

S-Lab News: Issue 11, February 2011

Information on events and activities by HEEPI's S-Lab
(Safe, Successful and Sustainable Labs) project



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Energy Efficient Equipment

Our laboratory audits suggest that equipment accounts for 25-30% of the roughly 150 million pounds sterling a year energy bill for UK university laboratories. There is great scope to reduce this (as well as water use, waste and other environmental impacts) through more effective procurement. The most efficient freezers, for example, can use four times less energy per litre of storage than one from the 1990s, and have 20-30% better performance than a basic model. Our Sustainable Lab Procurement event on March 18th, which is organized in collaboration

Free Lab Events

Good Laboratory Housekeeping - Reducing Environmental Impacts, Costs and Safety Risks, University of East Anglia, 9 March 2011

Sustainable Procurement of Lab Equipment and Supplies, University of London, 18 March 2011 (see left)

Effective Laboratory Management, University of Bradford, 21 March 2011 (see below)

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Sustainable Labs and Facilities at NERL



A new case study highlights the laboratories and new Research Support Facility (RSF) at the US National Renewable Energy Laboratory (NERL). Both are platinum-rated under the US LEED assessment scheme (roughly equivalent to BREEAM Excellent in the UK), and the RSF is self-sufficient in energy through use of photovoltaic cells for electricity and wood-chip boilers for heat. NREL's laboratory facility has used Labs21 design principles to achieve a 41% reduction in energy cost compared to a standard lab, and has features such as fan coils in all labs for point of use heating or cooling, heat recovery, evaporative cooling, a low emissivity roof, and high efficiency plant.

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Effective Laboratory Management

Current challenges are requiring universities to rethink the way they operate, and to become leaner and more sustainable. In STEM-intensive universities, this means that laboratories too must change. This may require more effective, integrated and strategic

with the National Working Party Laboratory Supplies group and London University Purchasing Consortium (LUPC), will be discussing the opportunities in detail. The outcomes will then inform the new framework agreement for lab equipment which LUPC is currently developing. Although the event is already oversubscribed, if you feel you have a significant contribution to make please register. Please also let us know if you have any good examples of differences in energy or water use between different kinds of equipment, and also if you have used whole life costing/total cost of ownership to help understand the impact in detail.

Energy Efficient Computing

A [new briefing paper](#) from our SusteIT project explains the ENERGY STAR scheme, and how requiring it within procurement can cut the energy consumption of computing and printing equipment at no or little extra cost. (The scheme is also being extended to some items of laboratory equipment, which will be good news). A companion SusteIT briefing paper describes the various eco-labels for computing equipment.

Safety AND Environment

S-Lab stresses the many synergies between safety, success and sustainability. New evidence comes from a summary of key recommendations emerging from many thousands of lab audits

management of lab activities than the current norm, bringing the sector into line with many commercial/public sector laboratories. A workshop is being held at Bradford on March 21st, in collaboration with the Institute of Science and Technology, and the HEATED initiative on career development of HE technical staff, to examine this challenge, and to highlight the new roles which are emerging in response to it, e.g. directors with responsibility for both infrastructure and services; building managers who combine facilities and technical roles; and lab-dedicated staff within Estates departments.

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Sustainable Labs in Scotland

Presentations from the January Salix/S-Lab workshop in Glasgow can now be viewed at either organisation's web site. David Somervell of the University of Edinburgh described the audit and improvement analysis work in the University's Cancer Research Laboratory (done in collaboration with S-Lab). Two key points were the savings achieved by switching off fume cupboards overnight, and the opportunities in autoclaving, which account for around 25% of its energy consumption. John Smith and David Stutchfield of the University of St Andrews described the recently opened BREEAM Excellent Medical Sciences Building (MSB), and the under construction Biomedical Sciences Research Complex, which is targeting BREEAM Outstanding. The MSB has designated 24 hour fume cupboards, extract heat recovery, centralised nitrogen and purified water services, and rooftop solar thermal units. Dean Drobot of the University of Strathclyde and John Hennessy of fume cupboard supplier Premier analysed the energy consumption and running costs (energy and maintenance) of four different fume cupboard designs (CAV/VAV, 0.5 and 0.3 m/s) at the University. VAV had higher operating (and capital) costs but lower energy consumption than CAV at both flow rates. There was much discussion of whether, at low flow rates, the energy benefits of VAV outweigh its additional complexity, and capital and maintenance costs.

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Labs21 and Global Sustainable Laboratory Network

I²SL have now established an international network, with S-Lab as an inaugural member. The initiative is linking the sustainable laboratory networks which have now been established in many countries, and will provide a vehicle for sharing best practice. I²SL organises the Labs21 Annual Conference in the US, which is being held in Providence, Rhode Island on 20-22 September this year. The Call for Presenters is open until 25 March.

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conducted by the [US Laboratory Safety Institute](#). Many of these, such as effective labelling, sensible storage, and switching off power when not required, also create positive environmental benefits. The article also stresses the importance of effective laboratory ventilation. Some have seen the Labs21/S-Lab aim of minimising fume cupboard energy consumption as jeopardising safety, but the reality is that when this aim is achieved through a CEN/BS14175 risk assessment approach the outcome is safer because it is based on a good understanding of operating conditions and needs (unlike the traditional approach of specifying a standard face velocity of 0.5m/s or above). See [Lab Manager](#), 11 Jan 2011 for more info.

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