Facilities & Services
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Revolving Loan Fund Project Selection

FY2017

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Facilities & Services
Physical Plant Services Building
1501 South Oak Street
Champaign, IL 61820

April 28, 2017

Revolving Loan Fund Committee Members,

Thank you for participating in this year's Revolving Loan Fund project selection process. Fortunately, it's a process you are familiar with and we thank you for your continued involvement. The Revolving Loan Fund is another tool our campus has to execute utility conservation projects and is structured in a way that solicits project requests from various campus units. Some of the requests have come from units outside of Facilities & Services which demonstrates the collaborative effort taking place throughout campus in addressing conservation needs.

For this selection we have ten projects totaling approximately $820K with approximately $1.1M available in the fund. All projects have been vetted through the Utilities & Energy Services Division of Facilities & Services and have met all of the base criteria.

Some projects will score better against the various criteria, which is where your involvement is critical. Your charge is to score each of the identified criteria for each project on a scale of 1 to 10. When all score sheets are completed by each committee member and turned in, the scores will be compiled and the weights will be applied in the Excel tool created specifically for this selection process. A ranking will be generated and the committee will see how each project compared against the others. Since there is more money available than proposed funding requests, it is possible for all proposed projects to be funded. However if the committee decides, projects can be removed or shelved until future selection meetings.

Again, thank you for your participation.

Josh Whitson
Engineer Specialist, Utilities and Energy Services

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PROGRAM FACT SHEET

Revolving Loan Fund

The Revolving Loan Fund (RLF) was established in 2011 as a financing source for utility conservation projects requested by departments with less than a ten-year payback period. The savings from steam, electricity, chilled or potable water costs are paid back annually, based on initially calculated savings.

MAJOR CONTRIBUTORS

The Office of the Chancellor $1.25M
Student Sustainability Committee (SSC) $500K
The Office of the President $750K
Bonneville Environmental Foundation $500K

F&S will solicit project recommendations when there is at least $1M available to allocate. Facility managers are encouraged to submit potential qualifying projects, using the online submittal form at **go.illinois.edu/RLF**.

SELECTION PROCESS

Project selection is handled by the RLF Committee which includes the Executive Director of F&S, Associate Provost for Capital Planning, Associate Vice Chancellor for Research, Associate Vice Chancellor for Student Affairs, Student Sustainability Committee Chair, Illinois Student Senate President, and an Institute for Sustainability, Energy, and Environment representative. The Committee will meet on a semiannual basis to select projects to fund.

There are five selection criteria (and weights) used by the RLF Committee when determining funding allocations.

1. **Payback Period (30%)** – Project has a short payback period.
2. **Reduction of Greenhouse Gas (25%)** – Does this project reduce greenhouse gas emissions for campus?
3. **Revolving Loan Fund Size Impact (20%)** – Projects that increase the revolving loan fund size through grants or additional allocations.
4. **Visibility (5%)** – How visible/noticeable is the project to users of the facility, space, and/or campus community?
5. **Project Coordination (20%)** – Projects that can be executed in conjunction with other planned or ongoing projects. The intent of the coordination is to make the RLF project more efficient to deliver for the University and/or departments.

PROGRAM CONTACT:

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MEDIA CONTACT:

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Publication Date: 3/1/16 • fscustomerrelations@illinois.edu

Facilities & Services
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Revolving Loan Fund 2015 Agreement

Program Conceptualization

1) In 2011 a Revolving Loan Fund (RLF) was established for utility conservation projects at the University of Illinois Urbana-Champaign. The original fund sources consisted of contributions of $1M, $500K and $750K from the Office of the Chancellor, the Student Sustainability Committee (SSC), and Office of the President respectively. An additional contribution of $750K has been received from the Bonneville Environment Foundation.
2) The RLF is managed by Facilities and Services Utilities and Energy Services.
3) Savings from a RLF project will be calculated using the fully loaded rate. The maximum payback period for a project to be considered for the RLF is 10 years. The loan will be repaid with an annual payment equal to the calculated annual savings until the loan is fully repaid. When a project is funded by multiple funding sources, the annual savings to be returned to the RLF will be calculated by the payback associated with the work completed by the entire project.
    a. For example, Project A costs $500K and has a $100K per year payback. The RLF contributes an additional $400K to increase the scope of work and increase the savings by $250K per year. Thus, the total project would cost $900K with an annual cost savings of $350K per year. The RLF would be repaid at $350K per year until the original loan amount is repaid.

Project Submission

4) Potential projects will be solicited from campus units. The solicitation will be at a minimum in the form of an e-mail from FandS Customer Relations and Communications.
5) Projects will be submitted through a web based form which will include the following applicable items to be completed by the requesting department:
    a. Submitted by: Full Name
    b. Project contact within department: Full Name
    c. Email address
    d. Department requesting project
    e. Associated building name
    f. Description of utility savings measure
    g. Departments affected by project
    h. Specific area work is to be performed
    i. Detailed construction cost budget

j. Estimated utility and greenhouse gas savings with calculations
Utility rates: http://www.fs.illinois.edu/services/utilities-energy/business-operations
Provide:
   i. Annual Utility Consumption Savings
   ii. Annual Dollar Savings
   iii. Annual CO2 reduction or CO2 equivalent if other greenhouse gas

k. Describe how the project meets the selection criteria
   i. Payback Period
   ii. Reduction of Green House Gas Emissions
   iii. Fund Size Impact
   iv. Visibility
   v. Project Coordination

l. Other information pertinent to project

6) Any incomplete submissions will not be considered. Assistance through F&S may be available upon request to help complete necessary information.

Web based PDF form location: F&S website http://fs.illinois.edu/services/utilities-energy/business-operations/revolving-loan-fund

Project Selection

7) Project selection will be handled through the RLF Loan Committee (the "Committee").
   a. The Committee includes the following representatives:
      i. Executive Director of Facilities and Services
      ii. Associate Provost for Capital Planning
      iii. Associate Vice Chancellor for Research
      iv. Associate Vice Chancellor for Student Affairs
      v. Student Sustainability Committee Chair
      vi. ISS President
      vii. Institute for Sustainability, Energy, and Environment representative
   b. The members of the Committee will meet on a semiannual basis to approve/reject projects. For projects to be considered at semiannual meetings, all items identified under the "Project Submission" section needs to be complete. Semiannual meetings will not be necessary if projects have not been submitted or if funds are not available. Projects may be evaluated outside of the regular meetings on a case by case basis, if approved by Facilities and Services Utility and Energy Services.

8) Criteria (and weights) for allocation of monies from the fund will be:

01. Payback Period (30%)
Project has a short payback period.
02. Reduction of Greenhouse Gas (25%)
Does this project reduce the use of greenhouse gas?
03. Revolving Loan Fund Size Impact (20%)
Projects that increase the revolving loan fund size through grants or additional allocations.
04. Visibility (5%)
How visible/noticeable is the project to users of the facility, space, and/or the campus community?
05. Project Coordination (20%)
Projects that can be executed in conjunction with other planned or ongoing projects. The intent of the coordination is to make the RLF project more efficient to deliver for the University and/or department.

Growth of the RLF

9) The RLF will grow through the following methods.
   a. The Chancellor, President, or SSC can elect to increase the fund through a direct allocation. The Office of the Chancellor has agreed that future contributions to the RLF from the SSC will be matched by Campus, up to a cumulative total of $500,000.
      i. Note: The SSC can elect to fund a project directly and require the funding recipient to submit the project to the RLF for payback. If the RLF committee approves the project, the utility savings from the project can be paid back to the RLF over the payback period, at the variable utility rate, by the Campus Utility Budget to grow the fund. This agreement would be documented in the Memorandum of Understanding between F&S and project department. The SSC funds allocated directly to a project are not eligible for matching campus funds.
   b. When a selected project is eligible for grant funding (for example through Department of Commerce and Economic Opportunity - DCEO or Illinois Clean Energy Community Foundation - ICECF), the project is not for an auxiliary, and F&S handles the grant application and accounting, the grant dollars will contribute to the growth of the RLF.
      i. For example, Project A costs $900K and has a 3-yr payback period. It is funded by the Revolving Loan Fund. Project A gets a grant for $300K. The grant funds offset the loan fund charges, but project A is still responsible for repaying $300K/year for 3 years. The result is an increase to the Loan Fund of $300K. (This simple example doesn't include interest calculations.)
   c. When a selected project is an auxiliary and they request a grant, the auxiliary has control of the grants funds and may use them to reduce their project costs.
   d. The loan will be repaid at a fixed 1% interest rate.

Confirmation of Review:

Student Sustainability Committee:

Date: 12-3-15

Vice Chancellor of Research:

Peter Schiffer, Vice Chancellor for Research

Date: 12/4/15

Office of the Provost:

Vicky Gress, Associate Provost for Budget

Date: 12/8/15

Approval:

Facilities and Services:

Al Stratman, Executive Director

Date Approved: 1/27/16

Facilities & Services
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

LED Lighting Upgrade

Campus Walkways

Project #1 LED Lighting Upgrade

Project Type: Lighting Upgrades

Buildings: Campus Walkways

Energy Cost Savings: $9,300 annually

Funding Request: $58,000

Project Cost: $58,000

Payback Period: 6 yrs

General Description of Work: This project will replace approximately 350 globe lights with LED fixtures. Areas that will be affected range from the Northern edge of campus near Beckman Institute to as far South as the Stock Pavilion and many walkways between those two particular buildings. The map on the following page indicates proposed locations highlighted in yellow.

Project Owners / Execution Contact:
Morgan Johnston

LED Lighting Upgrade

Campus Walkways

CRITERIA:

01. PAYBACK PERIOD – The payback period for this project is approximately 6 years.

02. REDUCTION OF GREEN HOUSE GAS – Greenhouse gases will be reduced by 88,819 kg of CO_2 due to conservation of electricity.

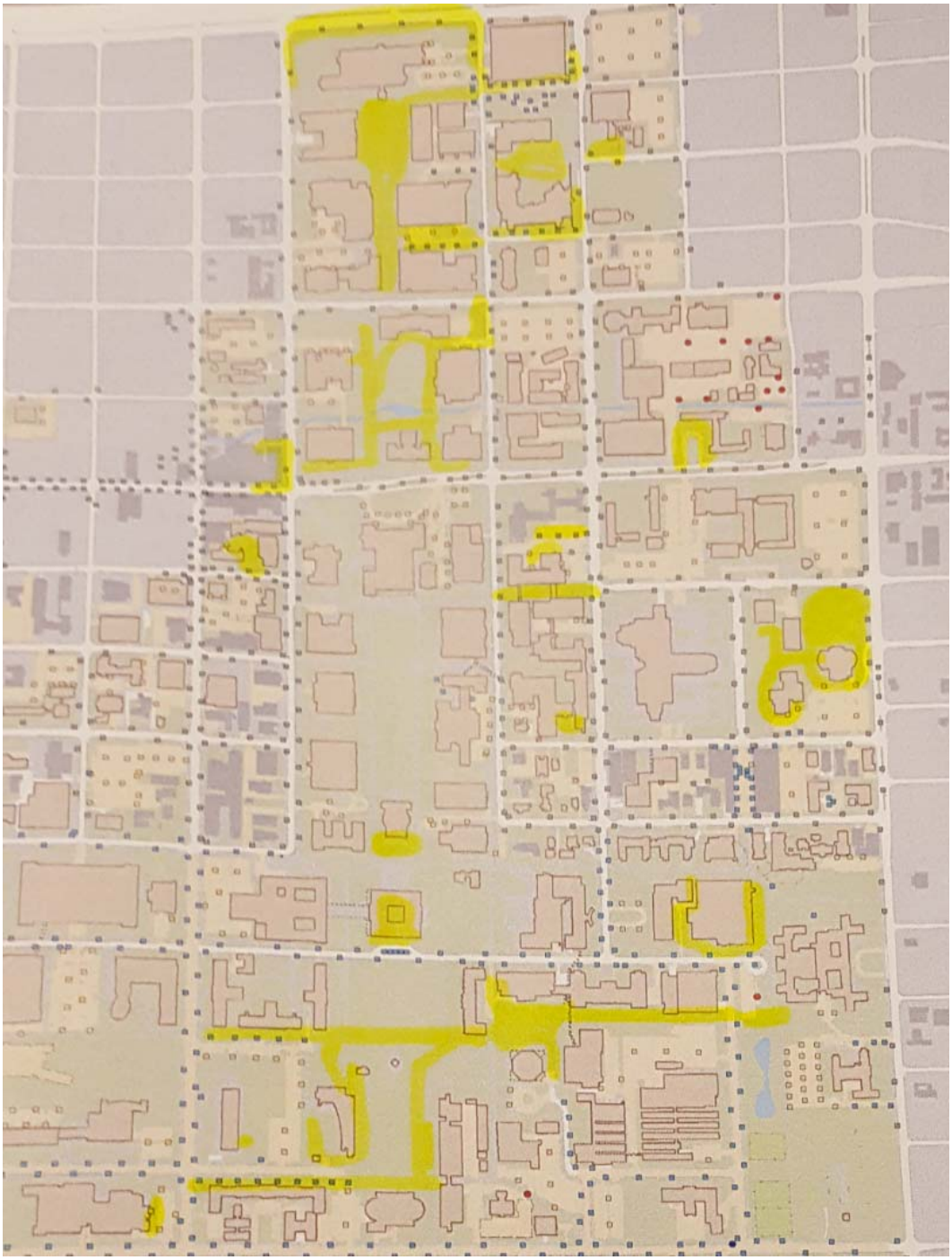
03. FUND SIZE IMPACT – This project does not have any grants associated with it to increase the fund size.

04. VISIBILITY - This will be highly visible. The majority of these lights are along pedestrian walkways.

05. PROJECT COORDINATION – This project is not planned to be executed in coordination with other projects.

Additional Information:

Proposed Lighting Upgrade Locations:



Facilities & Services
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Steam Valve Automation

Multiple Buildings

Project #2 Steam Valve Automation

Project Type: Building Controls

Buildings: Multiple Buildings

Energy Cost Savings: $33,000 annually

Funding Request: $100,000

Project Cost: $100,000

Payback Period: 3 yrs

General Description of Work: During the fall/winter and winter/spring seasons, steam distribution goes out once per season to manually open/close the main steam lines for the perimeter radiation lines in the buildings. With Illinois weather and significant temperature fluctuations during those seasons, it results in simultaneous heating and cooling and uncomfortable building conditions.

This request is to install automated isolation valves that are controlled by outside air temperature. This will eliminate the simultaneous heating and cooling situations and also the labor for steam distribution to go through the buildings to manually operate them.

Project Owners / Execution Contact:
David Hardin

Steam Valve Automation

Multiple Buildings

CRITERIA:

01. PAYBACK PERIOD – The payback period for this project is approximately 3 years.

02. REDUCTION OF GREEN HOUSE GAS – Greenhouse gases will be reduced by approximately 49,236 kg of CO_2 due to conservation of steam and chilled water.

03. FUND SIZE IMPACT – This project does not have any grants associated with it to increase the fund size.

04. VISIBILITY - The users will see a noticeable difference in the space conditions. Through the winter when the outside temperature fluctuates and we have the warmer days the steam for the perimeter heat can be closed preventing the spaces from overheating and windows being opened or window units being turned on.

05. PROJECT COORDINATION – This work and the potential building candidates are identified by the Recommissioning/Retro Commissioning teams as they go through the buildings and will be coordinated with the Recommissioning/Retro Commissioning projects.

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Steam Boiler Installation

Meat Science Laboratory

Project #3 Steam Boiler Installation

Project Type: Steam Boiler

Buildings: Meat Science Laboratory

Energy Cost Savings: $34,600 annually

Funding Request: $150,000

Project Cost: $150,000

Payback Period: 4.5 yrs

General Description of Work: Existing direct buried steam service is original to the building (circa 1954) and has total pipe length of approximately 960 LF. Replacement of the direct buried distribution system with contemporaneous like-kind system is on the order of $1,000,000 (construction costs). There has been known condensate leaks along this run, which historically is a semi-reliable predictor of future steam leaks in the near term (5 - 10 years).

This request is for switching the source of steam for the building from the central campus distribution system to a localized steam boiler.

Project Owners / Execution Contact:
Jim Vollrath

Steam Boiler Installation

Meat Science Laboratory

CRITERIA:

01. PAYBACK PERIOD – The payback period for this project is approximately 4.5 years.

02. REDUCTION OF GREEN HOUSE GAS – The greenhouse gases will have negligible reduction.

03. FUND SIZE IMPACT – This project does not have any grants associated with it to increase the fund size.

04. VISIBILITY - Switchover to building standalone steam boiler system from campus steam distribution will be seamless. Construction work will have minimal impact on building occupants (mostly contained to basement mechanical space save flue gas vent piping).

05. PROJECT COORDINATION – This project is not planned to be executed in coordination with other projects.

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Steam Trap Replacement

Multiple Buildings

Project #4 Steam Trap Replacement

Project Type: Steam Traps

Buildings: Multiple Buildings

Energy Cost Savings: $12,200 annually

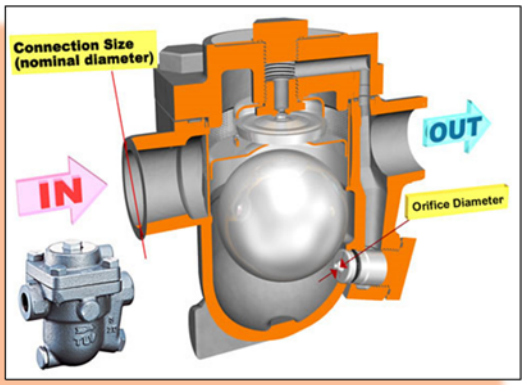
Funding Request: $40,000

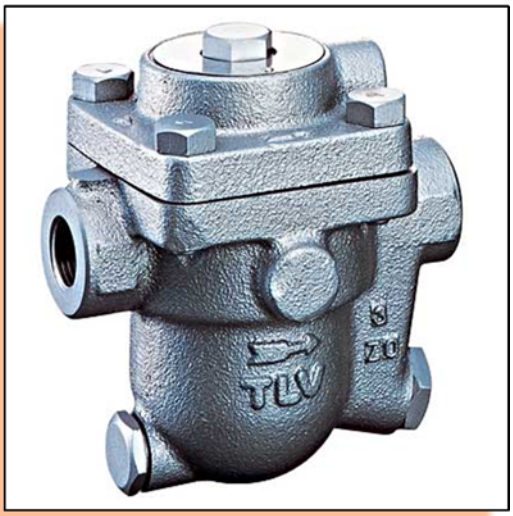
Project Cost: $40,000

Payback Period: 3 yrs

General Description of Work: Failed steam traps have a deleterious effect on building condensate pumping systems to the extent that often times the condensate is 'dumped' to prevent the elevated condensate temperatures from damaging the pumping equipment. In these instances, there is useful energy remaining in the condensate that is not being returned to Abbott but being introduced to the building space. The costs associated with this in terms of loss energy returned to Abbott and additional cooling needed at the building can be significant.

This project will replace failed steam traps eliminating energy waste in multiple campus locations which may include Foellinger and Noyes.





Project Owners / Execution Contact:
Jim Vollrath

Steam Trap Replacement

Multiple Buildings

CRITERIA:

01. PAYBACK PERIOD – The payback period for this project is approximately 3 years.

02. REDUCTION OF GREEN HOUSE GAS – Greenhouse gases will be reduced by approximately 18,400 kg of CO_2 due to conservation of steam.

03. FUND SIZE IMPACT – This project does not have any grants associated with it to increase the fund size.

04. VISIBILITY - Replacement of steam traps will reduce the amount of water hammer (noisy pipe banging sounds), reduce the amount of steam vented in the mechanical spaces (which contributes to warm mechanical spaces and elevated humidity issues that require additional mechanical cooling).

Replacement of steam traps allows for a reduction of steam output from the campus central steam plant (Abbott) thus reducing the overall campus energy footprint.

05. PROJECT COORDINATION – This project is not planned to be executed in coordination with other projects. Proposed method of executing projects would be with F&S trades in coordination with each individual building manager.

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LED Lighting Upgrade

Multiple Buildings

Project #5 LED Lighting Upgrade

Project Type: Lighting Upgrades

Buildings: Multiple Buildings

Energy Cost Savings: $6,000 annually

Funding Request: $41,000

Project Cost: $41,000

Payback Period: 7 yrs

General Description of Work: This request is for upgrading lighting in specific areas of three campus buildings including Talbot Laboratory, Newmark Civil Engineering Library, and Nuclear Physics Laboratory. The areas targeted within these buildings contain approximately 50 incandescent high bay fixtures which will be replaced with LED fixtures.

Project Owners / Execution Contact:
Ken Buenting

LED Lighting Upgrade

Multiple Buildings

CRITERIA:

01. PAYBACK PERIOD – The payback period for this project is approximately 7 years.

02. REDUCTION OF GREEN HOUSE GAS – Greenhouse gases will be reduced by approximately 104,000 kg of CO_2 due to conservation of electricity.

03. FUND SIZE IMPACT – This project does not have any grants associated with it to increase the fund size.

04. VISIBILITY - Talbot Laboratory and Nuclear Physics use these areas to perform and complete many grant funded research projects. Improving the lighting to complete their research along with substantial energy savings will be highly visible and makes good sense for department and campus.

Civil Engineering uses this area to perform and complete many grant funded research projects. Replacing the fixtures with LEDs in the high bay and under the overhead crane will improve safety and improve their research while offering substantial energy savings.

05. PROJECT COORDINATION – This project is not planned to be executed in coordination with other projects. Proposed method of executing projects would be with F&S trades in coordination with each individual building manager.

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LED Lighting Upgrade

Oak Street Library Facility

Project #6 LED Lighting Upgrade

Project Type: Lighting Upgrades

Buildings: Oak Street Library Facility

Energy Cost Savings: $12,100 annually

Funding Request: $115,600

Project Cost: $115,600

Payback Period: 9.5 yrs

General Description of Work: This request is for upgrading lighting in vaults I, II, and III of the Oak Street Library Facility including installation of occupancy sensors. The areas targeted within this building contain metal halide fixtures which will be replaced with LED fixtures.

The installation of new fixtures and occupancy sensors would contribute to the Library's sustainability initiatives. The Library is currently studying the viability of shutting down the vault II environmental system at night and weekends and continue to meet prescribed preservation indexes for the collection.

Project Owners / Execution Contact:
Ken Buenting

Facilities & Services
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

LED Lighting Upgrade

Oak Street Library Facility

CRITERIA:

01. PAYBACK PERIOD – The payback period for this project is approximately 9.5 years.

02. REDUCTION OF GREEN HOUSE GAS – Greenhouse gases will be reduced by approximately 201,000 kg of CO_2 due to conservation of electricity.

03. FUND SIZE IMPACT – This project does not have any grants associated with it to increase the fund size.

04. VISIBILITY - The Oak Street Library Facility houses 4 million volumes of collection material used by Campus, community and the world. The environmental system is designed to maintain a stable 50 degree Fahrenheit and 30 % relative humidity in order to preserve the material. Upgrading the lighting will be visible for those using this highly specialized facility.

05. PROJECT COORDINATION – This project is not planned to be executed in coordination with other projects. Proposed method of executing projects would be with F&S trades in coordination with each individual building manager.

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Occupancy Sensor Installation

Psychology Laboratory

Project #7 Occupancy Sensor Installation

Project Type: Building Controls

Buildings: Psychology Laboratory

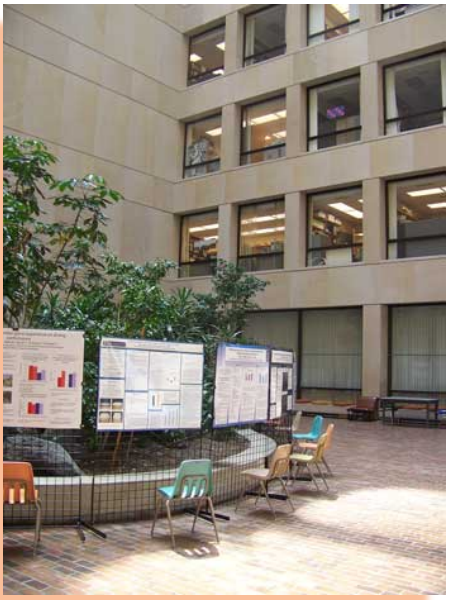
Energy Cost Savings: $3,300 annually

Funding Request: $25,000

Project Cost: $25,000

Payback Period: 7.5 yrs

General Description of Work: This request is for installing occupancy sensors throughout areas of the Psychology Laboratory. Staff have observed lights in this nine floor building to be on constantly including nights when few people are present. Occupancy sensor installations have proven highly successful in many areas of campus and the expectation would be the same in this building as well.



Project Owners / Execution Contact:
Jim Clark

Facilities & Services
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Occupancy Sensor Installation

Psychology Laboratory

CRITERIA:

01. PAYBACK PERIOD – The payback period for this project is approximately 7.5 years.

02. REDUCTION OF GREEN HOUSE GAS – Greenhouse gases will be reduced by approximately 31,900 kg of CO_2 due to conservation of electricity.

03. FUND SIZE IMPACT – This project does not have any grants associated with it to increase the fund size.

04. VISIBILITY – Occupancy sensor lighting control is highly visible to the occupant as the lighting will be automated.

05. PROJECT COORDINATION – This project is not planned to be executed in coordination with other projects.

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Variable Frequency Drive Installation

Psychology Laboratory

Project #8 Variable Frequency Drive (VFD) Installation

Project Type: Building Controls

Buildings: Psychology Laboratory

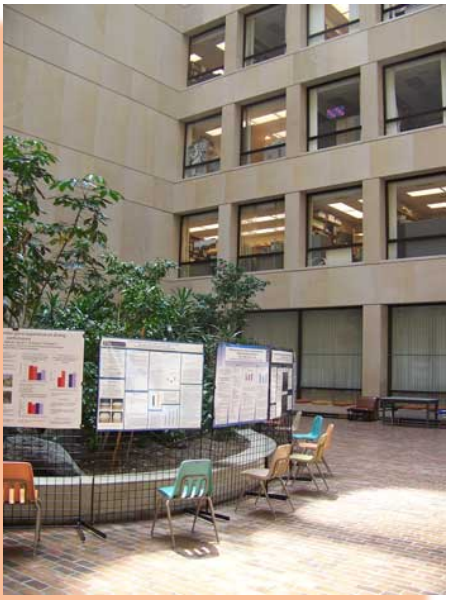
Energy Cost Savings: $7,000 annually

Funding Request: $10,000

Project Cost: $10,000

Payback Period: 1.5 yrs

General Description of Work: This project involves VFD Installation for the 4th floor air handlers. These are fans SF7 & RF7. This area was not done with the balance of the facility because of a server room that was utilizing building air for cooling. This has changed and the servers are no longer in the building. The VFD's can now be incorporated to reduce air flow and save fan, heating, and cooling energy.



Project Owners / Execution Contact:
Jim Clark

CRITERIA:

01. PAYBACK PERIOD – The payback period for this project is approximately 1.5 years.

02. REDUCTION OF GREEN HOUSE GAS – Greenhouse gases will be reduced by approximately 64,200 kg of CO_2 due to conservation of electricity.

03. FUND SIZE IMPACT – This project does not have any grants associated with it to increase the fund size.

04. VISIBILITY – This project will have little visibility to the building occupants.

05. PROJECT COORDINATION – This project is not planned to be executed in coordination with other projects.

Facilities & Services
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Occupancy Sensor Installation

Multiple Buildings

Project #9 Occupancy Sensor Installation

Project Type: Building Controls

Buildings: Multiple Buildings

Energy Cost Savings: $50,000 annually

Funding Request: $250,000

Project Cost: $250,000

Payback Period: 5 yrs

General Description of Work: This funding will be used to install occupancy sensors to control one or more of the following: VAV boxes (for temperature set-back during unoccupied modes), lighting, or exhaust fans serving restrooms or other non-hazardous spaces.

Project Owners / Execution Contact:
Nathan Reifsteck

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UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Occupancy Sensor Installation

Multiple Buildings

CRITERIA:

01. PAYBACK PERIOD – The payback period for this project is approximately 5 years.

02. REDUCTION OF GREEN HOUSE GAS – Greenhouse gases will be reduced by 112,620 kg of CO_2 due to conservation of electricity, steam, and chilled water.

03. FUND SIZE IMPACT – This project does not have any grants associated with it to increase the fund size.

04. VISIBILITY - This project would be highly visible to the various groups that use the facility. Staff, faculty researchers and graduate students would benefit from a safer work environment, students would benefit from the improved lighting, and the various industry tour groups and research sponsors would see the lighting improvements as they tour facilities.

05. PROJECT COORDINATION – This work and the potential building candidates are identified by the Recommissioning/Retro Commissioning teams as they go through the buildings and will be coordinated with the Recommissioning/Retro Commissioning projects.

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UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Door Seals & Weather Stripping

Multiple Buildings

Project #10 Door Seals & Weather Stripping

Project Type: Envelope Repairs

Buildings: Multiple Buildings

Energy Cost Savings: $14,800 annually

Funding Request: $30,000

Project Cost: $30,000

Payback Period: 2 yrs

General Description of Work: Installation of door seals and sweeps on various exterior doors to stop infiltration and improve occupant comfort.

Project Owners / Execution Contact:
Nathan Reifsteck

Door Seals & Weather Stripping

Multiple Buildings

CRITERIA:

01. PAYBACK PERIOD – The payback period for this project is approximately 2 years.

02. REDUCTION OF GREEN HOUSE GAS – Greenhouse gases will be reduced by 91,650 kg of CO_2 due to conservation of natural gas used to produce the steam.

03. FUND SIZE IMPACT – This project does not have any grants associated with it to increase the fund size.

04. VISIBILITY - This would be seen by every occupant of the building whenever entering and exiting the affected building.

05. PROJECT COORDINATION – This work and the potential building candidates are identified by the Recommissioning/Retro Commissioning teams as they go through the buildings and will be coordinated with the Recommissioning/Retro Commissioning projects.