

CLEAPSS

***Supporting practical science, D&T and art***

***- in schools and colleges***

Laboratory Design & LEV in Schools

Why it goes wrong, and the costs of  
getting it wrong

[www.cleapss.org.uk](http://www.cleapss.org.uk)

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# Who is CLEAPSS?

- An advisory service providing support in science and technology for a consortium of local authorities and their schools
- CLEAPSS first started in 1963 (as CLEAPSE, Consortium of Local Education Authorities for the Provision of Science Equipment).
- Changed to CLEAPSS in 1988. Now a trademark name and not an acronym.

# Who is CLEAPSS?

- 50+ years of experience.
- CLEAPSS guide G014 - Designing and Planning Laboratories (Free to all)
- GL091 - Concerns over the quality and functionality of newly-built and refurbished school science facilities



# Why it goes wrong is pretty much universal

- A failure to consult adequately between the architect and the science staff (including technicians) at the planning stage. If the quality of facilities were given, they lacked detail.
- What was agreed during consultation was not carried into the final build. Reasons such as a lack of money are described as having forced last-minute cuts in provision.

# Poor consultation

- The Heads of Science clearly knew what was bad about their old labs, but they didn't consider and communicate what was good about their old labs. Plan for 25yrs not 5yrs.....
- The Heads of Science thought the basics of lab design were pretty obvious to anyone. The architects didn't know a thermometer from a gasometer.



# Also not unusual

- The clients believed H&S Advisers etc. would have increased the build costs through excessive safety features.
- The Head of Science insisted on some quirky lab design 'must-haves', especially new technologies ...
- ... which years later, when the Head of Science moves on, becomes everyone else's WTF!



## And to compound the problem

- Heads of Subject are inexperienced at producing specifications.
- Heads of Subject are unfamiliar with interpreting architectural plans.
- Often the architect's brief is to design a whole building to accommodate many rooms, not just laboratories.
- There are considerable budget pressures.
- No referring to standards like BB80, BB101, BS4163, or IGEM UP/11



# Budget pressures, often leading to:

- Laboratory floor area small, which compounds any LEV issues.
- Too few laboratories for the number of students at one time.
- Domestic quality furniture and fittings that are not robust for heavier laboratory wear and tear.
- A mobile fume cupboard specified instead of fixed fume cupboards
- Too little storage space.
- Badly fitted worktops





# A lab design where the height of the lab was overlooked



# LEV in school D&T

- Lack of staff awareness of the importance of having an effective system, putting up with poor systems due to not being aware that it should be better.
- Poor maintenance, carried out by untrained staff.
- Lack of any effective system in food rooms.
- Annual service reports ignored.
- Incorrect fitting of flow metres.
- Use of henry hoovers with poorly fitted joints to machine outlets.
- Machines with no LEV as they are cheap to purchase and install.



# LEV in school Science

- Labs and prep rooms should be ventilated at a rate of **5ach** (air changes per hour) when practical is being done and 2ach at the rest of the time
- Chemical stores should be ventilated at a rate of **2ach**, but running 24hrs a day, 365 days a year. Chemicals don't stop venting for Christmas!
- Usual issue is lack of supply / make-up air
- All based on previous research by CLEAPSS and DfE as well as live in lab testing for the new edition of BB101.

**??? Questions ???**



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