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Crime Lab

"Lift"-ing the Standards: Forensic Vehicle Bay Design

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We love cars. From a beat up 1980s coupe to the dependable family mini-van, or the newest gas-electric hybrid to roll off the line, we're attached to our cars and spend significant time in them. Unfortunately, accidents and crime can happen anywhere; including in our cars.

Forensic facilities often contain vehicle exam areas. Vehicles that have been involved with a crime are processed in a bay. A car may be dusted for fingerprints, paint from a hit and run may be sampled, or biological evidence may be collected. Vehicle exam spaces require planning and design to be most effective in supporting this collection of evidence.

Bay Layout

How many bays do you need? What are the pros and cons of single versus multiple bays? These questions are often answered by available funding and current and future case load involving vehicles. Other factors may determine the number of bays your facility needs. Evidence integrity must be maintained.With one bay, that only supports one car, securing evidence between cases is not an issue. Having two or more bays becomes more challenging. The most secure but least flexible solution to maintaining separation between bays is the construction of walls between bays.With this option you lose the ability to utilize more than one bay per case; perhaps a wrecked vehicle requires more space for processing. When the

area is needed for two separate bays they can be separated with a retractable wall or metal gate. Two or more bays that open into one another allow the space to accommodate a broader range of vehicles for examination.One bay might be designed for standard sized vehicles, while a second could be designed to accommodate larger vehicles.

How large of a vehicle do you want to be able to examine? While you might occasionally have a case involving a bus or truck you must decide if this frequency justifies the additional costs associated with large vehicle bays and a heavier vehicle lift. One design feature that can accommodate the infrequent processing of large vehicles is designing multiple bays which open into one another. By providing contiguous bays you can position a large vehicle perpendicular to the small vehicle bays and utilize the bays as one larger processing area. The size and type of overhead doors into the exam area is also a consideration. Although one door into each area may seem like the obvious choice, it may be wise to opt for one larger overhead door for each two-bay grouping. This allows for easier delivery of damaged cars as well as easier accommodation for those vehicles that no longer accurately track.


Efficient and flexible layout for vehicle examination bays.

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Vehicle Lifts

Central to vehicle exam spaces are vehicle lifts. Lifts allow easy access to the sides and undercarriage of a vehicle for the examination and collection of evidence. Lift selection is essential. Scissor lifts can make examination difficult as their support structure can impede the examination of the side of a vehicle. Lifts which function at the axel are preferred for their ability to lift vehicles where tires may not be present or are damaged while still allowing access to all parts of the vehicle.

In addition to the style of lift, the question of fixed lifts versus moveable lifts is relevant. Fixed lifts accommodate larger

vehicles, but are sized to lift a specific vehicle type. As the name implies, fixed lifts are stationary and prevent the other flexible functions of vehicle bays discussed earlier. Movable lifts are convenient for use in a multi-bay scenario without the upfront investment capitol of multiple fixed lifts. However,mobile lifts have the drawback of only supporting certain weights or styles of vehicles.


Forensic Vehicle Bay in the Scottsdale Police Department's Forensic Laboratory

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Other Considerations

When examining evidence in or on a vehicle with an alternative light source, the ability to completely darken at least one of the exam bays is required. The simplest way to do this is to have a separate bay with a solid garage door without windows. If this is not acceptable or desirable in your facility, there are other ways to darken the room such as black-out shades with tracks that seal out light or a provision of black-out curtains on a track which can completely surround the vehicle. Darkening a room with curtains is more difficult to control, particularly in a high-bay space.

It is often desirable to provide work spaces within the vehicle processing bays for both equipment storage as well as the immediate working of evidence where applicable. Casework and finishes in the bays should be robust and should stand up to wet functions. Stainless steel is recommended in such areas. Other bench space may be utilized to accommodate fingerprint dusting stations and other equipment for processing evidence. Moveable benches on casters or smaller mobile tool chests or shelving units are particularly useful for moving and arranging at multiple stations around the vehicle during processing.

Bays should have janitor/floor sinks as well as hoses for washdown and will require floor drains. Many of the vehicles coming into the bays will be leaking fluids and consequently drains will require an oil interceptor. Compressed air systems are commonly piped into processing bays to service pneumatic tools for working on the vehicles.

One last consideration for vehicle processing bays is the subject of vehicle fuming for fingerprint identification. Although an enclosed bay may be utilized for cyanoacrylate fuming, this can be a messy process and the fuming substance will end up on all exposed surfaces of the room. Another way to achieve this is to create a smaller chamber within the room for fuming a vehicle. This can be done with a stand-alone system of plastic walls that can join around the vehicle or by an overhead system that is lowered over the vehicle when needed and sealed to the floor to create a chamber. Evacuation of fumes subsequent to processing is accommodated through a local exhaust vent.

There are a number of issues to consider when designing either a single forensic vehicle processing bay or multiple bays. This article is intended to spark considerations for the design of your vehicle processing lab.As with all design functions, choices will inevitably come down to funding and need. Assessing your current case load and vehicle processing needs and matching that with your current funding possibilities will start you on your foundation for design.

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