Advisory service
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SSERC and new buildings

The biggest project any employers undertakes in education is the building of a new school. In general this is a relatively simple matter, technically speaking, but the provision of suitable spaces for science and technology poses some specific issues that non-specialists may not be aware of.

SSERC is on hand to consult – for free – with you and any of your contractors or architects to ensure that your expensive new venture is fit for purpose without needing expensive retrofitting.

Teaching laboratories, are generally fine although there is one major problem which we see on a regular basis.

Water supply

In order to comply with the Backflow Regulations, to prevent contamination of the drinking water supply. Taps in laboratories have to have a method to prevent any backflow. The cheapest way to do this is to fit what are known as 'interrupters' on the taps.

While fine in most circumstances, these are NOT suitable for chemistry laboratories. If there is a pressure build-up, these devices leak water out of the side to prevent backflow. However, in certain procedures, especially vacuum filtration, but also often including distillation and reflux, the presence of these devices means that there is not enough pressure and these skills, which learners have to master at Higher and Advanced Higher are not possible.

A better alternative is that the science department should have a header tank that provides physical separation. Not too expensive to install at the outset but expensive and difficult as a retrofit.

Most of the problems we come across, though, relate to Chemical Storage and Preparation.

Open plan prep room

Visiting a brand new school, we were astonished to see that the Technicians' Preparation area had been made open plan (with part of it set up as a classroom) without even a full height wall let alone a door to close it off from the rest of the school.

Given the types of activities technicians carry out, this is an entirely unsafe arrangement and work was needed to make it secure. Bizarrely, the less hazardous teaching labs all had lockable doors!

This is a clear example of the designers lacking awareness of how a room is to be used and highlights the importance of consulting staff and listening to the issues raised.

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Windows in chemical stores

While these can be acceptable in some cases there is always a risk of impairing fire resistance or compromising security. However, we recently came across an example where a large window had been installed from the chemical store into the corridor allowing learners and anyone else a good view of all the chemicals. This raised various issues, not least that of security: as a result it has had to be covered over and stands there as costly waste of time and money.

Ventilation in chemical stores

This is a regular issue.

In a brand new school, there was a spillage of ammonia in the chemical store. Our advice was just to wait for the ventilation to clear the fumes. However, no clearing happened so the fire-brigade were called in and evacuated the school before the clear-up.

It turned out that there was no ventilation in the chemical store. On investigation the developers said there was not ventilation because the chemical store was not designed to keep chemicals in! What they meant was that it was specified as a store that might be used in an industrial setting: unopened containers are taken from the store, opened and used and the empty ones are disposed of. So the only leakage of fumes is in the working area. But that is not how school chemical stress work.

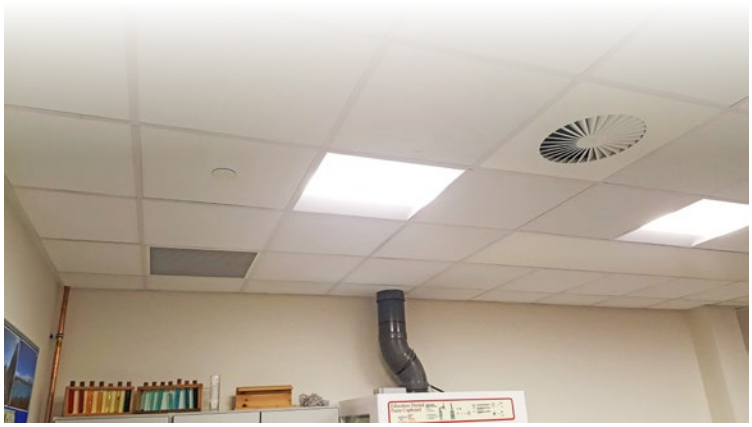
Again, an example of people thinking they know what to do but not asking.

This is an unusual example. Most commonly we come across issues such as:

- The door of the chemical store is not a fire door.
- The room has gaps round pipes or by the ceiling thus compromising its fire integrity.
- There is no vent in the door (or elsewhere) to allow make-up air in to allow the ventilation to work properly
- The extraction vent is close to the door so only a small section of the room is ventilated.

Consultation

There is a perception at large that letting staff be involved in the design process will add to the cost. However, a recent project in Ireland we came across involved a new science building which was designed entirely to the specification of the science staff. It came in at a cost of less than the original, ‘off the shelf’, offering. <<



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