



BERKELEY LAB
LAWRENCE BERKELEY NATIONAL LABORATORY



Trash Talk and Action: Improving Waste Diversion through Organizational Change

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Approach: 5-Step Framework for Institutional Change



Federal Energy Management Program (FEMP) Institutional Change for Sustainability

Data Collection - Metrics

- **Diversion rate (building-level)**
 - % waste diverted to compost and recycling
 - Improvement: 64% baseline, 70% year average

- **Contamination rate (bin, station-level)**
 - Frequency that a bin is contaminated with an item that belongs elsewhere
 - No Improvement: Between 40-50%, changes too marginal to measure with metric






Informative Flyers

Rethink Waste: Recycle rigid plastics

A recent data collection project here at Building 90 found that landfill and compost bins are frequently contaminated with rigid plastics. Rigid plastics should be empty and placed in blue “Other Recycling” bins.

Rigid plastic items can usually be identified as having a recycling symbol and a number 1-7 on them. Remember that a rigid plastic marked as compostable or with the number 0 should be composted (e.g. containers and coffee cup lids from the cafeteria).

| Item | What's It Look Like? | Where Should It Go? |
|----------------------------------|---|------------------------|
| Microwave meal trays |  | Other Recycling |
| Yogurt containers |  | |
| Non-compostable coffee lids |  | |
| Non-compostable to-go containers |  | |
| Non-compostable silverware |  | |



WHY RECYCLE RIGID PLASTIC?

Recycling rigid plastics is important to achieve the Lab-wide goal of diverting 75% of waste to recycling and compost. Although Americans use plastic all the time, only 9% was recycled in 2013 according to the EPA. If these items are recycled instead of sent to a landfill, they have renewed value and can be turned into useful products.

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Tags on Waste Stations



Great job!

Sorting this week at this station was *better* than last week, and *above average* compared to the rest of Building 90.

Keep up the good work!

Rethink Waste
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Great job!

Sorting at this station this week was *the same* as last week, but still *above average* compared to the rest of Building 90.

One of your station's most commonly misplaced item was: _____,

To stay on top, remember this belongs in the _____ bin.

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Hmmm...

Sorting this week at this station was *better* than last week, but *below average* compared to the rest of Building 90.

One of your station's most commonly misplaced item was: _____,

To keep improving, remember this belongs in the _____ bin.

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Oh No!

Sorting at this station this week was *worse* than last week and *below average* compared to the rest of Building 90.

Your station's most commonly misplaced item was: _____,

To turn the frown upside down, remember this belongs in the _____ bin.

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Compared stations against themselves over time and against the building average

Occupant Engagement

- Building manager introduction
- Available for questions
- Workshop December 2015
- Music video



Summary

- Infrastructure is not sufficient for proper waste sorting
- 5-Step Framework for Institutional Change is helpful to understand context and strategically focus efforts
- Metrics and data collection are key
- Helpful to pilot activities and work with other people to refine plan and activities



Resources and Contact Info

Laurèn DeMates

ldemates@lbl.gov or SustainableFedOps@lbl.gov

Friday 8:30-10am 4A- Lightning Session: Organizations

“Building Sustainability through Institutional Behavior Change”

Rick Diamond/Christopher Payne

FEMP’s Institutional Change for Sustainability web page:

<http://energy.gov/eere/femp/institutional-change-process-sustainability>



U.S. DEPARTMENT OF
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1. Determine Goals

- Achieve a building-level diversion rate of 75%
 - Percentage of waste diverted to compost and recycling



 **SUSTAINABLE BERKELEY LAB**

2. Assess Context: Roles

| Roles | Current impact on goal | Changes needed for goal alignment |
|-------------------------------------|--|---|
| <i>Sustainability manager</i> | <ul style="list-style-type: none"> - <i>Responsible for meeting facility-wide waste diversion goal</i> - <i>Has knowledge of waste diversion policies and communicates with other key players</i> | <ul style="list-style-type: none"> - <i>Already on board</i> |
| <i>Building occupants</i> | <ul style="list-style-type: none"> - <i>Generate waste, directly determine diversion rate</i> | <ul style="list-style-type: none"> - <i>Building occupants must improve sorting to meet goal</i> |
| <i>Various leadership positions</i> | <ul style="list-style-type: none"> - <i>Not currently engaged with waste diversion efforts</i> - <i>Responsible for organizational priorities and able to communicate with building occupants through different channels</i> | <ul style="list-style-type: none"> - <i>Need at least some leadership participation to communicate message and emphasize waste as a priority</i> |
| <i>Building manager</i> | <ul style="list-style-type: none"> - <i>Oversees building operations</i> - <i>Not currently prioritizing waste</i> | <ul style="list-style-type: none"> - <i>Needs to be on board for building-wide communications as well as infrastructure changes</i> |

2. Assess Context: Rules

| Formal rules | Current impact on goal | Changes needed for goal alignment |
|--|---|---|
| Facility-wide goal of 75% waste diversion | - This is the basis of our goal | - Facility-wide goal may not motivate people in this building - Relate goal to building |
| Informal rules | Current impact on goal | Changes needed for goal alignment |
| Waste items should be sorted appropriately | - Confusion on how to do this - May be some people who don't feel it's important | - This rule needs to be emphasized and clarified - It should become socially unacceptable to sort things wrong |

2. Assess Context: Tools

| Tools | Current impact on goal | Changes needed for goal alignment |
|---|---|--|
| <i>Waste bins color-coded for sorting</i> | <ul style="list-style-type: none"> - <i>Bin colors and shapes help guide people to sort appropriately</i> - <i>Some bins are non-standard - this may create confusion</i> | <ul style="list-style-type: none"> - <i>Potential need for increased recycling bins if sorting improves</i> - <i>Non-standard bins should be standardized or removed</i> |
| <i>Informative signs above waste stations</i> | <ul style="list-style-type: none"> - <i>Provides information to people on how to sort waste</i> | <ul style="list-style-type: none"> - <i>Potential for improvement with inclusion of additional commonly misplaced items</i> |
| <i>Data collection procedures</i> | <ul style="list-style-type: none"> - <i>None currently in place</i> | <ul style="list-style-type: none"> - <i>Need to establish data collection procedures to track progress towards goal</i> |
| <i>Building-wide communications from building manager</i> | <ul style="list-style-type: none"> - <i>Building manager sends emails about various building-related issues</i> - <i>Vehicle for communicating information</i> | <ul style="list-style-type: none"> - <i>Emails should emphasize importance of waste diversion</i> |

3. Develop Action Plan

- Ensure all the communal waste stations are “standard”
- Collect data
- Create informative, data-driven flyers
- Tag stations to show station how bins are doing and provide actionable feedback
- Be visible to answer questions and engage building occupants

***Action plan should engage, educate, enable, and evaluate.
The Framework outlines eight behavioral science-based
principles how to achieve the 4Es.***

4. Implement Action Plan

- Integration of the Eight Principles, such as:
 - Multiple Motivations
 - Information and Feedback
 - Social Network
 - Timeline
 - Ramped up efforts September 2015- December 2015
 - Continual, minimum engagement December 2015- August 2016
-

5. Measure and Evaluate






| | August/September 2015 (Baseline) | December 2015 | July 2016 | Year Average (September 2015 – July 2016) | Max | Min |
|--|-------------------------------------|---------------|--------------|---|-----|-----|
| Building Diversion Rate | 64% | 69% | 73% | 70% | 79% | 62% |
| Communal Station Contamination Rate | 49% | 40% | 51% | 46% | 51% | 40% |

- Variation by station, floor, and time
-

December 2015 Survey

- 12% response rate, 54/440 building occupants
 - 72% reported learning something new about waste as a result of our activities
 - Tags on waste stations and bathroom flyers most helpful
 - 32 people provided additional comments, questions, or concerns
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Data Collection- Top 5 Contaminating Items

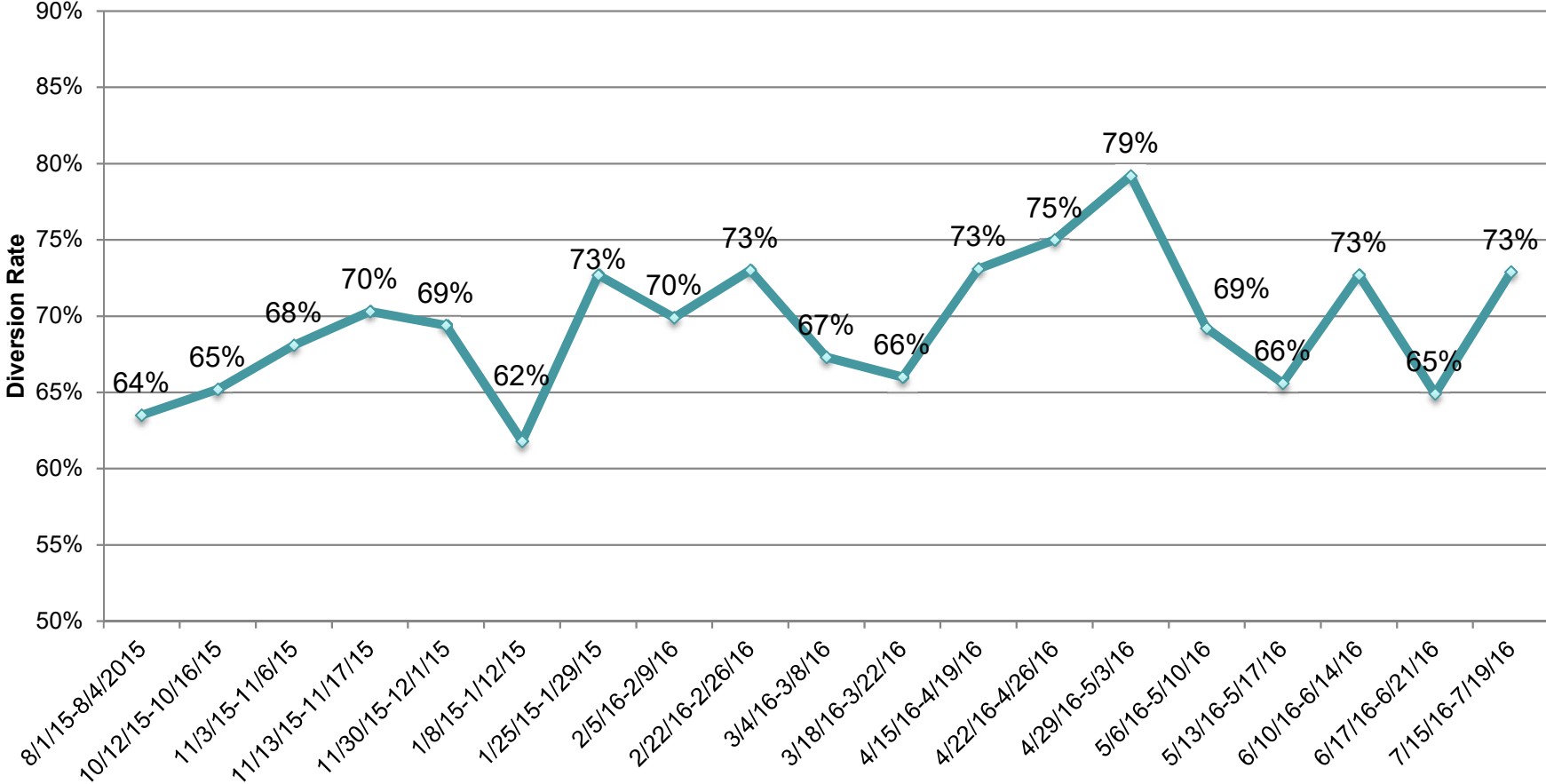
| Item | Where does it belong? | Where did we find it? |
|---|---------------------------------|----------------------------------|
|  | Compost (or paper) | Everywhere! Especially landfill. |
|  | Other recycling | Landfill and compost |
|  | Compost (or paper) | Other recycling |
|  | Compost | Landfill |
|  | Paper recycling (compost is OK) | Compost and landfill |

Ain't Too Proud to Sort

Building 90 Rethink Waste remix of “Ain't Too Proud to Beg”
by the Temptations

<https://www.youtube.com/watch?v=iWVNPqmqBhM>

Diversion Rate (Volume, Building Level)



Contamination Rate (Average, Station Level)

