



GSA Public Buildings Service

# It's Easy Being Green!



**PBS National Customer Forum**

*July 25th, 2023  
GSA Headquarters  
18th and F Street NW  
Washington, DC*

## *Our Presenters for It's EASY Being Green!*



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The GSA logo is a blue square with the letters 'GSA' in white, sans-serif font. The 'A' has a small white triangle pointing upwards from its base.

GSA



**GSA's SFTool.gov  
Building Decarbonization Module  
Ken Sandler, GSA**

**Office of Federal High-Performance Green Buildings  
PBS Customer Forum  
July 25, 2023**

# What is the Sustainable Facilities Tool (www.SFTool.gov)?



The screenshot shows the homepage of the Sustainable Facilities Tool. At the top, there is a navigation menu with the following items: LEARN (Sustainability Topics), PLAN (Strategies & Tools), EXPLORE (Virtual Facility), PROCURE (Products & Services), APPLY (Case Studies), and TRAIN (Career Planning). The main header area features the title 'Sustainable Facilities Tool' and the tagline 'Make Effective Decisions'. Below this is a search bar labeled 'Search SFTool'. A prominent graphic titled 'Building Decarbonization' illustrates a construction site with a crane and trucks, with CO2 emissions being reduced. Below the graphic, it states 'Total Carbon = Embodied Carbon + Operational Carbon'. A section titled 'Where do I start?' with the subtitle 'Explore resources by role' offers four role-based navigation buttons: Facility Manager (dark blue), Procurement Professional (green), Leasing Specialist (maroon), and Project Manager (blue). At the bottom of this section, it says 'Discover content'.

GSA's flagship sustainability website providing critical **TOOLS** and **BEST PRACTICES** to teams that implement high-performance buildings and sustainable procurement.



# SFTool: Building Decarbonization Module – 3 Main Areas

<https://sftool.gov/learn/about/657/building-decarbonization>

## Building Decarbonization

- Greenhouse Gas (GHG) Emissions
- Sources of GHG Emissions
- Life Cycle Carbon / Total Carbon
- Whole Building Life Cycle Assessment (WBLCA)
- Life Cycle Cost Analysis (LCCA)
- Programs, Policies and Initiatives

## Operational Carbon

- Building Operational Decarbonization Strategies
- Operational Carbon Components
- Energy Efficiency
- Carbon Pollution-Free Electricity (CPFE)
- Building Electrification
- Building and Grid Integration
- Refrigerants
- Operational Carbon Case Studies
- Tools
- Resources

## Embodied Carbon

- Embodied Carbon Basics and Definitions
- Embodied Carbon Components
- Whole Building Life Cycle Assessment (WBLCA)
- Embodied Carbon Reduction Strategies
- Procurement of Low Embodied Carbon Materials and Products
- Embodied Carbon Case Studies
- Tools
- Resources

# SFTool: Building Decarbonization Module: Introduction



- A primer on how to reduce building greenhouse gas (GHG) emissions, including reduction of GHG emissions from building operations (**operational carbon**) and from the materials and products used in buildings (**embodied carbon**).
  - Access the most up-to-date federal resources, guidance, policies and initiatives to facilitate building decarbonization.
  - Find descriptions of core concepts, detailed strategies, procurement standards, and extensive links to case studies, tools and resources.
- You can reach the Building Decarbonization module from the SFTool homepage carousel, through Learn -> Climate or via the Search bar.

# SFTool: Building Decarbonization: Embodied Carbon

## Embodied Carbon Components

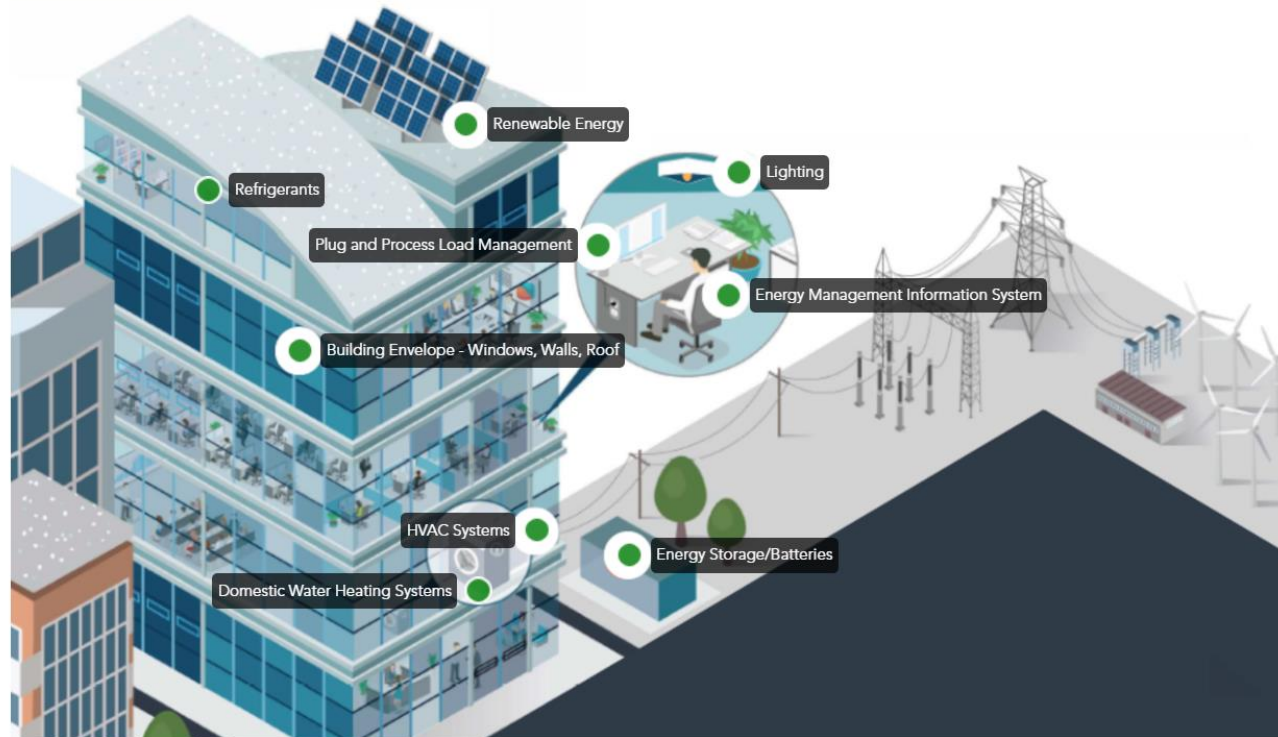


- Embodied Carbon Basics and Definitions
- Embodied Carbon Components
- Whole Building Life Cycle Assessment (WBLCA)
- Embodied Carbon Reduction Strategies
- Procurement of Low Embodied Carbon Materials and Products
- Embodied Carbon Case Studies

# SFTool: Building Decarbonization: Operational Carbon

## Operational Carbon Components

### Whole Building

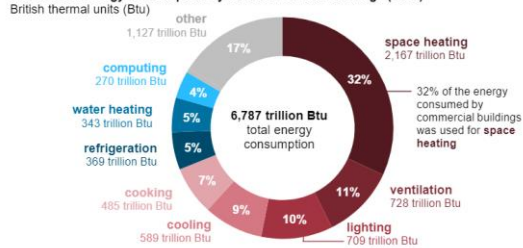


- Building Operational Decarbonization Strategies
- Operational Carbon Components
- Energy Efficiency
- Carbon Pollution-Free Electricity (CPFE)
- Building Electrification
- Building and Grid Integration
- Refrigerants
- Operational Carbon Case Studies, Tools & Resources



# Resources, Case Studies and More

## End uses of energy consumption by U.S. commercial buildings (2018)



Energy consumption by end use in U.S. commercial buildings.

Source: U.S. Energy Information Association



## Operational Carbon Case Studies



The Wayne Aspinall Federal Building is a case study for minimizing operational carbon. Originally constructed in 1918, renovations successfully converted the building into a model of energy efficiency and sustainability, while preserving its original character. Net Zero Energy Building objectives are met through a combination of high-performance, energy efficient materials and systems, and on-site renewable energy generation. As a result of the upgrades, the building is now 50% more energy efficient than a typical office building. On-site renewable energy generation is intended to produce 100% of the facility's energy needs throughout the year. Energy efficiency features include variable refrigerant flow (VRF) for the HVAC, a geo-exchange system, advanced metering and building controls, high-efficient lighting systems, a thermally enhanced building envelope, interior window systems which maintain the historic windows but increase thermal performance, and advanced power strips (APS) with desk mounted individual occupancy sensors. Renewable energy is provided by 385 photovoltaic roof panels that generate enough power to meet the electricity needs of 15 average American homes or 123 law...

## Programs, Policies and Initiatives

Following are several programs, policies and initiatives to facilitate the decarbonization of buildings:

### Executive Orders and Federal Standards for Building Decarbonization

- Executive Order 14057**: EO 14057, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*, sets out a range of ambitious goals to deliver a pathway to reducing U.S. GHG emissions by 50 percent from 2005 levels by 2030 and limiting global warming to 1.5 degrees Celsius.
- Federal Building Performance Standard**: The Federal Building Performance Standard requires agencies to cut energy use and electrify equipment and appliances to achieve zero Scope 1 emissions in 30% of the Federal government's owned square footage by 2030.
- GSA P100 Facilities Standards for the Public Buildings Service** (including section 1.9.2.9 "Decarbonization"): The *Facilities Standards for the Public Buildings Service (P100)* establishes design standards and performance criteria for the GSA Public Buildings Service. This document contains policy and technical criteria to be used in the programming, design, and documentation of GSA buildings.
- Energy Independence and Security Act (2007)**: EISA reinforces and extends energy reduction goals for federal agencies that originated in EO 13423. Three key provisions are the Corporate Average Fuel Economy Standards, the Renewable Fuel Standard, and the appliance/lighting efficiency standards.
- Energy Policy Act (2005)**: The Energy Policy Act addresses energy production in the United States, including: energy efficiency; renewable energy; oil and gas; coal; Tribal energy; nuclear matters and security; vehicles and motor fuels, including ethanol; hydrogen; electricity; energy tax incentives; hydropower and geothermal energy; and climate change technology.

## Product Impacts

Declared Unit: 1 m<sup>3</sup> of 10,000 psi concrete at 28 days

### Amount Per Declared Unit

<b>Global Warming Potential</b>	445 kgCO <sub>2</sub> eq
Emitted	460 kgCO <sub>2</sub> eq
Sequestered	-15 kgCO <sub>2</sub> eq
<b>Ozone Depletion</b>	0.000 kgCFC11eq
<b>Acidification</b>	2.96 kgSO <sub>2</sub> eq
<b>Eutrophication</b>	0.09 kgNeq
<b>Smog Formation</b>	0.61 kgO <sub>3</sub> eq
<b>Primary Energy Demand</b>	3017 MJ
Non-renewable	3000 MJ
Renewable	17 MJ

# Questions?

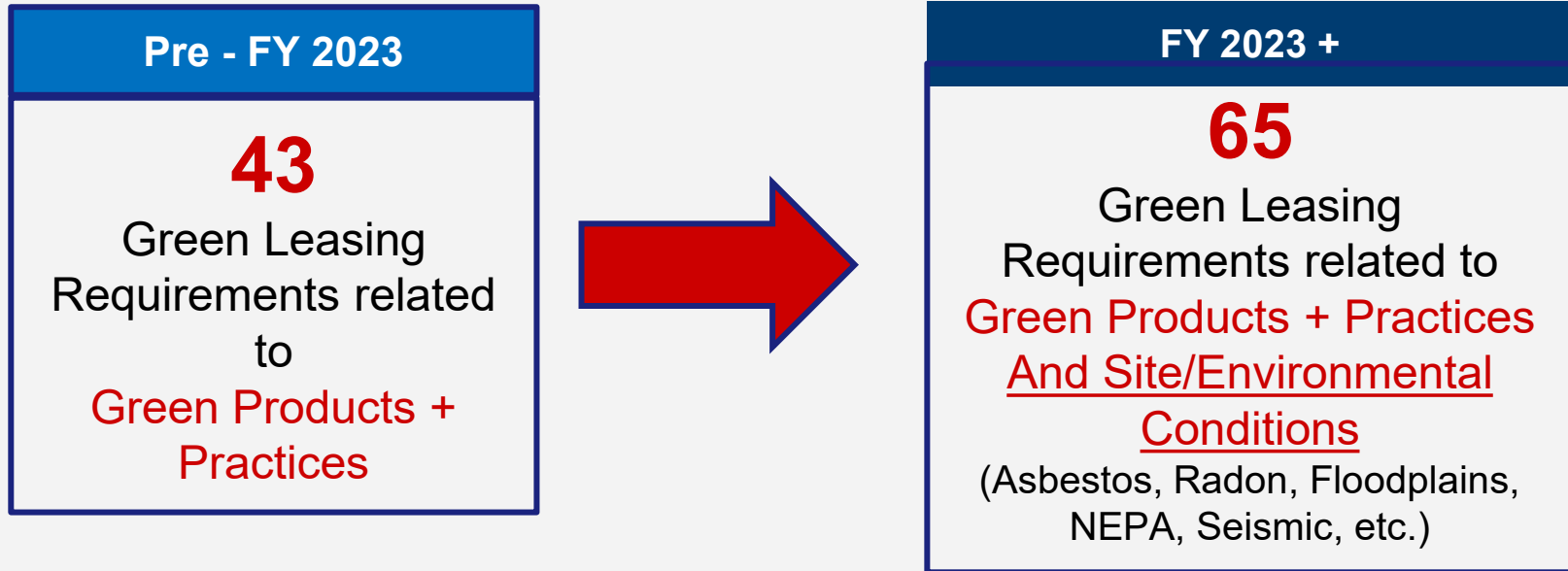
Contact

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<https://sftool.gov>

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## It's Easy Being Green! – Green Leasing



## 3 Key Areas of Green Leasing

### Green Leases

– “All new lease solicitations issued after 9/30/2023 for at least 25,000 RSF where the Federal Govt occupies at least 75% of a building are to be green leases.”

– Green Lease definition aligns with the Guiding Principles

**9 / 30 / 2023 +**

### Lessors Disclosures

– “Such Green Leases must require the Lessor to report annual data on facility GHG emissions, energy + water consumption, and waste generation.”

– Applies to new leases  $\geq$  25,000 RSF and where the Fed. Govt. leases  $\geq$  75% of building

**9 / 30 / 2023 +**

### Net Zero Emissions

– “New lease solicitations issued after 9/30/2030 that are greater than 25,000 RSF and where the Federal Govt. leases at least 75% of the total building square footage, must be in NZE buildings (consistent with the green lease requirement)”

**9 / 30 / 2030 +**

$\geq$ 25K RSF and  $\geq$ 75% Occupancy threshold  $\rightarrow$  647 Leases = 8.5% of Leases; 43% of RSF



## Green Leasing Requirements

### Green Leasing Requirements- OCT 2022

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#### *Recent OCT 2022 RLP + Lease Updates*

- **Plumbing:** EPA Watersense updates
- **HVAC:** Temperature Ranges; MERV 13 Filter
- **Environmental Product Declarations:** Carpet; Ceiling; Partitions
- **Acoustic Standards:** Updated 2012 standards
- **Lighting:** Updated Lighting Control and Programming Standard
- **Alternative Water Sources:** Outdoor water use
- **Green Building Rating Systems:** Warehouse New Construction
- **DOE Rule:** ASHRAE Standard 90.1-2019

### Green Leasing Requirements- OCT 2023

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#### *Pending OCT 2023 RLP + Lease Updates*

- |                                                         |                             |
|---------------------------------------------------------|-----------------------------|
| ● <b>Lessor Disclosures- Energy, GHGs, Water, Waste</b> | ● <b>NEPA/Due Diligence</b> |
| ● <b>Construction Waste Mgmt.</b>                       | ● <b>Mold</b>               |
| ● <b>HVAC Refrigerants</b>                              | ● <b>Radon</b>              |
| ● <b>Systems Commissioning</b>                          | ● <b>Asbestos</b>           |
| ● <b>Composting added to Recycling</b>                  | ● <b>Drinking Fountains</b> |
| ● <b>Green Bldg Certification Systems</b>               | ● <b>PFAS Discouraged</b>   |

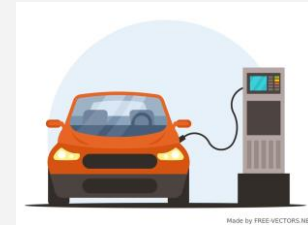
## *Electric Vehicle Supply and Equipment (EVSE)*

- **EVSE Resources**

- GSA EVSE BPA ([Link](#))
- GSA EVSE D/B Construction IDIQs ([Link](#))
- DOE Utility Finder Tool ([Link](#))
- 2023 GSA Virtual EVSE Showcase ([Link](#))
- GSA EVSE Home (<http://gsa.gov/electrifythefleet>)
- DOE ZEV Ready Center (<https://www.energy.gov/femp/federal-fleet-zev-ready-center>)

- **Leasing-Specific Resources**

- LDG Alterations Chapter ([Link](#)) ([SME2U Training](#))
- LDG Parking Acquisition ([Link](#))
- EVSE Leasing Alert, Site Assessment SOW, and Lease Amendment Template (Coming soon!)



# Save the Date! EVSE Virtual Showcase



This free, two-day virtual event features training to help agencies accelerate EVSE deployment along with virtual “booths” that provide the opportunity to connect one-on-one with EVSE firms

- August 29, 2023 and August 30, 2023 beginning at 10 AM ET
- Virtual conference hosted on WebEx

See the [Electrification resources and training page](#) for more information and [gsa.gov/electrifythefleet](https://gsa.gov/electrifythefleet) to learn more about the vehicle electrification initiative

