**Resources for Chapter 5. Energy Conservation and Building Standards**

## 2010 iCAP conservation strategies:

* Allocate proper maintenance funds to sustain energy reductions. Increase support for maintenance with an emphasis on energy conservation.
* Any new buildings should be net energy neutral or a net energy provider by 2025.
* Apply LEED Gold construction standards to all construction projects without certification, including waste management.
* Bill energy usage to colleges by 2011, and empower colleges to decentralize billing to departments as warranted.
* Construct a direct-digital control command center to monitor temperature control by Dec. 2012.
* Convert all remaining fume hoods to variable air volume (VAV) systems with heat recovery.
* Convert constant air volume reheat to variable air volume.
* Currently planned projects will/should show at least 30% better performance than latest ASHRAE baseline for total building energy.
* Demolish certain buildings of low historic value/significance if their deferred maintenance deficiency value is greater than current replacement value.
* Educate building occupants + public through real-time energy displays in buildings and electronic media. Publish a website that shows this data for campus buildings, use a computer science class to create it.
* Educate groups and individuals on correct operation of fume hoods and the importance of shutting the sash when not is use.
* Eliminate summer steam usage (reheat).
* Freeze on new buildings and additions once current planned projects are completed. Any new space must decommission an equivalent existing space, and retrofits may not increase building energy consumption.
* Impose charges for carbon offsets in contracts with energy users of similar scope to Petascale.
* Improve Envelopes in buildings, Replace windows, inprove insulation levels, retro-fit entry ways via renovation projects
* Improve roof reflectivity, and increase ability to hold green roofs
* Increase insulation on hot water tanks.
* Larger-scale renovations or replacements of the existing building stock. “Green Buildings” with new low-energy building standards.
* LEED certification to Gold by 2011 and Platinum by 2015.
* Maintain steam system, including trap replacement, pipe insulation and cleaning ducts.
* No net increase in space by 2012, including aux. units and rentals.
* Pursue strategies to slow the amount of increased square footage by judiciously examining existing space. - space marketplace
* Reduce and consolidate computer server instances.
* Reduce the number of fume hoods in operation by 20-25%.
* Reorganize building maintenance procedures to support long term energy savings.
* Replace desktop computers with thin client computers.
* Replace T12 lighting fixtures with T8 (or T5) fixtures and electronic ballasts, including in smaller campus buildings. Replace other lighting fixtures (besides T12). Install a wide deployment of occupancy and daylight sensors.
* Retro commissioning, with revisits every 5 to 8 years to maintain.
* Temperature setbacks (lower temperatures from about 9pm to about 6am and weekends)
* Tighten building infiltration and exfiltration. Basic simple weatherization of campus buildings, via maintenance
* Use F&S Energy liaisons and various campus sustainability committees as grassroots contacts for campus initiatives. Encourage departments to seek reasonable temperature settings in the buildings they occupy. Repeat awareness of Energy Use Policy.
* Use instantaneous and semi-instantaneous hot water heaters.
* Use standards more aggressive than Energy Star for appliances.
* Use technologies such as Wake or LAN to allow computers to be turned off at night but still maintained at night.
* Utilize recovered heat from chiller condensers and other sources.
* Variable speed drives for fans and pumps.
* Vegetative roofs

## FY13 summary of iCAP Progress:

## The iCAP goals are 20% energy reduction from building utilization, excluding Petascale, by FY15, 30% by FY20, and 40% by FY25. F&S has made a lot of progress on this through Utilities & Energy Services and some departments have contributed through energy conservation efforts in their facilities. Centrally managed energy conservation projects with quick payback (from six months to 5-10 years) are regularly identified, funded, and implemented. After these projects are completed in any particular location, there are typically increased preventive maintenance needs and additional projects identified that are often underfunded.

## Additionally, energy conservation efforts need to expand into behavior change efforts, with stronger cross-campus support of the conservation efforts. The initial steps in this effort include the energy consumption reports provided to each college, the Energy Conservation Incentive Program (ECIP), real-time energy displays online, and student energy conservation competitions such as Campus Conservation Nationals (CCN).

## Retrocommissioning (RCx) – Multi-disciplinary teams work through high energy-use buildings to re-commission the buildings, with an emphasis on HVAC systems and Controls and temperature setbacks (often referred to as “scheduling”). Each year, buildings are selected from the top 100 energy consumption buildings. By the end of FY13, the RCx teams completed 40 buildings, with an average of 26.5% energy reduction since beginning the program in FY08. In total, RCx efforts reduced energy costs by over $14M. RCx leaders are now reaching out to auxiliaries, such as McKinley Health Center, to identify funding.

## The 2010 iCAP noted that the RCx teams should revisit finished buildings every 5 to 8 years to maintain the energy savings. To address the need to modify building maintenance procedures to support long term energy savings, a new energy-focused Preventive Maintenance team is going into the first RCx buildings with composite crews. The preventative maintenance keeps the equipment well maintained to extend the life, avoid future repair cost by eliminating equipment failures, or keep such failures within limits. This work over time will reduce the maintenance backlog and drive down maintenance expenses while limiting degradation of energy savings achieved by Retro Commissioning and EPC projects.

## Lighting Retrofit (T-12 to T-8) – With support from F&S, grant agencies, individual departments, the Student Sustainability Committee, and the campus, 118,567 fixtures had been retrofitted by the end of FY13, saving 19,425,042 kWh/year. This program involves grant applications, prioritizing locations, and managing the design, implementation, and tracking aspects. The campus funded fixture retrofits are very close to completion; however, there are several T-12 fixtures in departmentally funded areas on campus, such as large equipment like walk-in refrigerators. Departments with T-12 fixtures need to be informed of the requirement to replace these fixtures, so that the transition can be fully completed.

## In addition to replacing T-12 fluorescent lights, there are many other types of luminaires throughout campus, including incandescents, compact fluorescents, and high intensity discharge (HID) fixtures, such as metal halide, mercury vapor, and high pressure sodium. Many of these are being replaced with LED fixtures. There is an opportunity to develop a crowd-source system for locating old lighting fixtures throughout campus.

## LED Campus – Chancellor Wise committed us to being an LED Campus on the 50th anniversary of Dr. Holonyak’s demonstration on campus of the first visible LED. She said “This will make us the first LED university campus in the United States, with interior and exterior wayfinding fixtures to be replaced by 2025 and with the majority of all lighting to be LED by 2050.” F&S is working with the Parking Department to upgrade various parking lots to be LED, with the consideration of energy efficient bi-level lights. Additionally, Exit signs in various buildings have been upgraded to LED exit signs (these are the interior wayfinding fixtures). Currently, we do not have a tracking system for LED installations, at the campus-wide level. There have been numerous small installations of LEDs, large capital projects with LEDs, and the exit signs and parking lot installations. We need to create a campus-wide tracking system for these installations.

## Deferred Maintenance Energy Projects – The AFMFA project selection committee had life safety and energy conservation as top priorities for project selection for a few years. Projects that have a positive impact on energy use for campus are noted as such on the Deferred Maintenance website. The majority of these projects were envelope repair projects. This program also provided initial funding for RCx and the Lighting Retrofits.

## The 2010 iCAP included a recommendation to do basic simple weatherization of campus buildings, via maintenance. To support this effort, the F&S Building Maintenance team worked with teams of students from various sustainability-related groups to identify weatherization needs in six small houses on campus. The results showed a decrease in the typical energy demand for electricity and natural gas. Typical electricity use for all six buildings together declined 23% comparing the average consumption in FY10 and FY11 to the actual consumption in FY13. This included non-weatherization efforts such as consolidating refrigerators and turning off computers at night. There is still the need for a campus-wide effort to install weather stripping on the majority of entryways for all campus buildings.

## Pipe Insulation and Steam Trap Maintenance – F&S has two full-time pipe insulators working through the campus buildings to reduce energy loss in maintenance rooms, and two pipe fitters to replace steam traps. Also, contractors have been hired, on a case by case basis, to insulate steam distribution lines, identified by energy distribution personnel. In FY12, 61 buildings had pipe insulation, saving 154,078 therms of energy that year. One therm is equivalent to 100,000 BTU. A lot has been accomplished through this initiative, and there is a lot more to do. Also in FY12, steam trap maintenance was performed on over 750 steam traps throughout campus, saving an unmeasured amount of steam energy.

## Occupancy and Daylighting Sensors – Sensors can be helpful for both lighting conservation and HVAC load reduction. There have been many installed with past funding efforts through grants and the Student Sustainability Committee (SSC). In FY08 and FY09, the SSC provided funding to install 562 sensors, saving an estimated 251,800 kWh/year. Currently, a project is in design to install sensors in 21 buildings with funding from the Revolving Loan Fund.

## The 2010 iCAP included the recommendation that, by 2025, any new buildings should be net energy neutral or net energy providers. The initial attempt at this concept is nearing completion with the Net-Zero Energy Electrical and Computer Engineering Building (ECEB). This high-profile project is primarily the responsibility of the Department of Electrical and Computer Engineering. During the design and construction of this building, it became apparent that there are many ways to define net-zero energy. In this case, the sum of the building’s anticipated energy demand over the course of a year will eventually be approximately equal to the annual energy provided by the proposed renewable energy generation on site and on the associated parking deck. At this time, there are still funding needs for solar panels on both the building roof and the North Campus Parking Deck to achieve the desired energy generation. It is also important to understand that a net-zero energy building still relies on the campus energy supply at various times during the year.

## Energy Performance Contracts (EPC) – To date, two EPC projects have been completed with expected energy cost avoidance totaling $2M annually. A long-term plan has been developed for 18 buildings with a series of EPCs. These efforts are focused primarily on research facilities which have large energy demands. The first contract associated with the plan is expected to address five buildings with an EPC under contract by early FY15.

## Fume Hoods – F&S tracks the Fume Hoods that are in use around campus. The number of fume hoods cannot be unilaterally reduced across campus because of the life-safety requirements for various research efforts. When life-safety compliance can be met without the hood, fume hoods have been decommissioned or mothballed. In 2010, there were 1,725 chemical fume hoods on campus, of which 58 were mothballed. At the end of FY13, there were 1706 hoods, with 67 mothballed. Additionally, older fume hoods have Constant Air Volume fans, which are being replaced with Variable Air Volume fans through individual upgrade projects. The replacement of the fans is not centrally funded. There was also a helpful “shut the sash” educational campaign which needs to be revived and expanded throughout campus.

## Energy Dashboard – This project has a Sustainability Fellow to design a business plan for implementing real-time energy displays across campus. The students working with this professor will install a pilot version in the College of Business, assess the best implementation method, and provide recommendations to F&S by summer 2014. They are looking at how best to use the technology to gain behavior change from building occupants. The dashboard technology will also be used in student energy conservation competitions, such as Campus Conservation Nationals.

## Energy Conservation Incentive Program (ECIP) – This program was launched during FY14, and the award winners were notified of their winnings on Campus Sustainability Day, Oct. 23. There have been individual building award presentations with multiple representatives from each building to discuss the use of the awarded funds, and promote the energy conservation message. The 2010 iCAP recommended billing energy use to colleges and empowering them to decentralize billing to the department level. This was aimed both to incentivize energy conservation and to spread awareness of energy consumption patterns at the college and unit level.

## F&S is now providing energy billing information to each college on a monthly basis through the Energy Billing System (EBS). Facility managers receive energy consumption and cost information through the web-based EBS and its metering, billing, and reporting components. EBS allows units to evaluate the impact of changes in building heating, ventilation and air conditioning (HVAC) programming, including time-based calculations or building-to-building comparisons, on energy usage.

## Campus buildings are typically controlled by either a pneumatic or electronic system that is operated and maintained by F&S Systems & Controls. This group includes the Direct Digital Control (DDC) Programmers, the DDC Electricians, and the Temperature Control Mechanics. A significant effort is underway to update the existing control systems to current standards, improving efficiency and the building environment. The 2010 iCAP included the recommendation to construct a direct-digital control command center to monitor temperature control, and this center is complete. The increased efficiency of energy use for campus will continue to improve through the upgrades of controls systems to DDC options.

## The 2010 iCAP also recommended all of the following practices, and these are being incorporated into projects on campus, where appropriate: Use instantaneous and semi-instantaneous hot water heaters; convert CAV reheat to VAV; eliminate summer steam usage; use variable speed drives for fans and pumps; green and white roofs: and building energy requirements; Utilize recovered heat from chiller condensers and other sources.

## Replace desktop computers with thin client computers. Reduce and consolidate computer server installations. Use technologies such as Wake or LAN to allow computers to be turned off at night but still maintained at night. – status unknown

## Use standards more aggressive than Energy Star for appliances. – status unknown

## iCAP Portal conservation projects:

1. [Energy Conservation Projects](https://icap.sustainability.illinois.edu/project/energy-conservation-projects)
	1. [Convert Fume Hoods from CAV to VAV](https://icap.sustainability.illinois.edu/project/convert-fume-hoods-cav-vav)
	2. [Maintenance Division Energy Conservation Projects](https://icap.sustainability.illinois.edu/project/maintenance-division-energy-conservation-projects)
		1. [Update Building Maintenance Procedures to Support Long-Term Energy Savings](https://icap.sustainability.illinois.edu/project/update-building-maintenance-procedures-support-long-term-energy-savings)
		2. [AFMFA Energy Conservation Projects](https://icap.sustainability.illinois.edu/project/afmfa-energy-conservation-projects)
		3. [Pipe Insulation](https://icap.sustainability.illinois.edu/project/pipe-insulation)
		4. [Steam System Maintenance](https://icap.sustainability.illinois.edu/project/steam-system-maintenance)
		5. [Plant Sciences Window Shades](https://icap.sustainability.illinois.edu/project/plant-sciences-window-shades)
		6. [Reduce Active Fume Hoods](https://icap.sustainability.illinois.edu/project/reduce-active-fume-hoods)
	3. [Lighting Conservation Projects](https://icap.sustainability.illinois.edu/project/lighting-conservation-projects)
	4. [Energy Services Conservation Projects](https://icap.sustainability.illinois.edu/project/energy-services-conservation-projects)
		1. [Retrocommissioning (RCx)](https://icap.sustainability.illinois.edu/project/retrocommissioning-rcx)
		2. [Energy Recovery Wheels](https://icap.sustainability.illinois.edu/project/energy-recovery-wheels)
		3. [Energy Performance Contracting / ESCO](https://icap.sustainability.illinois.edu/project/energy-performance-contracting-esco)
		4. [Thermal Energy Storage (TES) Tank](https://icap.sustainability.illinois.edu/project/thermal-energy-storage-tes-tank)
	5. [ECE Net-Zero Energy Building](https://icap.sustainability.illinois.edu/project/ece-net-zero-energy-building)
	6. [Computers and Technology](https://icap.sustainability.illinois.edu/project/computers-and-technology)
		1. [Consolidate Servers with Virtualization](https://icap.sustainability.illinois.edu/project/consolidate-servers-virtualization)
		2. [Update and Enforce Campus Computer Policy](https://icap.sustainability.illinois.edu/project/update-and-enforce-campus-computer-policy)
		3. [Chip PC Thin Client](https://icap.sustainability.illinois.edu/project/chip-pc-thin-client)
2. [Changing Usage of Individuals](https://icap.sustainability.illinois.edu/project/changing-usage-individuals)
	1. [Energy Dashboard Project](https://icap.sustainability.illinois.edu/project/energy-dashboard-project)
	2. [Presentations with Energy Liaisons](https://icap.sustainability.illinois.edu/project/presentations-energy-liaisons)
	3. [Energy Conservation Incentive Program (ECIP)](https://icap.sustainability.illinois.edu/project/energy-conservation-incentive-program-ecip)
	4. [Energy Use Policy](https://icap.sustainability.illinois.edu/project/energy-use-policy)
	5. [Kill-a-Watt Monitors at Libraries](https://icap.sustainability.illinois.edu/project/kill-watt-monitors-libraries)
	6. [Student Competitions](https://icap.sustainability.illinois.edu/project/student-competitions)
		1. [Campus Conservation Nationals (CCN)](https://icap.sustainability.illinois.edu/project/campus-conservation-nationals-ccn)
		2. [Green Your Dorm](https://icap.sustainability.illinois.edu/project/green-your-dorm)
	7. [Fume Hood Shut the Sash Campaign](https://icap.sustainability.illinois.edu/project/fume-hood-shut-sash-campaign)

## Questions from the STARS report:

The technical manual for STARS is online at <https://stars.aashe.org/pages/about/technical-manual.html>.

Our report is online at <https://stars.aashe.org/institutions/university-of-illinois-urbana-champaign-il/report/2013-07-31/>. The credit references listed below, are connected with the online report, except that the credits below are from the STARS 2.0 version, and the online report is version 1.2.

|  |  |
| --- | --- |
| **Credit** | **Reporting Field** |
| AC-8.1.3 | Is the institution utilizing the campus as a living laboratory in the area of Buildings? |
| AC-8.1.4 | A brief description of how the institution is using the campus as a living laboratory for Buildings and the positive outcomes associated with the work |
| OP-3.1 | *Does the institution have any building space certified under the following green building rating systems for existing buildings?* |
| OP-3.1.1 | Does the institution have any building space certified under LEED for Existing Buildings or another 4-tier rating system used by an Established Green Building Council (GBC)? |
| OP-3.1.2 | Does the institution have any building space certified under the DGNB system, Green Star Performance, or another 3-tier GBC rating system? |
| OP-3.1.3 | Does the institution have any building space certified under BREEAM-In Use, CASBEE for Existing Building, or another 5-tier GBC rating system? |
| OP-3.1.4 | Does the institution have any building space certified under other non-GBC rating systems (e.g. BOMA BESt, Green Globes)? |
| OP-3.2 | A brief description of the green building rating system(s) used and/or a list or sample of certified buildings and ratings |
| OP-3.3 | Total floor area of eligible building space (operations and maintenance) |
| OP-3.4 | *Floor area of building space that is certified at each level under a 4-tier rating system for existing buildings used by an Established Green Building Council:* |
| OP-3.4.1 | Floor area that is certified at minimum level under a 4-tier GBC rating system for existing buildings |
| OP-3.4.2 | Floor area that is certified at the 3rd highest level under a 4-tier GBC rating system for existing buildings |
| OP-3.4.3 | Floor area that is certified at the 2nd highest level under a 4-tier GBC rating system for existing buildings |
| OP-3.4.4 | Floor area that is certified at the highest achievable level under a 4-tier GBC rating system for existing buildings |
| OP-3.5 | *Floor area of building space that is certified at each level under a 3-tier rating system for existing buildings used by an Established Green Building Council:* |
| OP-3.5.1 | Floor area that is certified at minimum level under a 3-tier GBC rating system for existing buildings |
| OP-3.5.2 | Floor area that is certified at mid-level under a 3-tier GBC rating system for existing buildings |
| OP-3.5.3 | Floor area that is certified at the highest achievable level under a 3-tier GBC rating system for existing buildings |
| OP-3.6 | *Floor area of building space that is certified at each level under a 5-tier rating system for existing buildings used by an Established Green Building Council:* |
| OP-3.6.1 | Floor area that is certified at minimum level under a 5-tier GBC rating system for existing buildings |
| OP-3.6.2 | Floor area that is certified at the 4th highest level under a 5-tier GBC rating system for existing buildings |
| OP-3.6.3 | Floor area that is certified at mid-level under a 5-tier GBC rating system for existing buildings |
| OP-3.6.4 | Floor area that is certified at the 2nd highest level under a 5-tier GBC rating system for existing buildings |
| OP-3.6.5 | Floor area that is certified at the highest achievable level under a 5-tier GBC rating system for existing buildings |
| OP-3.7 | Floor area of building space that is certified at any level under other green building rating systems for existing buildings |
| OP-3.8 | Floor area of building space that is maintained in accordance with formally adopted sustainable building operations and maintenance guidelines or policies, but not certified |
| OP-3.9 | A copy of the sustainable building operations and maintenance guidelines or policies |
| OP-3.10 | The date the guidelines or policies were formally adopted |
| OP-3.11 | A brief description of the sustainable building operations and maintenance program and/or a list or sample of buildings covered |
| OP-3.12 | A brief description of how the institution ensures compliance with sustainable building operation and maintenance guidelines and policies |
| OP-3.13 | The website URL where information about the institution’s certified buildings and/or sustainable operations and maintenance guidelines or policies is available |
| OP-4.1 | *Does the institution have any building space certified under the following green building rating systems for new construction and major renovations?* |
| OP-4.1.1 | Does the institution have any building space certified under LEED or another 4-tier rating system for new construction and major renovations used by an Established Green Building Council (GBC)? |
| OP-4.1.2 | Does the institution have any new building space certified under the DGNB system, Green Star, or another 3-tier GBC rating system for new construction and major renovations? |
| OP-4.1.3 | Does the institution have any building space certified under BREEAM, CASBEE, or another 5-tier GBC rating system for new construction and major renovations? |
| OP-4.1.4 | Does the institution have any building space certified under the Living Building Challenge? |
| OP-4.1.5 | Does the institution have any building space certified under other non-GBC rating systems for new construction and major renovations (e.g. BOMA BESt, Green Globes)? |
| OP-4.2 | A brief description of the green building rating system(s) used and/or a list of certified buildings and ratings |
| OP-4.3 | Total floor area of eligible building space (design and construction) |
| OP-4.4 | *Floor area of building space that is certified at each level under a 4-tier rating system for new construction and major renovations used by an Established Green Building Council:* |
| OP-4.4.1 | Floor area that is certified at minimum level under a 4-tier GBC rating system for new construction and major renovations |
| OP-4.4.2 | Floor area that is certified at the 3rd highest level under a 4-tier GBC rating system for new construction and major renovations |
| OP-4.4.3 | Floor area that is certified at the 2nd highest level under a 4-tier GBC rating system for new construction and major renovations |
| OP-4.4.4 | Floor area that is certified at the highest achievable level under a 4-tier GBC rating system for new construction and major renovations |
| OP-4.5 | *Floor area of building space that is certified at each level under a 3-tier rating system for new construction and major renovations used by an Established Green Building Council:* |
| OP-4.5.1 | Floor area that is certified at minimum level under a 3-tier GBC rating system for new construction and major renovations |
| OP-4.5.2 | Floor area that is certified at mid-level under a 3-tier GBC rating system for new construction and major renovations |
| OP-4.5.3 | Floor area that is certified at the highest achieveable level under a 3-tier GBC rating system for new construction and major renovations |
| OP-4.6 | *Floor area of building space that is certified at each level under a 5-tier rating system for new construction and major renovations used by an Established Green Building Council:* |
| OP-4.6.1 | Floor area that is certified at minimum level under a 5-tier GBC rating system for new construction and major renovations |
| OP-4.6.2 | Floor area that is certified at the 4th highest level under a 5-tier GBC rating system for new construction and major renovations |
| OP-4.6.3 | Floor area that is certified at mid-level under a 5-tier GBC rating system for new construction and major renovations |
| OP-4.6.4 | Floor area that is certified at the 2nd highest level under a 5-tier GBC rating system for new construction and major renovations |
| OP-4.6.5 | Floor area that is certified at the highest achievable level under a 5-tier GBC rating system for new construction and major renovations |
| OP-4.7 | Floor area of building space certified Living under the Living Building Challenge |
| OP-4.8 | Floor area of building space that is certified at any level under other green building rating systems for new construction and major renovations |
| OP-4.9 | Floor area of building space that was designed and constructed in accordance with green building policies or guidelines but NOT certified |
| OP-4.10 | A copy of the guidelines or policies  |
| OP-4.11 | The date the guidelines or policies were adopted |
| OP-4.12 | A brief description of the green building guidelines or policies and/or a list or sample of buildings covered |
| OP-4.13 | A brief description of how the institution ensures compliance with green building design and construction guidelines and policies |
| OP-4.14 | The website URL where information about the institution’s certified buildings and/or green building design and construction guidelines or policies is available |
| OP-5.1 | Floor area of building space covered by an indoor air quality (IAQ) management program that meets the criteria for this credit |
| OP-5.2 | Gross floor area of building space |
| OP-5.3 | A brief description of the institution’s indoor air quality program(s) |
| OP-5.4 | The website URL where information about the institution’s indoor air quality program(s) is available |
| OP-8.10 | A brief description of any occupancy and/or vacancy sensors employed by the institution |
| OP-8.14 | A brief description of any building recommissioning or retrofit program employed by the institution |
| OP-8.15 | A brief description of any energy metering and management systems employed by the institution |
| OP-8.19 | A brief description of other energy conservation and efficiency initiatives employed by the institution |
| OP-8.7 | A brief description of when and why the building energy consumption baseline was adopted |
| OP-8.8 | A brief description of any building temperature standards employed by the institution |
| OP-8.9 | A brief description of any light emitting diode (LED) lighting employed by the institution |
| OP-8.16 | A brief description of the institution's program to replace energy-consuming appliances, equipment and systems with high efficiency alternatives |
| OP-8.18 | A brief description of any vending machine sensors, lightless machines, or LED-lit machines employed by the institution |
| OP-8.20 | The website URL where information about the institution’s energy conservation and efficiency initiatives is available |
| PA-2.27 | A brief description of the plan(s) to advance sustainability in Buildings |
| PA-2.28 | Does the institution have formally adopted plans to advance sustainability in Buildings? |
| PA-2.29 | Do the Buildings plan(s) include measurable objectives? |
| PA-2.30 | The measurable objectives, strategies and timeframes included in the Buildings plan(s) |
| PA-2.31 | Accountable parties, offices or departments for the Buildings plan(s) |