Charging points and electric cars increase the risk of fire

Electric vehicle charging points need to be placed with care – to ensure building fire safety and to meet insurance company demands.

By Kristine Seest

For the first time in Denmark, more electric cars were sold in 2024 than petrol and diesel cars. Danes have embraced the battery-powered vehicle, and property professionals who want to attract electric vehicle (EV) drivers to their homes, shops, offices and hotel rooms are meeting their needs by installing charging points.

»Charging points are good for both EV drivers and the environment. But while it is easy and convenient to charge your EV right at the door you walk through, charging points need to be placed with greater care to ensure they do not become fire hazards and do not affect the insurance budget,« says insurance broker Henrik Mortensen from WTW Real Estate.

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> Charging points need to be placed with greater care to ensure they don't become a problem for fire safety and insurance budgets
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> **Henrik Mortensen** | Insurance Broker, WTW

The requirements set by insurance companies regarding fire safety and the placement of charging points have not yet been introduced in the building regulations, so they are not necessarily considered in the early stages of construction. This means that professional builders and owners can be in for a nasty surprise when the building is completed and ready to be handed over and insured.

High risk brings high price

Insurance companies have introduced clauses and requirements for the placement of charging points because they pose an increased fire risk. When a lithium battery on an EV catches fire, it can be slow to extinguish and therefore the fire can go on for so long that it can affect the building the EV is placed in or near.

»A building can withstand heat exposure for a certain period of time before it risks being totally damaged. This is a relevant issue that needs to be taken into account when placing charging points and thus deciding where EVs should be parked. A fire in an EV battery can be difficult to extinguish, and it creates a risk that the time the building is exposed to heat is extended,« says Head of Property & Construction Lars Vissing from WTW.

To reduce the risk of EVs leading to large-scale building fires, insurers recommend that charging points be placed outside in the open air and preferably away from the building. Some insurers have even included this as a clause in their terms and conditions.

Charging points in underground car parks

When insuring a building, a structural survey is often carried out where engineers or assessors evaluate how extensive the damage could potentially be. If there are charging points and EVs parked in the building, an engineer or assessor will check whether the fire protection of the building recognizes the increased fire risk.

»If you choose to install charging points in the building anyway and thus direct EVs to, for example, an underground car park, you need to pay special attention to the fire compartmentalization and the extinguishing options available in the basement. And this can be difficult to implement once the building is completely finished, as some of the requirements relate to the construction of the building itself,« says Lars Vissing.

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Hitting the ceiling

Insurance companies have been affected by several major fires in Denmark in recent years and have therefore introduced new ceilings for insurance sums – the so-called loss limits, which are described in detail in WTW's Market Report 2024. Professional builders and owners are faced with these limits if the technical building inspection reveals that the building is not sufficiently fireproofed.

»More and more clients are reaching the insurance companies' loss limits, and although we are ready to advise and find solutions that provide financial security and ensure that the client is not underinsured, it can be a very expensive solution that involves more insurance companies and increased documentation requirements. And it is not certain that the price can outweigh the immediate practicality of hiding the charging points away in an underground car park,« says Henrik Mortensen.

Do not forget the smaller lithium products

Lithium batteries are currently used in a wide range of products other than EVs, such as electric bikes and scooters, robotic vacuum cleaners, mobile phones, power tools and garden tools. In their analysis from 2024, the Danish Emergency Management Agency concludes that 131 fires occurred in small lithium products during the period 2018-2023. The majority of the fires occurred in electric bicycles.

»Given that the smoke from lithium battery fires is generally more toxic than smoke from an ordinary building fire, we believe that there is also reason to be aware of the fire risk associated with smaller lithium products, which are often charged indoors and at night,« says Lars Vissing.

WTW recommends that clients consult their impartial risk advisor as early in the construction process as possible, and that clients contact WTW before making a decision about installing charging points or if they are unsure about how to best manage the fire risk of smaller lithium products.

Turn to the next page for an overview of how to reduce fire risk associated with charging points.

Fire prevention

When installing charging points, it is important to pay attention to the fire prevention measures that insurance companies are also concerned about.

Fire prevention when installing charging points:

- Focus on passive fire protection between charging points and neighbouring fire compartments.
- Electric vehicle charging points are best placed outside in the open, where a good distance (at least 5-15 meters depending on the insurance company) to buildings and flammable storage is recommended.
- Charging points in buildings should be placed in the immediate vicinity of exits so that the fire brigade can tow away a burning vehicle.
- Charging points for electric vehicles should be placed at a good distance (at least 2 meters) from other vehicles.
- Charging points should be equipped with a safety switch or signage indicating where the electricity supply can be disconnected.
- Every three years, an authorized thermographer – certified by The Danish Institute of Fire and Security (DBI) – must carry out thermography of charging points and cables.
- Collisions with charging points can be prevented with bollards.