

Value of Occupant Outreach:

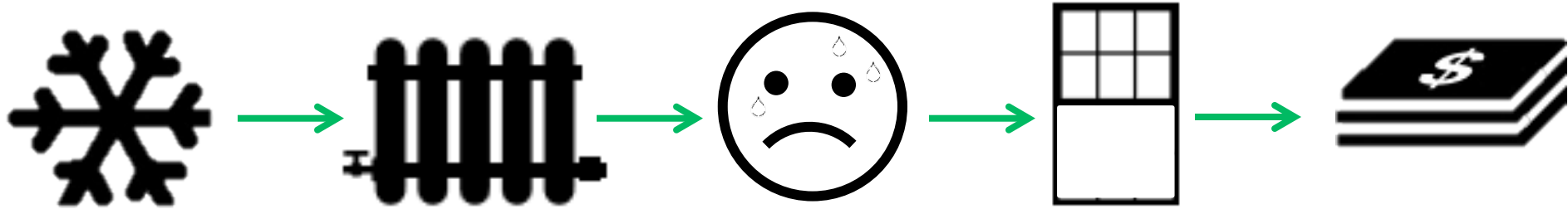
Design and Evaluation of a Dorm Energy Efficiency Program

Dallase Scott

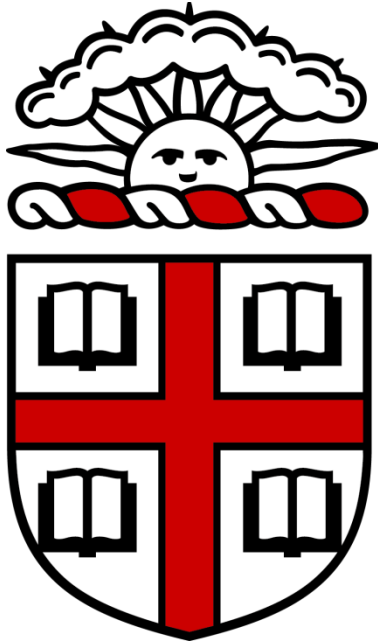
BECC 2013



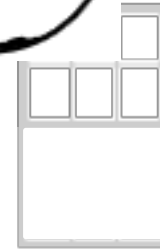
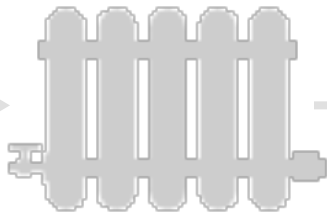
Problem Statement



Problem Statement

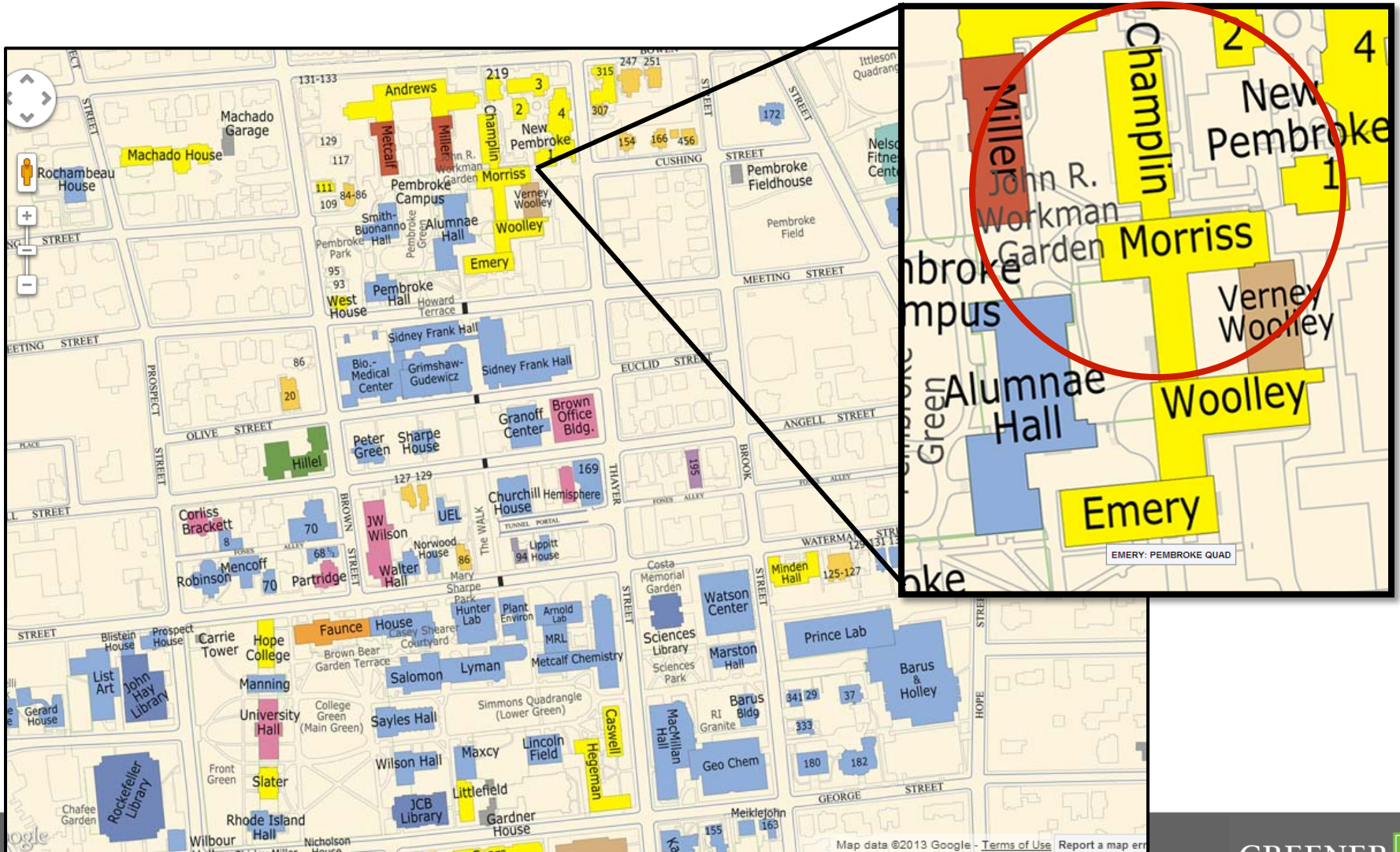


BROWN



Dorm Energy Efficiency Project

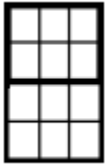
Second Iteration



Program Development

	Program Offerings	Experimental Dorms Morris & Champlin	Control Dorms Emery & Woolley
	Building Upgrades: <ul style="list-style-type: none"> - Installation of TRVs - Building Automation - Pipe & Valve Insulation - Building Weatherization - Upgrades to Lighting & Plumbing 	✓	✓
Behavior & Outreach Programing	Email Communication	✓	
	Student to Student Outreach	✓	
	Energy Showcase	✓	
	Pledges	✓	
	Posters	✓	
	Smores Event	✓	

Program Evaluation



Window Observations



Survey

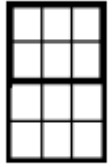


Sub Metering





Service Response

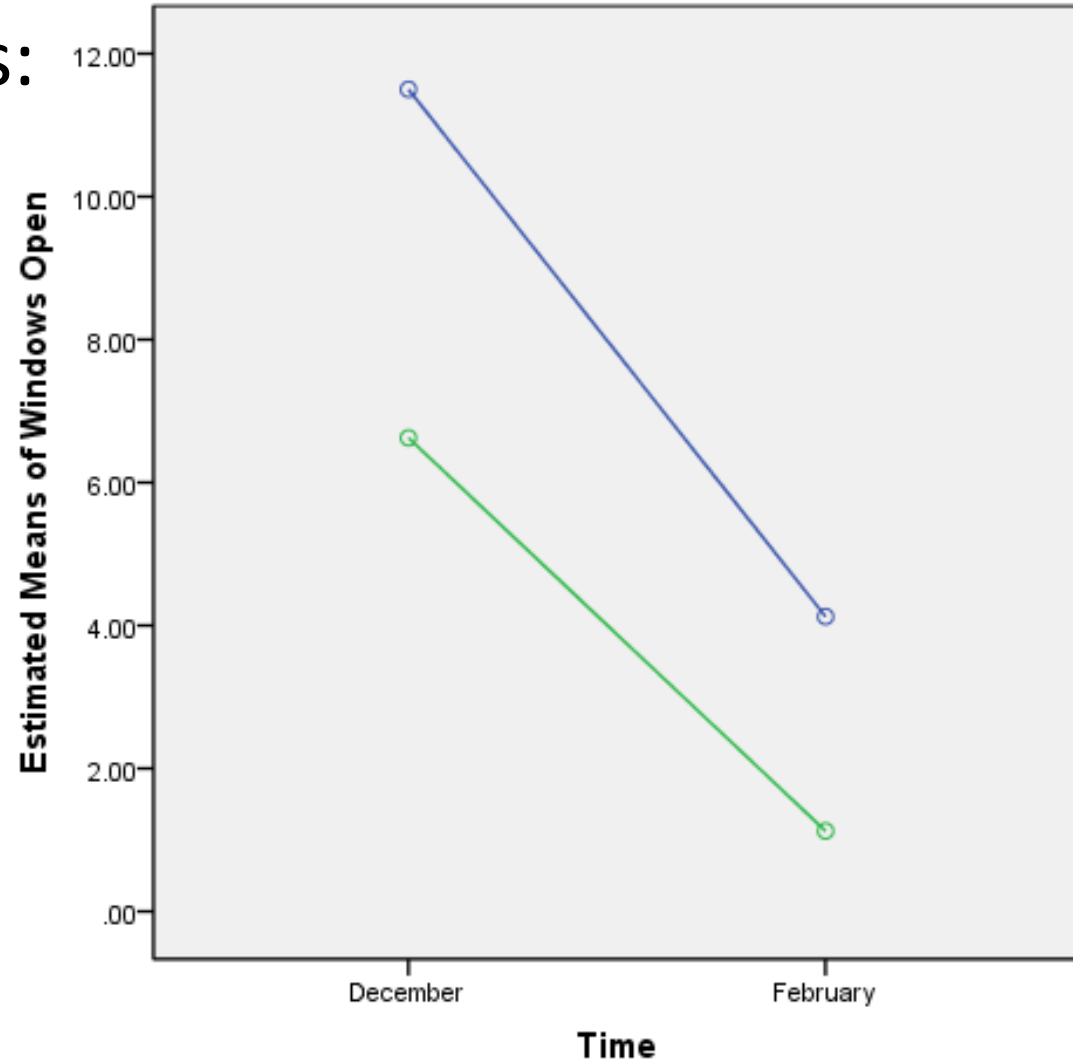
Program Evaluation



Window Observations:

Control = 
Experimental = 

- Eco Reps did on-site window observations
- Set time two days a week for four weeks.
- **50% Decrease in open windows with experimental group.**



Program Evaluation



Survey Results:

26 occupants responded to the survey from each group

Control
Experimental

Survey participants were asked:

How much do you agree with the following statements:

“I feel that Brown cares about my comfort”

1 Disagree Strongly

2 Disagree

3 Neutral

4 Agree

5 Agree Strongly

32% / 42%

56% / 50%

Survey participants were asked:

Brown is:

“Committed to reducing 42% of its greenhouse gas emissions by 2020”

True

False

Don't Know

54% / 50%

46% / 50%

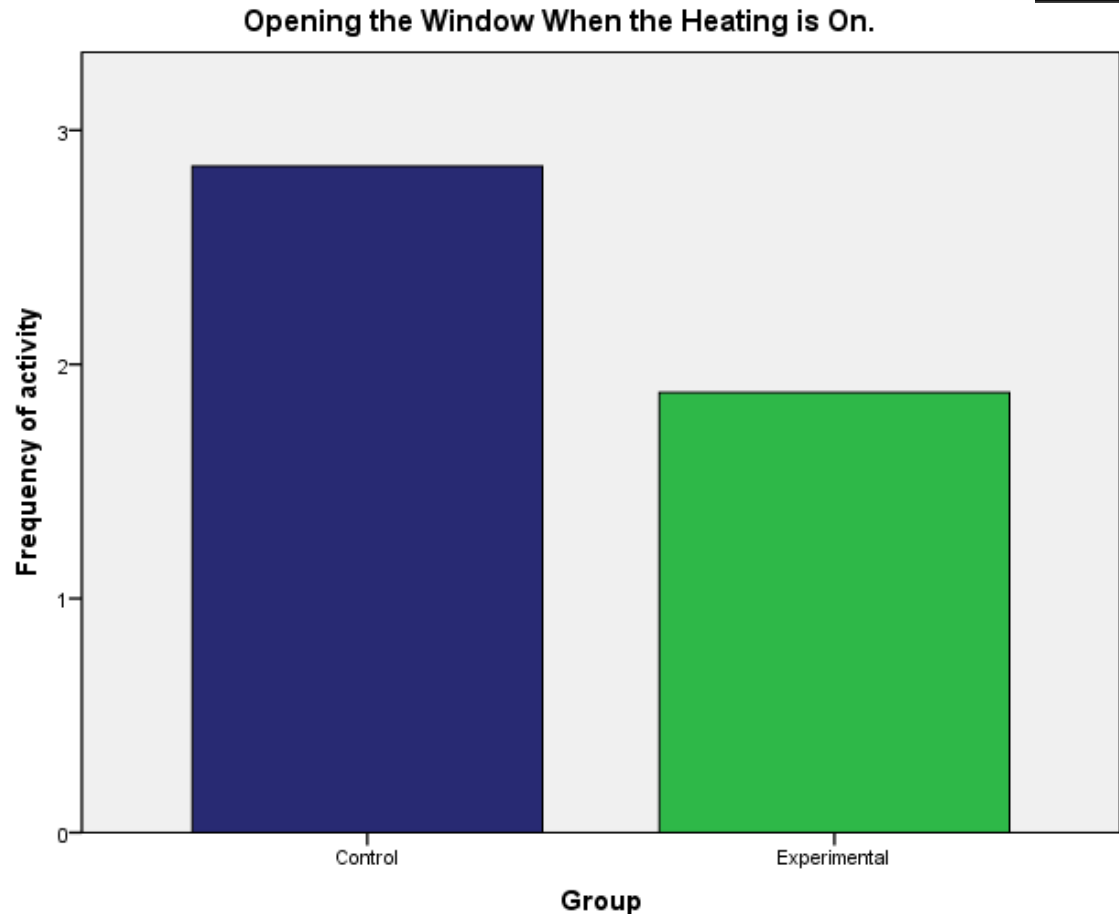
Program Evaluation



Survey Results:

Experimental group self-reported that they **open their windows less** when their heating is on. $P=00.8$

Survey participants were asked:
How much do you agree with the following statements:



“I open the window when the heating is on.”

1 Disagree Strongly

2 Disagree

3 Neutral

4 Agree

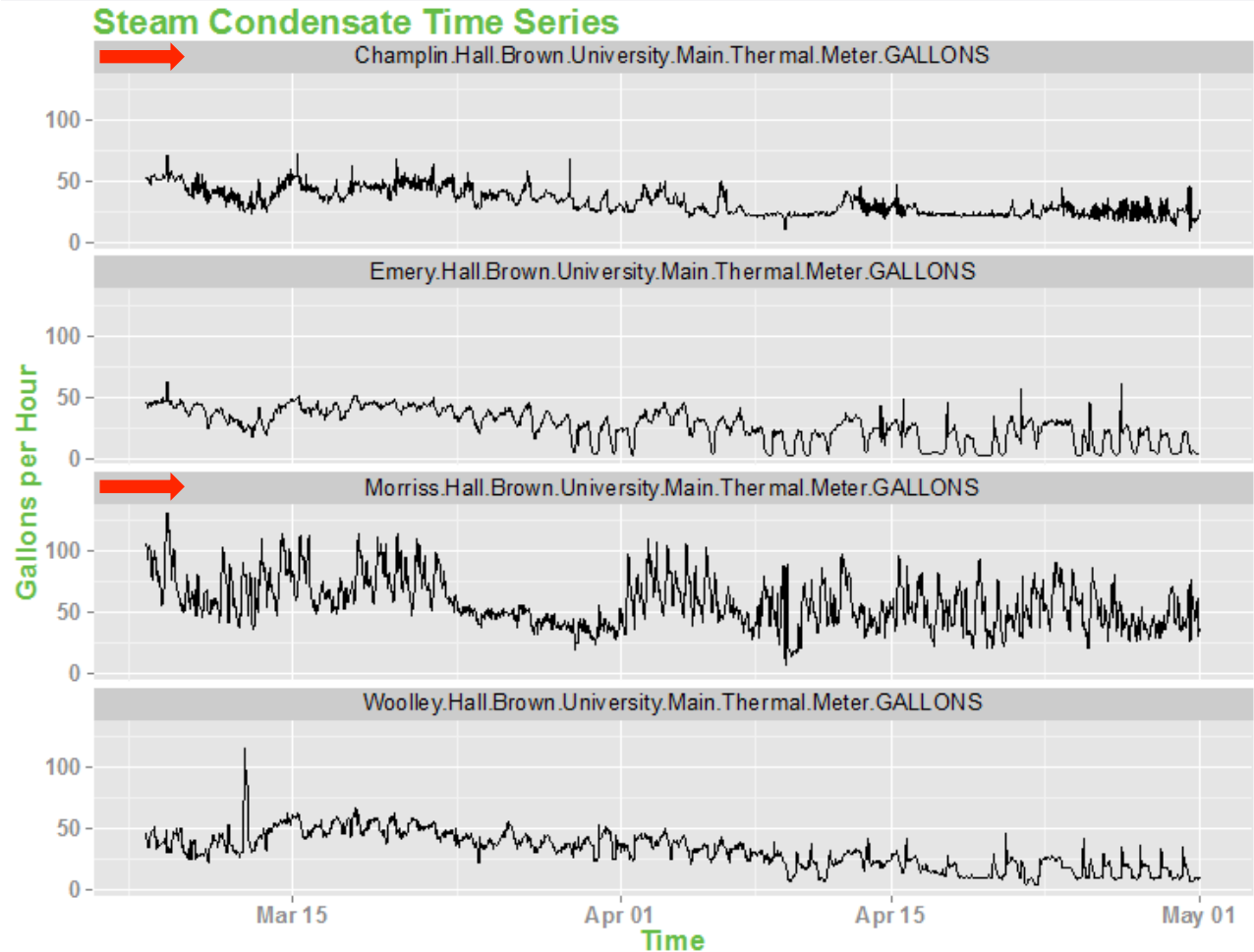
5 Agree Strongly

Program Evaluation



Sub Metering:

- Sub metering didn't start working until February
- Difference with fall-backs between control group and experimental groups
- Operator adjusted setbacks



Program Evaluation



Sub Metering:

Table 1: A comparison of the commissioned and actual set points. Operator overrides are in red.

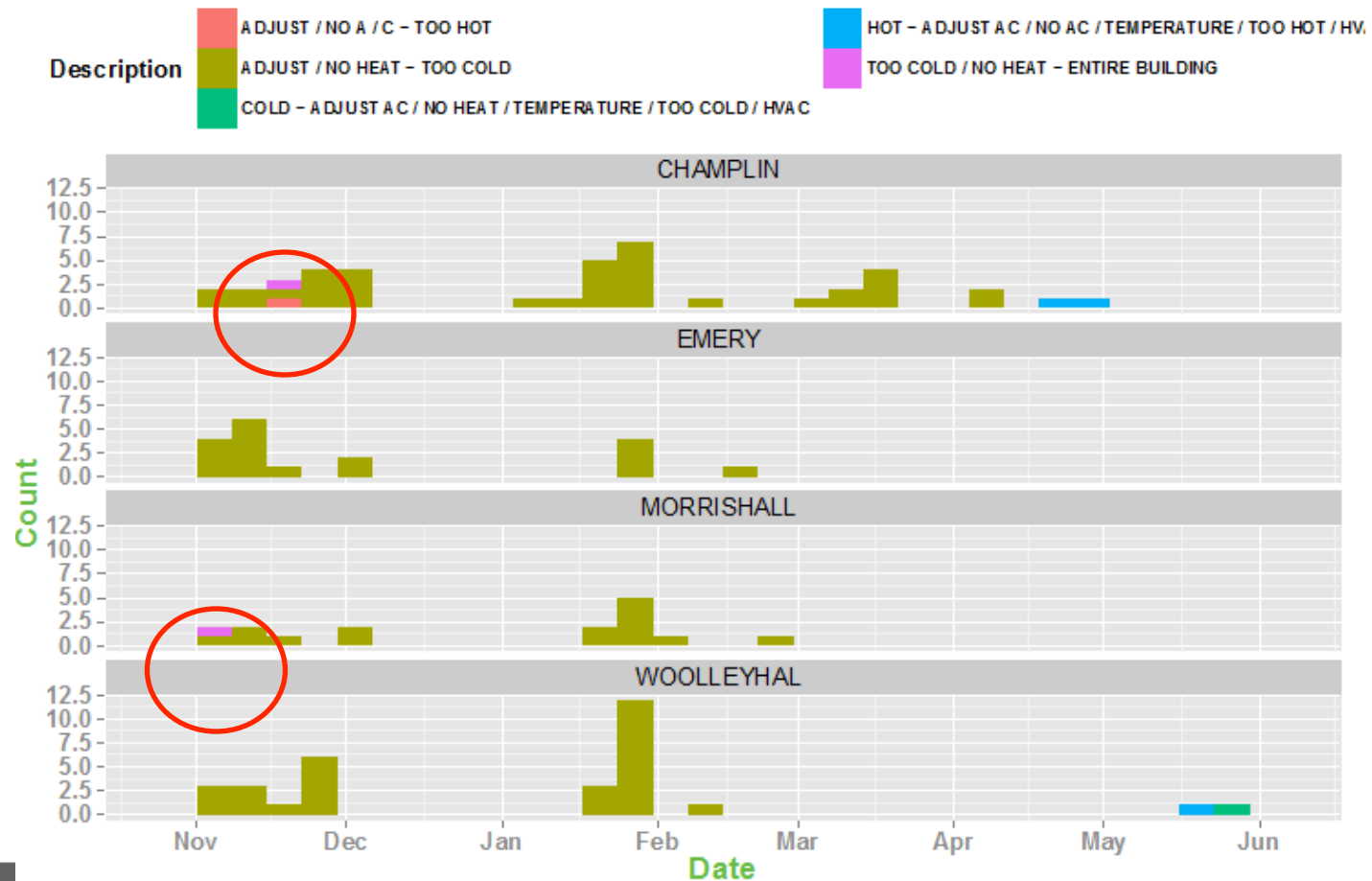
Set Point	Commissioned Value	Current Value				Description
		CHAMPLIN	MORRISS	EMERY	WOOLLEY	
OA-ENABLED-SP	55	60	55	55	55	Outdoor (OA) Temp at which heating is enabled
OALO-SP	0	40	30	0	0	OA Temp which drives HW supply temp to its highest <u>setpoint</u>
OAHI-SP	55	55	55	55	55	OA Temp which drives HW supply temp to its lowest <u>setpoint</u>
HWHI-SP	180	180	180	180	180	HW supply temp highest <u>setpoint</u>
HWLO-SP	120	140	120	120	120	HW supply temp lowest <u>setpoint</u>

Program Evaluation



Service Response:

Pembroke Quad
Weekly Service Calls
November 2012 – May 2013



Limitations

- Operator Setbacks
- Sub Metering
- Practitioners

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