



The AIM Report in Action: How to Get the Most From the AIM Tool

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International Institute for
Sustainable Laboratories

Learning Objectives



- List some of the major expected users of the AIM Report, such as facilities teams, utility companies, and consultants.
- Outline an example project for which AIM provided useful and actionable results.
- Explain how the results of AIM should be used in the project development process.
- Suggest situations in which stakeholders should consider using AIM.



- **Quick intro to AIM**
- **Use cases**
- **Walkthrough example**
- **LBNL example**



Today's Labs2Zero Tools



- Tools in the program **now**:
 - Lab Benchmarking Tool
 - Labs2Zero Scorecard, including Energy and Emissions Scores
 - The AIM Report – **NEW!**

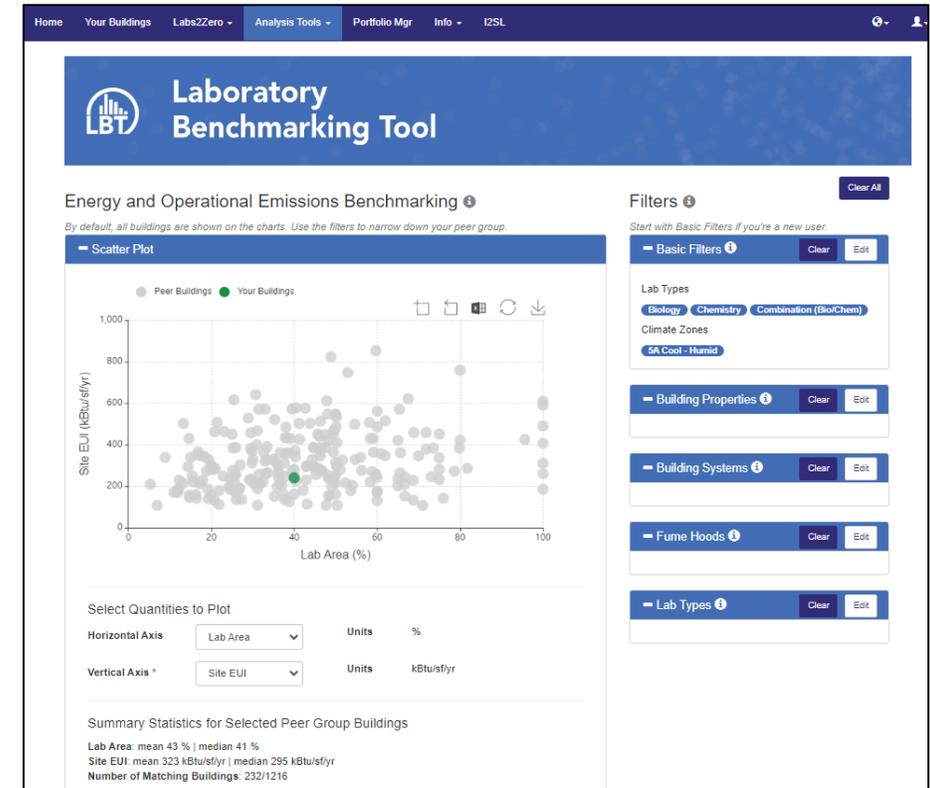


Data Year (or Design Phase)	Labs2Zero Energy Score	Labs2Zero Operational Emissions Score	Site EUI (kBtu/ft²)	Embodied GHG (tCO2eq/m²)	AIM Report
2021	17	9	485	N/A	Go to AIM Report
2022	63	38	285	N/A	Go to AIM Report
2024	30	16	448	N/A	Go to AIM Report
2025	83	79	227	N/A	Go to AIM Report

Reminder: the LBT



- The **foundation** of Labs2Zero
- Analytics tool & **rich database** of lab building attributes and energy use
- Users enter building data and **benchmark** against others
- Now hosts **all scores and tools**



> 1,400 lab buildings

> 250 million sf

LBT is free to use



lbt.i2sl.org



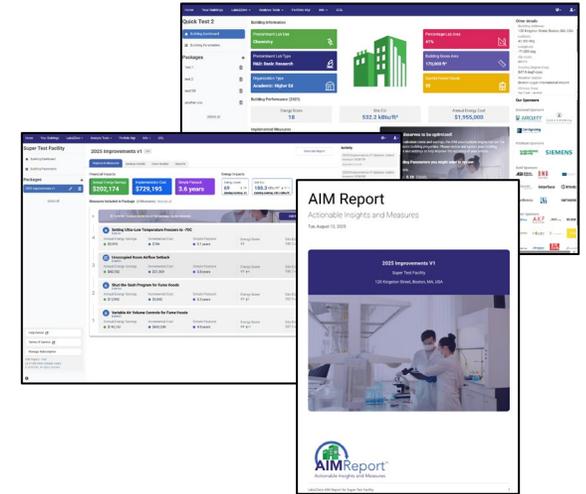
Just Launched: The AIM Report



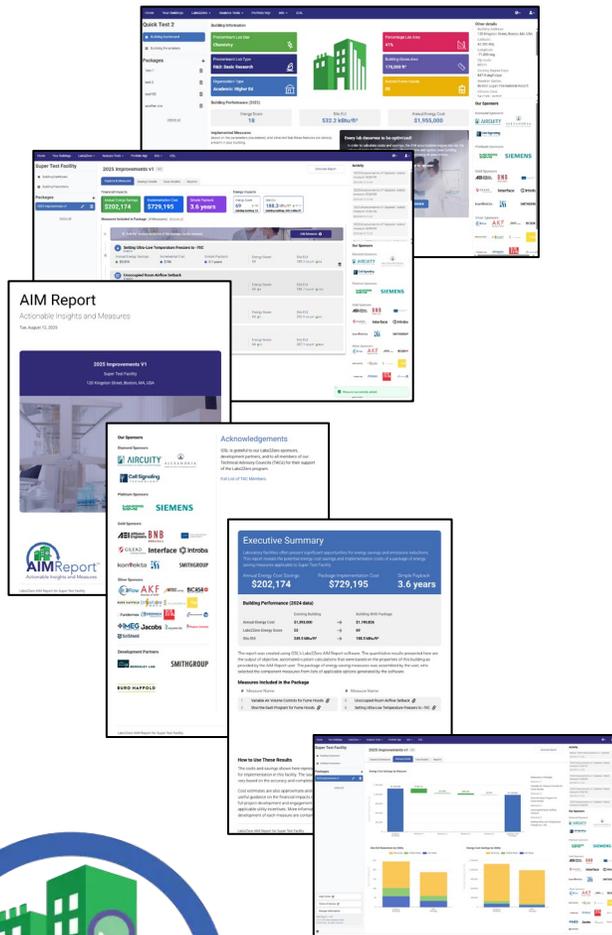
Introducing the AIM Report



AIM is an **automated energy audit** tool for lab buildings



Goals of the AIM Report



- Approx. ASHRAE Level 1
- Easy to Use
- Low Cost
- Quantitative
- Immediate
- Objective
- Lab-focused



Who Should Use AIM?



Anyone who needs to build the business case for energy projects:

Energy Managers

Prioritize attention between opportunities

Equipment Vendors

Highlight opportunities for customers

Utility Companies

Identify potential projects to incentivize

Energy Auditors and Consultants

Part of consulting offerings

Campus Planners

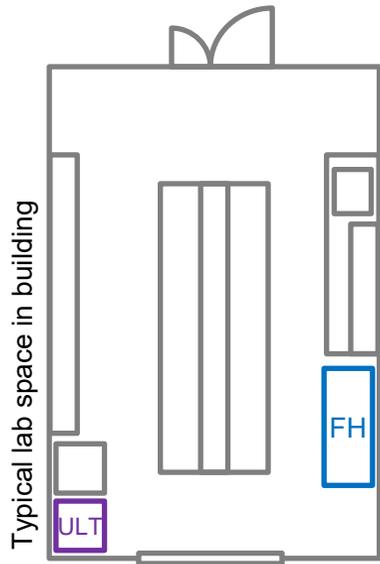
Long-range forecasts of energy or emissions

Always followed by in-depth project development

Walkthrough Example



Super Test Facility



Building Properties

- 120,000 gsf in Boston, MA
- University R&D building receiving district HW and CHW from central plant
- 48,000 sf of lab space (mix of bio and chem)
- Most spaces have 1 fume hood
- Some spaces have ULT freezers

Performance features

- Site EUI = 246 kBtu/sf/yr
- VAV, min ventilation rates set to 6 ACH
- Night setback of room temperatures
- Fume hoods are all CAV



53



Go to
lbt.i2sl.org

Create an
account and
log in!

Click on
**Learn
More**

Welcome to the Laboratory Benchmarking Tool

The International Institute for Sustainable Laboratories (I2SL) is proud to present the Laboratory Benchmarking Tool. Use the LBT to compare the energy use, operational and embodied emissions, and operational practices of your lab buildings with those of similar facilities. The tool's peer-group database contains owner-submitted data from an ever-growing number of lab buildings.

Current total: **1327** peer-group facilities

[Login](#)

[View data as guest](#)

[Don't have an account? Sign up!](#)

Meet the AIM Report!

The Actionable Insights and Measures (AIM) Report, the latest offering from the Labs2Zero program, is I2SL's automated energy audit for lab buildings.

[Learn More](#)



Click on
Try AIM Today

Introducing the AIM Report

The Actionable Insights and Measures (AIM) Report is I2SL's automated energy audit software designed specifically for lab buildings. Start using AIM today to identify and quantify customized energy-saving opportunities for your facility.



Try AIM Today

Get Started on Your Decarbonization Journey

AIM is designed to help kick-start the conversation about potential energy and emissions reductions for lab buildings. It can be used by facilities teams, engineering consultants, utility companies, product manufacturers, and others. The results of the AIM Report can stand alone as a high-level initial scoping assessment for savings opportunities, or can be incorporated in other energy studies or assessment programs.



Enter Your Building Data in the LBT

If your building is already in the LBT, you can start seeing AIM results with just a few



Build a Package of Measures Customized to Your Facility

AIM includes a library of lab-specific measures, covering HVAC systems, fume



Export a PDF Report to Share

With a single click, generate a PDF report containing all the results and details on your selected package of measures. The report



Subscribe to the AIM Report

Several subscription plans are available, including free Demo and paid Full subscriptions. Individual users should purchase a Full AIM subscription, while users wishing to purchase a multi-user subscription or redeem a free subscription on behalf of a Labs2Zero sponsor should contact I2SL for direct invoicing and instructions. More information about subscriptions and billing is available in [this article](#) and in the [Terms of Service](#).

Introductory discount available! Use code **INTRO20** for 20% off.

Demo

\$0

Free for everyone

- ✓ Build packages of measures
- ✓ Export PDF reports
- ✓ Limited to 5 energy efficiency measures
- ✓ Unlimited duration

Start the Demo Now

Full AIM

\$259 / month

Monthly billing Annual billing

- ✓ Full access to all features
- ✓ Use of all energy efficiency measures
- ✓ Unlimited buildings
- ✓ For individual users
- ✓ Enter discount codes on next screen

Get Started

Custom

Contact I2SL

Custom billing

- ✓ Same features as Full AIM
- ✓ Purchase multi-user subscriptions
- ✓ Redeem free sponsor subscriptions
- ✓ Other special cases

labs2zero@i2sl.org

Contact I2SL

Start the free Demo

Or buy a Full AIM subscription

Or claim a free sponsor subscription





Laboratory Benchmarking Tool

Your Buildings

[New Building](#)

You have no saved buildings. Click on the "New Building" button above to get started adding your building data. To get started using the LBT and obtaining **Labs2Zero Scores**, please read our [LBT Quick Start Guide](#) and/or the [LBT Embodied Carbon Quick Start Guide](#). You can also watch a recording of an I2SL Energy Score webinar or view the presentation slides [here](#).

You have Full AIM Access!

Each eligible building has an orange AIM Report button. Click on any orange button to get started on that building's AIM Report.



Show entries

Search:

Data Year (or Design Phase)	Labs2Zero Energy Score ⓘ	Labs2Zero Operational Emissions Score ⓘ	Site EUI (kWh/sq.m/yr)	Embodied GHGI (kgCO2e/sq.m) ⓘ	AIM Report
No data available in table					

Showing 0 to 0 of 0 entries

[Previous](#) [Next](#)

Create a building in LBT





Laboratory Benchmarking Tool

New Building

[Cancel](#)[Basic Info](#)[Building Info](#)[Lab Area](#)[Building Systems](#)[Policies](#)[Utility & Emissions](#)

* Facility Name



Organization Name



* Year Built



* Address



Enter a location

* Organization Type



* Predominant Lab Use Type



Notes



Characters remaining: 999

[Previous](#)[Next](#)

Fill out at least the required fields*

Use the LBT Quick Start Guide if needed



Laboratory Benchmarking Tool

[New Building](#)

Your Buildings

Your LBT buildings are listed in the table below. Click on **Add Data Year** to add more data for a building (another year of operation or another design phase). To **edit** an existing data record, click on the blue button at the left of the table row. Click on the **Building Details** button to see more summary info on the building and its **Labs2Zero Scores**, and to track its performance over time. Visit the [Energy and Operational Emissions Analysis](#), [Embodied Carbon Analysis](#), and [Operational Practices](#) pages to benchmark against your peers. See the [About the Scorecard](#) page for information about the Labs2Zero Scores and how you can help I2SL improve the scoring accuracy. And for a **quick refresher** on data entry, see the [LBT Quick Start Guide](#) and/or the [LBT Embodied Carbon Quick Start Guide](#).

You have Full AIM Access!

Each eligible building has an orange AIM Report button. Click on any orange button to get started on that building's AIM Report.

Show **25** entriesSearch:

Data Year (or Design Phase)	Labs2Zero Energy Score	Labs2Zero Operational Emissions Score	Site EUI (kBtu/sf/yr)	Embodied GHGI (kgCO2e/sq.m)	AIM Report
Super Test Facility Rename					Building Details Delete Building Add Data Year
2024	53	68	246	N/A	Create AIM Report

Showing 1 to 1 of 1 entries

[Previous](#)

1

[Next](#)

Click on the AIM Report button

Super Test Facility

Building Dashboard

Building Parameters

Packages

Create a package to start identifying and combining energy-saving measures for your building.

Create Package

Building Information

Predominant Lab Use
Combination (Bio/Chem)

Predominant Lab Type
R&D: Basic Research

Organization Type
Academic: Higher Ed



Percentage Lab Area
40%

Building Gross Area
120,000 ft²

Ducted Fume Hoods
75

Building Performance (2024)

Energy Score
53

Site EUI
245.5 kBtu/ft²

Annual Energy Cost
\$1,393,000

Implemented Measures

Based on the parameters you entered, AIM detected that these features are already present in your building.

- ECM048 Staged Control for Constant Volume Exhaust Fans
- ECM072A Exhaust Air Energy Recovery: Sensible Heat Systems
- ECM076 Variable Air Volume Controls for HVAC Systems
- ECM201 Unoccupied Room Temperature Setback
- ECM203 Supply Duct Static Pressure Setpoint Reset

Every lab deserves to be optimized!

In order to calculate costs and savings, the AIM assumptions engine has set the values of some building properties. Please review and update your building parameters and settings to help improve the accuracy of your results.

Some Building Parameters you might want to review:

Utility Costs:
Electricity: **0.18** \$/kWh
Chilled Water: **0.18** \$/ton-hr
District Hot Water/Steam: **16.00** \$/MMBTU

Go to Building Parameters

Other details

Building Address:
120 Kingston Street, Boston, MA, USA
Latitude:
42.352 deg
Longitude:
-71.059 deg
Zip Code:
02111
Cooling Degree Days
908 degF-days
Weather Station
Boston Logan International Airport
Climate Zone
5A Cool - Humid
Year Built:
2000

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The AIM dashboard

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AIM Report - Full
v2.4.158 [View release notes](#)
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Super Test Facility

Building Dashboard

Building Parameters

Packages

Create a package to start identifying and combining energy-saving measures for your building.

Create Package

Building Parameters

Financial

Building Systems

Control Strategies

Ventilation

Fume Hoods

Occupancy and Plug Loads

All Fields

Legend

LBT Parameters AIM Parameters High Priority Parameters

After entering a value, please click outside of the input field.

Occupied Room Cooling Setpoint Assumption

73 degF

Occupied Room Heating Setpoint Assumption

71 degF

Lab Unoccupied Temperature Setback

True

Supply Air Temperature Setpoint Reset Assumption

False

Supply Static Pressure Setpoint Reset

True

Exhaust Static Pressure Setpoint Reset Assumption

False

Exhaust Fan Control Strategy Assumption

CV Fans With Bypass Damper, Staged

Exhaust System Wind Speed Response Assumption

False

Actions

Reset All Parameters

Provided by AIM

Approve & Save

Provided by AIM

Approve & Save

Provided by AIM

Original: Unknown

Approve & Save

Provided by AIM

Original: Unknown

Approve & Save

Provided by AIM

Approve & Save

Provided by AIM

Original: Unknown

Approve & Save

Activity

Test 1 Updated. Added measure: ECM095

2025-08-12 13:43

Test 1 Updated. Removed measure: ECM203

2025-08-12 13:42

Test 1 Updated. Removed measure: ECM083

2025-08-12 13:42

Test 1 Updated. Removed measure: ECM085

2025-08-12 13:42

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Check over the assumptions and tweak as needed

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Super Test Facility

Building Dashboard

Building Parameters

Packages

Create a package to start identifying and combining energy-saving measures for your building.

Create Package

Then create a package to hold measures

Building Parameters

Financial

Building Systems

Control Strategies

Ventilation

Fume Hoods

Occupancy and Plug Loads

All Fields

Internal Parameters

Legend

LBT Parameters AIM Parameters High Priority Parameters

After entering a value, please click outside of the input field.

Electricity Cost

0.24 \$/kWh

You have entered 0.24 \$/kWh

Original: 0.18 \$/kWh

Save

District Chilled Water Cost

0.18 \$/ton-hour

Assumption

District Hot Water/Steam Cost

16 \$/MMbtu

Assumption

Annual Inflation Rate

3 %

Assumption

Energy Cost Inflation Rate

3 %

Assumption

Financial Analysis Period

15 Yrs

Assumption

Hurdle Rate

8 %

Assumption

Actions

Reset All Parameters

Activity

Test 1 Updated. Added measure: ECM095

2025-08-12 13:43

Example: updating utility rates to match yours

Provided by AIM
Approve & Save

Help Center

Terms of Service

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Electricity Cost updated

Super Test Facility

Building Dashboard

Building Parameters

Packages

2025 Improvements v1

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v2.4.148 [View release notes](#)
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2025 Improvements v1

Impacts & Measures

Savings Details

Case Studies

Reports

Financial Impacts

Annual Energy Savings

-

Implementation Cost

-

Simple Payback

-

Energy Impacts

Energy Score

-

Existing building: 53

Site EUI

-

Existing building: 245.5 kBtu/ft²

Measures Included in Package

No measures in package

Add Measure



Start adding measures to your package

Activity

Package '2025 Improvements v1' Created.
2025-08-12 13:50

Building Updated
2025-08-12 13:49

'Test 1' Updated. Added measure:
ECM095
2025-08-12 13:43

'Test 1' Updated. Removed measure:
ECM203
2025-08-12 13:42

'Test 1' Updated. Removed measure:
ECM083

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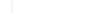
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Package created successfully



← Add Measure

	Variable Air Volume Controls for Fume Hoods ECM095	Annual Energy Savings ● \$143,161	Incremental Cost ● \$693,000	Simple Payback ● 4.8 years	Energy Score 64 ↑11	Site EUI 207.1 kBtu/ft ² ↓38.4
	Enhanced Exhaust Fan System Controls ECM045	Annual Energy Savings ● \$81,694	Incremental Cost ● \$147,400	Simple Payback ● 1.8 years	Energy Score 58 ↑5	Site EUI 235.8 kBtu/ft ² ↓9.7
	Hibernation or Decommissioning of Unused Hoods ECM096	Annual Energy Savings ● \$48,385	Incremental Cost ● \$7,240	Simple Payback ● 0.1 years	Energy Score 57 ↑4	Site EUI 230.8 kBtu/ft ² ↓14.7
	AHU Discharge Air Temperature Reset ECM071	Annual Energy Savings ● \$29,993	Incremental Cost ● \$4,930	Simple Payback ● 0.2 years	Energy Score 57 ↑4	Site EUI 221.7 kBtu/ft ² ↓23.8
	Exhaust Duct Static Pressure Setpoint Reset ECM204	Annual Energy Savings ● \$26,768	Incremental Cost ● \$7,802	Simple Payback ● 0.3 years	Energy Score 55 ↑2	Site EUI 242.3 kBtu/ft ² ↓3.2
	Frequent Filter Replacement for Air Handlers ECM059A	Annual Energy Savings ● \$15,571	Incremental Cost ● \$8,131	Simple Payback ● 0.5 years	Energy Score 54 ↑1	Site EUI 243.7 kBtu/ft ² ↓1.8
	Low Pressure-Drop Filters for Air Handlers ECM059B	Annual Energy Savings ● \$15,571	Incremental Cost ● \$26,088	Simple Payback ● 1.7 years	Energy Score 54 ↑1	Site EUI 243.7 kBtu/ft ² ↓1.8
	Obtaining a My Green Lab Certification					

Variable Air Volume Controls for Fume Hoods
ECM095

Add Measure to Package (button) | **Already in Building** (button)



Financial information

Annual Energy Savings ● \$143,161	Package \$143,161	Incremental Cost ● \$693,000	Package \$693,000
Simple Payback ● 4.8 years	Package 4.8 years		

Energy Impacts

Energy Score 64 ↑11 Current Package: 53	Site EUI 207.1 kBtu/ft ² ↓38.4 Current Package: 245.5kBtu/ft ²
--	---

Description

This measure involves converting fume hoods that are currently operating at constant air volume (CAV) to operate with variable air volume (VAV) control, potentially resulting in energy savings through airflow reductions.

Fume hoods that operate at CAV exhaust the same amount of air regardless of sash position. The hood exhaust airflow is typically set to achieve the face velocity setpoint at the design sash height (often 18 inches). For hoods that operate with VAV control, the exhaust airflow is reduced when the sash is lowered or closed. This reduction in exhaust airflow will result in energy savings if it leads to a reduction of overall exhaust and makeup airflows in the space, which typically occurs where hood densities are high.

Converting a CAV hood to VAV involves adding a method of tracking the sash position or the face velocity. For the first method, a sash position sensor is attached to the sash or to the sash cable. Knowing the height of the sash allows the control system to calculate the current area of the sash opening and then adjust the exhaust airflow (by sending a signal to the associated terminal unit/exhaust fan) to maintain the face velocity at setpoint. The second method involves installing a sensor through the wall of the hood to measure the speed of air flowing through the cabinet as the sash is lowered. The control system then adjust the exhaust airflow to maintain this measured velocity at setpoint.

The air terminal unit serving the hood is typically a variable air volume (VAV) terminal unit that can adjust the airflow to match the sash movements. The face velocity is typically set to 100 fpm (50% of the design face velocity) to maintain the required face velocity (typically 100 fpm) through the sash opening) that are required for the hood to operate properly. In new buildings, the hood exhaust system is typically designed to operate with VAV control.

The measure cost and payback period vary significantly based on the type of hood, the type of control system, and the number of hoods in each lab space. The measure cost is typically \$100 to \$200 per hood. The measure cost is typically \$100 to \$200 per hood. The measure cost is typically \$100 to \$200 per hood. Lab exhaust systems have a significant savings potential. Lab exhaust systems have a significant savings potential. Lab exhaust systems have a significant savings potential.

When hood sashes are lowered, the exhaust airflow is reduced, which reduces the load on the HVAC system. Reduced airflow means less energy is required to heat and cool the space.

Stakeholders to engage when considering conversion of hoods to VAV control include building owners, facility managers, and researchers. Not all hoods are appropriate for VAV conversion, and the decision should be based on a risk assessment of the hood and the building. This assessment should consider the operations being performed within the hood (this typically involves consulting with the researchers) and the potential for contamination.



Super Test Facility

Building Dashboard

Building Parameters

Packages

2025 Improvements v1

[Delete all](#)

Your package now contains one measure

Let's add some more

Manage Subscription

AIM Report - Full
v2.4.148 [View release notes](#)
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2025 Improvements v1

Generate Report

Impacts & Measures Savings Details Case Studies Reports

Financial Impacts

Annual Energy Savings
\$143,161

Implementation Cost
\$693,000

Simple Payback
4.8 years

Energy Impacts

Energy Score
64 ↑ 11
Existing building: 53

Site EUI
207.1 kBtu/ft² ↓ 38.4
Existing building: 245.5 kBtu/ft²

Measures Included in Package (1 Measure) [Remove all](#)

Only the measure at the top of the package can be removed.

Add Measure

1 Variable Air Volume Controls for Fume Hoods ECM095

Annual Energy Savings
● \$143,161

Incremental Cost
● \$693,000

Simple Payback
● 4.8 years

Energy Score
64 ↑ 11

Site EUI
207.1 kBtu/ft² ↓ 38.4

Activity

'2025 Improvements v1' Updated. Added measure: ECM095
2025-08-12 13:52

Package '2025 Improvements v1' Created.
2025-08-12 13:50

Building Updated
2025-08-12 13:49

'Test 1' Updated. Added measure: ECM095
2025-08-12 13:43

'Test 1' Updated. Removed measure: ECM203

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< Add Measure

Annual Energy Savings: \$19,512
Incremental Cost: \$48,000
Simple Payback: 2.5 years
Energy Score: 66 ↑2
Site EUI: 200.7 kBtu/ft² ↓6.5

Obtaining a My Green Lab Certification
 ECM191
 Annual Energy Savings: \$18,243 | Incremental Cost: \$20,073 | Simple Payback: 1.1 years | Energy Score: 65 ↑1 | Site EUI: 204.3 kBtu/ft² ↓2.8

Fume Hood Automatic Sash Closers
 ECM100
 Annual Energy Savings: \$17,830 | Incremental Cost: \$384,000 | Simple Payback: 21.5 years | Energy Score: 66 ↑2 | Site EUI: 201.3 kBtu/ft² ↓5.9

Reduced Fume Hood Face Velocity
 ECM097
 Annual Energy Savings: \$16,725 | Incremental Cost: \$49,125 | Simple Payback: 2.9 years | Energy Score: 66 ↑2 | Site EUI: 201.7 kBtu/ft² ↓5.5

Shut-the-Sash Program for Fume Hoods
 ECM184
 Annual Energy Savings: \$12,992 | Incremental Cost: \$3,840 | Simple Payback: 0.3 years | Energy Score: 65 ↑1

Frequent Filter Replacement for Air
 ECM059A
 Annual Energy Savings: \$11,602 | Incremental Cost: \$7,847

Low Pressure-Drop Filters for
 ECM059B
 Annual Energy Savings: \$11,602 | Incremental Cost: \$25,519 | Site EUI: 205.8 kBtu/ft² ↓1.4

Hibernation or Decommissioning of Unu
 ECM096
 Annual Energy Savings: \$2,620 | Incremental Cost: \$2,620 | Simple Payback: 0.3 years | Energy Score: 65 ↑1 | Site EUI: 203.9 kBtu/ft² ↓3.2

Shut-the-Sash Program for Fume Hoods
 ECM184
 Add Measure to Package
 Already in Building

Financial information
 Annual Energy Savings: \$12,992
 Incremental Cost: \$3,840
 Simple Payback: 0.3 years
 Package: \$156,153 / 4.5 years
 Package: \$696,840

Energy Impacts
 Energy Score: 65 ↑1 (Current Package: 64)
 Site EUI: 202.9 kBtu/ft² ↓4.3 (Current Package: 207.1 kBtu/ft²)

Description
 This measure involves implementing an ongoing program to encourage and motivate lab users to close their fume hood sashes whenever possible. Reduced average sash opening can lead to reduced space airflow requirements and thus to energy savings.

Lab occupants are typically engaged in a shut-the-sash initiative via an organizational green labs program. Shut-the-sash programs often encourage competition between labs and may include rewards such as pizza parties for groups achieving the best results. Some organizations apply stickers to fume hoods to serve as reminders, while others use tie-ins to building automation systems to provide live feedback on total hood airflow to encourage users to shut their sashes. Displays can also be configured to translate airflow savings into energy and greenhouse gas emissions savings to provide occupants with more familiar metrics.

High airflow rates result in HVAC system energy savings through reductions in fan power and in heating and cooling energy required to heat the air flowing through the room. In order for a shut-the-sash program to result in energy savings, the building's air conditioning must be variable air volume and the fume hoods must also have VAV controls, i.e. the hood exhaust airflow must be controlled when the sash is moved. An additional requirement for energy savings is that the hood exhaust airflow is responsible for driving the space airflow at least some of the time. This typically occurs in spaces where fume hood densities are high and cooling loads are high.

Energy savings and cost calculations assume that the lab airflow controls, fume hoods, and main HVAC systems are already VAV. The amount of energy savings depends on how much time the hood can operate at a reduced sash position compared to pre-program levels; this is influenced by occupancy patterns, user operating procedures, and pre-program user behavior. Laboratory spaces that are fume hood driven will see the greatest energy savings potential. Laboratories that are cooling-load or ventilation driven may not see savings from reducing the hood exhaust airflow rates. In facilities where most fume hoods are already equipped with automatic sash closers or face velocity setback controls, potential energy savings will be limited.

This measure includes benefits beyond energy savings. Fume hood sashes are primarily provided for safety, and so closing the sash helps protect users from splashes or other hazards in their hoods. With sashes lowered and room airflows correspondingly reduced, users may also experience a reduction in noise levels in the laboratory space. Reducing the airflow rates of the exhaust and makeup air systems will also allow the systems to operate more efficiently, and may extend the life of this equipment.

When considering a shut-the-sash program, stakeholders to engage include the laboratory users, research leads, and any lab green team coordinators. Facilities teams and EH&S personnel should also be informed as the program is being planned and executed. Facilities and/or building automation system staff can assist in determining current fume hood control methods and in estimating the extent to which hood exhaust drives the space airflow in the proposed lab spaces. Coordination with building automation system personnel is needed if the proposed program includes the display of live hood airflow rates or of other data indicating achieved savings.

More measures are available now

Measure incremental costs and savings depend on what's in the package

Super Test Facility

- Building Dashboard
- Building Parameters

Packages +

2025 Improvements v1  

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2025 Improvements v1

[Generate Report](#)

- Impacts & Measures
- Savings Details
- Case Studies
- Reports

Financial Impacts

Annual Energy Savings **\$202,174** Implementation Cost **\$729,195** Simple Payback **3.6 years**

Energy Impacts

Energy Score **69** ↑ 16 Site EUI **188.3** kBtu/ft² ↓ 57.2
 Existing building: 53 Existing building: 245.5 kBtu/ft²

Measures Included in Package (4 Measures) [Remove all](#)

Only the measure at the top of the package can be removed. [Add Measure](#)

Measure Rank	Measure Name	Annual Energy Savings	Incremental Cost	Simple Payback	Energy Score	Site EUI
4	Setting Ultra-Low Temperature Freezers to -70C ECM181	\$5,919	\$786	0.1 years	69	188.3 kBtu/ft² ↓ 0.4
3	Unoccupied Room Airflow Setback ECM085	\$40,102	\$31,569	0.8 years	69 ↑ 4	188.7 kBtu/ft² ↓ 14.2
2	Shut-the-Sash Program for Fume Hoods ECM184	\$12,992	\$3,840	0.3 years	65 ↑ 1	202.9 kBtu/ft² ↓ 4.3
1	Variable Air Volume Controls for Fume Hoods ECM095	\$143,161	\$693,000	4.8 years	64 ↑ 11	207.1 kBtu/ft² ↓ 38.4

We've now built a package with 4 measures

Activity

- '2025 Improvements v1' Updated. Added measure: ECM181
2025-08-12 13:54
- '2025 Improvements v1' Updated. Added measure: ECM085
2025-08-12 13:54
- '2025 Improvements v1' Updated. Added measure: ECM184
2025-08-12 13:53
- '2025 Improvements v1' Updated. Added measure: ECM095
2025-08-12 13:52

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 Measure successfully added.

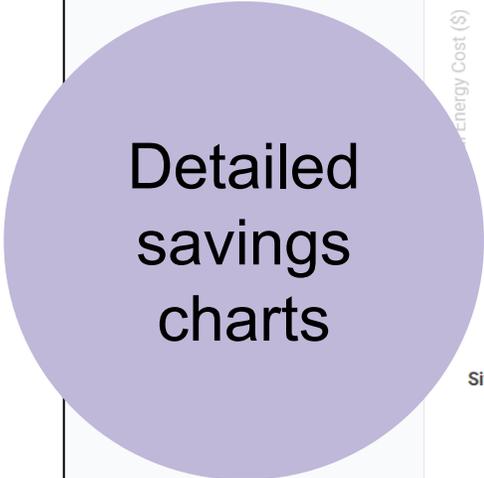
Super Test Facility

- Building Dashboard
- Building Parameters

Packages +

2025 Improvements v1  

[Delete all](#)



- Help Center 
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AIM Report - Full
v2.4.155 [View release notes](#)
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2025 Improvements v1

[Generate Report](#)

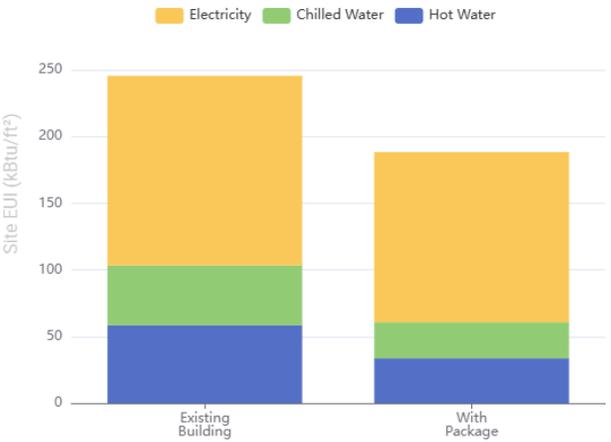
- Impacts & Measures
- Savings Details**
- Case Studies
- Reports

Energy Cost Savings by Measure

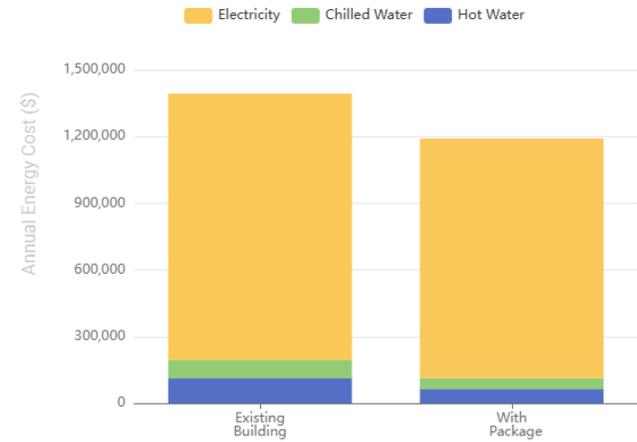


- Measures in Package:
- Measure 1: Variable Air Volume Controls for Fume Hoods
 - Measure 2: Shut-the-Sash Program for Fume Hoods
 - Measure 3: Unoccupied Room Airflow Setback
 - Measure 4: Setting Ultra-Low Temperature Freezers to -70C

Site EUI Reductions by Utility



Energy Cost Savings by Utility



Activity

- Report "2025 Improvements v1" Created
2025-08-12 13:56
- '2025 Improvements v1' Updated. Added measure: ECM181
2025-08-12 13:54
- '2025 Improvements v1' Updated. Added measure: ECM085
2025-08-12 13:54
- '2025 Improvements v1' Updated. Added measure: ECM184
2025-08-12 13:53
- '2025 Improvements v1' Updated. Added measure: ECM095

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- hok
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- Jacobs
- my green lab
- Phoenix Controls
- SciShield

Super Test Facility

- Building Dashboard
- Building Parameters

2025 Improvements v1

- Impacts & Measures
- Savings Details
- Case Studies**
- Reports

Generate Report

- ### Activity
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- ### Our Sponsors
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 - BICASA
 - EURO HAFFOLD
 - DYNAFLOW
 - FLAD
 - Fundermix
 - GREENECK
 - ORIK
 - IMEG
 - Jacobs
 - ScilShield

Case studies scored by relevance and quality

University of Chicago Retro-Commissioning Reduces EUI Through a Variety of Measures

In 2018-19, the Searle Chemistry Laboratory at the University of Chicago was retro-commissioned by Grumman Butkus Associates (GBA) as part of a campus-wide energy efficiency initiative. Built in 1968 and extensively renovated in 2009 to earn LEED Gold, the 86,500 SF facility includes chemistry labs, offices, a data center, and mechanical spaces across five floors. The baseline annual energy usage was 43,138,313 kBtu, yielding a baseline EUI) of 499.2 kBtu/SF. This project aimed to identify and implement measures to reduce energy consumption and improve operational efficiency.

Match Score

71.8

See More

McGill University Improves Safety and Energy Efficiency in Montreal

Otto Maass Laboratory Building, owned by McGill University, is located in Montreal, Quebec, and was originally built in 1966. Primarily used for education and research in chemistry, the building includes teaching and research laboratories, classrooms, a lounge, and a large lecture hall. The renovation project was led by NFOE Architects with engineering by Pageau Morel. The building has a gross area of 140,000 SF, with 125,000 SF of conditioned space. The renovation completed in 2011, used on heat recovery and airflow control based on user needs, which significantly reduced energy consumption.

Match Score

66.1

See More

Chemistry Building at Stanford University

Chemistry Building at Stanford University is primarily used for chemical research; it was constructed in 1959-60 and has a gross area of 28,000 GSF of conditioned space. A fume hood retrofit project, completed in 2007, was led by CAS Architects with engineering by Taylor Engineers. The building includes both wet and dry laboratories, as well as support spaces for researchers and administrators. The HVAC system consists of three air constant volume air-handling units and three exhaust fans. The building contains multiple fume hoods.

Match Score

63

Chemistry Building Fume Hood VAV Upgrade in British Columbia

Chemistry Building at Simon Fraser University in Burnaby, British Columbia, underwent a fume hood upgrade project to improve energy efficiency and safety. The 9,706-square-meter (104,434 SF) building, originally built in the mid-1960s with a major renovation in 2011, houses wet lab spaces. This case study outlines the retrofitting of 53 fume hoods and the subsequent energy and cost savings.

Match Score

62

Retro-Commissioning at University of California San Francisco

The University of California San Francisco Vivarium Building serves as a specialized animal lab for basic research and includes animal housing, procedure and support areas, and cage washing and processing areas. The building, completed in 2005, has a gross area of 191,000 SF and a conditioned space of 189,000 SF. The facility operates with a continuous 100% outdoor air ventilation requirement, supported by four rooftop air handlers and exhaust fans. A number of energy and operational improvements were achieved through monitoring-based retro-commissioning undertaken in 2013 by Sherrill Engineering, resulting in significant annual energy savings.

Match Score

58.3

The University of Chicago's Environmental Commission (GCIS) is among the University's largest energy consumers. The majority of the 472,000 square feet of the building is also the largest energy consumer. As such, the building was identified as a key focus of the program. This ongoing safety and energy efficiency program.

The effort started with a detailed energy audit and testing of key mechanical components as part of the UChicago Preventive Maintenance Program.

Simon Fraser University: SHRUM SCIENCE CHEMISTRY BUILDING - 2 Position to VAV FUME HOOD UPGRADE PROJECT

BUILDING INFO

Location	Simon Fraser University, Burnaby, BC
Floor Area	9,706 m ² (104,434 ft ²), 4 levels
Year Built	Mid 1960s, major renovation in 2011
Space Use	University wet laboratory
Occupancy Pattern	Operates 24/7 but typically occupied 8 AM - 7 PM
Mechanical	Whole building separate electricity and gas energy systems (GCS)
Mechanical Services	3x MAUs (make up air units) 4x variable speed air-handling units (VAV) 2x water-to-water heat pumps (55 tons, 4x) 1x variable speed chilled water pump (100 tons) 1x variable speed cooling tower (100 tons) 1x variable speed condenser water pump (100 tons) 1x variable speed cooling water pump (100 tons) 1x variable speed condenser water pump (100 tons) 1x variable speed condenser water pump (100 tons)

ENERGY & GHG BENCHMARKING



BUSINESS CASE & LIFECYCLE ANALYSIS FOR RETROFITTING 53 FUME HOODS

ECM Description	Energy Savings			Cost Savings (\$/yr)	Option of Probable Cost (\$)	Lifecycle Summary				
	Electricity (kWh/yr)	District Heating (GJ/yr)	GHG Savings (tCO ₂ e/yr)			Simple Payback (yrs)	IRR (%)	GHG Savings (tCO ₂ e)	Abatement Cost (\$/CO ₂ e)	
VAV Fume Hood Retrofit	365,000	300	34.6	\$ 32,870	\$293,400	8.9	\$160,000	12.5%	692	\$ 312

*Discount Rate = 7.5%, Energy Cost Escalation = 3% p.a.

Super Test Facility

- Building Dashboard
- Building Parameters

Packages

- 2025 Improvements v1

[Delete all](#)

2025 Improvements v1

Impacts & Measures | Savings Details | Case Studies | **Reports**

Caution: For best results, we recommend using **Google Chrome** and selecting **'Save as PDF'**. Other browsers and print options may cause layout issues.

2025 Improvements v1
ajfarm+12@gmail.com Tue, August 12, 2025, 1:56 PM

Export PDF



Generate Report

Activity

- Report "2025 Improvements v1" Created
2025-08-12 13:56
- '2025 Improvements v1' Updated. Added measure: ECM181
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- '2025 Improvements v1' Updated. Added measure: ECM184
2025-08-12 13:53
- '2025 Improvements v1' Updated. Added measure: ECM085
2025-08-12 13:53



Introduction

What is the AIM Report?
The Actionable Insights and Measures (AIM) Report is an automated audit designed to help achieve the goal of the AIM Report: decarbonization of specific lab basins and emissions.

How Does the AIM Report Work?
The AIM Report uses calculations and benchmarking to provide insights into the building's data and options for improvement.

The Package Of Measures: 2025 Improvements V1

The package of measures was generated by the software. This section provides details on the package and its component measures relevant to this building and the studies are provided in subsequent sections.

Financial Impacts

- Annual Energy Cost Savings: **\$165,611**
- Simple Payback: **4.4 years**
- Financial Analysis Period: **15 Yrs**

Energy Impacts

- Energy Score: **450,000**
- Site EUI: **245.5 kWh/ft²**
- Electricity: **5,000,000 kWh**

Executive Summary

Laboratory facilities often present significant opportunities for energy savings and emissions reductions. This report reveals the potential energy cost savings and implementation costs of a package of energy saving measures applicable to Super Test Facility.

Annual Energy Cost Savings	\$202,174	Package Implementation Cost	\$729,195	Simple Payback	3.6 years
----------------------------	------------------	-----------------------------	------------------	----------------	------------------

Building Performance (2024 data)

	Existing Building	Building With Package
Annual Energy Cost	\$1,393,000	\$1,190,826
Labs2Zero Energy Score	53	69
Site EUI	245.5 kWh/ft²	188.3 kWh/ft²

About Us

I2SL
The International Institute for Sustainable Laboratories (I2SL) is grateful to our Labs2Zero sponsors, development partners, and to all members of our Technical Advisory Councils (TACs) for their support of the Labs2Zero program.

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- SMITHGROUP

AIM Report
Actionable Insights and Measures

Tue, August 12, 2025

2025 Improvements V1
Super Test Facility
120 Kingston Street, Boston, MA, USA

AIMReport™
Actionable Insights and Measures

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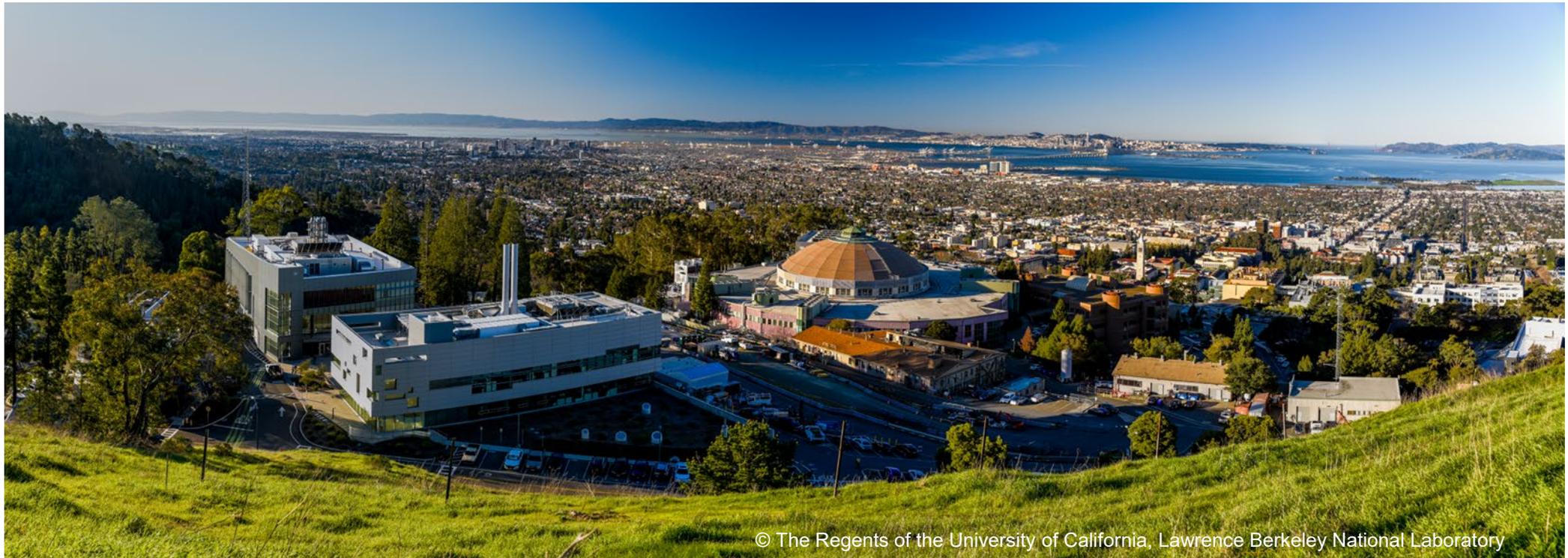
The report is a snapshot of your package

Report generated successfully



Physical campus

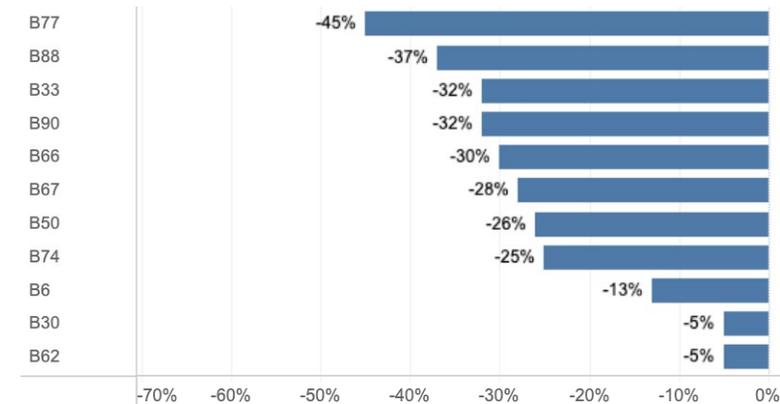
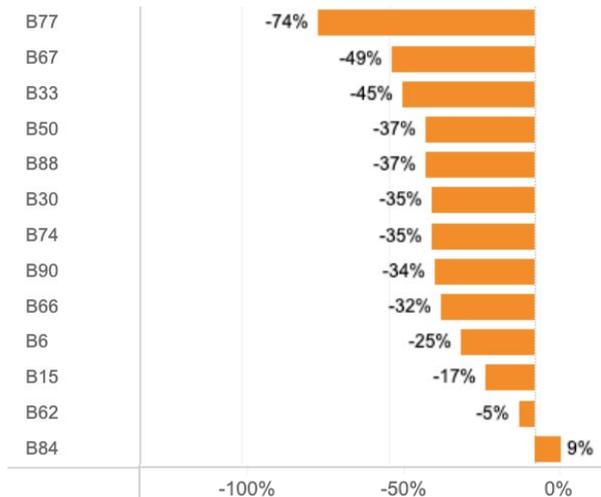
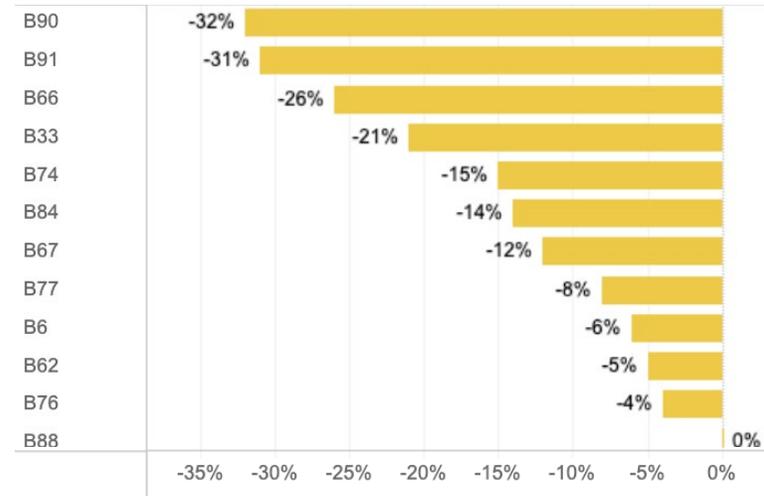
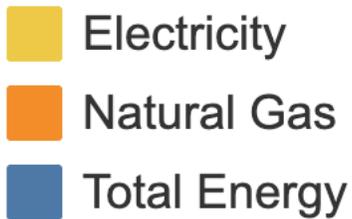
- 3,800 fte employees and 4,000 affiliates
- 202 acre main site
- 2.2M sf built space
- 95 buildings
- 5 national user facilities



Annualized energy savings by building



Weather-normalized savings for select laboratory buildings from a pre-intervention baseline





Laboratory Benchmarking Tool

Energy and Operational Emissions Benchmarking ⓘ

By default, all buildings are shown on the charts. Use the filters to narrow down your peer group.



Select Quantities to Plot

Horizontal Axis: Lab Area Units: %

Vertical Axis*: Energy Score Units:

Summary Statistics for Selected Peer Group Buildings

Lab Area: mean 47 % | median 48 %
 Energy Score: mean 57 | median 62
 Number of Matching Buildings: 174/1446

Filters ⓘ

Clear All

Start with Basic Filters if you're a new user.

- Basic Filters** ⓘ Clear Edit
 - Type of Record: **In Operation**
 - Climate Zones: **3C Warm - Marine**
- Building Properties** ⓘ Clear Edit
- Building Systems** ⓘ Clear Edit
- Fume Hoods** ⓘ Clear Edit
- Lab Types** ⓘ Clear Edit

5 LBNL lab buildings in the LBT were used to **pilot test** the AIM report

Energy data is imported from **Energy Star Portfolio Manager**

Building 30 Chu Hall: Solar Energy Research Center (SERC)



Building properties

- Opened in 2015
- 49,000 gsf in Berkeley, CA
- Government R&D: Basic Research building
- 13,600 sf of lab space (chemistry)
- Dedicated chiller and boiler plants
- 28 fume hoods

Performance features

- Site EUI = 126 kBtu/sf-yr
- VAV, min ventilation rates set to 6 ACH
- Supply air SAT and dP resets
- Exhaust air dP reset
- Temperature setbacks in office spaces
- Fume hoods are VAV, 100 fpm



Building 30: AIM vs in-person audit

AIM with LBT
required fields*
only filled out

Data entry fields in LBT: **15**

Time: **~15 minutes**

Cost: **Inexpensive**

AIM with **all** LBT
fields filled out

Data entry fields in LBT: **50+**

Time: **~2 hours**

Cost: **Inexpensive**

ASHRAE Level II
in-person audit

In-person audit performed by
engineers in 2024

Time for site visit: **half a day**

Additional time: to organize
site visit plus support time to
provide access to energy and
BMS data

Cost: **thousands of \$**

Berkeley Lab AIM pilot testing



Building 30: Unoccupied Room Airflow Setback measure

AIM with LBT
required fields*
only filled out

AIM with **all** LBT
fields filled out

ASHRAE Level II
in-person audit

Unoccupied Room Airflow Setback ECM085

Financial information

Annual Energy Savings
● **\$13,104**

Package
\$13,104

Simple Payback
● **3.1 years**

Package
3.1 years

Energy Impacts

Energy Score
91 ↑ 3

Current Package: 88

Site EUI
111.7 kBtu/ft² ↓ 14.3

Current Package: 125.9kBtu/ft²

Unoccupied Room Airflow Setback ECM085

Financial information

Annual Energy Savings
● **\$4,545**

Package
\$4,545

Simple Payback
● **8.9 years**

Package
8.9 years

Energy Impacts

Energy Score
89 ↑ 1

Current Package: 88

Site EUI
119.4 kBtu/ft² ↓ 6.6

Current Package: 125.9kBtu/ft²

Annual energy savings: **\$4,510**

Simple payback: **8.3 years**



Berkeley Lab AIM pilot testing



Building 30: Unoccupied Room Airflow Setback measure

AIM with LBT
required fields*
only filled out

AIM with **all** LBT
fields filled out

ASHRAE Level II
in-person audit

Unoccupied Room Airflow Setback ECM085

Financial information

Annual Energy Savings
● **\$13,104**

Package
\$13,104

Simple Payback
● **3.1 years**

Package
3.1 years

Energy Impacts

Energy Score
91 ↑ 3
Current Package: 88

Site EUI
111.7 kBtu/ft² ↓ 14.3
Current Package: 125.9kBtu/ft²

Unoccupied Room Airflow Setback ECM085

Financial information

Annual Energy Savings
● **\$4,545**

Package
\$4,545

Simple Payback
● **8.9 years**

Package
8.9 years

Energy Impacts

Energy Score
89 ↑ 1
Current Package: 88

Site EUI
119.4 kBtu/ft² ↓ 6.6
Current Package: 125.9kBtu/ft²

Annual energy savings: **\$4,510**

Simple payback: **8.3 years**

Audit savings
match the
results from
the AIM test
with **all LBT**
fields!



Berkeley Lab AIM pilot testing



Building 30: Fume Hood Unattended Face Velocity Reduction

AIM with LBT
required fields*
only filled out

AIM with **all** LBT
fields filled out

ASHRAE Level II
in-person audit

Fume Hood Unattended Face Velocity Reduction ECM107

Financial information

Annual Energy Savings	Package
• \$5,705	\$5,705
Simple Payback	Package
• 16.8 years	16.8 years

Energy Impacts

Energy Score	Site EUI
89 ↑ 1	119.2 <small>kBtu/ft²</small> ↓ 6.8
Current Package: 88	Current Package: 125.9kBtu/ft ²

Fume Hood Unattended Face Velocity Reduction ECM107

Financial information

Annual Energy Savings	Package
• \$5,614	\$5,614
Simple Payback	Package
• 17.1 years	17.1 years

Energy Impacts

Energy Score	Site EUI
89 ↑ 1	119.1 <small>kBtu/ft²</small> ↓ 6.8
Current Package: 88	Current Package: 125.9kBtu/ft ²

Annual energy savings: **\$7,080**

Simple payback: **13.5 years**



Berkeley Lab AIM pilot testing



Building 30: Fume Hood Unattended Face Velocity Reduction

AIM with LBT
required fields*
only filled out

AIM with **all** LBT
fields filled out

ASHRAE Level II
in-person audit

Fume Hood Unattended Face Velocity Reduction ECM107

Financial information

Annual Energy Savings
● **\$5,705**

Package
\$5,705

Simple Payback
● **16.8 years**

Energy Impacts

Energy Score
89 ↑ 1
Current Package: 88

Site
11
Cur

Fume Hood Unattended Face Velocity Reduction ECM107

Financial information

Annual Energy Savings
● **\$5,614**

Package
\$5,614

Simple Payback
● **17.1 years**

Energy Impacts

Energy Score
89 ↑ 1
Current Package: 88

Site EUI
119.1 kWh/ft² ↓ 6.8
Current Package: 125.9kWh/ft²

Annual energy savings: **\$7,080**

Simple payback: **13.5 years**

Savings
match from
**both AIM
tests**



Berkeley Lab AIM pilot testing



Building 30: Fume Hood Unattended Face Velocity Reduction

AIM with LBT
required fields*
only filled out

AIM with **all** LBT
fields filled out

ASHRAE Level II
in-person audit

Fume Hood Unattended Face Velocity Reduction ECM107

Financial information

Annual Energy Savings
● **\$5,705**

Package

Simple Payback
● **16.8 years**

Energy Impacts

Energy Score

89 ↑ 1

Current Package: 88

Site

11

Cur

Fume Hood Unattended Face Velocity Reduction ECM107

Financial information

Annual Energy Savings
● **\$5,614**

Package

\$5,614

Simple Payback
● **17.1 years**

Package

17.1 years

Energy Impacts

Energy Score

89 ↑ 1

Current Package: 88

Site EUI

119.1 kWh/ft² ↓ 6.8

Current Package: 125.9kWh/ft²

Annual energy savings: **\$7,080**

Simple payback: **13.5 years**

Savings
match from
**both AIM
tests**

Audit savings
are **similar** to
the savings
from both
AIM tests



1. AIM identified **sensible measures across 5 lab facilities**
2. AIM provided **useful results within minutes** from LBNL buildings that were already in the LBT
3. Measure results **improved with more detailed inputs** (~2 hours of effort per building)
4. Overall, AIM is a great tool for **identifying and prioritizing measures to target further study**

Questions?

lbt.i2sl.org/aim-report

