

Laboratory Design Checklist for relocating and fitting out your new lab

Prepare for your next science and innovation project by asking your organisation the following.

Base building elements

Task	Status
Is the primary electrical supply size sufficient for lab equipment use?	
Is there a generator backup of sufficient size for requirements?	
If there is no generator, is there sufficient space for a new one if required?	
Do other tenants in the building have a preference for services? For example, an uneven balance of electrical supply.	
Is the water supply of sufficient size and quality for lab use?	
Is the building drainage capable of the waste removal requirements for the lab?	
Is the building sprinklered and does this affect plans for lab processes?	
Is there sufficient floor-to-ceiling height to accommodate equipment and services	
Is there sufficient space allocated in the risers to accommodate fume hood ducting or other extract systems or space for new internal/external risers?	
Are the existing windows airtight and capable of holding a pressure cascade regime?	
Is there sufficient space on the roof or in the plant compound for new equipment?	
Is the roof in sufficiently good condition to penetrate for exhaust vents?	
Is there structural capacity of the floors/slabs sufficient to hold large scientific equipment?	
Is the building sufficiently insulated for occupation by labs/supporting offices?	
Does the building have an appropriate loading bay for deliveries and waste away?	
Does the space have sufficient access to the loading bay to support the lab's processes? (multi-tenanted buildings can restrict usage of the loading bay, reducing efficiency)	
Does the building have a goods lift that is accessible to the lab floors and has sufficient space/height for equipment movements?	
Is there sufficient capacity in the base to build HVAC systems to support labs?	
Does the building have an existing (or provision for) medical gas supply and storage?	
Are there other lab tenants in the building and if not have other tenants got any veto rights on the type of neighbour they will accept?	
Is the incoming telecoms/fibre internet of sufficient capacity?	
Will wayleave be needed to install new services?	
Does the existing building fire strategy allow for laboratory usage?	
Are there any utilities that may cause instability of equipment? (tube lines, construction sites etc.)	
Do the existing building security systems need to be aligned?	
Are the existing finishes that are being retained compatible with the required cleaning regime?	
Is there sufficient and appropriate space to store hazardous waste?	

Design elements

Task	Status
Define lab dimensions in square meters	
Define location in the building – floor, wing, sector etc., room numbering	
Define occupancy numbers – number of operatives	
Define cleanliness level - containment level 1, 2, 3, 4 / ISO14644 level / clean room A, B, C, D grading	
Decide partition type – plasterboard, glazed / part glazed, aluminium, steel, blockwork, bespoke modular	
Decide wall finish type – plasterboard, whiterock, laminate, polyurethane, acoustic performance, sterishield paint, blinds, manifestation, pass-through hatch	
Decide Floor finish – solid, screed, resin, vinyl tile, vinyl sheet, ceramic tile	
Decide ceiling finish – height, exposed, soffit height, grid, solid MF, vinyl faced, metal plank, lay in, clip-in, acoustic baffles, fire barriers	
Decide skirting – coved, molded, painted timber, bump rails	
Decide doors – size, finish, vision panel, red glass, lock, signage, closers, air tightness, fire performance	
Decide lab benching – leg construction, trespas type top, under bench storage, above bench shelving, integrated lighting, anti-vibration, downflow	
Decide lab furniture – technicians' chairs, stools, waste containers, storage, shelving	
Define lab equipment – dimensions, weight, power and data requirements, connections, installation logistics, the calibration process	
Define water requirements – reverse osmosis, de-ionised, distilled, domestic, lab grade, hot & cold, waste away, sinks, spill process, drainage, break tanks	
Define PPE process – gowning area, wash hand basins, full PPE changing, storage, clothes lockers, step overs, showers, PPE disposal	
Define welfare – WCs, showers, tea points, dishwashers, staff fridges, microwaves	
Define cleaning regime – cleaner sinks, washing machine	
Define power requirements – 240v DC, 110vDC, 3 phase, single/double RCD sockets, IP rating, dado trunking, ceiling-mounted, floorbox, clean earth, filtered supply, anti-static	
Define data requirements – RJ45 points, Cat 5 / 6 / 6a cabling, phone points	
Define mechanical requirements – pressure cascade, humidity, air cleanliness, air quality, airlocks, summer / winter temperature control, mechanical ventilation, cooling system, extract system, fresh air rates, drainage, fume hoods, noise criteria, heat loads	
Define gases – nitrogen, CO2, Oxygen, compressed air, vacuum, Argon, medical air, natural gas, liquid nitrogen, bottles or piped, copper or 304 steel pipework, press-fit or welded, manifolds, alarms and sensors equipment interfaces, monitoring, fumigation HPV	
Define AV requirements – AV screens, cameras, whiteboards, projectors	
Define lighting – lamp type, lighting control method – manual, PIR, dimmable, daylight linked, photocell, red light, light boxes, lux levels, uniformity, quality (4000K = daylight)	
Define life support systems – Fire detection, smoke detection, heat detection, xenon beacons, oxygen depletion, gas sensors, purge ventilation, gas suppression, sprinklers, kill switches, isolators	
Define security requirements - CCTV, access control, intruder alarm, mag locks, panic alarms, window breaks, public address	
Define DDA requirements – hearing loops, access, WCs	