

Aircuity case study

Michigan State University

As the Basis of MSU's Safe Sustainable Labs Concept Aircuity Saves Energy while Enhancing the Protection of Lab Occupants

In 2012, MICHIGAN STATE UNIVERSITY (MSU) created an Energy Transition Plan which targets a 65% greenhouse gas emission reduction through energy efficiency initiatives and increased use of renewable energy sources by 2030. MSU identified laboratory facilities as being the largest energy users on campus and formed the Safe Sustainable Lab Committee. This cross-functional team's objective is to balance safety and energy efficiency while working towards university targets. As part of the Energy Transition Plan, the first goal was to improve the physical environment through aggressive investments in energy conservation measures.



SAFE SUSTAINABLE LABS CONCEPT

Aircuity's channel partner introduced MSU to Aircuity back in 2008 through an installation in MSU's Food Science and Human Nutrition Building. As a solution that impacts safety and energy efficiency, Aircuity embodies exactly the qualities that the committee was seeking to employ. Based on several prior Aircuity installations that were already creating measurably better environments on campus, the solution was selected as a basis for

the university's integrated design approach, the Safe Sustainable Labs Concept. Today MSU's airside program consists of 268 lab installations in 7 buildings that are saving the university well over half a million dollars a year! Equally as important as energy savings is the ability Environmental Health and Safety personnel have to closely monitor events occurring in the space.

"EHS regularly monitors the Aircuity dashboard to get a quick look at many laboratory environments, something we couldn't do without contaminant sensing. We can see and verify air change rates increase in response to contaminants generated in laboratories where normal operations regularly and continuously generate low levels of VOCs. We also use the dashboard to scan for high peaks of VOCs, particulate or CO2 in unexpected locations and follow-up with a site visit. In one case we found an incubator leaking CO2. Another application of the Aircuity dashboard is investigation on problem calls."

Dave Erickson, Senior Industrial Hygienist
Office of Environmental Health & Safety
Michigan State University

ANTHONY HALL & THE BETTER BUILDINGS CHALLENGE

In 2013 MSU's Anthony Hall was selected as a Showcase Project in the U.S. Department of Energy's Better Building Challenge. The 317,200 square foot building houses the Department of Animal Science and the Department of Food Science and Human Nutrition, as well as the University's Meats Lab and Dairy Store. A blend of over ten carefully selected energy conservation



Michigan State University's Installations and Savings

| Building | Installation Type | Payback Period* (Years) |
|---|---------------------|----------------------------|
| Plant Soil & Science Building | Lab | 1.5 |
| Biochemistry Building | Lab | 1.8 |
| Bioengineering Building | Lab | 4.4 |
| Biomedical & Physical Sciences Building | Lab | 4.8 |
| Anthony Hall | Lab | 5.1 |
| Food Science & Human Nutrition Building | Lab | 5.3 |
| Clinical Center – C Wing | Animal Holding Area | TBD |

*Approximate

measures, including Aircuity, were installed in the building with an expected annual cost savings of \$536,000. Being installed in only 8.7% of the building, Aircuity contributed around 1/4 of the total energy savings, or \$128,000 annually.

BEYOND LABS

In addition to lab spaces, MSU has implemented Aircuity in other buildings on campus. In 2016 Aircuity was installed in the vivarium area located in C Wing of the Clinical Center which functions as an animal holding area. Aircuity has reduced air change rates from 10 to 4 ACH. As with all Aircuity installations, the ventilation is increased at times when an event is detected and additional air is required.

As a part of the Safe Sustainable Labs design concept Aircuity has given EH&S additional means to closely monitor the labs while the energy saved through Aircuity is helping the university to meet Energy Transition Plan GHG and energy reduction targets. The university is continuing to expand their airside program with installations in two more lab buildings planned for the near term.

ABOUT MICHIGAN STATE UNIVERSITY

Michigan State University has been working to advance the common good in uncommon ways for more than 150 years. One of the top research universities in the world, MSU focuses its vast resources on creating solutions to some of the world's most pressing challenges, while providing life-changing opportunities to a diverse and inclusive academic community through more than 200 programs of study in 17 degree-granting colleges.

ABOUT AIRCUITY

Aircuity creates smart airside solutions through its intelligent building platform, significantly reducing energy costs and improving the indoor environmental quality for occupants. As the demand control solution, Aircuity optimizes ventilation rates through its patented technology. As a result, commercial, institutional and lab building owners can lower operating costs, protect occupants and verifiably reduce energy use by as much as 60 percent. Founded in 2000 and headquartered in Newton, MA, Aircuity's solutions have benefited over 400 organizations such as Google, Amazon, Eli Lilly, Masdar City, the University of Pennsylvania, and the University of California-Irvine. For additional information on the company and its solutions, please visit: www.aircuity.com.

