0.10 (i.e.10%) then requirement is satisfied. Refer to LEED guidance on calculations of recycled content for more detailed instructions.

Example:

If Recycled Content Value ($) = ($45,600 + [0.5 × $29,000]) = $60,100 and Total Material Cost is $500,000 for a project/facility, then Recycled Content Value is more than 10% of Total Material Cost and therefore this project/facility complies with EO 13423 material goals.

1. Indicate if bio-based products are available that are cost effective and meet project requirements.
   1. If Question #56 is checked “Yes”, indicate whether USDA-designated products specified will meet the highest content level per USDA’s bio-based content recommendations. As of February 21, 2012, the USDA has designated 64 categories of products and materials for which it recommends minimum bio-based content (approximately 9,000 individual products). Bio-based content is generally determined based on the amount of bio-based carbon in the material or product as a percentage of weight (mass) of the total organic carbon in the material or product. Bio-based carbon, in turn, refers to carbon produced from renewable domestic agricultural materials (including plant, animal, and marine materials), forestry materials, or other products derived from living materials. Refer to <http://www.biopreferred.gov> for more information and USDA’s list of designated products and content recommendations.
   2. If Question #56 is checked “Yes”, indicate whether the project will specify preference for bio-based products that are made from rapidly renewable resources and/or certified sustainable wood products. This is required for products and materials that are not USDA-designated.
2. Indicate whether the project will avoid using any ozone-depleting substances (ODSs). Examples of ODSs include CFCs, HCFCs, HFCs, and halons.
3. Indicate whether the project will minimize usage of HCFCs in cooling equipment.
4. Indicate whether the project will use “environmentally preferable” materials wherever possible. These materials are produced by using significantly less energy and/or water and generate less waste during manufacturing.
5. Provide a narrative that summarizes the project’s strategy and measures for materials management. Also, use this space to explain answers given on any questions in Section VI, Sustainable Materials.
6. Indicate whether the project will generate solid wastes during construction/renovation and operation. If “No” is checked, skip to Section VIII, Indoor Environmental Quality. (Note: It is extremely rare that a project would not generate any wastes during or after construction/renovation.)
7. If answer to Question #10 is 20,000 GSF/RSF or more, check “Yes” and continue to Question #62a. If answer to Question #10 is less than 20,000 GSF/RSF, skip to Question #62b.
   1. If Question #62 is checked “Yes”, indicate whether the project will recycle or reuse at least 75% of all construction, demolition, land clearing (excluding soil), and packaging wastes.
   2. If Question #62 is checked “No”, indicate whether the project will recycle or reuse at least 50% of all construction, demolition, land clearing (excluding soil), and packaging wastes.
8. Indicate whether the project will arrange for the reuse or recycling of all disposed electronics or electronic equipment. This requirement applies to building control systems that utilize computers or monitors, as well as electronic equipment components, other displays such as televisions, electronic security devices such as cameras and card readers, or any other electronic asset. Electronic assets should be disposed of by (in sequence): (1) Reuse within the agency; (2) Transfer to another Federal agency; (3) Donation (through GSA), or; (4) Disposed of via an authorized certified recycler. Refer to <http://www.federalelectronicschallenge.net/resources/eolmngt.htm> for more information on end-of-life management criteria and guidance from the Federal Electronics Challenge.
9. If the project involves demolition, indicate whether the project will arrange for deconstruction and salvage of valuable building components, such as windows, sills, facades, doors, and other components.
10. Indicate whether the facility will include adequate collection and storage for operating a recycling program during occupancy. All operating facilities are required to have a recycling program covering basic materials such as high-grade office paper; corrugated cardboard; metal, glass, and plastic beverage containers; and yard waste. In addition to these materials, EPA encourages recycling the following items: mixed paper, boxboard, catalogs, hard and softbound books, junk mail, magazines, newspaper, phone books, steel cans, cardboard, furniture, appliances, fluorescent bulbs, toner and ink jet cartridges, CDs, diskettes, DVDs, video/audio tapes, batteries (rechargeable and non-rechargeable), food scraps, scrap metal, scrap wood, electronics, construction & demolition debris, industrial materials. §2(e) of EO 13514sets a target of 50% waste recycling in Federal facilities by FY 2015. Thus, the future effectiveness and efficiency of operating a recycling program at the new or renovated facility must be considered during the project planning and design phases. Some of the key issues include: (a) ensuring sufficient space at employee workstations for paper and other recycling bins; (b) separate compactors or roll-off boxes for recyclables at the loading dock; (c) intermediate collection stations on each floor and/or in each wing that enable janitorial staff to accumulate these materials every day; and (d) collection/storage areas for compostables from kitchens and landscape waste from grounds maintenance.
11. Provide a narrative that summarizes the project’s strategy and measures for waste management. Also, use this space to explain answers given on any questions in Section VII, Waste Management.
12. Indicate whether the project will affect (or present opportunities for improving) indoor environmental quality at the facility. If “No” is checked, the GreenCheck List is complete. Return the completed checklist to the AEAMB and SFPB Branch Chiefs.
13. Indicate whether the project will aid the facility in meeting ASHRAE 55-2004 standards for thermal comfort. The standard defines ranges of indoor temperatures and relative humidity levels where, in general, 80% of a typical cross-section of people will not report dissatisfaction.
14. Indicate whether the project will aid the facility in meeting ASHRAE 62.1-2007 standards for ventilation. This standard provides design guidance for mechanical ventilation into various types of indoor spaces. Two allowable design methods are included: the Ventilation Rate Procedure (VRP) and the Indoor Air Quality Procedure (IAQP). Under the VRP, required outdoor air ventilation rates are calculated based on fundamental parameters such as square footage, occupancy, and type of use (e.g., office, hotel bedroom, etc.). In contrast, the IAQP is a performance-based approach under which the designer must propose a list of applicable indoor air contaminants, not-to-exceed concentrations of those contaminants required to maintain a healthy space, and the engineering measures and minimum ventilation rates required to comply with those limits.
15. Indicate whether the project will utilize only low-pollutant emitting adhesives, sealants, paints, finishes, carpets, and other materials. Although EO 13423 does not provide a definition of “low-emitting” materials, the Whole Building Design Guide (www.wbdg.org) , *Federal Green Construction Guide for Specifiers, Section 09900 – Painting & Coating* defines “low-VOC” paints as generally those with a total VOCs content less than 100 mg/L of paint. Various EPA documents also reference the Green Seal™ family of product specifications – the most applicable for building construction projects would be: GS-11, *Paints and Coatings*; GS-36, *Commercial Adhesives*; andG-43, *Recycled Content Latex Paint Standard.* “Low-VOC” products that meet project requirements may not always be available, thus requiring the designer to justify excursions from meeting these requirements. In addition, attention must be paid to the projected emissions rate(s) of the product during the first five to seven days of installation, as this is usually the period when off-gassing of VOCs represents the greatest hazard to indoor air quality. Life-time emissions must also be considered; a lower-emitting paint that is less durable and requires more frequent patching may result in greater life-cycle emissions than one with higher VOC content that seldom if ever requires repair.
16. Indicate whether the project will achieve a minimum daylight factor of 2% in 75% of spaces occupied for critical visual tasks, such as computer work, reading and writing, and laboratory testing. The 2% goal excludes direct sunlight penetration. For additional information on this criteria, refer to LEED NC® 2009.
17. Indicate whether the project will include installation of automatic dimming controls and/or accessible manual controls on light fixtures and appropriate glare control.
18. Indicate whether the project will include strategies and design features for minimizing moisture/mold accumulation. Some preventive design features include: (a) maintaining design interior relative humidity at an appropriate level (e.g., between 30% and 50%); (b) controlling temperatures by heating or cooling the condensing surface (i.e., the outer-facing interior wall in cooling-load climates and the inner-facing exterior wall in heating-load climates); (c) preventing condensation on coils in accordance with ASHRAE 62.1-2007; and (d) cleaning all HVAC drip pans regularly and thoroughly.
19. Indicate whether the project plan will include a minimum 72-hour flush-out period (with 100% outdoor air) of affected areas prior to occupancy.
20. Indicate whether the project will include best practices to prevent exposure to harmful substances during construction/renovation. These practices include blocking off ventilation grills, storing volatile materials in sealed containers, using basic isolation techniques (such as plastic barriers), scheduling work during low-occupancy periods, and replacing HVAC filters after construction is complete. Best practices can be gleaned from SMACNA publications on indoor air quality. SMACNA publications are available for purchase at <http://www.smacna.org/bookstore/>.
21. Provide a narrative that summarizes the project’s strategy and measures for improving indoor environmental quality. Also, use this space to explain answers given on any questions in Section VIII, Indoor Environmental Quality.

**Appendix B. Example Sustainability Strategies for Specific Project Types**

This appendix lists a sampling of strategies that may be applicable for various types of new construction, major renovation, and leasing projects. For additional strategies and technologies, refer to the latest version of the EPA Facilities Manual, Volume 2, Architecture and Engineering Guidelines.

**Definitions and Acronyms:**

VAV – variable air volume HVAC – heating, ventilation, and air conditioning VSD – variable speed drive

| **Strategies** | | **Benefits** |
| --- | --- | --- |
| **New laboratory module(s), install and operate** | | |
| VAV ventilation system | | * Reduces energy consumption * Better matches demand to load, allowing down-sized equipment and lower capital cost |
| High-performance and/or VAV fume hoods | | * Reduces potential for worker exposures to contaminants * Reduces energy consumption |
| Casework manufactured from recycled content or other environmentally preferable materials | | * Reduces energy, water, and waste at manufacturing site * Reduces overall greenhouse gas generation * Supports viability of industries that use recycled materials |
| Configure space to maximize daylighting | | * Increases worker productivity * Reduces energy consumption (lighting and summer cooling) |
| **Roof replacement** | | |
| High reflectance (ENERGY STAR®) roof | | * Reduces building energy consumption, especially during summer cooling season * Reduces heat island effect |
| Green roof | | * Reduces building energy consumption * Reduces heat island contribution * Reduces stormwater runoff quantities and potential impacts to stormwater * Helps extend life of the roof |
| Install photovoltaics on roof (integrated panels or conventional tilt-up panels) | | * Reduces fossil fuel use * Helps meet EPA’s renewable energy goals mandated by EPAct 2005 * Reduces air pollution and greenhouse gas emissions * Creates potential surplus of power for sale back to the grid |
| Use recycled stone, tar, shingles, etc. | | * Reduces energy, water, and waste at manufacturing site * Reduces overall greenhouse gas generation * Support viability of industries that use recycled materials |
| **Parking lot construction or replacement** | | |
| Use recycled asphalt (e.g., containing asphalt debris or tires) | | * May reduce energy and water consumption and waste at the manufacturing sites * Reduces dependence on foreign oil supplies (oil being the principal feedstock in virgin asphalt manufacturing) * Uses waste materials that would otherwise be landfilled or incinerated |
| Use crushed concrete, stone, or brick for sub-base layer | | * Uses waste materials from any on-site demolition activities on the same site (i.e., reduces transportation impacts), prevents them from being landfilled * Reduces energy use and air pollution at cement kilns * Reduces quarrying and associated impacts on natural resources |
| Pervious pavement | | * Promotes infiltration of stormwater runoff, thus reducing the amount of potentially polluted runoff, potential flooding, and required capacity of downstream management systems (e.g., sewers and detention ponds) * If coupled with an underground reservoir, can reuse captured stormwater for on-site irrigation or other non-potable uses |
| **Build-out of office space in existing building** | | |
| Cubicle partitions and desks with recycled wood, metal, or plastic content | | * Reduces energy, water, and waste at the product manufacturing sites * Supports viability of industries that use recycled materials * Beneficially uses materials that might otherwise be landfilled |
| Low-VOC and/or recycled content carpeting | | * Reduces energy, water, and waste at manufacturing sites * Supports viability of industries that use recycled materials * Beneficially uses materials that might otherwise be landfilled * Improves indoor air quality, resulting in reduced worker complaints, illnesses, and absenteeism and improved productivity |
| High-efficiency fluorescent lighting, compact fluorescent lamps, and dimming and auto-shutoff controls | | * Reduced energy consumption and summer cooling load * Promotes longer service life of lamps * Potentially increased worker productivity, by providing soft-white fixtures that provide equivalent foot-candles on work surfaces and less glare |
| **Upgrade HVAC System** | | |
| VAV system | | * Reduces energy consumption while maintaining minimum required ventilation for occupant comfort |
| VSDs on fans, motors, and other mechanical equipment | | * Balances the required load and driving energy for the ventilation system, thus reducing wastage of energy (as in a constant volume system) |
| Enthalpy wheel, heat pipe, run-around loop or other energy recovery devices | | * Recovers heating or cooling energy from the air exhaust, thus pre-cooling or pre-heating the incoming air and reducing energy consumption |
| Chilled beams | | * Reduces energy consumption by promoting updraft of warm air, mixing it with chilled air near the ceiling, and re-circulating that air to the occupied space at floor level |
| Install new or replacement high-efficiency condensing boilers | | * Recovers significant energy from the boiler exhaust stream, thus maximizing overall energy efficiency of the boiler |
| Replace existing cooling tower with new, high-efficiency model | | * Reduces water consumption * Reduces fan energy consumption (i.e., energy previously lost through drift or pressure loss across inefficient packing) |
| Install new or replacement high-efficiency vapor compression chillers | | * Reduces electricity consumption because the units are more efficient * Will typically use an H400-series refrigerant with very minimal global warming and stratospheric ozone depletion potential |
| **Water and wastewater system upgrades** | | |
| Remove any lead-containing piping | | * Permanently removes source of lead in drinking water |
| Remove/redesign/reconstruct any single-pass cooling processes | | * Eliminates significant wastage of water |
| Install storage tank and collection piping to capture rainwater runoff from roofs | | * Creates a supply of water for on-site, non-potable applications (e.g., irrigation, flushing toilets, etc.) |
| Replace existing bathroom fixtures with highly-efficient fixtures (e.g., waterless urinals, dual-flush toilets) | | * Significantly reduces potable water used (and subsequent wastewater generated) inside the building |
| Replace existing spray irrigation equipment with drip-line irrigation | | * Significantly reduces potable water used for irrigation and landscape maintenance |
| Install gray water recycling system | | * By using gray water for irrigation, reduces the amount of potable water demand * Reduces the amount of wastewater discharged to the local sewer system |
| **Construct new building or complete renovation/overhaul of an existing structure** | | |
| Daylighting (clearstories, low solar heat gain windows, light shelves, atria, reflective surface coatings, etc.) | * Substantial reductions in energy consumption, both electricity for lighting and HVAC system summer cooing load * Improves worker productivity and reduces absenteeism | |
| Under-floor air distribution | * Reduces energy consumption by reducing heating and cooling energy near the ceilings * Can be easily coupled with occupant controls at individual workstations, to enhance worker comfort and productivity * Provides sufficient or greater fresh air ventilation in the breathing zone than required by ASHRAE standards * Natural convection aids in displacing contaminated or “stale” air from the breathing zone to the room exhaust system | |
| Follow Low Impact Development principles for the facility site | * Reduces stormwater runoff by promoting infiltration and decentralized management of runoff * Reduces potential stormwater contamination by minimizing amount of runoff from developed and hardscape areas * Improves site aesthetics by integrating stormwater management systems with natural features such as vegetated swales and rain gardens | |
| Recycle most or all construction and demolition debris | * Saves valuable landfill capacity in the region and reduces groundwater contamination * Deconstruction allows for recovery and reuse of architectural details (e.g., cornices, wood doors, etc.) at other projects * For debris recycled on-site (e.g., crushed rubble), reduces impacts associated with transporting materials to the recycling facility | |