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Guidelines for Selecting a Used Cleanroom

In these difficult financial times it can become ever more challenging to fund capital expansions. Plant managers, financial officers and procurement departments may need to look beyond new capital acquisitions and consider purchasing used equipment with their limited funds in order to fulfill their anticipated production needs. This may become particularly attractive with late-model used equipment becoming increasingly available as many high-tech companies cut back on production and look for ways to raise capital by liquidating no-longer needed or under-utilized assets.

So if you are considering used vs. new equipment, here are three major factors of equipment ownership with pros and cons associated with used capital equipment.

Price – Market for used capital equipment would probably be 50 to 85% of original selling price depending on age, condition, performance and appearance. However, high-tech, performance-based equipment can be very difficult to appraise for fair market value. Settling for lesser quality in appearance or performance, thinking you can enhance or upgrade it once in your possession, can prove to be more costly than anticipated. Original manufacturers' parts and service may increase your overall cost to a final price greater than what the same system would have cost new, then or even now.

Delivery – Once located, used capital equipment should be immediately available. Although sometimes the seller may prefer to continue to use the equipment for a specific product run or time frame. Buyer should make sure availability and final condition of the equipment is fully defined. Bear in mind that disassembly, packing, moving, re-assembly and re-commissioning can be a delicate, complicated task. Original packing cartons and documentation may not always be available. Extensive and costly damage can result if critical components are not adequately protected in transit and properly reassembled.

Cost of Ownership – Relatively new equipment can cost substantially less than brand new and may still be under warranty, but re-purchaser should verify if warranty is transferable and that original documentation is intact. And even if still protected by manufacturer's warranty, it will be for a shortened period of time and may not cover labor or transportation costs. Maintenance or repairs can become very expensive, even in the preliminary troubleshooting phase, as an original equipment manufacturer is going to be less inclined to bend over backwards to help out a new customer that is not the original purchaser.

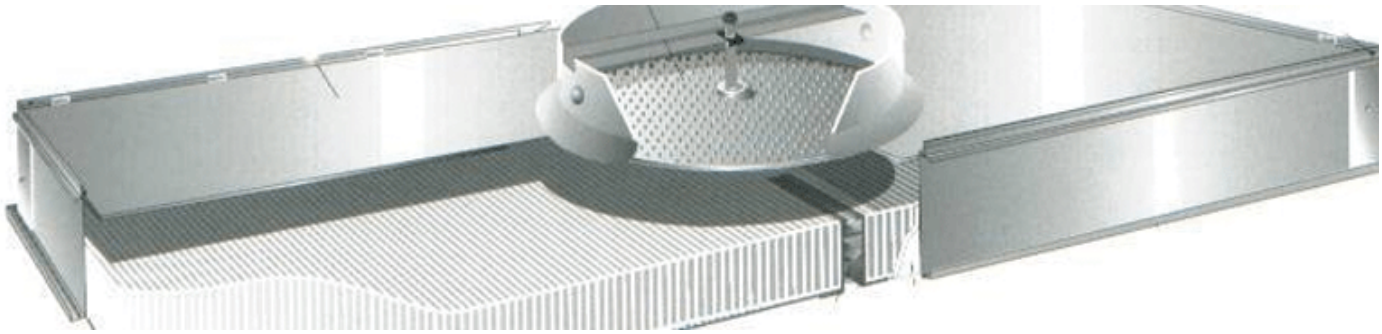
Modular cleanroom enclosures can typically be reconfigured, relocated and re-certified for re-designated usage.
Photos courtesy of Simplex Isolation Systems.

When considering used, modular cleanroom enclosures here are some specifics that should definitely be taken into account.

Size – The room should be at least as long, wide and high inside to accommodate your needs, but not too large or high outside so as not to fit into your available space. Enlarging or reducing a room to fit your needs can become very time consuming, expensive and may even jeopardize the room's integrity and aesthetics.

Configuration – Make sure the room is a near similar shape and has passage way(s), walls, lights and other integral features to suit your needs. Reconfiguring a room can become very time consuming, expensive and further jeopardize the room's integrity and aesthetics.

HEPA's – Check the HEPA filters thoroughly to verify media integrity, that there are no leaks around seals and that there is reasonable and balanced airflow. If self-powered HEPA's they should be able to attain 90-FPM face velocity and still have additional motor speed adjustment. Achieving 90 FPM with the motor speed controllers topped out would indicate loaded HEPA media at the end of its life cycle. It's a good idea to bring in an independent professional to inspect and certify the HEPA's.



HEPA Filter Modules must be handled with care and the HEPA filter media can be delicate. Performance should be checked before and after relocation.
Photo courtesy of Technical Air Products.

Classification / **Certification** – Choose a room at or below the classification you require. If you need an ISO Class 6 (old Class 1,000) room and select a Class 7 or 8 room (Class 10,000 or 100,000) thinking you can just add HEPA filtration, you may later find that the room has unforeseen limitations which prevent it from achieving the lower classification. It's better to choose a Class 6 or even a Class 5 (old Class 100) room that is already at or below a cleanliness level suitable to your needs. Verify that the room is indeed certified to be at its given classification level when operating in a similar manner to your own intended application. If it's not or if the certification is more than 6 months old, arrange to have an independent professional, with no bias toward the buyer or seller, perform a formal certification. It would be prudent to make the purchase contingent on the certification.

Construction features – Make sure the room is structurally sound and meets *your* local seismic and OSHA requirements. If the room requires external support from its present facility, are you willing or able to provide that same external support? Is the ceiling grid substantial enough to survive re-location and still maintain alignment for re-seating tiles, lights and HEPA's? Will it support additional HEPA's or other ceiling mounted equipment that may be added in the future? Will it support the occasional maintenance technician? Does the room meet electrical codes and will it meet your electrical requirements? Will it practically and aesthetically blend into your environment and working conditions?

Condition – The structural elements of the room should be sound and aesthetically appealing. Make sure all painted or epoxy coated surfaces have a good, consistent finish. Look for scratches, dents, dings and touch ups. Inspect all these areas closely to make sure subsurface is not corroded which can affect structural integrity and/or become a source of particulate. Touch ups should have been performed with high quality epoxy paint not prone to fading, oxidizing, flaking or peeling. Make sure walls, curtains and ceiling tiles are <u>all</u> in good condition. Although these may be easily replaced, this is an added cost and replacements may not physically or aesthetically match. Light fixtures should be sealed, cleanroom-compatible designs. Pay very close attention to the ceiling/roof structure. All elements such as tiles, lights and HEPA's must seal tightly, yet still be easily removable. Remember this room will have to be disassembled, transported to your facility and re-assembled.

The ceiling grid is the single most important structural aspect of a modular cleanroom – make sure it remains true and level and that all components are functional, as well as properly seated and sealed. Photo courtesy of Technical Air Products.

Original Documentation & Manuals – Original manufacturers' drawings, manuals, parts lists and other documentation will prove invaluable when installing, maintaining and eventually troubleshooting problems with the room and its various components.

Maintenance records – Ask to see maintenance records and make sure they're included with the room's documentation package. They will give you valuable insight into how the room was maintained, offer guidelines on how to set-up your own maintenance schedules and potentially help you anticipate and troubleshoot future problems.

Responsibility – Define up front who will be responsible for disassembly, packaging, transportation, re-assembly and re-certification of the room. Although it is tempting to allow the seller to disassemble and ship the room, he probably has no vested interest in its success or your satisfaction. It is to the buyer's advantage to participate in all these phases and to even make that part of the purchase agreement. And yes, the room should be re-certified by an independent professional after re-installation at the buyer's facility. If for any reason it does not meet certification the buyer should have some contingency plan to rectify the situation or to go back to the seller for shared responsibility.

Good Luck – But of course luck is what you make it. It's a broad market and diligent searching and networking may reveal a used cleanroom well suited to your application. Do your homework up front and throughout the acquisition process and you could be rewarded with a real gem at a bargain-basement price.

Ron Perry is president of RPA, a professional sales organization that offers state-of-the-art cleanroom designs, construction, monitors and furnishings. Perry has more than 25 years of experience selling products to the Southern California semiconductor, aerospace, microelectronics, biomedical and pharmaceutical industries. www.rpaproducts.com