



Delta Force – Driving Energy Efficiency at UVA



SUSTAINABILITY GOALS

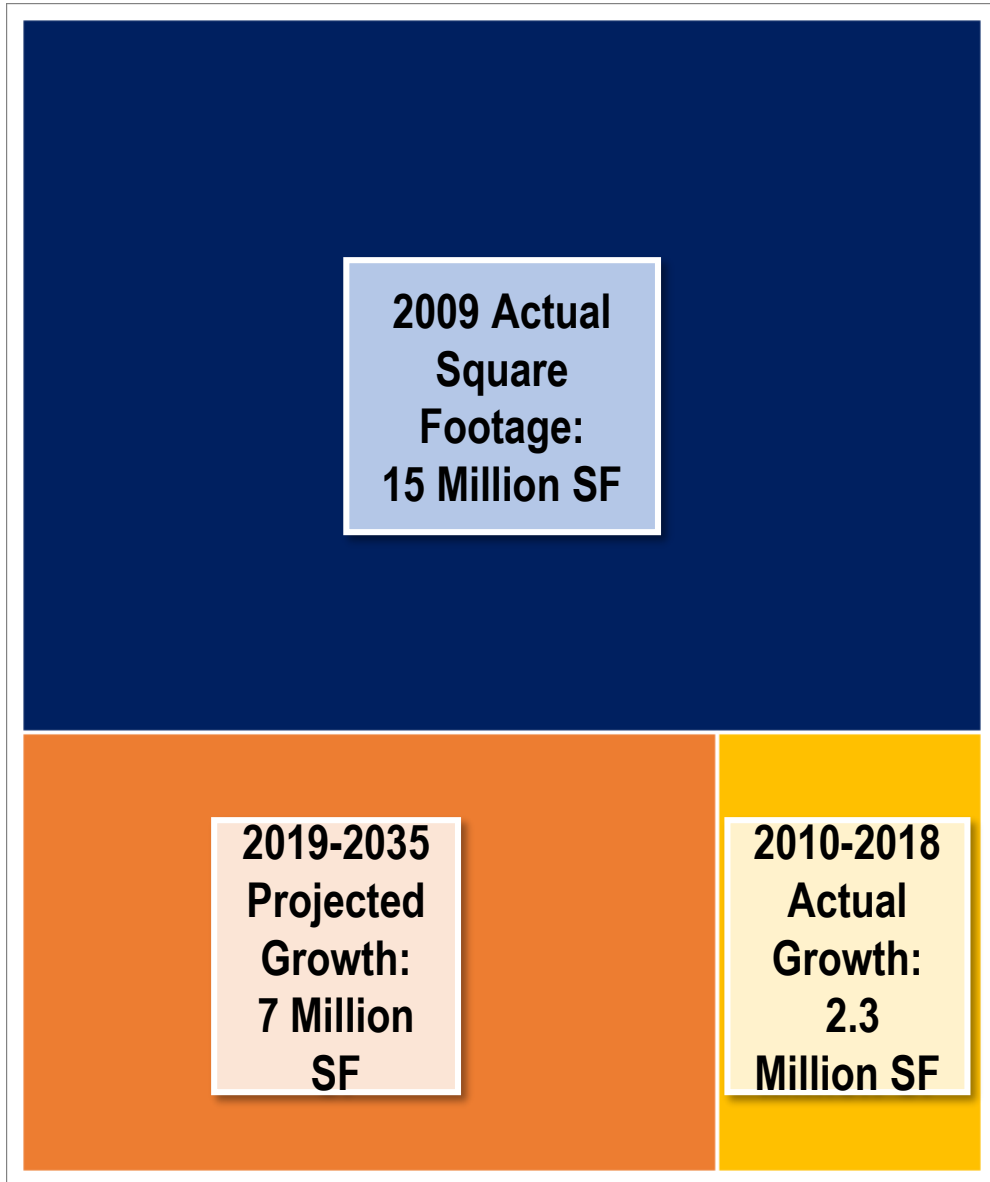
STEWARD



- **Greenhouse Gas:** 25% reduction below 2009 levels by 2025
- **Energy:** 20% reduction in energy use intensity below 2010 by 2020
- **Nitrogen:** 25% reduction below 2010 levels by 2025
- **Water:** 25% reduction below 2010 levels by 2035
- **Materials and Waste:** Reduce the total tonnage of waste generated 50% below 2014 by 2025. Landfill less than 2000 tons by 2035.
- **Land and Building Use**



PLANNED GROWTH



2009: 14,985,310 Square Feet of Buildings

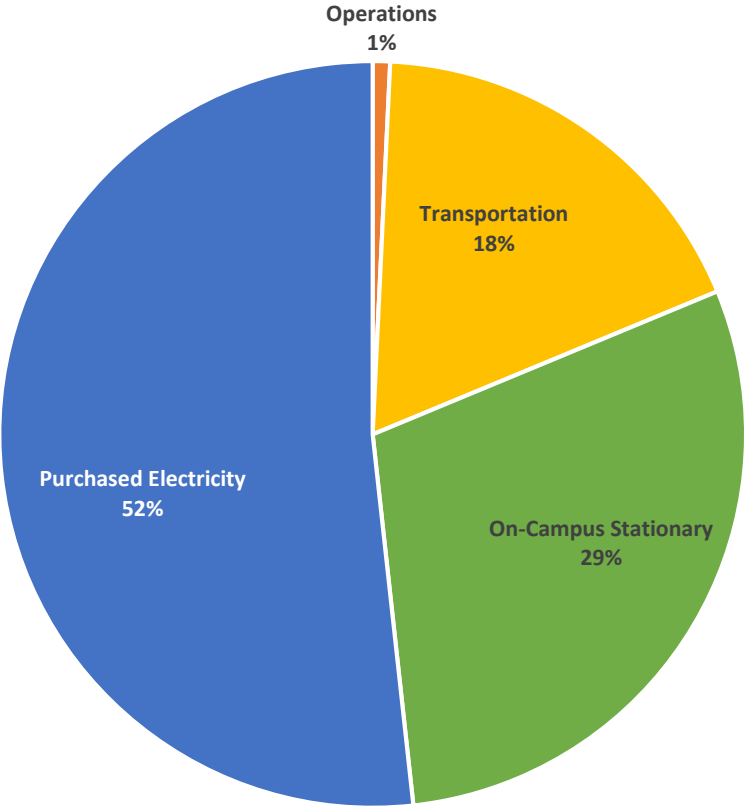
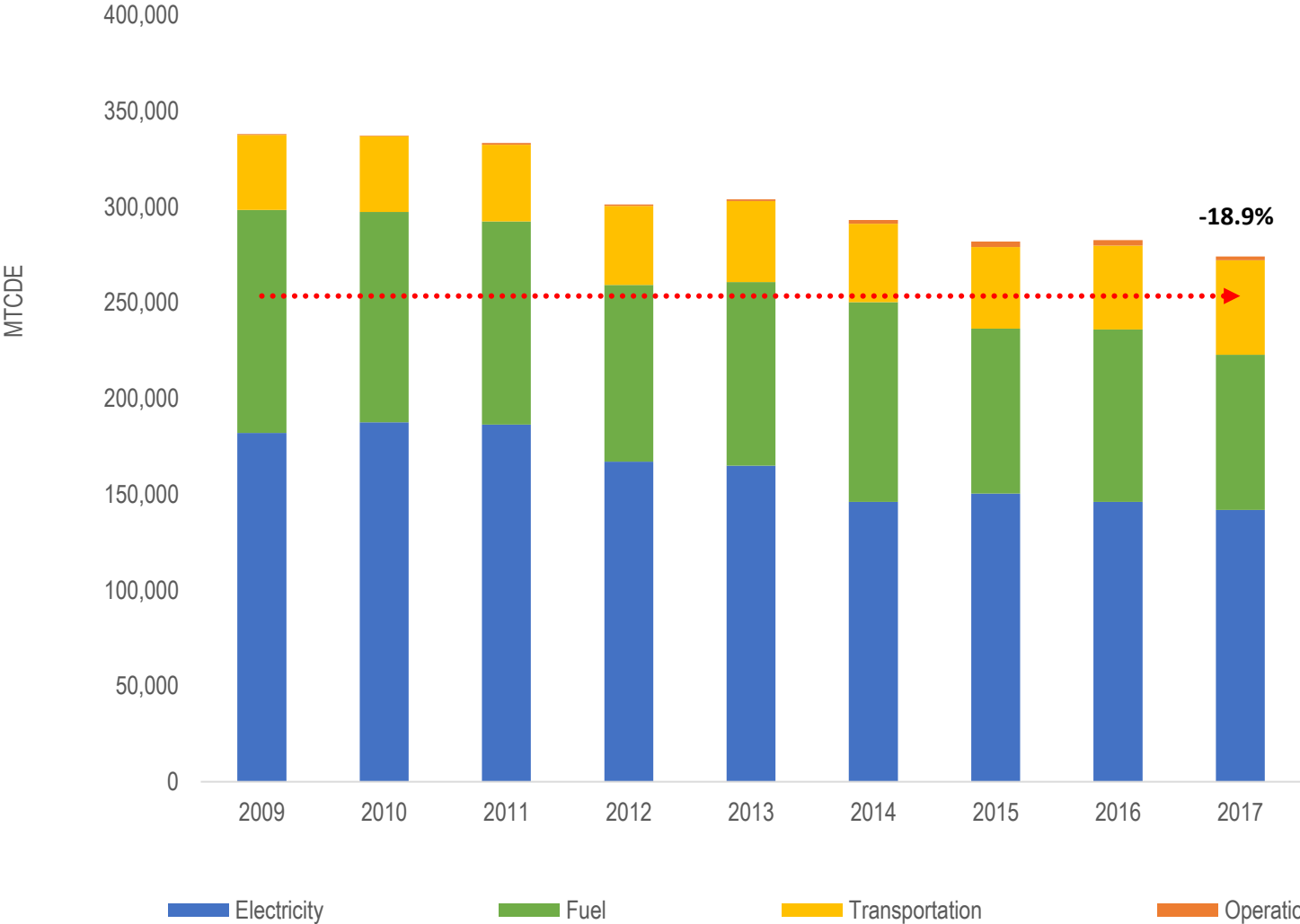
2018: Reported at 17,245,722 Square Feet

- Difference from 2009: SF (2,260,412 15% Increase)

2035: Projected at 24,222,770 Square Feet

- Difference from 2009: 9,237,460 SF (61.6% Increase)

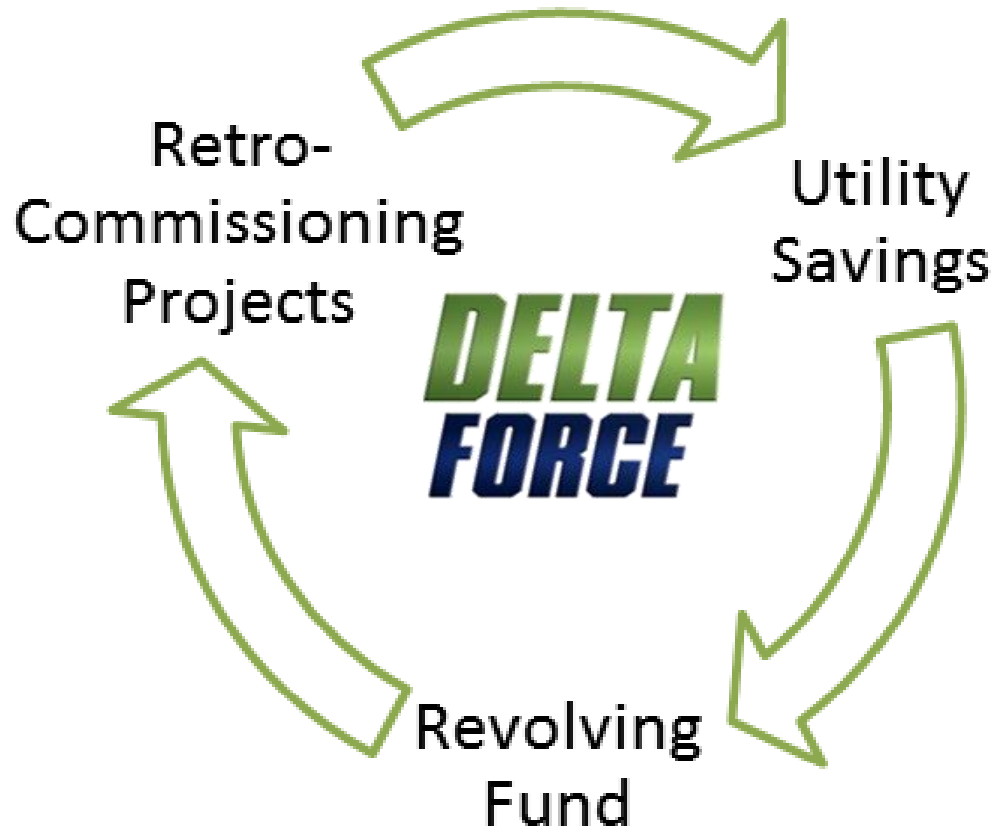
UVA CY2017 GHG Emissions



The image features a dark blue background with a pattern of thin, light blue lines radiating from the center towards the edges, creating a tunnel-like or starburst effect. In the center of this pattern, the words "Delta Force" are written in a bold, white, sans-serif font.

Delta Force

DELTA FORCE FUNDING MODEL

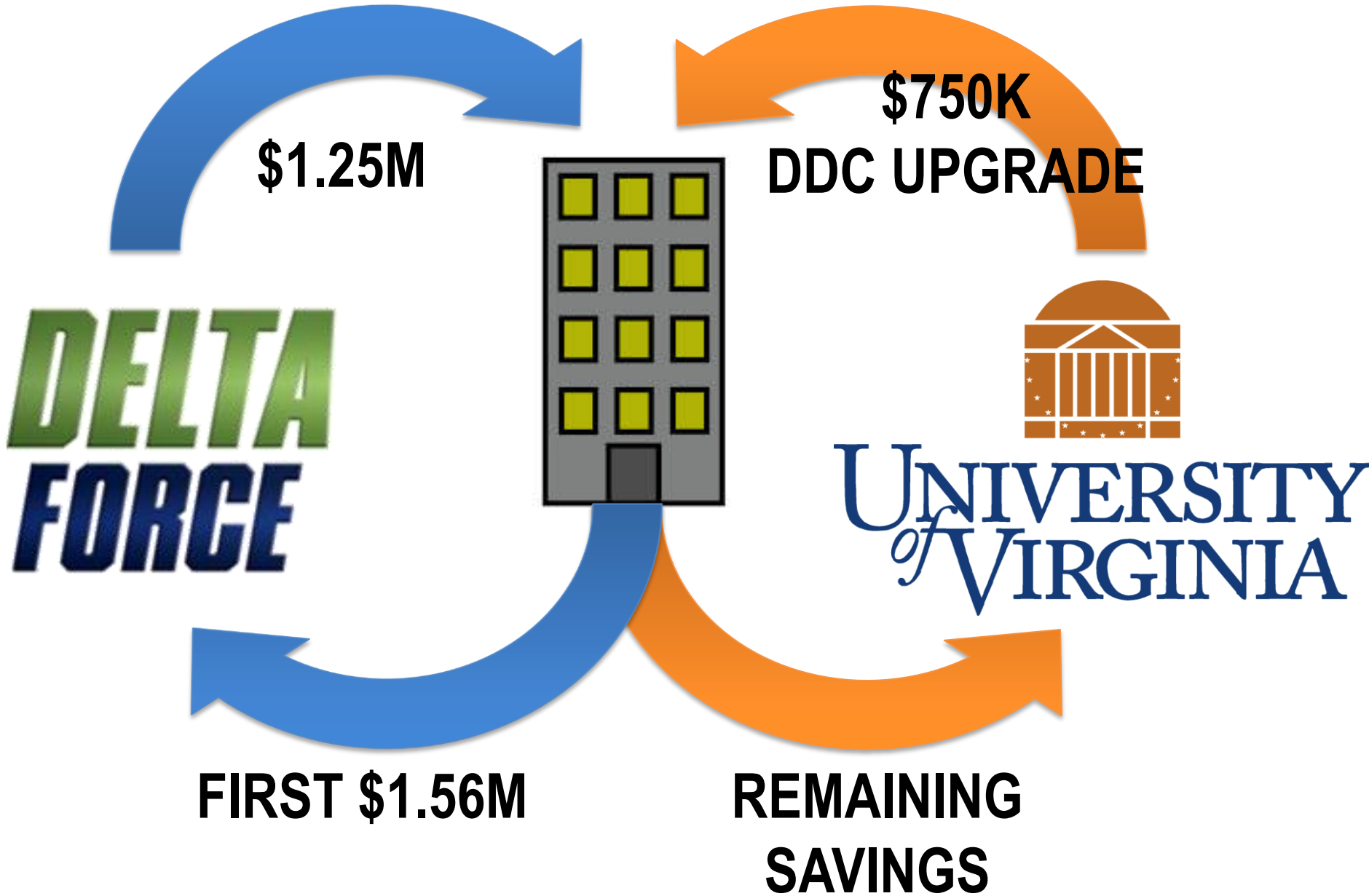


- Monthly baseline (previous fiscal year) established at project initiation.
- Customer billed monthly based on baseline. Difference between baseline and actual consumption x commodity rates = recovery to the Delta Force account
- If actual consumption is higher (i.e. weather, occupancy changes), \$0 is transferred (no risk to customer)
- Billing on baseline recovery continues until 125% of cost is recovered
- If needed, access to a \$1 million revolving line of credit from the Vice President for Management & Budget (not yet needed)

CLARK HALL



CLARK HALL FUNDING



CLARK HALL BUILDING UPGRADES

Lighting

- All lighting converted to energy-efficient LEDs

HVAC Controls and Systems

- Upgraded Controls to Eliminate Pneumatics
- Functional Performance Testing of All AHU's
- VAV Box Repairs and Calibration
- Pressure Independent Control Valve Installation on AHU's
- Glycol Heat Recovery System Repair

Air Change Improvements

- Conducted risk assessment of labs to identify energy reduction opportunities
- Scaled back air flow rates where safe and appropriate in lab support spaces

Water

- Installed low flow toilets, urinals, & sink aerators throughout – resulting in 47% water use reduction in restrooms!!
- Repaired faulty water meter, saving even more money

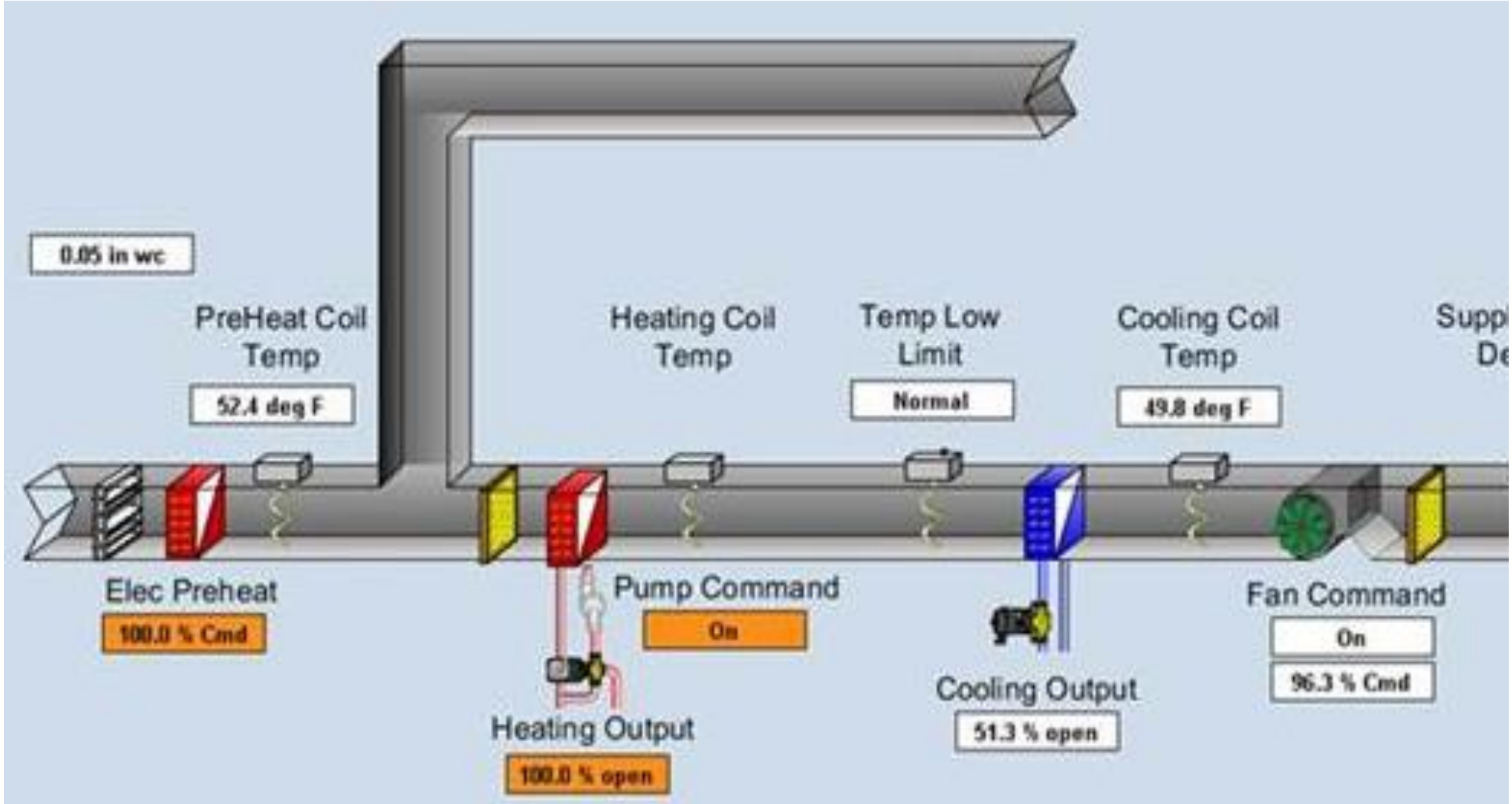
Waste

- Piloted new “ErgoBin” recycling/waste stations which are now being brought in all across Grounds

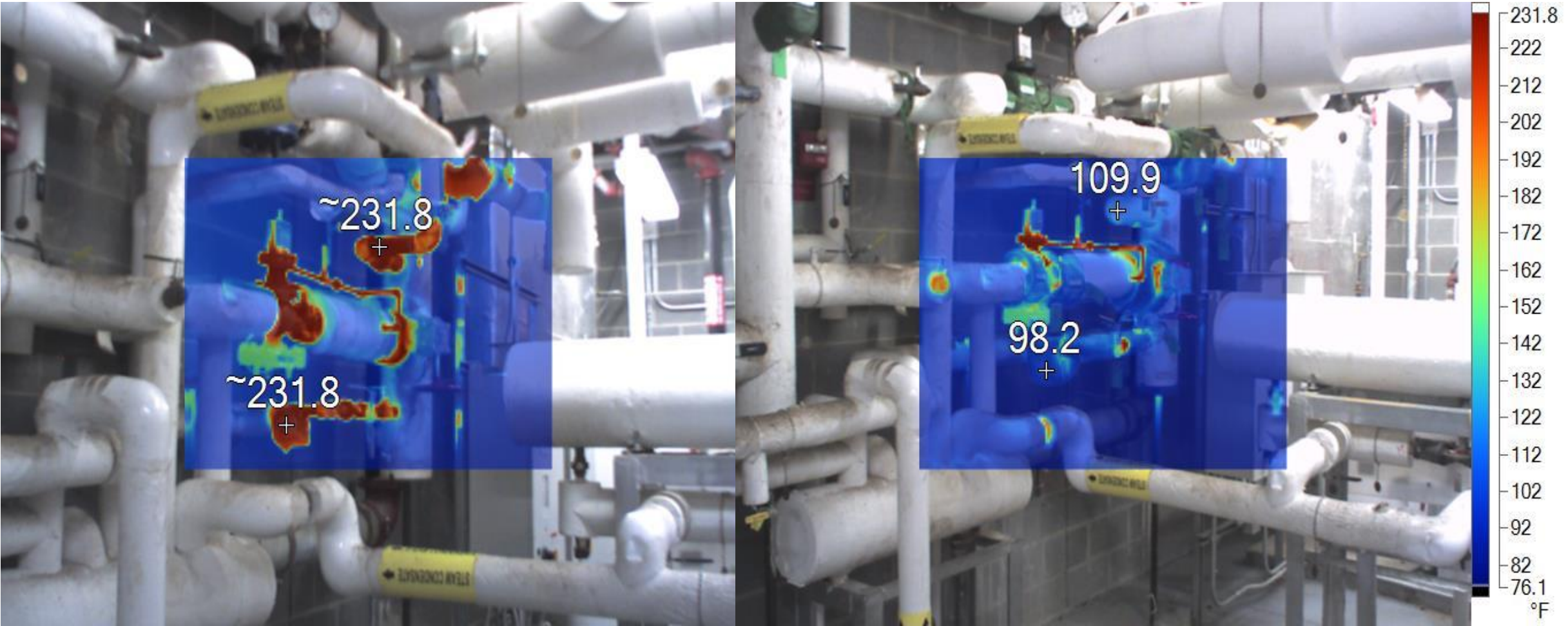
Site

- Completed stormwater-friendly landscape work in Clark “nook” on the east side of the building

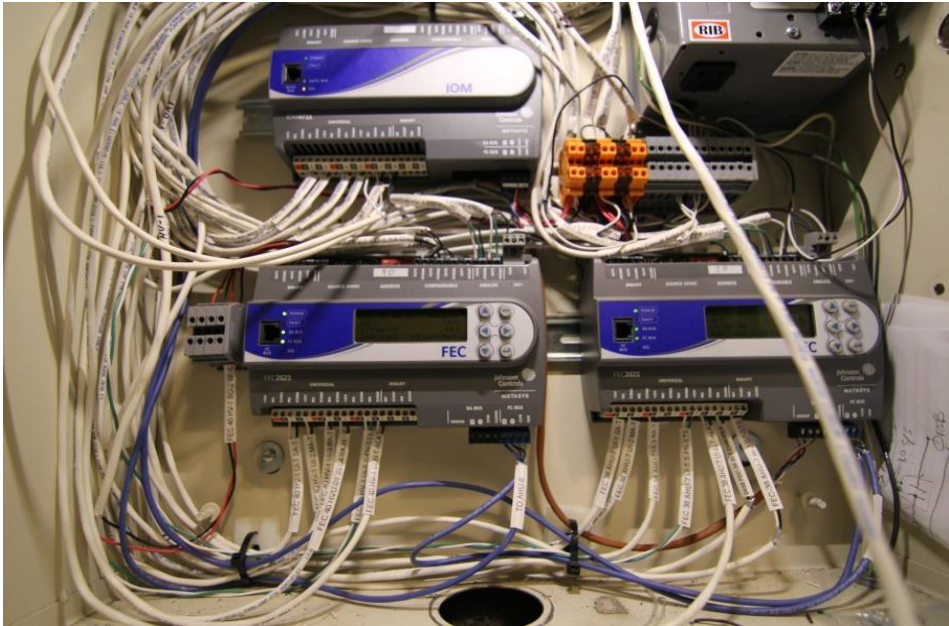
REVIEW HVAC CONTROLS



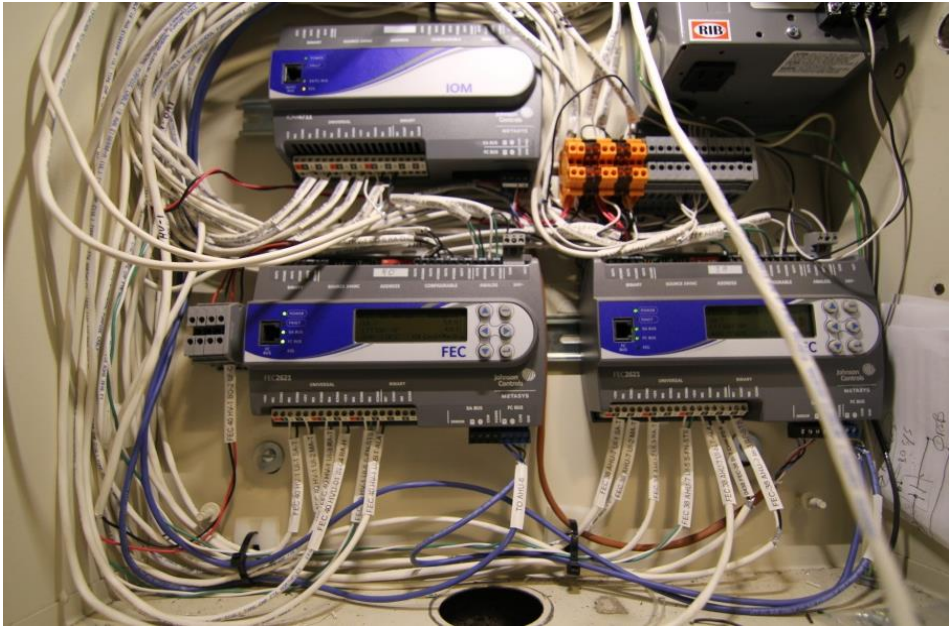
ASSESS & REPAIR HVAC SYSTEMS



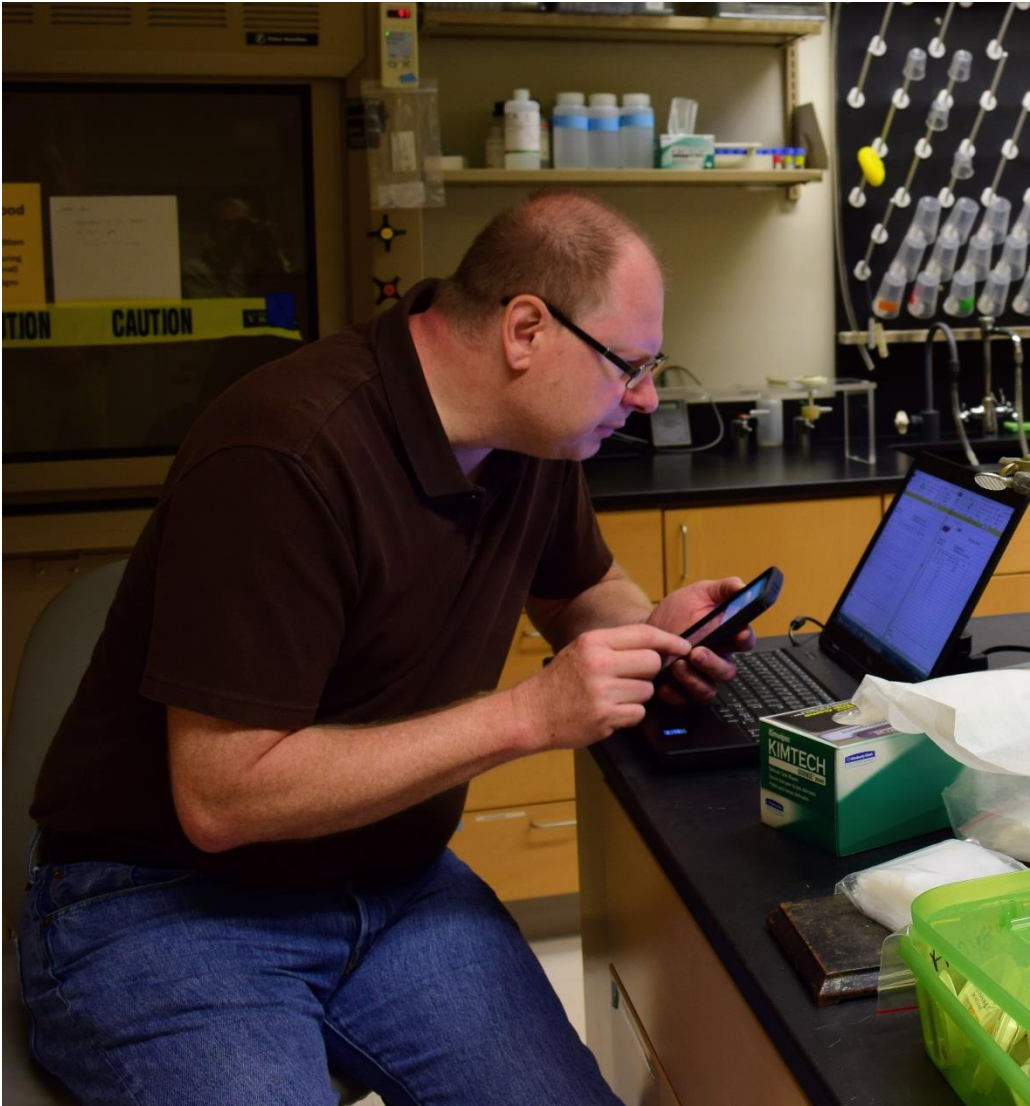
BUILDING OPTIMIZATION TEAM



BUILDING OPTIMIZATION TEAM



TARGETED AIR CHANGE OPTIMIZATION



CONVERTED TO LED LIGHTING

Building Sustainability

Clark Hall - January 2016

Project Update



Upgraded 3,300 tube lights to reduce wattage by 22%



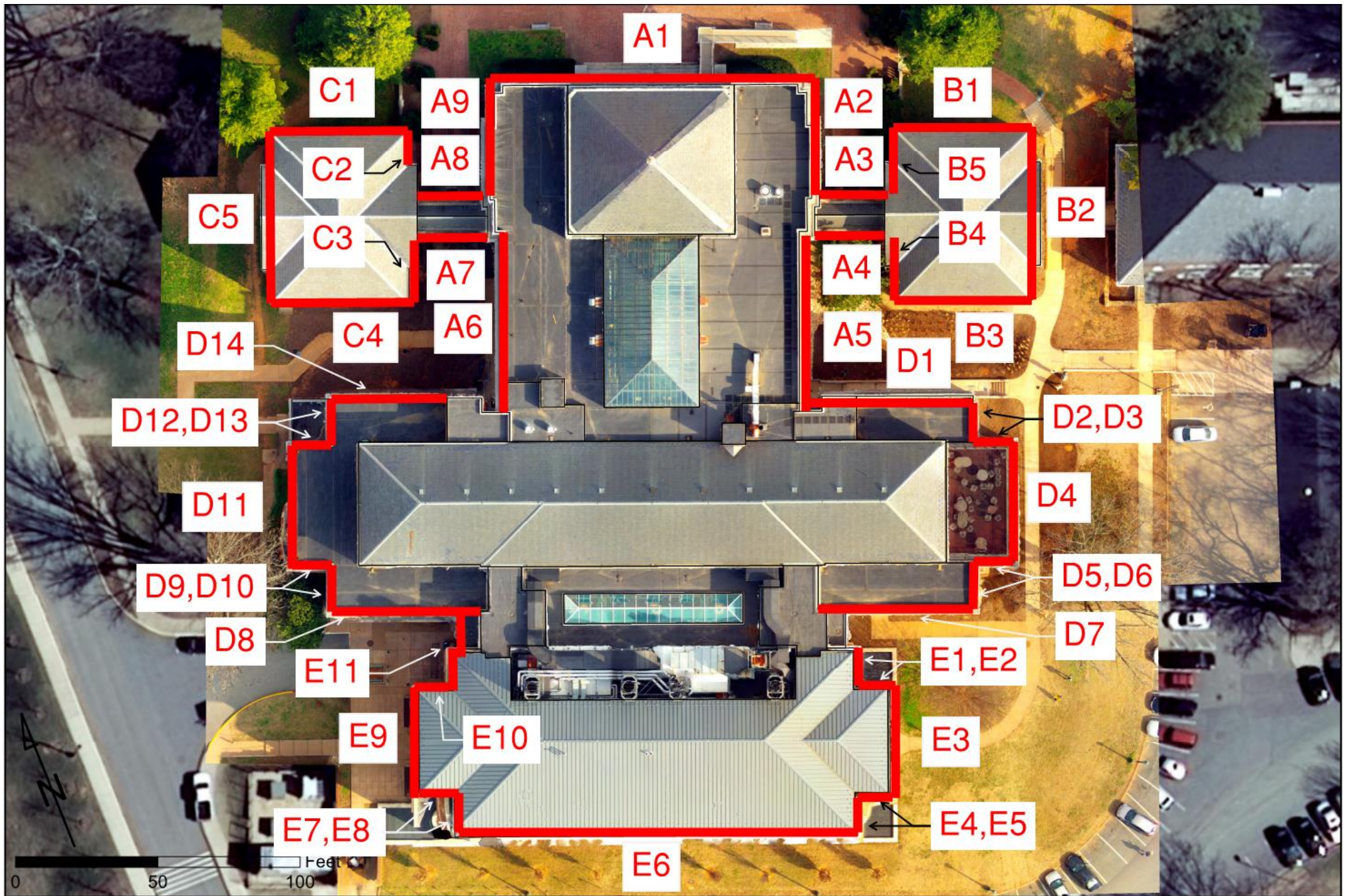
Installed clearly labeled, uniform recycling stations building-wide



Enrolled Brown Library in Green Workplace Program & McGlathery Lab in Green Labs Program



DRONE ASSESSMENT





Clark Hall



SkyBEAM Exterior Wall Inventory Investigation Report:

University of Virginia - Clark Hall
219 McCormick Road
Charlottesville, Virginia



Tremco Roofing and
Building Maintenance
3735 Green Road
Beachwood, Ohio 44122, USA

INFRARED THERMOGRAPHY

WALL A7

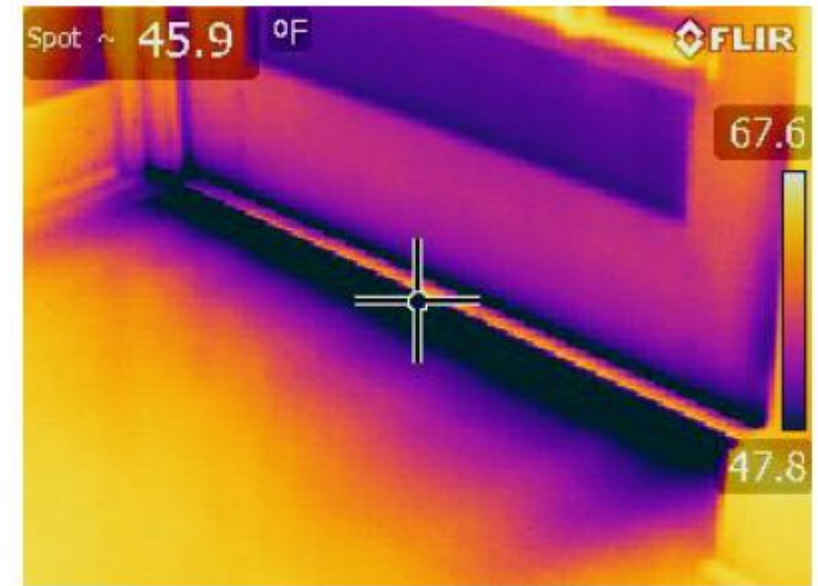


WALL A7 THERMAL





I.



IR-A.



J.



MATCH

OUTREACH



OCCUPANT INVOLVEMENT

Green Workplace

- Environmental Sciences admin office suite earned Silver Certification for adopting sustainable practices

Green Labs

- All labs cooperated with risk assessments
- Four labs participated in more in-depth interviews about green practices
- Three labs participated in the UVA Freezer Challenge

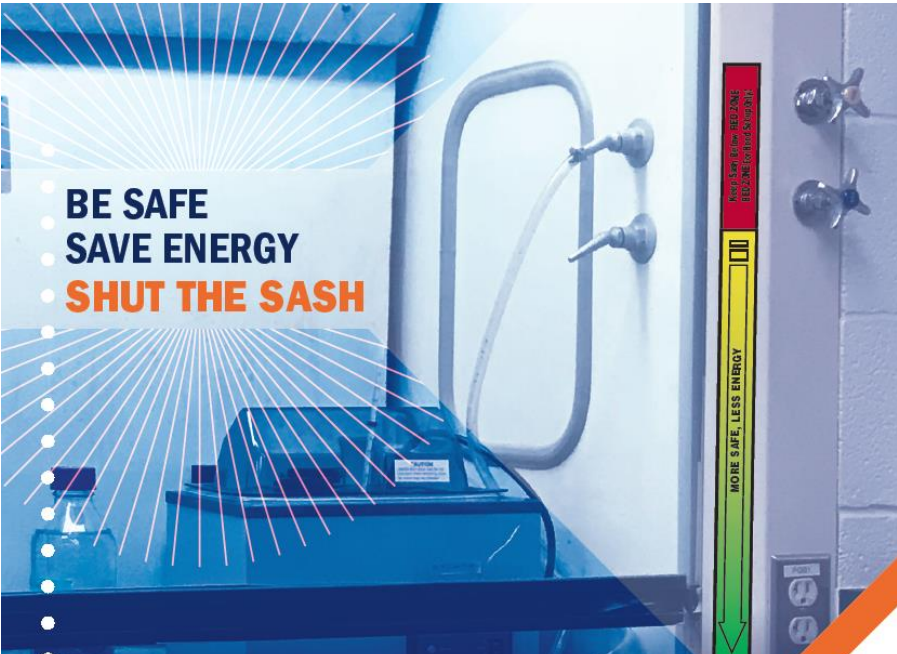
Special Assistance

- Purchasers helped ID green procurement options
- Housekeeping staff adopted green cleaning practices
- Recycling staff spearheaded “waste audit” efforts to understand Clark Hall’s unique recycling needs

Transportation & Comfort Surveys

- 117 employees took our survey with an alternative transportation rate of 57%
- 471 students took our survey with an alternative transportation rate of 76%
- These efforts to track occupants’ commuting habits helped Clark Hall earn at least 10 points in the LEED Green Building rating system.


GREEN LABS



**BE SAFE
SAVE ENERGY
SHUT THE SASH**

Set a sash goal, achieve it, and be entered to win **FREE** cupcakes!

SIGN UP BY 9.28
SUSTAINABILITY.VIRGINIA.EDU



lab GREEN
University of Virginia

ARE YOU UP FOR THE CHALLENGE?

Discard old samples, perform routine freezer maintenance, and consolidate cold storage space to **WIN PRIZES!**

Visit UVA Green Labs at sustainability.virginia.edu to register for the International Lab Freezer Challenge by Friday, February 1, 2019

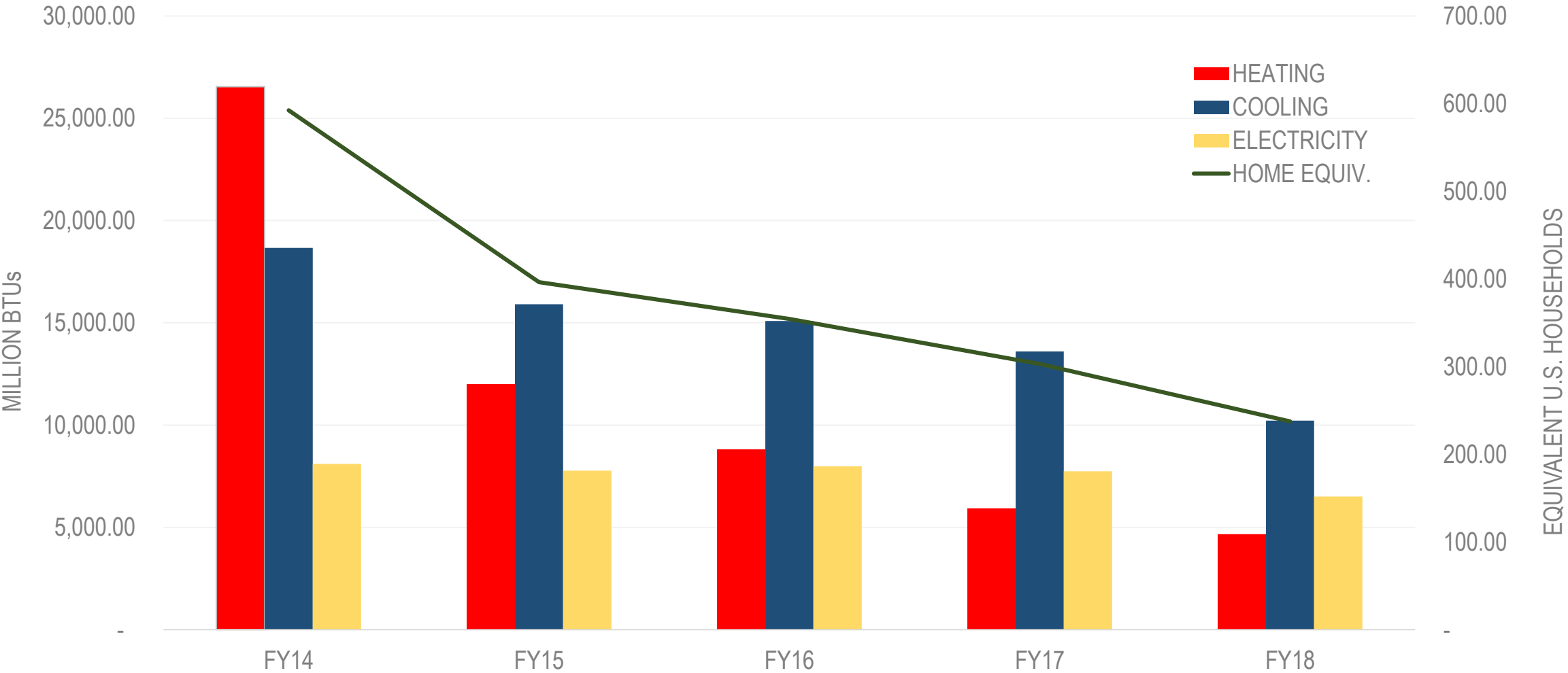


GREEN lab
University of Virginia

GREEN WORKPLACE CERTIFICATION



CLARK HALL ANNUAL UTILITY CONSUMPTION



UTILITY COSTS:	\$1,199,000	\$840,000	\$826,000	\$582,000	\$435,000
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LEED VERSION 4: EB O+M SILVER



Clark Hall is the first LEED EB O+M on
Grounds

Areas of Interest:

- Green Cleaning
- Procurement
- Food
- Pest Management
- Landscape Management
- Waste Management

LEED
FOR
EXISTING
BUILDINGS
OPERATIONS AND
MAINTENANCE



presjimryan



Liked by humofbees and 883 others

presjimryan A terrific win-win for sustainability and savings. Bravo to @UVA's Delta Force on making sustainable investments that have saved the University \$35 million! Thanks for bringing, dare I say, such good energy to Grounds.

Smart Energy International

University Recognized for \$35 Million Energy-Saving Initiative

UVA has been announced as the 2019 innovation award winner in the 'Higher Education Energy Efficiency Technology' category. The award honors the University's Delta Force initiative, in which the institution identifies internal energy savings potentials, funds them and recovers 125 percent of the funding out of utility savings. **MORE >**



UNIVERSITY
of VIRGINIA



ANNUAL DELTA FORCE EXPENDITURES AND AVOIDED COSTS



ANNUAL DELTA FORCE EMISSION REDUCTIONS COMPARED TO GHG ACTION PLAN GOALS

