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GSA Green Building Advisory Committee Thursday, January 28, 2021 Meeting Meeting Notes

Committee Chair

Projjal Dutta

NY State Metropolitan Transportation Authority

Committee Members

Gopi Boray

U.S. Department of Health and Human Services

Dave Gibson

U.S. Environmental Protection Agency

Leslie Nicholls

U.S. Department of Energy

John Park

U.S. Department of Veterans Affairs

Andrew Persily

National Institute of Standards and Technology

Dee Siegel

U.S. Council on Environmental Quality

Mary Sprague

U.S. Department of Transportation

Reena Agarwal

Center for Active Design

Fernando Arias

Clark Construction Group

Kevin Bates

Sharp Development Company

Chris Castro

City of Orlando

Ralph DiNola

New Buildings Institute

Whitney Gray

International WELL Building Institute

David Kaneda

IDeAs Consulting

Clay Nesler

Johnson Controls

Victor Olgay

Rocky Mountain Institute

Kent Peterson

P2S Inc.

Jane Rohde

JSR Associates

Sarah Slaughter

Built Environment Coalition

Tim Unruh

National Association of Energy Service Companies

Active GSA Participants

Krystal Brumfield

Associate Administrator of the Office of Government-Wide Policy in the General Services Administration (GSA)

Sonal Larsen

Senior Advisor to GSA Administrator on Climate

Kevin Kampschroer

Chief Sustainability Officer and Director, Office of Federal High-Performance Green Buildings (OFHPGB)

Ken Sandler

Designated Federal Officer, OFHPGB

Michael Bloom

Group Federal Officer, OFHPGB

Other Speakers

Andrew Mayock

Federal Chief Sustainability Officer

Meghan Lewis

University of Washington

Sarah Karerat

Center for Active Design

Brendan Owens

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Opening Remarks and Introductions

Ken Sandler, Designated Federal Officer, welcomed the Committee and noted that the Green Building Advisory Committee (GBAC) was established by the Energy Independence and Security Act (EISA 2007) to develop recommendations and findings to advise the federal government on moving its portfolio to sustainability.

Kevin Kampschroer, GSA Chief Sustainability Officer and Federal Director, Office of Federal High-Performance Green Buildings (OFHPGB) also welcomed the Committee and introduced GSA Office of Government-wide Policy (OGP) Associate Administrator Krystal Brumfield, GSA Senior Climate Advisor Sonal Larsen, and Council on Environmental Quality Deputy Chief Sustainability Officer Dee Siegel.

Krystal Brumfield said that now is the time to raise the importance of green buildings in the federal government. GSA can act as a market leader in quality, design, and efficiency and is already implementing Committee advice, as in the area of grid-integrated buildings. She welcomed the day's conversations on issues like embodied carbon and the sustainable response to COVID-19.

Sonal Larsen noted the new administration has hit the ground running with new executive orders and goals on climate change, environmental justice and "building back better". She expressed excitement over getting up to speed on the work of OFHPGB and the Committee and collaborating with both on these issues.

Dee Siegel introduced Andrew Mayock, the new White House Federal Chief Sustainability Officer. Mr. Mayock asserted that the new Executive Orders have laid out a huge challenge for the federal government and remarked that his team is all in. He posed the question of how GSA can "supercharge" its sustainability and climate work moving forward.

Projjal Dutta, Committee Chair, expressed optimism that the new administration will be supportive of the Committee's work. He suggested, in line with the administration's focus on equity that the GBAC think about how to ensure its sustainability work benefits all, not just elite audiences.

Next, all Committee members were given the opportunity to introduce themselves and share one idea for the group to pursue next. These topics were discussed in more detail in the "Next Committee Topics: Discussion" section below, where they are summarized.

Embodied Energy Task Group Presentation

Victor Olgyay, Rocky Mountain Institute, Co-Chair

Brendan Owens, ecountabl, Co-Chair

The Embodied Energy Task Group Co-Chairs plus participant Meghan Lewis discussed the findings and recommendations of this group on the federal procurement of low embodied energy and carbon building materials.

The group noted that building materials and construction currently represent 11% of global energy-related carbon dioxide emissions, but that percentage will grow dramatically as the contributions from other sources, including building operational emissions, continue to decline.

Procuring lower-carbon materials has the potential to provide additional benefits including cost savings, reducing industrial emissions, growing a domestic clean energy-based manufacturing sector and reducing health impacts among industrial frontline communities.

The group estimated the potential impact of GSA adopting practical low-carbon material procurement policies, based on the agency's average construction rate of 44 projects completed per year, affecting 23 million gross square feet, with a value of \$1.03 billion.

Task Group Recommendations

GSA, with its large portfolio and immense purchasing power, has a major opportunity for national leadership on this issue. Strategies for GSA recommended by the Task Group include:

- *Material Approach (for all projects, including tenant improvements)*
 - Require environmental product declarations (EPDs) for the top 75% of materials used, by weight or cost.
 - Set performance-based standards: EPDs must fall within the 80th percentile of global warming potential (GWP), based on industry averages.
- *Whole Building Life Cycle Assessment (LCA) Approach (for projects (over the prospectus level at which Congressional authorization is required, currently \$3.095 million)*
 - Design buildings for 20% reduction of GWP compared to a baseline building
 - Require certification (LEED or Green Globes) to aid tracking

The following case studies have demonstrated the potential impact of such policies.

- *Helen Sommers Building, Olympia, WA*
Procured low embodied carbon and low GWP materials, leading to a 1,300 metric ton emissions reduction.
- *Houston Advanced Research Center, Houston, TX*
Optimized structural system and enclosure system using LCA strategies. Optimized materials led to a 20% reduction in the embodied carbon of the building at no additional cost.

Committee Discussion

Issues raised by Committee members included:

- How mass timber as a new structural system would fit in. Mass timber is popular on the west coast and in high rise structures: There are tradeoffs to consider, based on individual building characteristics, though complicated by data availability.
- How EPDs for products are determined and what entity leads the measurement, verification, and certification process. Follow global standards to ensure consistency.
- When a team would need to develop, revise, and formally submit the whole building LCA: Current regulations require an LCA at initiation but it should be updated as designs evolve. Whole building LCA is useful throughout the design development phase, as it is an iterative tool. Consider government-established rebate or incentive programs to offset costs and encourage adoption.
- How recommended thresholds (e.g. 75%) compare to others such as LEED or Green Globes. GSA is in position to move the market.
- Consider options like getting 15-20 concrete mix designs modeled and standardized by region based on regional material variations.

Motion

The Advice Letter was accepted with revision. Committee members were invited to submit comments until February 8, 2021, after which point the document will be finalized and posted on the Committee website at www.gsa.gov/gbac.

Election for Committee Chair

David Kaneda was elected the new GBAC Chair. Kevin, Ken and multiple Committee members thanked Projjal Dutta for his distinguished service as Committee Chair.

Sustainable Response to COVID-19 Task Group Presentation

Clay Nesler, Johnson Controls, Co-Chair

Fernando Arias, Clark Construction Group, Co-Chair

The goal of this Task Group was to develop a proposed decision guide to help Federal facilities' stakeholders (building operators, design professionals, etc.) to help navigate operation concerns during the COVID-19 and beyond. While the top priority in COVID-19 pandemic response is to assure occupant health and safety, current engineering controls guidance may be difficult to implement in some buildings and increase energy use in others. Furthermore, increased building cleaning and disinfection frequency may negatively impact IAQ, in turn impacting occupant health and wellness as well as potentially damaging materials.

This group reviewed industry and federal COVID-19 reopening guidance, including HVAC engineering controls, surface cleaning, and disinfection, to identify considerations in facility decision making and provide guidance. The proposed decision guide is rooted in understanding how cleaning air and surfaces impact people and property, for adoption across various facility types. Specific considerations and guidance will vary by building.

Clean air engineering controls include: HVAC system assessment; ventilation, filtration, air cleaning; air distribution; system operations; building automation systems; system environmental monitoring; isolation rooms; and considerations for special needs/high risk populations.

Cleaning and disinfection recommendations include: adjusting cleaning frequency and approach of high-touch surfaces based on cleaning pattern, occupant type, occupant density and extent to which space is shared; establishing enhanced cleaning and disinfection protocols for seating, shared countertops, and work surfaces.

The Task Group recommended using an integrated, multi-disciplinary team in conjunction with the decision guide to document current facility operations, review current cleaning and disinfection policies and procedures, assess operating performance, and evaluate and update policies, procedures, and specifications.

Task Group Recommendations

- Post the proposed decision guide on GSA's website, SFTool.gov.

- Pilot the proposed decision guide at federal facilities, documenting best practices and lessons learned.
- Develop plans to periodically update the proposed decision guide based on new guidance, research, and experience.
- Consider a second phase task group to leverage learnings regarding future recommendations for operating and designing new and renovated facilities that optimize health, wellness, and sustainability in current/future pandemic/emergency conditions.

Committee Discussion

Issues raised by Committee members included:

- Consider options of using natural ventilation and night flushing in appropriate climates (as a supplement to mechanical systems) and adjust guide based on regional variations.
- How to fit guide within evolving holistic government and industry approaches to safety, health, efficiency, and resiliency, including existing guidance such as ASHRAE and OSHA standards and green cleaning protocols.
- Consider use of ultraviolet (UV) light for disinfection in air handling units and on surfaces.
- Entities expected to use this guidance: Multidisciplinary teams in a pilot would pull together building staff, locality supporting facility, cleaning staff

Motion

The Advice Letter was accepted with revision. Committee members were invited to submit comments until February 8, 2021, after which point the document will be finalized and posted on the Committee website.

Energy Storage in Federal Buildings Presentation

David Kaneda, IDeAs Consulting, Co-Chair

Projjal Dutta, Metro Transit Authority of New York, Co-Chair

This Task Group's mission is to explore energy storage at federal facilities, thereby reducing energy use, costs, and greenhouse gas emissions, and increasing energy resiliency.

Potential value propositions for the use of energy storage at federal buildings include:

- Support increased use of renewable energy and reducing carbon emissions
- Manage demand and provide revenue streams
- Use storage systems and stand by power systems for resilience
- Influence the market and contribute to grid stability

Currently, lithium-ion batteries make up 96% of building energy storage, and still represent a relatively expensive option, with storage capacity concentrated in California and a few other states. However, the building energy storage market is evolving, with battery costs falling rapidly, multiple types of batteries entering the market, and new approaches and business models to integrate batteries into buildings emerging.

Regional differences still matter greatly. An increasing number of states are developing pilots and programs encouraging and incentivizing building energy storage. Electricity rates, such as time of use rates, and incentives make it more cost-effective to use energy storage for such uses as peak shaving in some locations than others.

Cost-effectiveness criteria will not always track with energy savings and real-time carbon emissions, which also must be considered. Other environmental, health and safety considerations must be taken into account, including ensuring fire safety by following National Fire Protection Association 955 and UL standards. Life cycle analyses should be performed which include extraction and manufacturing of batteries and end-of-life stages (i.e., recycling batteries).

There is a need for techno-economic analysis tools, such as the Department of Defense's Environmental Security Technology Certification Program (ESTCP) program has been developing, to help decision makers take all of these factors into account.

The following case study has demonstrated the success potential of implementing building-level battery storage.

GSA Schwartz Federal Building, San Diego, CA

A 750 kWh Lithium ion battery storage system with 1 Tesla power pack was installed at this building. It has been in commercial operation since January 2018 and was implemented with Energy Saving Performance Contracts (ESPCs).

Next steps for this task group are to gain input from the Committee; gather more information on available building-scale battery products and financial strategies; identify additional case studies, including from the California Department of General Services, and communication with battery manufacturers; and to draft proposed recommendations.

Committee Discussion

Issues raised by Committee members included:

- Coordinate with U.S Department of Defense (DOD) research and progress on energy storage at its installations, while understanding that DOD has a somewhat different value proposition, with energy security much more highly valued.
- Building mass is important when looking at thermal mass storage systems. We need the recommendation to be a modeling protocol. The opportunity for massive deployment with variety is huge.

Meeting participants were encouraged to send additional comments to Ken by February 8, 2021.

Next Committee Topics: Discussion

Committee members discussed what topics they would like the Committee to consider next, including:

- Bring considerations of environmental justice, equity and inclusion into federal sustainable building programs and discussions, including issues of staffing, training, workforce development, community impacts, etc.
- Develop strategies and metrics to transition federal buildings to decarbonization and electrification, working with the Department of Energy and its national labs.
- Consider the range of health, wellness and productivity issues raised by the COVID-19 pandemic, including issues of isolation and mental health and pros and cons of remote work, to add to building operations guidance.

- Update operations and maintenance guidance on premise plumbing to balance value of reduced consumption with performance issues including increased bacteria, stagnation, etc.

Public Comment Period

Greg Johnson, American Wood Council (AWC) provided comments recommending greater use of wood in federal buildings, based on a range of environmental benefits that he identified.

Closing Comments

Kevin Kampschroer closed the meeting noting that the work of this Committee dovetails well with the new administration's strong focus on federal action to address climate change. As a result, Committee members should be aware that there is increasing White House interest and attention to your important, high impact findings and recommendations.