

Laboratory Furniture & Planning Solutions

Flexibility and hygiene: Transforming lab spaces in the face of growing demands

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There are many challenges when it comes to running a contract manufacturing organisation. Of course, you must be competitive on price, but you'll also need to demonstrate that you can guarantee regulatory compliance and the highest standards of manufacturing practice, including laboratory hygiene.

But one size never fits all. "The ability to rapidly reconfigure your laboratory space to meet the ever-changing needs of your customers and the marketplace has to be a priority", says Michelle Locke, product and marketing manager at Teknomek, the UK's leading designer and manufacturer of hygienic furniture.

In recent years, we have seen much written about the UK Government's vision of making the UK a 'science superpower' but, at the time of writing, leaders within the science, technology and innovation sectors were calling for major investments to both facilities and research and development, ahead of the spring 2024 budget.

As written in the Guardian newspaper in November 2023, leading property firms are calling for the UK to build more laboratory space, improve transport links and offer more tax breaks to achieve Rishi Sunak's ambition of becoming a genuine leader in science.

According to a report by British Land, one of Britain's biggest property developers, and estate agency and advisory firm Savills, demand for laboratory space in the UK continues to increase, with laboratory vacancy rates of just 1% in Cambridge and London, and 7% in Oxford.

British Land said that, despite demand, the UK was lagging well behind more mature US markets, with cities such as Boston, San Francisco, San Diego and New York being home to 113 m sq feet of laboratory space, over 20 times the equivalent space in the UK's Golden Triangle of London, Oxford and Cambridge.

So the lack of available lab space brings us back to the need for flexibility, and the capacity to adapt quickly to ever-changing requirements, including the shortage of space.

So how do we make best use of the space we already have?

The use of free-standing or modular furniture allows laboratory space to be used more effectively. The configuration of the room can be adapted, or added to, to meet all the needs of a new or evolving project, ensuring that workflow is always seamless, space is optimised, and cleaning and hygiene standards are never compromised. Selecting a modular workstation means you can adapt it with different shelves or storage solutions to suit the particular needs of a project or contract. When opting for modular or mobile furniture there are several considerations:



Is it designed with cleaning and hygiene in mind?

When it comes to maintaining the appropriate ISO standard for your laboratory space, your furniture plays a much bigger part than you may think.

All furniture and equipment specified for use in a laboratory needs to be able to withstand even the harshest of cleaning regimes and regular maintenance. Because hygiene is the overriding concern in any laboratory, you need to consider what method of sterilisation will be used before you specify your furniture to ensure it is perfect for purpose.

It should go without saying, but if you are not consulting with your cleaning team when reconfiguring your cleanroom, you are missing a trick. They are the experts and will know where challenges and risk areas lie. Seemingly innocuous shelves and edges can form potentially dangerous harbourage points for objectional organisms which, in the right conditions, can quickly multiply. And these danger zones are even more of an issue if your furniture is not designed with effective cleaning in mind.

Every piece of furniture in your cleanroom should allow for easy access by your cleaning team. When adapting to each new contract, consider mobile furniture. This will make it easier to adapt to each new contract, access all areas and carry out deep cleans. If your furniture isn't easy to move, ensure there is sufficient space between the floor and base of units, as well as around the sides, for thorough cleaning access.

To make laboratory furniture easier to keep clean, opt for storage with sloping ledges where possible. This way, cleaning fluids can less easily pool on the surface, not only making them easier to clean but also reducing the likelihood of corrosion. If you need storage space within the laboratory, consider closed cupboards to reduce the risk of dust gathering.

304-grade stainless steel is often the construction material of choice for use in laboratories because it is so robust. It is also flexible enough for bespoke designs. 316-grade stainless steel goes one step further. With the addition of molybdenum, a naturally occurring element which has one of the highest melting points of all elements, alongside chromium and nickel, it is more resistant to corrosion, mitigating the risk of rouging or tiger stripes while reducing contamination risk and supporting improved clean down productivity.

Is the furniture easily movable?

Just because furniture isn't fixed to the wall, it may not be easy to move for cleaning or reconfiguring of space. Stainless steel furniture, whilst often being preferred choice for hygienic environments such as laboratories, can be heavy to reposition, so ensure you specify equipment with lockable castors for easy manoeuvrability.

Laboratory furniture made from waterproof construction materials such as Sealwise WCB, which has a PVC core, offer extreme flexibility in terms of the products available and ability to produce bespoke items. Sealwise WCB is completely waterproof as well as being anti-bacterial, anti-static, resistant to chemicals and fire-resistant, making it an ideal material for furniture designed for laboratories, where extensive and often harsh cleaning regimes are the norm. Due to the PVC core, furniture is much lighter than comparable stainless steel products, making it well-suited to being moved around or relocated to another site.

If your cleaning regime means that mobile, 316-grade stainless steel is the most appropriate option, the optimum solution for a castor is a chemical resistant polypropylene wheel inside a 316-grade stainless steel body, ensuring there is no opportunity for corrosion and contamination.

Is it suitably robust?

When working with hypersensitive weights you cannot afford any movement or 'judder' from your furniture. So, it's vital to check that your modular furniture offers the same stability you would expect from equipment that is fixed in place. The importance of good quality castors and brakes should never be underestimated to ensure you have a firm platform to work from.



Is it designed and positioned to enhance airflow?

Proper ventilation is essential for the safety and health of laboratory workers and the integrity of experiments. It ensures that hazardous materials and chemicals are removed from the laboratory and that fresh air is brought in. The way that furniture is designed and positioned can have a significant influence on air circulation, hindering or assisting the flow and impacting on the safety of your team. Whilst your HVAC system might be doing its job, a workbench or storage unit with a solid back panel immediately creates a barrier for ventilation. However, by switching from solid to perforated or slatted materials at the back of the workbench, dirt particles can disperse safely to mitigate risk. Ensuring that there is sufficient space around equipment so that air does not stagnate is something that should always be considered.

Humans present another risk in terms of their impact on airflow. A person working in the wrong place for an extended period can cause air flow blockages. So, when reconfiguring your laboratory for a new project, consider how both your furniture and your people may impact airflow.

Manufacturers face a multitude of challenges in order to remain competitive and profitable. The use of free-standing or modular furniture allows a space to be reconfigured to support developments within the business as well as the different hygienic requirements of each project. Looking ahead and taking a flexible approach to the furniture in your cleanrooms to allow for rapid reconfiguration and exceptional hygiene standards, is just one way to stay ahead.



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