

PARKING GARAGE FIRES



**Hoping for the best,
planning for the worst**



By Mark Wright

When Katie Staniel answered her home phone early in the morning of Sunday, May 1, 2005, she knew her day would not go as planned. Staniel, aviation parking manager at Hartsfield-Jackson Atlanta International Airport, was alerted to a multiple-vehicle fire burning on the third level of the airport's four-level south parking garage.

"When I got there, it was bad," she recalls. "The fire department couldn't get any of its big trucks into the garage because of the clearance, so they had to use smaller trucks and pull hoses to reach the fire. The burning cars were near the front of our deck, so at least that was a blessing. It took awhile to get it put out."

Fortunately, no one was injured, but the aftermath was a mess. In addition to at least 14 affected vehicles, there was extensive smoke damage to the parking structure. Security cameras and lighting in the area of the fire were destroyed. A contractor was brought in to clean it all up.

Sorting through liability and insurance claims was complicated. Losses included the cost of extra security, lost revenue, cleaning of the garage with special handling of the waste water, equipment replacement, and repainting. After the fire source was identified as one vehicle, claims were directed to that car owner's insurance company.

When that insurer denied the claims—more than seven months later—the path to resolution got very convoluted, involving threats of legal action against the car manufacturer, dual but not overlapping coverage issues, and confusion as to who should be making a claim.

"It was not a good experience," says Staniel.

The Big Picture

There's good news and bad news about parking garage fires. The good news: they're pretty uncommon. (And multi-vehicle events like the one Staniel faced are even rarer.) The bad news: you never know when fire will strike.

According to the U.S. Fire Administration (USFA), there were an estimated 650 parking garage fires in the U.S. in 2006 (the latest year for which government stats are available). Those incidents resulted in \$7.6 million in property damage and 15 injuries. (The USFA says insufficient data exists to compute fatality estimates.)

"I've been designing garages for a living since 1988, and fire incidents have been few and far between," says Jason Stuart Rupp, an associate with Orange, California-based Architects Orange who represents the International Parking Institute on the National Fire Protection Association's (NFPA) 88A standard committee.

Not only are garage fires uncommon, they're likely to be limited to a single vehicle. Dale Denda, research director at The Parking Market Research Co., says that only about 8 percent of incidents affect an area beyond the footprint of the vehicle where the fire started. In other words, the vast majority of fires are limited in scope to a single vehicle.

Statistically, fires involving eight or more vehicles, such as in Atlanta, only happen roughly once every three years in the U.S., says Denda. When they do, they tend to make headlines. On March 8, 2012, a Ferrari reportedly caught fire in the underground garage of the historic Place Vendome in Paris, France. Soon, flames engulfed 40 luxury vehicles, many belonging to glitterati in town for an annual fashion event.

Since most garage fires involve a burning vehicle, it's interesting to note that, according to Denda, "virtually all" of the vehicles found to be the source of a blaze were at least seven or eight years old. He says that's not only true not just for parked cars, but also those that ignite on the highway. (He hastens to add that we should not conclude that all older vehicles pose fire risks—simply that the vehicles that do catch fire are nearly always at least seven years old.)

When a fire starts, it's too late—there's only time to react. And you want those reactions to be as smart as possible.

Sometimes, the risk might not come from the vehicle itself, but from what's inside it. Denda points out that work trucks often carry a wide variety of combustible substances—flooring adhesive, paint, welding tanks, etc.

“If you're parking non-passenger vehicles, you just dramatically raised the probability of a larger event if it happens,” he says. “If there is a fire while you have 10 work trucks in the garage, you have a bigger fire.”

Prevention

“Parking garages are extremely resilient,” Rupp notes. That's because they're designed to meet building code requirements (which are based on the International Building Code, to which some local U.S. jurisdictions apply even more stringent specifications) and the NFPA 88A standard for parking structures. That building code-mandated resilience is “the first line of defense,” explains Rupp.

“Section 406 (in the ICC International Building Code) contains most of the specialized requirements for parking garages,” explains Gary L. Nelson, P.E., senior staff engineer at the International Code Council, Inc. “All of the requirements and limitations in the family of ICC Codes abate the fire and life safety risks associated with parking garages down to acceptable levels.”

Denda says parking garages are actually “over-designed with code-mandated systems like sprinklers or detection systems that are not designed for an open air environment and that have to be serviced every 24 to 36 months. There have been all kinds of bells and whistles built in that are quite expensive.”

He adds that a sprinkler system is only relevant if it's functional. “The number of systems out there that don't work is enormous,” he says.

The risk goes beyond vehicles and their contents. Dumpsters or construction materials and equipment can become fire sources inside garages.

“Keep the garage clear of anything but cars,” says Denda. “Garages can't be allowed to become storage areas.” He says about 20 percent of garage fires are attributable to secondary uses.

Surveillance provides another layer of protection. “Monitoring the environment of what's going on in your facility is paramount,” says Denda.

Surveillance practices vary tremendously, though, observes Brian Shaw, director of business services at the University of Pennsylvania. He dealt with an arson fire at a former institution. Some garage camera systems are used more as passive recorders, while others might be proactively monitored, depending on available human

and budgetary resources.

“It's better to have pay stations, with personnel functioning in a customer service and security capacity,” he says. “Someone patrolling the garage is in a better position to see things than if they're stuck in a booth.”

Preparedness

As unlikely as a fire might be, being prepared for the worst is vital. Experts advise facilities without fire plans to try this four-pronged CARE approach as a start:

- **Communication:** Determine what procedures need to be followed at your site to ensure quick and clear communication during a crisis. Is each team member empowered to dial 911? Who should notify key stakeholders? Who, exactly, are those stakeholders?
- **Anticipation:** Understand how people are likely to behave during an emergency. Will customers panic or exit calmly? As Shaw says, “People tend to do stupid things,” such as try to get to their cars on a deck above or below the burning vehicle.
- **Responsibilities:** What roles should each staff member play during a fire emergency? Who's responsible for helping to evacuate a smoke-filled garage? What should each team member do to ensure that a fire event is managed in as safe and sane a manner as possible?
- **Equipment:** Should all of your team members have two-way radios or similar devices? Should your garage have security phones on each deck? While local regulations determine whether or not a garage must be equipped with fire extinguishers, simply having them around is no guarantee that anyone knows how or when to use them.

A debate exists over whether or not extinguishers should even be present. “One school of thought says take them all out so people don't try to fight (the fire) on their own,” says Denda. “But I've found that people will try to fight it anyway, to get their valuables out of their car or whatever. I'm a big proponent of having them available.”

Questions and “what-ifs” need to be addressed and answered in coordination with your institutional and local first responders. And while fire drills are not usually required for parking garages, you might seek guidance from your emergency services about whether such events would be beneficial for your facility.

Whatever approach you take, preparedness means thinking and planning in advance. When a fire starts, it's too late—there's only time to react. And you want those reactions to be as smart as possible.

Response

Speed is key when you encounter a fire, Shaw explains. “You want to detect the fire and respond as quickly as possible, so it doesn’t spread.”

Do not, however, try to be your own first responder, advises John Price, battalion chief for the Fairfax County (Va.) Fire and Rescue Department. Dial 911 right away.

Keep emergency lanes clear so first responders have full access. In addition, advises The Atlanta Fire Rescue Airport Section, a parking operations representative should, if possible, “be positioned on the roadway to guide the responding units to the emergency area. Often times, a dispatcher will send the fire response unit to a general location and they have to search for the actual vehicle/vehicles involved. [The parking operator] should also establish that fire hydrants are not blocked and that no unreported construction projects are taking place that can rob the fire hydrant of the necessary water pressure.”

“The biggest concern is smoke, because it will quickly overcome anyone in the vicinity,” says Price. “Visibility

gets down to nothing. We want people to get out.”

That could pose a challenge, though, because people will instinctively want to protect their automobiles. “You have to protect them from their urge to do that,” Shaw says. “It’s safest to say you can’t drive in, drive out, or remain in the garage until the situation is controlled and safe.”

Once the fire department has extinguished the blaze, investigation and clean-up activity could take many hours. Coordinate with the on-scene commander to determine when or if the facility will be cleared for vehicle owners to re-enter and get access to their car.

Lessons Learned

Reviewing an incident after the fact can help you improve your operations. Since its 2005 fire, for example, Hartsfield-Jackson Atlanta International Airport “has invested in three fire mini-pumpers (smaller than standard engines), with reduced profiles, to respond specifically to vehicle fires in the parking garages,” reports The Atlanta Fire Rescue Airport Section.



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