GSA Green Building Advisory Committee
1800 F Street, NW, Washington, DC, Room 6159
Wednesday, October 28, 2015
Meeting Notes

Chair

Greg Kats	Capital E

Committee Members

Charlene Bayer	Hygieia Science LLC
CJ Córdova	U.S. Department of Veterans Affairs
Amy Costello	Armstrong World Industries
Michael Deane	Turner Construction
Projjal Dutta	New York State Metropolitan Transportation Authority
Bob Fox	Cook Fox Architects
Bucky Green**	U.S. Environmental Protection Agency
Jonathan Herz	U.S. Department of Health and Human Services
David Kaneda	Integral Group
Nico Kienzl**	Atelier Ten
Nancy McNabb	National Institute of Standards and Technology
Victor Olgyay	Rocky Mountain Institute
Brendan Owens	U.S. Green Building Council
Kent Peterson	P2S Engineering
Amy Porter**	Council on Environmental Quality
Jane Rohde	JSR Associates
John Shonder	U.S. Department of Energy
Robert Simon	Office of Science and Technology Policy
Sarah Slaughter	Built Environment Coalition
Maureen Sullivan	Department of Defense
Timothy Unruh**	U.S. Department of Energy
Drake Wauters	AIA Technical Design for Building Performance

GSA Participants

Lance Davis	Public Building Service (PBS), Design & Construction
Donald Horn*	Office of Federal High-Performance Green Buildings (OFHPGB) Deputy Director
Kevin Kampschroer	Chief Sustainability Officer and OFHPGB Director
Ann Kosmal	OFHPGB
Alexandra Kosmides	PBS, Leasing
Claire Loxsom	OFHPGB
Kinga Porst	OFHPGB
Ken Sandler	Designated Federal Officer, OFHPGB
Ken Schelbert	PBS, Leasing

* denotes those who attended via teleconference
** denotes those not present at the meeting

Introductions

Kevin Kampschroer, Federal Director of GSA's Office of Federal High-Performance Green Buildings (OFHPGB), welcomed the Green Building Advisory Committee (hereafter "the Committee") and thanked everyone for their continued dedication and high impact work.

Designated Federal Officer Ken Sandler provided an overview of the meeting agenda, followed by Committee member self-introductions.

Energy Use Intensity (EUI): Task Group Report & Discussion
Drake Wauters, AIA Technical Design for Building Performance, Task Group Co-Chair
Projjal Dutta, New York Metropolitan Transportation Authority, Task Group Co-Chair

- Introduction
    - Energy use intensity (EUI) is traditionally a simple quotient of energy delivered to a building divided by its area (e.g., BTU/sq.ft.-year).
    - EUI is a commonly used and easy-to-understand metric; however, it should evolve along with our energy knowledge and priorities.
    - This proposal seeks to enhance the traditional EUI by recommending the additional use of new building energy metrics that address wider energy use impacts resulting from facility decisions.
    - Buildings that are similar in construction and energy use may be occupied very differently. The Task Group considered two critical factors that are rarely taken into account:
        - Occupant density in a facility (proposed to be measured with a new metric, full time equivalent occupancy or FTEO); and
        - Commuter transportation energy used to access the facility.
- Expanding the EUI Concept
    - As agencies increasingly adopt teleworking, hoteling, and shared facilities, traditional EUI, based on energy consumption per square foot, can penalize workplace consolidations as they shrink the denominator. The metric therefore needs to be reconsidered to account for occupant density.
    - Transportation is also a major consumer of energy. A building's location can have a greater impact on energy consumption than the green features incorporated into it. An enhanced EUI should factor in distances traveled by occupants and the mode of that travel.
    - The expanded metrics – both for occupancy-based EUI and for transportation-based EUI – are meant to be complementary and enable agencies to gain insight on how facility location and utilization can impact actual overall energy use.
- Occupancy-Based EUI Metric
    - The Task Group proposes a new facility energy metric that incorporates an FTEO concept reflecting hours of occupancy as well as employment.
    - A number of methods potentially can be used to collect occupant data:
        - Badge in/badge out card readers
        - IT onsite log-in tallies
        - Carbon-dioxide monitoring (per ASRAE Standard 62.1 Appendix C)
    - The Task Group recommends that GSA conduct studies to count incoming and outgoing personnel in order to establish a baseline for verifying the accuracy of techniques for estimating the occupied hours.

- Transportation-Based Energy Metric
    - A proposed new transportation energy metric estimating energy use by occupants in their commutes to and from federal buildings.
    - Example comparing energy use of high-rise urban building vs. much greater use by low-rise suburban office park due to commuter impacts. Research has found GHG per person (Kg CO_2E) to be higher in low density areas.
- The Task Group proposes these three EUI metrics – traditional EUI, occupancy-based EUI, and transportation-based EUI – be used to more effectively compare buildings, make location choices, and measure the success of energy conservation measures.
- While the Task Group considered developing metrics for both energy use and GHG emissions, it decided to focus exclusively on an energy metric to keep the proposal simple and straightforward. Such a metric still may be multiplied by the appropriate factor to derive GHG emissions.
- The Task Group examined two tools in which the federal government has already invested to estimate commuter vehicle miles traveled (VMT), the GSA Carbon Footprint Tool and Smart Location Calculator (currently in beta version). GSA and other agencies could use these tools, improve on them or employ other means if they accept these recommendations.

Energy Use Index Task Group – Committee Comments

- The case for this proposal would be strengthened by case analyses, pilot studies and/or modeling simulations to test these new EUI concepts. GSA, DOE and a DOE National Laboratory should work together to perform such analyses.
- The Task Group should consider working with other key organizations, such as ASHRAE, to gather input and support for this proposal.
- The proposal should be flexible enough to incorporate major changes in the market – e.g., greater use and charging of electric cars.
- Different assumptions on work hours could be used for the FTEO metric (e.g., 35 vs. 40 hour workweek), as long as a consistent denominator is used.
- Depending on the agency and the availability of data, one VMT tool may be more useful than the other based on whether an agency is more interested in comparing potential building locations or improving upon existing performance of a specific building.
- Look into GSA's work on a Cost Per Person Model (CPPM), which evaluates the cost per person for real estate, IT, and telecommunications, to identify any synergies.
- Important for the government to continue to use traditional EUI to allow for trend analyses dating back through the decades that this metric has been used.
- The Task Group should consider how to incorporate source energy impacts.
- The Task Group should add an Executive Summary to the proposal.

The Committee voted unanimously to support the following motion:

- **Motion 1:** The EUI Task Group will continue to meet and work in parallel as GSA consults with one of the national labs to perform case study/simulation analyses based on location and FTE inputs to ensure the proposed metrics are useful to the federal government. In addition, the EUI Task Group will consider evaluating source energy and will provide a brief executive summary of its work.

Portfolio Prioritization: Task Group Report & Discussion

Sarah Slaughter, Built Environment Coalition, Task Group Co-Chair
Brendan Owens, U.S. Green Building Council, Task Group Co-Chair

- Task Group Objective:
  - Assess existing and emerging strategies, methods, and tools to advance federal agencies' capabilities to more easily meet sustainability and resilience performance objectives through prioritization of facility investment strategies.
- The Portfolio Prioritization Task Group and the National Academy of Sciences (NAS) Federal Facilities Council (FFC) co-sponsored two workshops (Sept. 14th & Oct. 27th) to examine strategies, practices and tools for incorporating sustainability, resilience, and footprint consolidation into federal portfolio prioritization processes.
  - The first workshop highlighted current effective practices to achieve these ends, while the second workshop focused on how to implement such practices within federal guidelines and constraints.
  - The NAS will be publishing a formal report on these workshops.
- Major findings:
  - General
    - Diversity of approaches to address sustainability, resilience, and footprint consolidation in portfolio prioritization; no organization has put all the pieces together yet
    - Diversity of planning time horizons and regional scales, e.g., for factoring in climate change
    - Significant progress in new construction and major renovation
    - Significant challenges in existing buildings (the majority of portfolio)
    - Agency and facility missions come first, so must align with them
    - Need to bridge gaps among parts of agencies that don't always talk with each other – energy, sustainability, budget, contracts, portfolio, etc.
    - Major regional differences in risks, access to critical services, and finances
  - Risks
    - Risks can be acute or chronic, and can relate to operations, finances, health & safety, and/or climate change
    - Facility risks include access to critical services (energy, water, transportation, communications), including in disaster situations
  - Tools
    - Real-time performance monitoring and continuous commissioning
    - "True value" & "social cost" calculations of resources & by-products
    - Failure probability analysis – with cascading impacts
    - Portfolio prioritization within strategic plan, installation master plan
  - Solutions
    - Bundling increased efficiency (resources, space) with on-site generation (energy, water)
    - Bundling improvements (resilience, sustainability, footprint consolidation), identifying how they reinforce each other
    - Incorporating future accommodation (e.g., new roofs with PV mounts)
    - Using campus/installation scale to full advantage
  - Portfolio Prioritization Tool "Wish List"
    - Incorporates risk assessment and mitigation
    - Addresses regional and local levels
    - Scales from individual facilities to full portfolio

        - Coordinates portfolio planning and facility operations
        - Highlights mission-critical buildings, facilities, and infrastructure
        - Assesses existing buildings
        - Easy to use and update
        - Incorporates multiple solutions/bundles
- There was a high level of engagement during the first and second workshops (around 250 participants), indicating the need for tools and processes for portfolio prioritization.

Portfolio Prioritization Task Group – Committee Comments

- Consider recommending improvements to the Federal Real Property Profile (FRPP).
- The workshops demonstrated value of bringing together people from different parts of federal agencies – planners, energy managers, facility managers, designers, etc.
- Important to emphasize flexibility in findings, as one size does not fit all.

The Committee voted unanimously to support the following motion:

- **Motion 2:** The Portfolio Prioritization Task Group will continue to meet, develop recommendations, and identify tools and implementation strategies for the Committee to consider recommending to GSA and other federal agencies.

Working Lunch: Driving Down Energy Use in Federal Leased Space
Ken Schelbert, GSA Public Building Service

- Leases are not buildings per se, but agreements to rent all or part of a building.
- The government has the most influence where it leases all or most of a building, as opposed to where it only leases a small percentage of the square footage.
    - GSA has full building occupancy in only 28% of its leases, covering 42% of rentable square feet (RSF). GSA is a minority tenant (less than 25% occupancy) in 53% of leases, covering 33% of RSF.
- Freeze the Footprint/Reduce the Footprint initiatives are having a significant impact on the number of federal leases and amount of space leased, reducing energy use, GHG emissions and operating costs. Since 2013:
    - 362 fewer leases in 439 fewer buildings
    - 1.3 million RSF of space reduction, equalling 14,300 tons of carbon reduction
- The Office of Leasing is pursuing a mix of Sustainability Initiatives:
    - Net of Utility Leases Pilots
    - Utility Consumption Reporting
    - First Fuel Pilots
    - Green Language Changes
    - Guiding Principle Compliance
    - Outreach/Training
- GSA green lease language is being modified to align with multiple requirements: Executive Order 13693, Energy Efficiency Improvement Act, LEED v4, and Guiding Principles Changes, Key Sustainable Products

Green Leasing – Committee Comments

- The federal government should determine how to more aggressively use its leverage with commercial lessors to drive sustainability objectives. (See Motion 3 below.)

Progress Updates

Next Steps on Net Zero Energy
Victor Olgyay, Rocky Mountain Institute

- The Rocky Mountain Institute (RMI) developed a white paper to flesh out opportunities for GSA to implement the Committee's Net-Zero Energy (NZE) recommendations, with a focus on cost premiums, cost-control methodologies and other strategies.
- Three main points:
    - Capital costs associated with well-planned NZE buildings are manageable.
    - Operating costs are a huge opportunity for cost savings. The sooner the implementation, the greater cost savings.
    - There are a growing number of positive case studies to build upon.
- NZE-ready buildings (i.e., highly efficient and ready for renewables to be added) can be developed at an estimated 0-15% first cost premium
- Strategies to leverage ripe opportunities and control costs include:
    - Developing a prioritized portfolio strategy and considering deep savings over time for existing buildings
    - Constructing all new buildings to be "net zero energy ready"
    - Using ESPCs, PPAs, and other alternative financing mechanisms
    - Employing "reduce the footprint"
    - Using integrated project delivery, other performance-based contracting approaches
    - Participating in eco-districts and leveraging state and local NZE laws
- Failing to implement the recommendation would cost GSA substantially more over time

Lance Davis, GSA Public Building Service

- Through GSA's Capital Investment and Leasing Program, we prepare project proposals looking five years ahead. We're suggesting where NZE projects would make the most sense and asking project managers to revise proposals to incorporate this concept.
- PBS is setting a goal to have 25 individual, existing buildings be NZE by 2025 (nicknamed "25 by 25"). Currently there are three NZE buildings in GSA's inventory.

Next Steps on Net Zero Energy – Committee Comments

- As half of GSA's portfolio is leased, the agency should identify where NZE could be applied to its leased buildings, and initiate some pilots, focusing on mature markets and buildings where the government is the dominant tenant.
- Research federal authorities to use revolving green funds.

The Committee voted unanimously to support the following motion:

- **Motion 3:** Create a task group to provide recommendations to improve federal government leasing language and requirements regarding NZE and other sustainability goals.

Update on Social Cost of Carbon
Ken Sandler, GSA Office of Federal High-Performance Green Buildings

- Background
    - The Committee's recommendation was:
        - "All federal building investment, design, construction, retrofit and location decisions should incorporate the social cost of carbon, including carbon from energy use and embedded in materials. The cost of carbon referenced should be the most current calculation as updated by the US Office of Management and Budget." (i.e., Technical Support Document on Social Cost of Carbon for Regulatory Impact Analysis)
    - At its April 23, 2015 meeting, the Committee asked GSA to work with DOE FEMP to examine and advise on methods to incorporate the social cost of carbon (SCC).
- OMB requires life cycle cost analysis (LCCA) when requesting funds for capital facilities projects. Currently, there are no requirements to use a specific tool for LCCA. However, federal agencies are encouraged to use NIST's tools:
    - BLCC – Building Life Cycle Cost program
    - BIRDS – Building Industry Reporting and Design for Sustainability
    - BEES – Building for Environment and Economic Sustainability
- GSA has initiated discussions with FEMP and NIST and will move forward and work with those agencies to incorporate SCC in BLCC, BIRDS, and BEES.

Topics Proposed by Committee Members

Product and Material Selection
Jane Rohde and Brendan Owens raised the topic of materials selection and its impacts on human health.

- There is currently momentum to pay attention to materials selection. GSA could play a significant role in sending a signal to the market that GSA desires products that promote better sustainability and health impacts.
- Part of the challenge is obtaining the information to assess products. GSA can leverage its market power to emphasize certain materials or product specifications over others.
- Product disclosure is one approach, but only a means to increase awareness and facilitate alternatives assessments among products, not the ultimate end.

Public Comment Period

- There were no public comments from visitors.

Closing Comments

Kevin Kampschroer thanked all of the participants for an extraordinarily productive discussion and for all the work leading up to it. The recommendations and comments of this Committee influenced the most recent Executive Order, demonstrating the value of the Committee and its work.