

Putnam County Schools Energy Assessments

3/4/2023



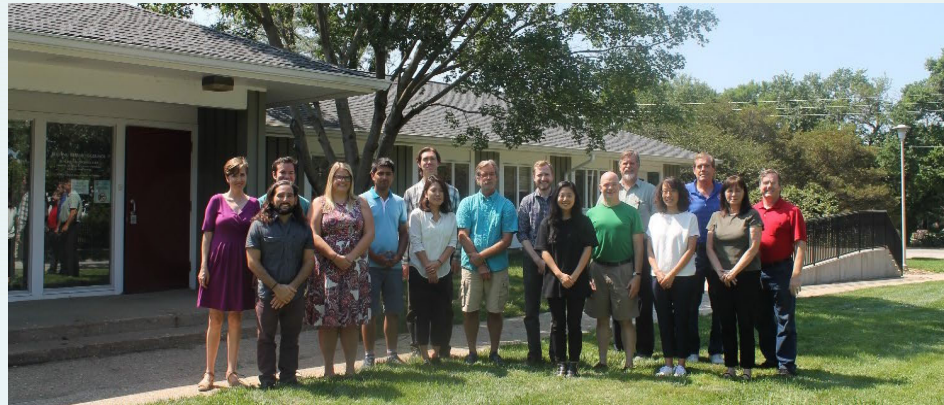
Providing effective energy strategies for buildings and communities

Who We Are

We assist buildings and communities in achieving energy efficiency, saving money, and becoming more sustainable.

We are an applied research program at the University of Illinois.

Our mission: Reduce the energy footprint of Illinois and beyond.



Building Energy Use & Energy Star Score Review

Primary School



EUI (kbtu/SF): 78

ES Score: 27

Elementary School



EUI: 72

ES Score: 58

Junior High



EUI: 64

ES Score: 51

High School



EUI: 69

ES Score: 58

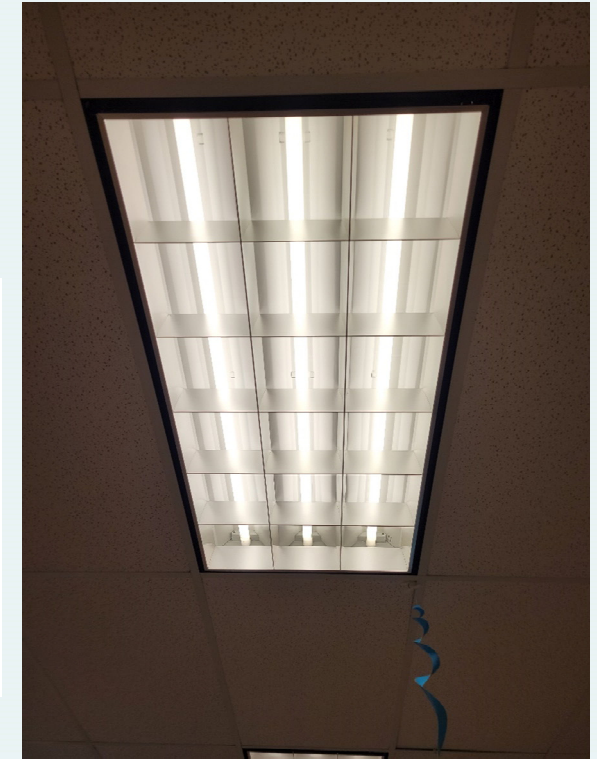
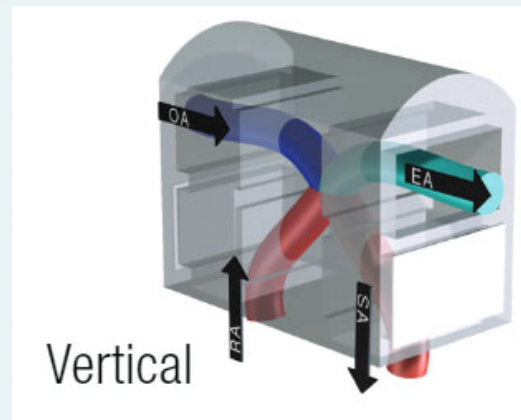
Recommended Measure Summary

Building	kWh Savings	therm Savings	Annual \$ Savings	Capital Cost	\$ Incentives	SPB w/ Incentives
Primary School	170,000	16,100	\$39,100	\$161,200	\$94,500	1.7
Elementary School	49,100	6,200	\$22,000	\$48,300	\$24,300	1.1
Junior High School	47,500	4,800	\$9,200	\$30,900	\$23,100	0.9
High School	99,200	10,300	\$20,200	\$81,800	\$35,300	2.3
District Total	365,800	37,400	\$90,500	\$322,200	\$177,200	1.6

Primary School

Building Measures

- Lighting Upgrades
- Demand Controlled Ventilation
- Exhaust Fan Controls
- High Efficiency Ventilation
- Condensing Boilers (not recommended at this time)



Notes

- Design occupancies well above typical occupancy (design occupancy of 839 for building + 848 for multi-purpose room)
- Leads to equipment oversizing (164 tons installed, 50 tons required)
- HVAC implementation costs are incremental over replacing the existing with like units due to reaching end of life

Elementary School

Building Measures

- Individual Flush Valves
- Lighting Upgrades
- Heat Pump Clothes Dryer
- Energy Efficient Transformer
- Exhaust Fan Controls
- Pipe Insulation
- Steam Trap Testing
- Programmable Thermostats



Building Measures Not Recommended at This Time

- Heat Pump Water Heaters
- Increase Roof Insulation



Notes

- Many rooms do not have mechanical ventilation
- Individual systems with simple controls allows minimal energy consumption

Junior High School

Building Measures

- Remove Vending Machines
- Demand Controlled Ventilation
- Continue Lighting Upgrades



- Heat Pump Water Heaters (not recommended at this time)

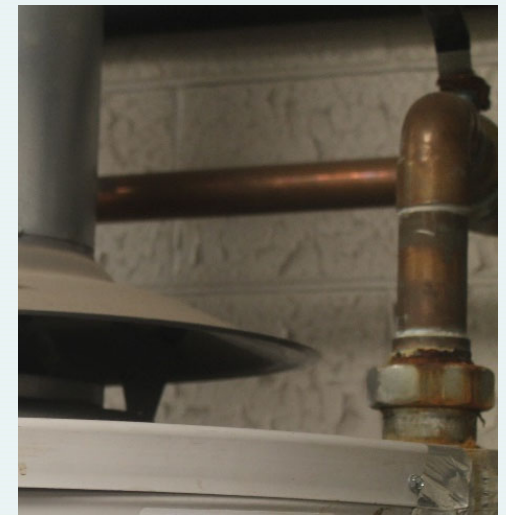
Notes

- Present operations lead to long equipment run times across building

High School

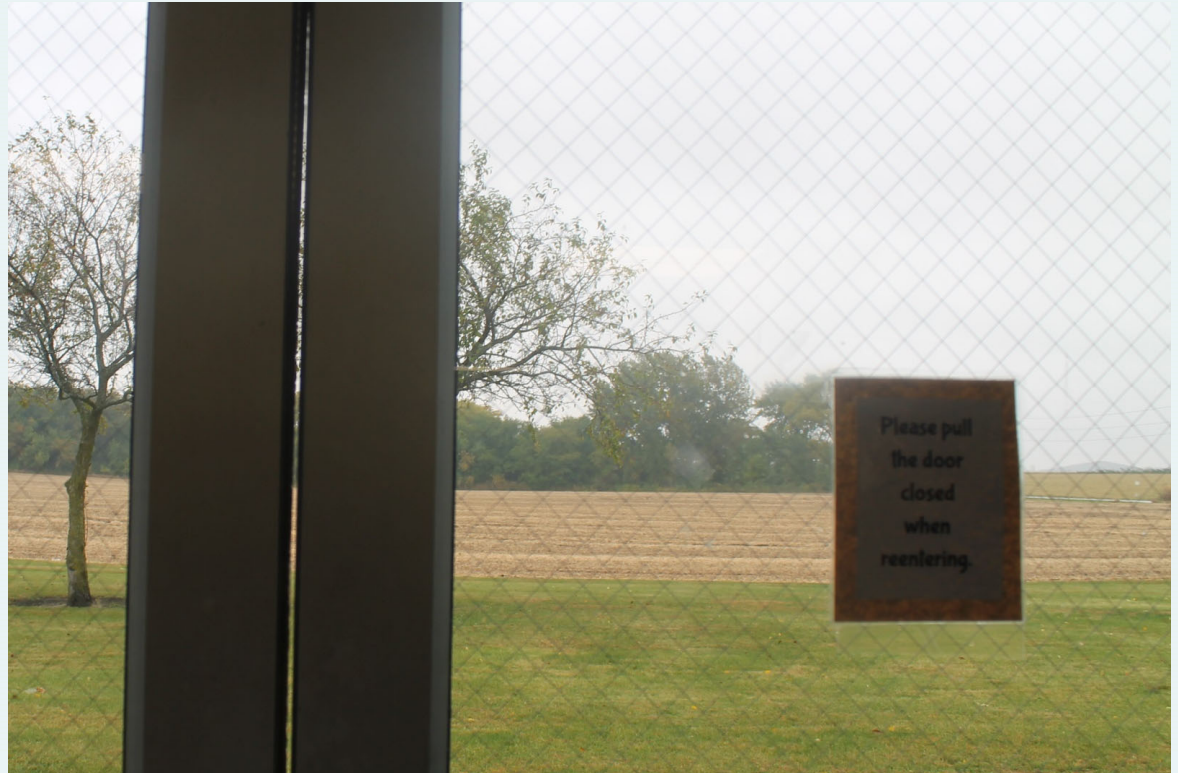
Building Measures

- Lighting Upgrades
- LED Exit Signs
- Demand Controlled Ventilation
- Hot Water Pipe Insulation
- Hydronic Air Separator



Building Measures Not Recommended at This Time

- Condensing Boilers
- Heat Pump Water Heaters
- Media Center Fenestration



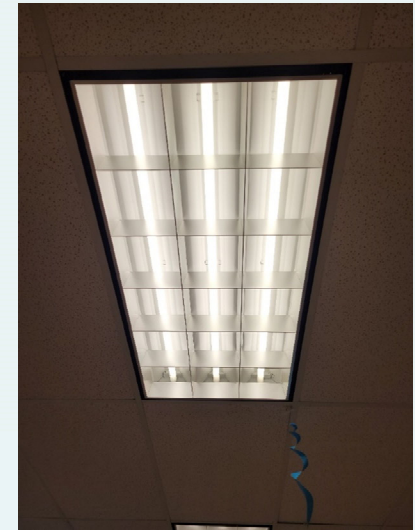
Notes

- Present operations lead to long equipment run times across building
- Substantial opportunity exists to consolidate activities to minimize need to operate equipment where there are few occupants

Incentives

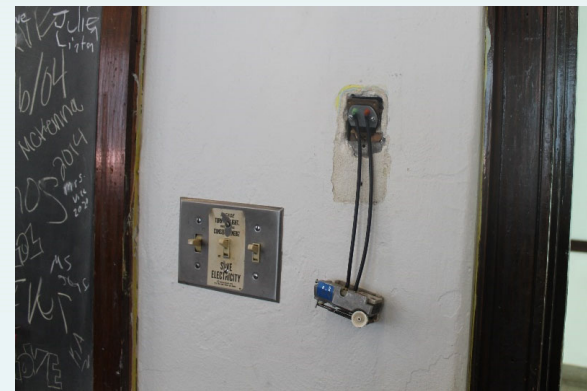
Small Business Direct Install

- All 4 schools qualify
- Contact Ameren SBDI Ally
- Ally inventories eligible measures and provides specific equipment recommendation along with implementation quote and specific energy savings projection for those measure
- District may proceed or get additional Ally proposals
- No commitment to proceed



HVAC Measures

- Demand Controlled Ventilation
- Wi-fi or Smart thermostats
- Steam trap testing and repair



Custom

\$0.24/kWh saved and \$2.50/therm saved

Payback of 1 month -15 year

Incentive must be 10-80% of project cost

External labor only

- Pipe insulation
- Efficient transformers
- Fan controls





Questions?

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