



**Building Operations
Survey Report-Out**

**Division of Energy
Management
July 2020**

Survey Background

Survey Overview

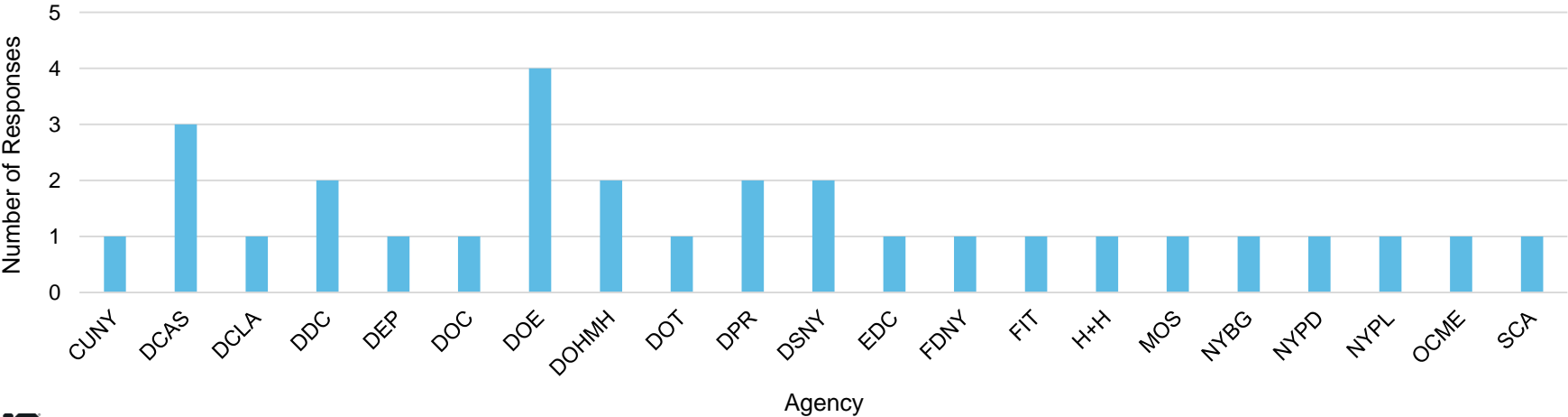
Purpose

- DEM disseminated the Building Operations Survey to agency partners to:
 - Gather insights related to building operations in the wake of the pandemic.
 - Prepare for an interactive discussion on the topic at the Summer Energy Forum.
 - Inform the establishment of the Building Operations Interdisciplinary Working Group.

Survey Response

- DEM collected responses from agencies between July 8 and July 16, 2020.
- In total, 30 respondents across 21 agencies completed the survey.

Figure 1. Responses to Survey by Agency



Specific Questions (1/4)

The survey included questions across three areas:

- (1) Lessons Learned
- (2) Challenges and Concerns
- (3) Future Plans

Section 0. Introduction

Q1. What is your name?

Q2. What is your business title?

Q3. What is your agency?

Specific Questions (2/4)

Section 1. Lessons Learned

Q4. What have you learned about your buildings over the last few months during the pandemic?

Q5. Have you uncovered any specific energy efficiency opportunities at your buildings? If so, please describe them.

Q6. Based on what you have learned during the pandemic, what changes, if any, have you made to the way that you operate your buildings?

Q7. Based on what you have learned during the pandemic, what lessons learned at your buildings, if any, do you think could be applicable to other buildings across the City?

Q8. Have you identified any resources relevant to building operations in the wake of the pandemic that are useful to share?

Q9. Recognizing the challenges created by the project pause, do you have any recommendations to share with other agencies related to efficiently pausing and re-starting energy projects? Is there anything that your agency did that made the process easier or better?

Specific Questions (3/4)

Section 2. Challenges and Concerns

Q10. What are the major challenges that you are facing related to building operations?

Q11. Are there major questions or issues related to building operations coming up at your agency that you do not feel fully prepared to address? If so, what are they?

Q12. To date, has your agency had any discussions about managing public health requirements and energy efficiency considerations in future building operations?

Q13. At present, what percentage of information do you have about how your agency plans to operate buildings moving forward?

Q14. On a scale of 1 to 10, with 1 being “not ready at all” and 10 being “very ready,” from your perspective, how ready is your agency to resume building operations across your portfolio?

Q15. Following up on your response to Question 14, would you describe your agency as being ready at that level across all buildings, or does that level represent an average for the portfolio, with levels varying across individual buildings?

Q16. If your agency is not ready to resume building operations for some or all buildings, from your perspective, what are the barriers to your agency achieving readiness? (e.g., funding resources, staffing capacity, contracting resources.)

Specific Questions (4/4)

Section 3. Future Plans

Q17. Is your agency currently planning to develop building-specific operating plans?

Q18. Is your agency currently planning to install disinfection technologies?

Lessons Learned

What have you learned about your buildings over the last few months?

- The ability to monitor a building's energy usage and operations without being onsite (via RTM and BMS) is critical.
 - *"Building systems with adequate monitored and controlled points have value other than energy savings"* (DOE)
 - *"Energy projects involving building controls made the difference when dealing with the pandemic"* (FIT)
- For buildings experiencing reduced occupancy, ongoing monitoring and operational adjustments may be necessary to realize energy usage reductions. EnerTrac has been especially valuable for monitoring loads and identifying energy-saving opportunities at RTM-equipped buildings.
 - *"Reduced occupancy doesn't always directly result in reduced energy consumption – equipment operations and scheduling play a large role"* (DOE)
- A legacy of piecemeal equipment installations over time can complicate both immediate and long-term COVID-19 response needs.
 - *"[Piecemeal equipment installations] at our buildings due to partial renovations over the years... amplified the complexity and cost [of] incorporat[ing] COVID-19 labs into our health centers"* (DOHMH)
- Gaps exist in disinfecting protocols.
 - *"Cleaning and sanitizing protocols need to be updated and enforced"* (DPR)
 - *"None of the HVAC systems in our department provide any type of disinfection"* (DSNY)
- Energy teams see clear benefits from strengthening internal communication protocols. In addition, limited or inaccessible building documentation hinders planning.
 - *Specific examples: CUNY's expansion of Microsoft Teams to all staff and DOE's installation of Microsoft Teams on all BMS computers*
 - *"While there is incredible institutional knowledge, many branches lack documentation on existing conditions. This adds a layer of challenge for planning"* (NYPL)

What energy efficiency opportunities resulted because of reduced occupancy?

Across all respondents, the most commonly mentioned opportunities were turning off lighting and HVAC equipment and adjusting setpoints and setbacks in areas of no occupancy. Respondents frequently leveraged RTM or BMS data for insight.

- Minimizing plug-loads in reduced-occupancy or vacant buildings.
 - *“Unplugging refrigerators and turning off monitors in vacant facilities” (DOHMH)*
- Scheduling changes in reduced-occupancy or vacant buildings.
 - *“Going dark on as many building systems as possible, primarily lighting and HVAC...In some cases, this involved simple shutdown and in other cases, it required working with building staff and controls contractors to make the necessary set-point and schedule adjustments” (DCLA)*
 - *“Optimizing equipment schedules in facilities with reduced occupancy” (DOHMH)*
 - *“Manually shutting off lights and HVAC. Moving forward, remote BMS would be an ideal way to improve energy efficiency” (NYPL)*
- Auditing systems to detect issues.
 - *“Using EnerTrac...leads to an investigation of the issue which uncovers...faulty controls, unchanged schedules in the BMS, and opportunities to change equipment operations” (DOE)*
- Potential continued impacts of teleworking
 - *“Given its operational impacts, working remotely has a huge impact on building energy use” (DOE)*

What changes have you made to the way you operate your buildings?

Changes to improve energy efficiency...

Turned off lighting, adjusted HVAC equipment, and implemented scheduling changes and temperature setbacks.

Leveraged RTM and BMS for opportunity identification

- *“The use of sensors and BMS is critical”* (DSNY)

Changes to improve public health...

Modified ventilation

- *“Modified ventilation in buildings to mitigate transmission of COVID-19, inclusive of special air filters and UV lighting”* (DCAS)
- *“For school buildings and offices that are occupied, operating... ventilation equipment for more hours each day”* (DOE)
- *“Increased outside air use and [implemented] higher fan speeds”* (FIT)
- *“Increased ventilation and deployed portable air purifiers in re-opened buildings”* (NYPL)

Enhanced filtration.

- *“Some cultural institutions have taken steps to upgrade the MERV rating of filters”* (DCLA)
- *“Shortened filter change intervals for HVAC equipment at certain facilities with extended hours”* (DOHMH)
- *“No, but because the majority of DSNY’s HVAC equipment in the in the garage spaces already was utilizing 100% outside air”* (DSNY)

Which lessons learned at your buildings could apply to others across the City?

- For reduced-occupancy or vacant buildings, there is a variety of accessible measures to improve energy efficiency.
 - *“Equipment scheduling optimization is attainable for all”* (DOE)
- There is tremendous value to remote access to building documentation.
 - *“The importance of digitizing documents and processes to make them available from anywhere remotely”* (DOHMH)
- RTM and BMS play a crucial role in managing operations under changing conditions.
 - *“Having a real-time meter to monitor energy consumption in real time is very helpful to identify issues where there is unexpected energy usage in buildings that have reduced occupancy or are unoccupied”* (DOE)
 - *“BMS building controls should be expanded into buildings where equipment is currently being controlled by local controls. As we return to the ‘new norm’, buildings must be more adaptable to shifting schedules, operating areas, operating parameters, etc.”* (DOHMH)
- Careful building zoning is critical.
 - *“In future operations, increasing our portfolio’s BMS footprint would allow us to monitor ventilation and indoor air conditions, while improving energy efficiency”* (NYPL)
 - *“Remote monitoring and control of building systems can help curb energy use by economizing and cutting ventilation when buildings are unoccupied, which will be incredibly important to avoid wasting energy as we increase ventilation rates”* (NYPL)
- Careful building zoning is critical.
 - *“We plan to carefully consider HVAC zoning requirements for future new construction and renovation projects. If we can control zones better, we can have building staff operate in certain areas and shut equipment off when the opportunity presents”* (DOHMH)

Have you identified any resources relevant to building operators?

Respondents identified several resources, and also acknowledged that applying the right information—more so than finding it—is difficult.

Resource	Author/source	Number of times mentioned by respondent
<i>Epidemic Task Force Building Readiness/Reopening Guidance</i>	ASHRAE	
<i>COVID-19 Resources & Guidelines website (in development)</i>	DDC	
<i>EnerTrac</i>	DEM/NuEnergen	
<i>International Coronavirus Resource Center</i>	Building Owners and Managers (“BOMA”)	
<i>COVID-19 guidance</i>	Int’l Association of Museum Facility Administrators	
<i>COVID-19 Guidelines for Reopening Museums</i>	NYC Museums Reopening Task Force	

Do you have recommendations on efficiently pausing/restarting projects?

- Be realistic about what is feasible to achieve under current conditions, especially for expense projects.
 - *“Take the time to re-assess what is feasible within the year and cancel what is not” (DCAS)*
- Prioritize projects in terms of determining which must be completed immediately or should be the first to resume.
 - *“One of the things H+H did well was to perform an analysis of all projects to determine which were critical and could continue during the pandemic and which ones would be halted. A number of non-critical projects have begun ramping up again and the process has been generally seamless” (H+H)*
- Cross-reference emergency work with existing projects.
 - *“COVID-19 testing labs were added to some of our health centers... We cross-referenced these projects with existing ongoing energy projects to ensure work (e.g., lighting upgrades) were not duplicated” (DOHMH)*
- Maintain open communication with vendors to the extent possible.
 - *“We stayed in close communication with our contractors to keep them up-to-date on being able to resume work and provide them with guidance and required documentation on new building access policies” (DOE)*
 - *“Maintaining communication with vendors was helpful. For one LED upgrade, we had to pause the project after materials were purchased, and the vendor is storing them free of charge until we are able to install” (NYPL)*

Current Challenges

What are the major challenges you're facing related to building operations? (1/2)

- Funding restrictions (both current and anticipated).
 - *“Obtaining funding to replace/upgrade equipment is a particular challenge”* (H+H).
 - *“Lack of funding and resources to repair and maintain building equipment”* (DOE)
 - *“Budget restrictions preventing capital outlays for projects in design and pre-construction phases”* (DCAS)
- Contracting constraints (both current and anticipated).
 - *“Limited contracting capacity makes it challenging to resume normal building operations”* (DOHMH)
- Staffing constraints (insufficient number of staff, staff not trained for new demands).
 - *“Numerous concurrent demands on limited staff”* (DOE)
 - *“A number of cultural institutions have needed to furlough or otherwise downsize their staff, which may create challenges for ongoing project management and building operations”* (DCLA)
 - *“Since COVID-19 test centers are planned to operate 24/7, they will definitely put additional strain on our resources... limited staffing capacity will make it challenging to resume normal building operations”* (DOHMH)
 - *“Without BMS in place, ventilation (damper position and fan operation) has to be manually adjusted by branch”* (NYPL)
- For some agencies, building use continues to evolve in real time.
 - *“Building use continues to change dramatically, so plans drafted will be outdated in the short term”* (DCAS)

What are the major challenges you're facing related to building operations? (2/2)

- Managing both energy efficiency considerations and public health requirements.
 - *"How to keep a building energy-efficient while being compliant with public health guidelines?"* (DCAS)
 - Planning for increased facility cooling needs, given staff wearing PPE
- Ongoing uncertainty regarding occupancy patterns.
 - *"Uncertainty regarding occupancy levels, in terms of both numbers and duration of different possible scheduling scenarios across each building"* (DOE)
 - Need for clear guidance about how to resume fieldwork across the City
- System failure risks associated with increased ventilation.
 - *"Ventilation in a portfolio of buildings of which the average age is about 90 years old"* (DCAS)
 - *"The majority of DOE buildings do not have modern ventilation systems, and many buildings have older central HVAC systems and equipment in need of repair, so there are issues with how to provide adequate ventilation of buildings are re-occupied"* (DOE)

Figure 2. Responses Re: Major Challenges

time projects funding make building staffing
challenge ventilation

Are there questions at your agency that you don't feel prepared to address?

- What is the future of projects that have been put on hold?
 - “How do we respond to users for projects on hold?” (FDNY)
- What are the ventilation standards, and how can they be achieved?
 - “*What is the requirement for minimum air change per hour in office spaces? Are we going to utilize MERV 13 filters?*” (DOHMH)
- How can we best manage both energy efficiency considerations and public health requirements?
 - “*How can we continue to support and drive energy efficiency at buildings in light of the COVID crisis when limited numbers of occupants return?*” (DOE)

Agency Profiles

Agency Profiles Overview

The following slide summarizes the responses to questions 12-18.

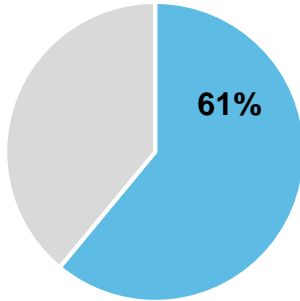
Please note that responses reflect the perspectives of the individual respondents, not agencies. In addition, note that response data was not benchmarked.

Figure 3. Agencies Profiled (*indicated in blue*)

CUNY	DOHMH	H+H
DCAS	DOT	MOS
DCLA	DPR	NYBG
DDC	DSNY	NYPD
DEP	EDC	NYPL
DOC	FDNY	OCME
DOE	FIT	SCA

Agency Profiles

Average % of required information known about agency bldg. operations moving forward:



n=15; range: 0-99

Average readiness to resume bldg. operations across agency portfolio:

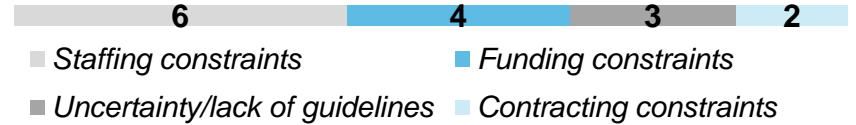


Not ready at all

Very ready

n=17; range: 1-10

Barriers to achieving readiness (count response by category)*



Discussions about managing public health req's. and EE considerations (count response of agencies where discussions have occurred) n=12



Intent to install disinfection technologies (count response by agency) n=12



Intent to develop bldg.-specific operating plans (count response by agency) n=12



*Some agencies identified multiple barriers to achieving readiness.

DCAS

THANK YOU