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Possibility of using metal panelled covers of the FURAL make in medical facilities from a hygienic point of view

Content

Preliminary remarks

On behalf of the company Fural Systeme in Metall GmbH, the **German Advisory Centre for Hygiene** (BZH-GmbH) has carried out a risk assessment on the use of the metal fire protection panels - folding system EI 30 (F30A) and FI90 (F90AB) and square panel or linear panels - clamping system also as acoustic ceiling with fleece inlay in rooms of medical facilities from a hygienic point of view. This is based on the documents and information provided to us on the system and the individual components.

The difference between the system with fire protection requirements and the standard system is that the fire protection panels are made with gypsum boards and can be folded and moved by means of a system, which results in a 3mm gap between two modules of the fire protection panels when closed. A cavity above it with e.g. cables and pipes nevertheless remains tightly sealed by the gypsum boards and there is no entry of dust deposits from the ceiling area into the room below.

Surfaces in the hospital sector

In principle, it must be possible to routinely clean all surfaces used in hospitals and, if necessary, to disinfect them by wiping. Wipe disinfection must be performed if a surface is contaminated with infectious and potentially infectious material. As such, for example, secretions and excretions of the human body are to be taken into account. The risk of contamination for ceiling elements in hospital corridors and most other rooms, except for operating theatres and cardiac catheter laboratory, is normally considered low, but the possibility of disinfecting the surface material is still present. Since corresponding ceiling elements are also installed in clean rooms, tests carried out by the manufacturers of the coatings for material compatibility when disinfectants are used are available, in which selected preparations with application area medical facilities are also mentioned. The list of suitable disinfectant products approved for the designated medical area must be handed over to the user. Nevertheless, the manufacturer recommends checking the suitability if there is any doubt.

The procedure listed for ceiling elements must also be observed for corresponding superstructures or installations in the ceiling. These must also be easy to clean and capable of being wiped with disinfectant. Where appropriate, the choice of flush-fitting versions of lighting, for example, can make it easier to clean the surface.

In Germany, medical facilities usually select disinfectants from the disinfectant list of the VAH (Desinfektionsmittel-Kommission im Verbund für Angewandte Hygiene (VAH) e. V.). All preparations listed there have been tested for their effectiveness against the corresponding germ spectrum according to the guidelines issued by the Disinfectants Commission. Corresponding specifications for testing disinfectants are also given in the respective European standards. The DIN EN 14885 standard provides an overview. The test procedures to be used to prove the effectiveness of a disinfectant are comparable according to the requirements of VAH guidelines and European standards. For approval as a surface disinfectant, a bactericidal and levurocidal (C. albicans) effect must be achieved (Desinfektionsmittel-Kommission im Verbund für Angewandte Hygiene (VAH) e. V.).

For use as routine surface disinfection in medical environments, it is advisable to select a product with additional virucidal or at least limited virucidal effectiveness.

The use of sporocidally active products occurs when contamination with bacterial spores is present, e.g. in patients with Clostridioides (formerly Clostridium) difficile associated diarrhoea. Alcoholic disinfectants are characterised by their rapid effectiveness and broad spectrum of action and can, if possible due to the surface condition, be used preferably for surface disinfection of surfaces up to max. 2 m_2. The missing sporocidal effect of alcoholic disinfectants seems to be unproblematic for disinfection with any contamination in the ceiling area. Should a contamination case with potential spore contamination occur, disinfection with appropriate peroxide compounds, also included in the information on applicable products, would be possible without any problems.

The materials used in hospital areas should separate as few particles as possible in order to keep the level of dust pollution low. Optically clean surfaces are generally considered to be microbiologically less polluted, as microorganisms bind to dust particles.
Generally immobile on dry surfaces, microorganisms that are bound to particles can be transported over long distances. When designing an acoustic ceiling, an acoustic fleece is glued into the ceiling panels. For this material, too, there is a corresponding expert opinion that no fibres can be detached from the fleece and released into the environment when used as intended.

If ceiling panels are moved in order to carry out inspection work in the cavity behind them, or if ceiling panels need to be replaced, care must be taken to ensure that no patients in the surrounding room could be affected by the release of particles. If it is to be expected that dust can be released from the cavity, appropriate dust protection measures may have to be implemented and specific situation-related cleaning measures carried out. As the ceiling panels, once installed, are declared by the manufacturer to be very dense, dust is not expected to enter the room below from the cavity behind it when installed and additional grouting seems to be unnecessary.
The preferred method of opening this system using special tools prevents the risk of uncontrolled opening according to the manufacturer's specifications. The installation of inspection flaps that open slightly under pressure is not recommended by the manufacturer and bears the risk of uncontrolled opening with dust entering the rooms below.

According to the information on the material properties and the installation method of the ceiling material, no objections are seen from a hygienic point of view against the installation of the ceiling panels in all areas of a medical facility for patient care, as in particular a trickling down of dust deposited on cables, for example, is prevented and cleaning or disinfection is guaranteed.

The sheet steel of the ceiling element may have no perforations or perforations of varying degrees of thickness, which also influences its effectiveness as an acoustic ceiling element. In the hospital sector, it seems advisable to choose no or as small and few perforations/holes as possible in order to counteract the adhesion of dust as much as possible and ensure good cleaning or wipe disinfection. Beyond the infectiological point of view, sound attenuation in the field of patient care and health care, especially in hospitals, is also to be regarded as an important factor, since the burden on patients and staff can be reduced by lower noise levels. In addition to cleaning and wipe disinfection adapted to the situation or requirements, the regular and routine cleaning of the ceiling panels must be carried out according to the manufacturer's cleaning instructions to prevent dust deposits in perforations and on the surface.

A particularly sensitive area in a hospital is the operating theatre and specifically the operating room. Special ventilation technology with HEPA filters ensures a very low particle entry into this room. This means on the one hand that a lower amount of support is to be expected, and on the other hand that no additional loads must be introduced into the room. This means that in the operating room (but especially in the area of the operating table and the instrument table) it is advisable to choose the variant without perforation (no acoustic panels) to ensure a closed surface. In addition, there is a risk in the operating room that body fluids may be splashed up to the ceiling area and only the perforation-free, closed surfaces can ensure that the fleece behind it is not contaminated. However, there is often the desire for acoustic ceilings in the operating room to reduce the noise pollution caused by the equipment used and thus improve the ability of the employees to concentrate. If the operator of the facility also wishes to have acoustic panels for the operating room, these can be installed at the edge of the

operating rooms. In any case, regular cleaning of the surfaces is a prerequisite.

Conclusion

The metal fire protection panels - folding system EI 30 (F30A)/EI90 (F90AB) and square panels - or linear panel clamping system can be used in the corridor area of hospitals and other publicly accessible areas after checking the documents. From the point of view of hospital hygiene, the closed ceiling variant should be prioritised, i.e. ceiling elements without fire protection equipment and without perforation. These can therefore be used in all areas of patient care (including operating theatres) in a hospital.

We are at your disposal for any further questions. With

kind regards

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