Ask-Allentown

Allentown has the answer to your research animal housing questions

SPECIAL GUEST EXPERT
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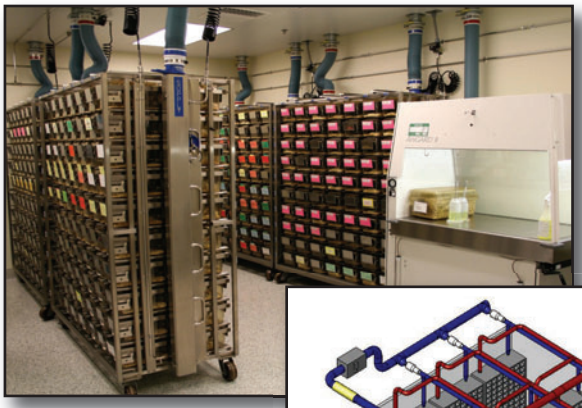
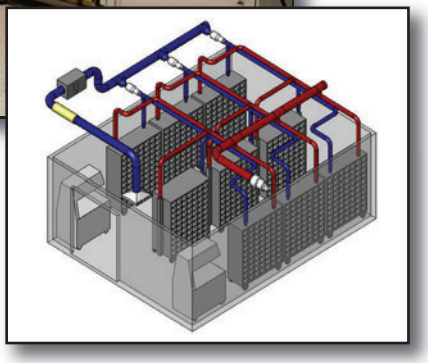
As a customer service, Allentown staff experts respond to inquiries on a wide range of animal housing and research facility airflow topics. We invite our readers to send in questions and topics they would like covered in future issues to ***askallentown@AllentownInc.com.***

Q:

What can I, as a facility manager, do to make my facility greener and more efficient?

A:





We hear a lot these days about reducing carbon footprints, Environmental Management Systems and other ways in which individuals and companies of all sorts can reduce environmental impact, while at the same time increasing operating efficiency. It's a goal we're all striving towards, but one that can sometimes be frustrating due to a simple lack of knowledge. We all want to do better, but often don't know exactly what to do in order to make it happen.

Fortunately, as public opinion continues to move the world closer and closer to true environmental accountability, educational resources and real world examples have begun to crop up that can help those of us in the biomedical research community find the balance between bottom-line profitability and global responsibility.

Before I point you toward some of those educational resources however, I'd like to provide you with an example of what Harvard University has done to reduce its environmental impact, while at the same time increasing its operating efficiency.

Efficient Facility Layout

Because any effort of this sort needs to start from the ground up, their new 72,000 sq. ft. underground animal care facility was conceived, not with environmental considerations as an afterthought, but top of mind and starting from the very first planning stages.

Incorporated into the efficient, integrated facility design are 9 animal pod suites with 35,588 cage spaces in 50 animal holding, 12 procedure and 10 behavioral testing rooms, plus the Transgenic Core Lab.

Direct-Connect IVC Racks

As part of the new facility design, they implemented an Allentown direct-connect airflow system in their animal holding rooms, reducing what would normally be 9 rack-mounted blowers to a single interstitial blower in each room. Because connecting directly to the facility exhaust virtually eliminates cage air entering the room, a reduction in room air changes per hour (ACH) from 12-15 to just 8-10 was justifiable in accordance with The Guide for the Care and Use of Laboratory Animals. The estimated ventilation air reduction that resulted from this was approximately 10,000 CFM (11%), with estimated annual energy savings of $80,000.

In tandem with a reduction in ACH within the animal holding room, a reduction in IVC cage ACH was also explored and found to provide additional efficiencies.

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During a two-room test in which the ACH in Allentown IVC cages was reduced from 60 to 50, and then to 42, cages were monitored for soiled cage changing intervals; breeding efficiency & animal behavior; changes in intra-cage & room temp, RH & CO2 & NH4 levels; and general "customer acceptance". No measurable changes in any of these parameters were observed throughout the test period. As a result, their Micro-Vent cages now run with only 42 ACH, providing additional energy savings.

Automated Watering

Reductions in labor also played a big part in their efforts. One way in which they dramatically reduced labor costs was through the use of automated water in their racks, which served to eliminate water bottle processing and handling while also providing superior water quality.

Cage Process Automation

Another initiative employed was the implementation of an automated cage processing system which not only served to reduce labor costs, but also benefitted the environment with the elimination of cage wash detergents; the implementation of cold water washes and the energy savings resulting from bulk washing and sterilization; and the water conserved through the use of re-circulating process-chilled water for cooling autoclaves.

Overall Results Summary

Taken in total, the efforts by Harvard University to make its facility more efficient and green resulted in dramatic improvements that are summarized below:

Electric Reduction	591,256 kWh	$88,688 Savings
Steam Reduction	3,889 MMBTU	$97,220 Savings
Chilled Water Reduction	12,451 Ton/Days	$112,058 Savings
Total Utility Cost Savings	20% Reduction	$297,966 Savings
Greenhouse Gas Reduction	621 MTCDE Tons	21% Reduction

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I hope that the above illustration can serve as an example for all facilities looking to improve their efficiency and green-friendliness. The following educational resources can also help in this effort by providing scholarship and best practices:

US Environmental Protection Agency: http://www.epa.gov/EMS/index.html

The Green Vivarium Foundation: http://www.greenvivarium.org/energy.shtml