Pohjola Insurance

Prevention of electric fires

Safety regulation S331, valid as of 1 April 2020

1 Purpose

The purpose of these safety regulations is to reduce electric fires, diminish the risk of fires caused by electrical equipment and electrical installations and to make people more aware of the risks of electric fires.

2 Obligation to comply with safety regulations

These safety regulations are part of the insurance contract. Both the policyholder and the insured must comply with the safety regulations and its provisions. If the safety regulations are not complied with, the compensation may be reduced or completely denied, in accordance with the Insurance Contracts Act. The policyholder must ensure that those responsible for work performance are familiar with the contents of these safety regulations.

3 Definition

In these safety regulations, electric fire refers to a fire

- that has started from a piece of electrical equipment or
- from an installation in which the ignition source of the fire was electrical energy or
- in which the fire load consisted mainly of a piece of electrical equipment such as transformer, cables, etc., or
- in which the ignition and spread of the fire was affected by faulty use or installation of electrical equipment or
- by neglected maintenance, even if the actual fire was caused by something other than electrical energy.

4 Requirements for the prevention of electric fires

4.1 Carrying out electrical work

By electrical work we refer to the installation, repair and maintenance of electrical equipment. Electrical work can be carried out only by persons and companies fulfilling the requirements issued by virtue of the relevant acts, decrees and official regulations. Following the installation and prior to switching on the current, the necessary inspections and measurements must be carried out that will ensure that the installation was completed safely and correctly. The final inspection and the verification inspection must be performed as required by law.

Electrical equipment		
Equipment category	**Equipment**	**Inspection interval**
Category 3	• Electricity networks of network companies	• 5 years
Category 2	• Equipment containing parts with a connection power of over 1,000V • Low-voltage equipment over 1,600 kVA, electrical equipment with main fuses of more than 35A	• 10 years
Category 1	• Electrical equipment with main fuses of more than 35A (commercial, public and industrial buildings, agricultural buildings, installations in general public locations)	• 10 years

4.2 Regular inspection of electrical equipment

The intervals between and performers of regular inspections of electrical equipment are determined by the current Electrical Safety Act and by equipment category as follows:

The owner or possessor must ensure that the electrical equipment undergoes statutory regular maintenance.

4.3 Care and maintenance of electrical equipment

The owner and possessor of electrical installations and electrical equipment connected to them are responsible for ensuring that the equipment is used appropriately and properly maintained in order that it can be used safely throughout its life cycle. A care and maintenance programme must be made for protection and safety systems that require regular maintenance. The programme must include all issues related to maintaining electrical safety. The company's safety plan must define the protection and safety systems to be included in the care and maintenance plan. Any faults and defects in electrical equipment and installations must be repaired immediately.

4.4 Damage prevention measures

The following contains specific requirements to reduce the risk of ignition, to detect a fire and to slow down and limit its spread.

4.4.1 Thermal imaging

Thermal imaging must be performed by a qualified person. Thermal imaging is performed on, for example, main distribution boards and segment controllers at least once a year. The results must be analysed and documented after the imaging. Any issues found in thermal imaging will be repaired based on the observations, and the repairs will be inspected with a thermographic camera.

4.4.2 Cable bushings

The cable bushing of a separating element should be made in a way that does not significantly reduce the separating effect. Cable bushings must be insulated already during installation and finally when all cable installations are complete in the area. During work when no work is being done in the vicinity of a cable bushing, it must be temporarily insulated to fulfil the requirements for the separating element. The company must establish a procedure for the maintenance and insulation of cable bushings. Someone at the company must also be in charge of bushing insulation. This may be done by selecting specific cable bushing methods used by the organisation, or by outsourcing the bushing insulation work. CE-marked and type-approved pastes are to be used for sealing the lead-throughs.

A good guideline is that when using extruded firefighting foams, the approval conditions of the product must be clarified with regard to which application and target use the firefighting foam is suitable. This must be thoroughly investigated before using firefighting foams.

4.4.3 Cleanliness and order

Electrical equipment and cable installations such as cable racks, ducts and tunnels and raised access floors must be kept clear of inflammable materials and dust. Cables that are no longer needed must be removed to reduce the fire load.

4.4.4 Protection of electricity rooms

Electricity rooms must be protected with separating elements, automatic fire alarm system or automatic fire extinguishing system. The level of protection and the method chosen depends on the target. Targets such as cable tunnels which cannot be easily accessed by firefighters with their fire and rescue equipment must be equipped with an automatic extinguishing system and smoke ventilation. Transformers equipped with an oil-cooler fitted in the cellar or elsewhere within a building must be protected with an automatic fire extinguishing system, and the room must also have mechanised smoke removal that can be switched on manually. This requirement does not apply to transformers within a separating element that has been fitted on the outside wall of a building, with the doors opening straight outwards.

4.4.5 Use of electrical equipment

Electrical equipment may be overloaded only within the limits specified by the manufacturer and without exceeding the maximum operating temperature. Sufficient cooling must be ensured throughout the year and at any load. If not enough information is available on equipment load, the operating temperature must be monitored through measurements (for example, thermal imaging), and if any modifications are made, the temperatures must be monitored once the equipment is back in operation. The effect of any accumulation of insulating and/or flammable material from processes on electrical equipment must be taken into consideration, and measurements must be taken to ensure safe operation of the equipment. In conditions with potential for personal injury or fire, only electrical equipment suitable and designed for such conditions may be used.

4.4.6 ATEX - Electrical equipment for potentially explosive atmospheres

The electrical equipment and protection systems specifically designed for use in potentially explosive atmospheres must comply with health and safety requirements as well as with the requirements set in the ATEX directives, in order to avoid a possible accident caused by electrical equipment. Additional information on ATEX legislation and equipment compliance is available from TUKES.

4.4.7 Charging of electric vehicles

The charging of electric vehicles, and the implementation and installation of charging stations, plug types and cabling must be carried out in accordance with the relevant electrical safety laws and decrees, official regulations, standards and the vehicle manufacturer's instructions. The charging equipment must be fully functional (including the connecting cables, for example). No extension cords may be used when charging. Sufficient ventilation must be ensured.

4.4.8 Charging of light electric mobility devices

By light electric mobility devices we refer to mobility devices, electric bicycles or light electric vehicles with a maximum speed of 25 km/h and the engine's rated power of no more than 1 kW that assist or replace walking. (The batteries of light electric vehicles may be charged using an ordinary grounded 16A/250V socket protected with a residual-current device of at least 30 mA as part of a fixed installation.)

Charging areas must be clearly marked to ensure that batteries are always charged in designated areas. No flammable material may be stored closer than 1 metre to a charging area, or above it. Flammable materials must be stored at least 2 metres from a charging area.

In the immediate vicinity of a charging area, there must be a sufficiently large extinguisher suitable for electrical fires: at minimum, a hand-held fire extinguisher of the type 43 A 233 BC or an 89 B class extinguisher containing 5 kg of CO2.

4.4.9 Charging of other than light electric vehicles

The batteries of other than light electric vehicles may only be charged from a self-contained power unit (such as a charging station), the safety of which has been ensured with appropriate control and protective equipment (such as a residual-current device). Charging cables must be protected from mechanical breakage.

There must be a clearance of at least two metres from any flammable materials in the charging station. The charging area should be separated from other areas with yellow lines or other markings. Cables must be protected from impacts breakage. Cables must be stored up on wall hooks designated for them or in a similar place. There must be enough fire extinguishers in the charging station that are suitable for electrical fires, and a minimum of, for example, a hand-held fire extinguisher of the type 43 A 233 BC or an 89 B class extinguisher containing 5 kg of CO2. Eye wash equipment must be placed in the vicinity of the charging station. User instructions, safety guidelines and warning signs must be displayed visibly in the charging station.

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