USB-Info 2/15

Smoke Detector

1 Fundamentals

The building regulations of almost all German federal states contain the obligation to install smoke detectors in living areas "**where people are intended to sleep**", and in the **escape routes**. This also applies to hotels with less than 12 guest beds, container rooms, recreational accommodation and similar buildings, provided that there are no other demands on the fire protection equipment. This obligation also applies to special events involving an overnight. Smoke detectors for residential buildings, apartments and rooms with similar purposes shall be certified to the **appliance standard** DIN EN 14604. DIN EN 14676 regulates the **installation, operation and maintenance**.

2 Devices

For residential purposes we recommend battery-powered optical smoke detection with alarm function. They should be certified and labeled with the manufacturing date + the maintenance interval. The alarm must be at least 85 dB (A), and the device should have a button to turn off a triggered alarm. For deaf people there are devices with **visual and vibration alarms**. By using 10-year batteries the maintenance is reduced to a minimum. If you plan to use wireless detectors, please consider that battery-powered units have significantly higher maintenance and they are more likely to have malfunctions or false alarms, more than detectors with 230V supply.

230 V smoke detectors must have an emergency power supply, e.g. battery or rechargeable cell. Optical detectors can be triggered by steam, cooking vapours, shower mist, smoke, fine dust and insects. Other causes can be extreme electromagnetic influences, temperature changes with condensation, and manipulation. To prevent a false alarm caused by insects, the inlet should be less than 1.5mm. Before working **with dust and smoke**, for example, with drilling, milling, welding, sawing, soldering, the detectors on the premises and neighbouring rooms are to be deactivated by being removed or covered. For this purpose there are special hoods, but this can also be achieved by a disposable glove. In this way not only is a false alarm avoided but also the device is **protected from contamination** that could later lead to **malfunctions**. In the catchment area of kitchens and showers thermal detectors, or combined heat and smoke detectors are to be used.

3 Startup, Check

The **attachment** should be at the highest point in the center on the ceiling (with pointed gables about 0.3m below). Areas with drafts and turbulence should be avoided. The distance to walls and lamps should be at least 0.5m. The detector should be easily **accessible for maintenance**. In **staircases** or rooms with a gallery you must install at least one smoke detector on the top floor. We recommend installing detectors on every level. With low ceilings, the detector can be introduced into a recess and protected by a grid against manipulation. For rooms up to **60m²**, one smoke detector is sufficient. In corridors the distance from the end wall should not be more than 7.5m, and 15m to the next detector. According to the manual (or at least **once a year** and after changing the battery) smoke detectors have to be tested and checked concerning function, pollution and damages. The alarm verification is done via the test button. 230 V devices have to be checked once with and oncenwithout power supply (to check the battery).

Your manager for occupational health and safety

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