



## Using Infrared Thermography to Prevent Property Losses

Protecting commercial buildings and structures and minimizing potential losses is crucial for property owners and managers. A valuable resource they can utilize to accomplish these goals is infrared thermography, an advanced imaging technology that is nonintrusive and efficient in finding issues before they escalate into major problems.

Commercial property owners must understand how this technology works, what it's used for and how it may benefit them.

### How Infrared Thermography Functions

Infrared thermography detects thermal radiation emitted by objects. It uses camera sensors with sensitive infrared technology to detect temperature variations across an object or surface. These sensors convert this thermal radiation into an electrical signal, which is then processed to produce a visual image that displays a color palette representing different temperature ranges. This image allows the viewer to identify hot spots or anomalies. Trained thermographers analyze these images to identify issues such as overheating electrical components, water leaks, insulation deficiencies or structural weaknesses.

### Infrared Thermography Applications

Infrared thermography has a wide range of applications in commercial property management, including:

- **Detecting overheating electrical components** like circuits, switches and connections to allow for repairs and help prevent electrical fires and costly downtime
- **Identifying moisture within roofing systems** to help property owners locate damage to insulation and structural components and provide a chance to remediate them
- **Detecting building envelope issues**, such as insulation deficiencies and air leaks in walls and windows, to enable improved energy efficiency and lower heating and cooling costs

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- **Uncovering issues in heating, ventilating and air conditioning (HVAC) systems**, permitting property owners to remedy them and ensure optimal performance and energy efficiency
- **Locating hidden water leaks** to allow businesses to stop them and help avoid structural damage and mold growth
- **Detecting weaknesses or anomalies in building structures**, which provides property owners an opportunity to fix them and help prevent collapses or other issues before they lead to more expensive repairs

### Infrared Thermography Benefits

Infrared thermography can provide multiple benefits to businesses across sectors. It offers the capability to detect potential issues, providing property owners and managers the opportunity to perform proactive maintenance before the problems lead to breakdowns and downtime. This approach not only saves money but improves operational continuity.

Infrared thermography can also identify fire hazards, electrical problems and structural weaknesses, allowing for repairs and improved safety. Additionally, by identifying inefficiencies in HVAC systems and building envelopes, businesses can use infrared thermography to enhance energy efficiency, resulting in reduced energy consumption and cost savings.

### Conclusion

Infrared thermography can be used to safeguard property, prolong the lifespan of critical equipment and optimize operational efficiency. It enables property owners and managers to identify problems at an early stage, allowing for safety and energy efficiency improvements before they lead to greater issues. By including this technology in a thorough maintenance plan, businesses can secure improved financial stability and peace of mind.

Contact us today for more information and guidance.

## Managing the Risks of Electric Vehicles in Parking Structures

As consumers and the automotive industry move away from standard internal combustion engines, the popularity of electric vehicles (EVs) is increasing. EVs offer several benefits, such as contributing to reduced emissions and helping auto manufacturers comply with government environmental mandates; however, in specific locations—particularly parking structures—they can pose risks, including heightened fire hazards, as well as design and operational challenges.

### Risks of EVs in Parking Structures

EVs present risks to parking structures that can cause serious injuries and significant property damage. For example, EVs have chemical, electrical and thermal properties that can cause fires. Specifically, the lithium-ion batteries commonly used in EVs can be susceptible to thermal runaway, a process where they create more heat than they can disperse. This results in a rapid release of heat, potentially leading to explosions and fires. Furthermore, the fires from EVs produce toxic fumes, reach extreme temperatures and can be difficult to extinguish with traditional fire-suppression methods. The intensity of the flames can threaten the structural integrity of parking structures. Charging stations in parking structures can also increase fire risks due to a faulty charger or the charging of a damaged battery. The layout of parking structures (i.e., several combustible vehicles placed closely together in an area with low ceilings) may also make it difficult to suppress fires that start in them.

Furthermore, parking structures may face collapse risks as they accommodate increasing numbers of EVs. This is because the components of EVs result in them weighing more than traditional automobiles, with the main source of their added weight coming from their batteries. This weight could stress existing structures, especially those that are older or improperly maintained.

### Strategies to Manage EV Risks in Parking Structures

Specific protective measures can mitigate EVs' risks to parking structures. Strategies to address fire hazards include installing a sprinkler system or enhancing an existing system's water output capabilities, ensuring charging stations are installed per applicable regulations, and utilizing thermal imaging and off-gassing detectors. It is also essential to conduct regular evaluations, inspections and maintenance on these systems and devices and to utilize other technologies (e.g., smoke or fire detectors designed for parking structures) to reduce fire risks. Working with fire department officials can help parking structure owners find and address fire hazards. Such collaboration should occur at least yearly to review best practices for extinguishing EV battery fires. An emergency plan should be established for swift incident response and to help protect property and individuals' health and safety.

Additionally, parking structure owners must be aware of the structural risks EVs present. To ensure parking facilities can withstand these vehicles' additional weight, it is essential to maintain the structures and immediately repair any issues. Furthermore, technological simulations and modeling can help identify weak points, and artificial intelligence can be leveraged to help with design; this technology can assist with determining how to safely distribute and withstand the load of the cars in the structure and offer tips on the safest locations for charging stations. These tools should be used along with input from certified professionals, who can provide guidance on these critical decisions and ensure the structure complies with regulations and standards to address the risks of heavier vehicles, including EVs.

### Conclusion

EVs are changing the automotive industry, and they offer several environmental benefits. Yet, as they become more popular, parking structure owners need to be aware of the risks they pose. By being proactive and taking appropriate actions, EVs' fire and structural hazards can be mitigated. Contact us today for more information.

**EVs often weigh 30% more than those with internal combustion engines**, according to the director of the University of Tennessee's Center for Transportation Research. Parking structure owners must ensure their facilities can handle this added weight.

