Virus Disinfection with UV-C Light in a Church

Upgrade of recirculating air heating for large rooms

Viruses, bacteria and other microorganisms spread through tiny water droplets in the air, so-called aerosols. They can survive there for a long time and are transmitted from host to host. The risk is particularly high in rooms with ventilation systems. Air circulation with only a small proportion of fresh air increases the risk of infection.

UV-C light is very effective against viruses, bacteria and fungi. UV-C light easily destroys SARS-CoV-2 virus and its mutations, because they have only a thin lipid (fat) layer which UV-C light penetrates and destroys the virus immediately.

Large rooms such as movie theaters, theaters or churches are difficult to heat. This is often done with recirculating air heaters, where a burner heats the air and it is then blown into the large room. Viruses and other germs are distributed in this way, however.

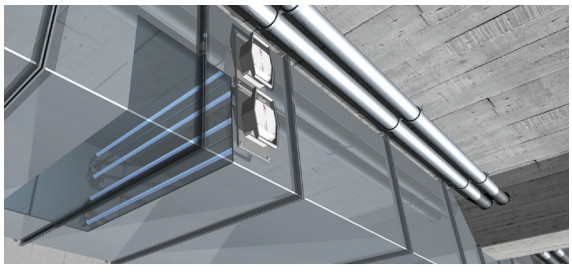
The Protestant city church in Groß-Gerau is heated by a burner in the basement. Since the Corona pandemic, the heating must remain switched off for safety reasons when people are in the church. Heating has to be done only in between so that the organ is not damaged. In addition to all the other measures, such as keeping a distance, hand disinfection and masks, a chilled church interior makes church services more difficult.

In search of technical solutions, the church council contacted the experts for UV disinfection from Heraeus Noblelight. They calculated and designed a disinfection system that exactly matched the need. The components had to ensure air disinfection with the existing air flow without negatively affecting the performance of the heating system.

For this purpose, UV-C lamps were installed in the air shafts. There UV-C light quickly and safely inactivates viruses in the warm air flowing past. UV light cannot escape unintentionally and only purified warm air enters the church interior.

Holger Tampe, church warden: "We are the first congregation in the Protestant Church (EKHN) that can disinfect the air with our heating system. This is the perfect addition to our existing hygiene measures!" In summer, the system provides germ-free ventilation without heating.

For the first time the renowned Fraunhofer Institute for Building Physics (FBP) confirmed the effectiveness of air disinfection with a self-contained UV-C air purification device. Using a sophisticated scientific test to simulate real classroom conditions FBP verified Heraeus UV-C air purification devices can reduce the virus load in closed rooms by over 99%. Additional tests with the Hygiene Institute biotec and the University Hospital Tübingen also confirmed the disinfecting capability of UV-C light.



Advantages of UV-C air purification with Heraeus Soluva equipment:

- ✓ Chemical-free
- ✓ Filter-free - no hazardous filter removal
- ✓ Low maintenance
- ✓ Environmentally friendly: no ozone or by-products
- ✓ Safe to use in occupied areas
- ✓ Germs can´t build up resistance to UV-C

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