Checklist for building assessment - NRES285

This checklist is designed to help:
1. Obtain sustainability information about current building practices
2. Establish baseline data for a 'building profile'
3. Establish consistency across groups and buildings
4. Deliver sustainability story or big picture assessment

By accomplishing the above items, we can better understand the role buildings have in achieving iCAP goals. By knowing what is happening within a building, the university can focus efforts to increase sustainability where it is most needed, and reward buildings and departments for the progress they have made.

This building assessment is designed for you to provide an analysis of the building based on key sustainability themes. Any extra information, history, or details provided will be useful in telling the story of the building.

- Building profile
- Energy
- Waste
- Land & Water
- Transportation
- Engagement

Checklist item	Data Building/site plans provided by F&S	Data source (how to identify)	Results (example)	Things to consider/ potential improvements
Building Profile				
When was this building constructed?		Space spreadsheet, talk to facility liaison		When was the last time the building was remodeled? What systems and assets were updated in the last remodel?
Is the building LEED Certified? If yes - what level?		https://fs.illinois.edu/services/utilities-energy/energy-conservation/projects	No	Could we consider using the LBC system from the International Living Future Institute? Could we retrofit any of the buildings to become completely regenerative in the next decade? https://living-future.org/lbc/
What is the total square footage? What is the usable square footage?		Space spreadsheet, talk to facility liaison	100,000 sq ft	
How many classrooms exist in the building?		Space spreadsheet, look at a map, go around and manually count; identify which are departmental classrooms and which are managed by campus	# classrooms	think about energy usage per classroom, what classrooms are being used and which aren't
How many office spaces exist in the building?		Space spreadsheet, walk the building and	# of offices	Condition of offices

		count		
How many labs exist in the building?		Space spreadsheet, walk the building and ask facility liaison	# of labs	How often are each of the labs being utilized? Is there a possibility that the # of labs could change in favor of sustainability?
Do these labs have operational and running fume hoods that could be removed or turned off?				
How many and which departments occupy the building?		Space spreadsheet, walk the building (ask facility liaison)		
Energy				
What energy sources are provided to this building? What type(s) of energy does it consume?		Review EBS data to identify energy sources	solar, steam, natural gas, chilled water, other?	Can solar panels be added to the roof of the building?
What heating/cooling systems are used within the building?			Steam radiators? Chilled beams? Heat-recovery chillers?	Are they being used efficiently?
Are there building envelopes (doors or windows)? Do the doors have weather stripping? Can you feel wind through the door, and are there visible gaps to the open outside? If so, how many and where? Indicate maintenance needs as well.		Envelope is on the outside of the building; look at number, style, and quality/maintenance level of the doors and window		Determine condition of envelope, assess any maintenance needs (water residue, leaking, light gaps, open airways); How much energy is being lost to cracks in the door, open windows etc.?
Are there spaces in the building that are not being used or occupied?		Check room assignments and ask facility liaison	# of inappropriately used spaces	Could these spaces be reasonably used

Are offices/labs being used as storage? What is the space supposed to be used for compared to how it is actually used?				for their original purposes or if not could they be repurposed for a brand new more efficient purpose? Green Events Certification Program for scholastic activities/RSOs
How is the building being operated at 2 AM as compared to 2 PM?		Check availability/existence of automatic sensors or timers, ask facility liaison	Motion-sensor system in addition to timers (to save energy during the daytime when not in use)? Are those present?	Can the building be repurposed to stop using unneeded functions at night? For example Illini Lights Out shuts off lights at night what if the building can shut down unnecessary functions to conserve electricity.
How many automatic light sensors are used in this building?		-Count lights in building	150/200 light switches in this building are automatic	Do the non-automatic lights contribute greatly to energy usage? Where are the non-automatic lights located? If in offices, it may be more worthwhile to hand out stickers to remind people to turn off the lights when leaving. If they are in bathrooms or public spaces, it may be more worthwhile to upgrade light switches.
How many LEDs or Fluorescents exist?		Facility liaison	# of lights after a count	How many more can be converted if

				they are not all already converted? Are plans in place to convert?
Has this building been retrocommissioned ?		https://fs.illinois.edu/services/utilities-energy/energy-conservation/projects	Yes	Are there any recent updates in technology the building could be eligible for? Large energy intensive systems, heating/cooling, etc.
What is the deferred maintenance information for this building? Was there a deferred maintenance project funded?		https://fs.illinois.edu/services/capital-programs/deferred-maintenance Ask Facility Liaison		
What is the energy usage/emissions of this building?		https://fs.illinois.edu/services/capital-programs/deferred-maintenance/project-list analysis for each building: https://fs.illinois.edu/services/capital-programs/deferred-maintenance/facility-condition-reports https://fs.illinois.edu/services/capital-programs/deferred-maintenance/asset-management-plan)	X tons/yr	How does this compare to other buildings?
Are there labs? Do they have fume hoods? Do they have freezers? Do the labs participate in the Freezer Challenge?	Include info from Freezer Challenge assessment	Space spreadsheet, contact lab managers	3/10 labs in this building actively use energy star appliances	Are some of the fume hoods being used as chemical storage? If so, look at options for replacing them with chemical storage system. Is

				there a potential to recruit them to participate? Direct info to Freezer Challenge/Paul Foote.
Did the building (or dept. within) win an ECIP award?		https://fs.illinois.edu/services/utilities-energy/energy-conservation/ecip		What did they do with the funding from the award?
Are rooms with heating and cooling technology sufficiently insulated?		Check to see if heating/cooling is constantly running for room.		
Is there a system to make sure computers not in use are powered off each night?		Observation; can also talk to office occupants if possible	No, no one is in charge of shutting off public and general use computers &/or there is no other system in place	Are there lots of computer labs in this building? Possibly programming computers to shut down after so many hours of inactivity is a solution. Are there just a couple computers in classrooms? Possibly adding a sticker to remind users to shut off after use is an option?
Is there a system to make sure lights not in use are powered off each night?		Check back on how building is operated (should have been assessed above), add any necessary information (e.g.,building sensors)		Can this be applied to other appliances besides lights?
Is there abandoned equipment that could be unplugged?		Check appliances for dining and unrented restaurant spaces. Check with facility liaison.		

Are there any space heaters in use in the building? Where?				
Are the windows of this building double-pane?				Can we change them to double pane windows?
Waste				
How many recycling bins are in this building? Where are they located?	# of recycling bins	Visit building, obtain floor plan from F&S, count and map?		Are the bins being placed around the most accessible areas?
Are recycling bins in this building clearly labeled and have consistent information?		Visit building	No, bins have different information regarding what can and cannot be recycled.	Printing off F&S certified recycling signage and hanging at bins can be a simple fix to this issue.
What is the schedule for trash bag removal?		Contact F&S Building Services (via Randy Kornegay), check multiple times a day and note usage of each bin/when it is changed; ask facility liaison how often BSWs empty trash/recycling	date/time of removal	Checking bins could give information on which bins needs to be changed more often and if a certain area needs more available bins (ex: bin is always overflowing so add more). Are trash bags removed when completely full or on a daily basis? Are any bags reused?What barriers exist to waiting till the bag is full?
Are there trash bins without a paired recycling receptacle? If so, where?		Manually inspect. Also, talk to a facility manager about where to find trash bins	# of unpaired/isolated trash bins # of unsorted/nonseparated recycling bins	Talk to Shantanu (recycling@illinois.edu) about installing a recycling receptacle as well as considering

				adding sorted recycling/compost bins
Is there special waste disposal at this building? i.e. battery recycling, a composter, plastic bags, masks, etc (Specific waste disposal for PPE in labs or dining)	Area map	Visit building and talk with facility manager Count special waste receptacles	Yes, there is a composter	Is there a need for special recycling within this building? How can more people utilize the special recycling here? Is there a potential for a small countertop compost receptacle in kitchenette (e.g., NSRC building). Create survey questions to be included in report.
How many kitchenettes exist?		Space spreadsheet, ask someone responsible for information on usage; walk the building	# of kitchenettes (fridge+sink)	In the kitchen area, are they using single use products (e.g., Keurig, stir sticks, straws, plastics, etc.) or could some things be changed to reusable or cut out completely?
Is there a dedicated outdoor dumpster for this facility, or is it shared with other buildings?	Area map	Ask liaison/walk the building and do a count	# of Dumpsters, how many buildings utilize each dumpster	Depending on usage could a dumpster be shared by multiple buildings or could another dumpster be added? If liaison does not know, ask Shantanu (F&S)
Does the building have a cardboard only or paper only dumpster? Or does it have paper-only (for example) blue collection totes in the loading dock	Area map	Is contamination visible? (Do not dig around)		Is instruction clear for those unfamiliar to building?

area?				
Are there outdoor recycling bins on the site?	Area map			Is there litter around the building... Is an outdoor recycling bin needed? If so, contact Shantanu.
Is there contamination in recycling bins (non-recyclables in the bin)		Look inside bins	Mask bins have trash in them. Regular recycling bins are not contaminated.	Is the bin primarily used by regular building users or are people coming there to use it (i.e. mask bins may have people who usually don't use the building coming to dispose) How can this issue be solved? Better signage, campus-wide marketing, etc?
Is there a plan in place to evaluate the success of waste reduction programs in the building?		Ask the facility liaison		What could this plan look like if there is none?
Do the bathrooms have paper towels or hand dryers?		Check bathrooms; what color are the paper towels? Are the automatic paper towel dispensers putting out too much paper at once?		Could paper towels be replaced with hand dryers to reduce waste? Could I make a cost savings estimate to encourage this switch?
Does this building have a sizable amount of food waste (i.e. a building with a dining area or cafe)?		Liaison/dining area managers		What is being done with this food waste? Is there an opportunity to make this disposal more sustainable?
Land & Water				
Are there plantings within	Area map	Visit buildings, speak	Yes, there are	Could I propose

500 ft of this building? Do they utilize native plants?		with grounds manager	plantings. No, they are not native plants.	and design a native planting bed? Is there a potential to add native plants, flood prevention
Does the facility manager do any landscape or external maintenance to the building?		Ask liaison	Yes or no, what has been done recently	Is any maintenance required? Is it feasible? What could the timeline be for this maintenance? Is safety an issue?
How many of the water fixtures are low-flow? Include flush rates of urinals and toilets.	_____ (#)	Flush rate units: GPF(gallons per flush)/ GPM (gallons per minute)		Can we install any zero-flush urinals in the men's restrooms? Discuss with liaison if plans are already in place or if a plan is needed.
How many WaterSense certified appliances does it have?		Scan the appliances and define if they are certified; facility liaison may know about appliance upgrades		
Are there bare spots around the building?				Is there a reason for the bare spot? Are there areas that need to be highlighted with landscape plantings, by main entrances?
Are there spaces where vehicles are driving over the yard, or at corners?		Walk the perimeter and assess sit down take a look		Why is this being done? What can be done to avoid it? Can Post & Chain fence be installed? Or a small lip/curb, with curb cuts as needed?

Are there any leaks or running water?	_____ (Y/N) (#)	Ask liaison Check piping & fixtures around building	Where?	
Does the facility liaison communicate with F&S grounds?	_____ (Y/N)			
Are the Grounds irrigated? By hard infrastructure, or by Grounds Workers? How often, and at what volume?	_____ (Y/N)	Ask liaison		Could greener water irrigation infrastructure be installed instead, if not present already?
Does the site have green rainwater infrastructure?	Area map			Does the building have areas that flood that could be fixed with rain gardens or other green rainwater infrastructure?
How many trees are on the site, and could more be added? Could more trees be added specifically near windows that get a lot of sun to cut down on glare and energy usage?	Area map	https://icap.sustainability.illinois.edu/project/campus-tree-inventory	# of trees # of unshaded windows	check with Grounds to confirm about the potential for more trees
How many water bottle filler stations exist?	_____ (#)			What kind of fillers are they? There is an expensive style and a lower cost version. Potential for more or replacement of traditional water fountains?
Is there a mechanism in place to collect rainwater?		Ask Liaison about cistern.		Can rainwater be recycled on site? Can rain barrels or related utilities be installed? Is that too costly to do?

Are there any existing permeable pavements?		Walk around. Pour some water on it and see if it goes in or not.		Many of the pavers around campus have impermeable concrete underneath them for the aesthetic and safety value (to avoid trip hazards). Could permeable pavements be a possible solution? The City of Urbana charges based off impermeable pavement sq. footage. Could this concept be used to compare my building to other buildings on campus? How could this be used to promote more green infrastructure?
Are there areas around the building where water is pooling- either on pavement or on the yard?				Do we need to adjust grading in the landscape or hardscape to reduce ponding? Rain Gardens or Permeable pavements to be considered.
Are there large expanses of reflective windows where bird strikes may occur?				Consider window replacements or window treatments to reduce the loss of birds from impact.
Transportation				
What are the related transportation plans for		Arrange a call with Stacey DeLorenzo to		

this site, and when are they anticipated to occur?		discuss the specific location.	
What are the active transportation facilities for these buildings? Are there enough bike racks? Are there special facilities (such as a covered bike rack or a long-board storage system)?		Bike.illinois.edu	
Have Veorides$^©$ made a positive impact on bike ridership to the building?		Ask Liaison. Count Bikes	# of veorides$^©$	
If a building has a bike rack, what condition are they in? Are there old/abandoned bikes locked to it?		Count 'em	
How close is the bus stop and how often does the MTD serve the nearest stop? Is there a bus shelter at the stop?		MTD website; look at existing sites and look at where people wait for the bus.		Does it have appropriate waste receptacles? Where do people wait for the bus? Is it inside or in a bus shelter? Does the building have a digital sign noting when the next buses are expected, inside the building?
Are all the sidewalks around the facility (~500 ft) accessible and in good condition? If there is a traffic signal at the site, does it have audible warnings for the visually impaired?			
Do the sidewalks around the facility (~500 ft) show signs that they are not		Check surrounding area and condition of both the sidewalk	Any sidewalks<6ft. wide	

wide enough or are not in the places where people usually walk? Are there "goat paths"?		and the surrounding area, do an observation during a high traffic time		
Are there programs that incentivize faculty and staff car pooling (more so without covid)? Is there a zipcar location close to the facility? If not, where is the closest one?		Zipcar.com		Reference: Clear The Air Challenge (takes place along the Wasatch Mountain Front in Utah) Do you find that there is an interest or availability in faculty/staff carpooling?
Engagement				
What are the building communication channels? ● Communication departments ● Bulletin boards ● List-servs ● Digital signage		Walk around building, talk to facility liaison		How can we better inform people in the building the changes we want to implement? Do members of the building receive info better by email or bulletin board. Find by talking to building liaison and ask if there is an opportunity for students to interact with communication channel.
On average, how many people are estimated to frequent the building each day?		Ask Liaison or measure over a given period of time and extrapolate		How many of these people are everyday workers vs visitors?
How many offices within the building are "Certified Green"?				
If not already, can the				Potential for Green

building (easily) get "Certified Green" overall?				Building Certification Program?
Does the building have an engagement social media page? (Instagram, Twitter, Tik Tok)		Ask Liaison	Yes/No	Recommend making Tik/Tok and catching up on all relevant memes