

Crime Lab

Laboratory Storage Solutions: Efficient Solutions to the Ever Present Issue of Stuff

Mon, 06/18/2012 - 3:44pm by Susan HallaCy Henningsen

Increasingly more evidence is being collected from crime scenes. Often by legal mandate, forensic laboratories are required to store more evidence for longer periods of time, sometimes indefinitely. Other items of reference, be it weapons or slides, require more and more room. Space constraints, always one of the major issues in labs, continue to worsen. What options exist to better store items that not only provide more storage but also provide an economy of space?

Depending on what is being stored there are a number of products to help facilitate that need.

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Figure 1: High Density Storage

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High density storage is one such product that allows for the more efficient use of space than

standard shelving. Fixed shelving requires a large amount of circulation space to access items. High density storage

captures this lost space by compressing shelving units together. The shelves are mounted on a rail system with one circulation space. Either manually or with electronic controls, the shelves are moved along the rails to reposition this circulation space allowing access to the shelf you need.

The advantage of high density storage is clear; you can fit far more high density shelves in the same area as standard fixed shelves. Individual high density shelving units can be customized for specific needs. Common forensic examples would be weapons rests or barrel pegs for a weapons reference collection or small shelving specifically sized to store histology slides.

There are some disadvantages to high density storage. High density systems are more expensive than standard shelves. Because of the compressed nature of the shelves, only one shelf can be accessed at a time. This requires coordination if multiple people want to access evidence at the same time in different areas of the system. There are also special considerations for accommodating the rails on which the high density storage system travels. Because these rails are a few inches high, adding high density storage to an existing room may require ramps to access the system. If high density storage is incorporated during new construction or renovation it is important to plan for recessed areas in the concrete for rail placement.

Another space-saving shelf alternative is vertical carousel storage. Vertical carousel storage is a computerized system which stores files, books, or anything that is generally of a uniform size in vertical storage. The system assigns each item in storage with an identifier which allows it to electronically retrieve the item, rotating the storage unit until the item in question is at the access port.

The major advantage of vertical carousel storage is its ability to use the entire floor to ceiling space of its footprint, greatly increasing the amount of items that can be stored. This allows any size user to readily access items stored in the vertical carousel without having to either stoop or use a ladder. Also of note, because it is a computerized system, the system can generate a record of access to the items in storage.

The disadvantages of vertical carousel storage are similar to that of high density storage. It is more expensive than standard shelving. It too can create a bottleneck in accessing evidence, as only one or two persons can access the system at once. Vertical carousel storage is designed for smaller items which are of unified size, such as histology slide containers, but cannot house larger items. Because each item in the carousel has an identifier, upfront work is required to label each item in order to work with the system. Specialized containers may also be necessary in order to provide a standardized storage size for use within the system.

Evidence lockers are focused more toward maintaining chain of


 Figure 2: Insider an evidence locker.

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custody than providing efficient storage space. However, even evidence lockers can be used more efficiently by the addition of electronic controls. Evidence storage lockers are generally provided in different sizes and configurations, some sized for small items such as DNA kits, some tall and narrow for items such as long arms, and some larger units for the storage of bulky items. Traditionally a certain number of lockers of each size were specifically assigned to each investigator. On any given day, an investigator might have all bulky items from a crime scene and not have enough lockers of an appropriate size, while another investigator might not need all of his or her lockers, but there has been no effective way to share space while providing running proof of chain-of-custody.


 Figure 3: Run of evidence lockers.

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Computerized systems can track which lockers are in use and which are open. An

authorized user can access the computer system, identify which locker size they need, check out an available locker, and then place evidence in the available locker. That locker is then locked and can only be opened by that investigator or an evidence system administrator. The system logs all access to the lockers so that chain-of-custody can be proven.

Because the computer system controlling the lockers indicates which lockers are available, there are fewer reasons to permanently assign a certain block of lockers to an investigator. This can allow a department to get by with fewer lockers; or support additional staff with the same number of manually controlled lockers. Additionally, lockers can often be controlled with proximity cards in lieu of keys, allowing for key cards to be decommissioned easily or reassigned as staff changes and relieves the issue of losing valuable keys.

As with the other options presented, additional cost is one thing to consider when evaluating the introduction of computer controlled evidence lockers. While electronic control systems may be added to existing lockers, power and storage for the control system components is required for installation and would be an additional cost either as a retrofit or in new construction.

As Benjamin Franklin

noted, "...in this world

nothing can be said to be

certain, except death and taxes." Appending this quote to add "storage" seems appropriate to the way in which forensic facilities must operate. It is assured that storage requirements will continue to grow and finding smart ways to manage storage by more efficiently and effectively using the space available is a necessity.


 Figure 4: Vertical Carousel Storage

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