

WEBSITE NEWS ITEM ~ SUSTAINABILITY.

“Companies are learning that, as markets have gone global, so, too, must the concept and practice of corporate social responsibility. And they are discovering that doing the right thing, at the end of the day, is actually good for business.”



Kofi Annan, UN Secretary General

Sustainability is not merely Energy Efficiency, although that is an important part of the overall equation. Sustainability makes a quantum leap further and enshrines a philosophy of holistic environmental awareness.

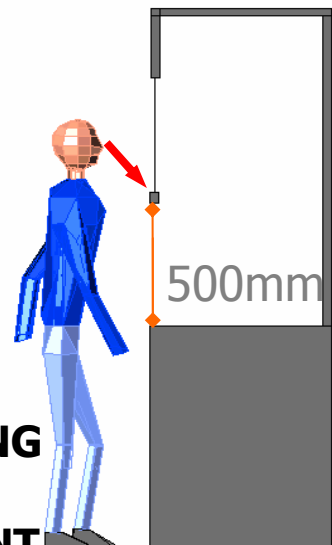
Intuitively and superficially, the design/operation of R&D facilities and Sustainability may appear to be mutually exclusive, since labs can be regarded as devices for wasting conditioned air and the concept of recycling potentially contaminated material is untenable. At SciTech Engineering, we are not prepared to conveniently use these excuses to 'wave the white flag'. As the quotation from Kofi Annan suggests, although we all carry a responsibility to environmental awareness, companies who have actively adopted the philosophy of sustainability have benefited from associated improvements in the effectiveness of their business and functional systems. We can highlight two key areas where this is true in terms of laboratory design:

- Too often, a laboratory refurbishment or reconfiguration requires the scrapping and disposal of many of the items used in the original construction. Typically, this may include a fume cupboards, at ventilated enclosures, benching, and furniture since all of these elements have traditionally been 'built into' the structure. The new concept of 'plug-in' modularity brings with it not only the advantages of flexibility and adaptability, but it also means that a policy of 're-use rather than replace' can be adopted which aligns well with the ethos of sustainability. We can see, therefore, that to the inevitable rearrangements of laboratory facilities will be achieved with a lower usage of material resources and a consequent reduction in the production of contaminated waste for disposal.

- The additional benefits of the application of the energy efficiency aspect of sustainability can be succinctly illustrated by the following fume cupboard example. In this case, the rational application of alternative approaches to certain areas of system design can improve ergonomics, containment, and safety protection as well as reducing demands on HVAC systems. The following diagrams showed the advantages of the Scandinavian sash height limit, and then go further to include this element in an analysis of the possible savings for a 2 metre vertical sash fume cupboard. We are not suggesting that this level of saving, i.e., to 25% of traditional values, could be achieved for a total laboratory installation, however, we propose that a reduction to 60% is an entirely rational and achievable target.

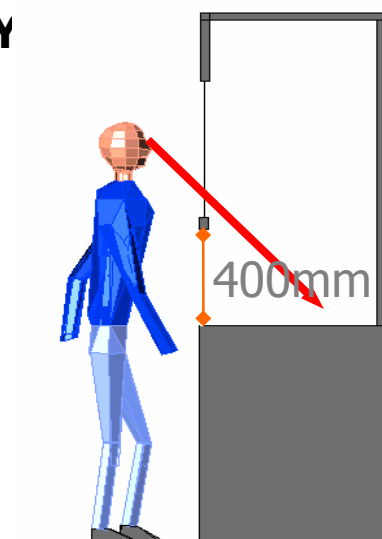
CONVENTIONAL 500mm SASH STOP

THE OBSTRUCTION TO THE SIGHTLINE WILL OFTEN RESULT IN THE SCIENTIST TIPPING THE STOP, MOVING THE SASH HIGHER, VIEWING BELOW THE HANDLE, AND DESTROYING CONTAINMENT, PROJECTILE PROTECTION AND ENERGY EFFICIENCY 'SCANDANAVIAN'



400mm SASH STOP

FOR THE '85 Percentile', A 400mm SASH OPENING WILL ENABLE MOST OPERATIONS TO BE CARRIED OUT BY WORKING BELOW, AND LOOKING ABOVE, THE SASH HANDLE.



THE ENERGY QUESTION ~ A SIMPLE COMPARISON

SITUATION #1

- **A 2m VERTICAL SASH FUME CUPBOARD**
- **0.5m/s FACE VELOCITY (ANECDOTAL TRADITION)**
- **0.5m SASH OPENING**
- **$2 \times 0.5 \times 0.5 = \underline{0.50 \text{ m}^3/\text{s}}$ EXTRACT VOLUME**

SITUATION #2

- **A 2m COMBINATION SASH FUME CUPBOARD (2x1m PANES)**
- **0.3m/s FACE VELOCITY (ROBUST C'MENT ACHIEVABLE)**
- **0.4m SASH OPENING (SCANDANAVIAN APPROACH)**
- **$1 \times 0.3 \times 0.4 = \underline{0.12 \text{ m}^3/\text{s}}$ EXTRACT VOLUME**

The adoption of measures to achieve flexibility and adaptability in lab design carry with them consequent advantages in meeting the objectives of the Sustainability Agenda. Clients and designers are finding that it is possible to build, or refurbish, labs which are better value, more functional, flexible, and 'greener'. This movement, which in the USA is guided by the LAB 21 initiative, is wholeheartedly endorsed by SciTech, and we believe that we can, and have, contributed some new and innovative enhancements to its effectiveness.