

# Case Study

**Weiss Klimatechnik is planning and realising a cleanroom facility for cannabis processing**

## WHY

Incorporation of a cleanroom into an existing building  
Increasing demand for cannabis products

## HOW

Turnkey solution  
Room-in-room concept in a half-timbered house  
Air-conditioning technology and qualification

## WHAT

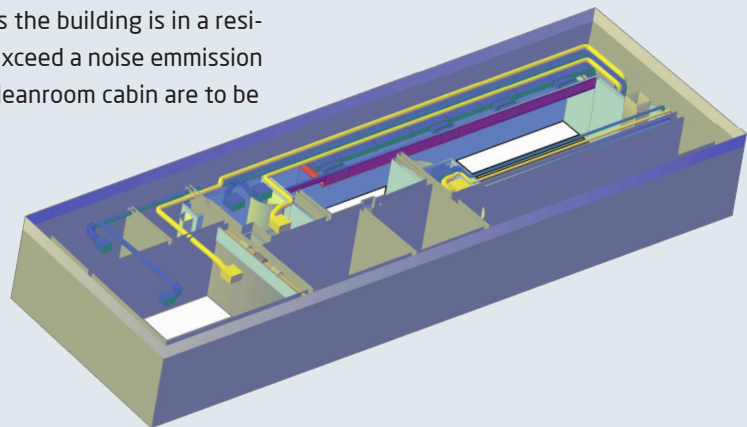
54 m<sup>2</sup> cleanroom facility  
3,250 m<sup>3</sup>/h supply air  
Self-sufficient refrigeration technology

### WHY - the challenge.

Sanity Group GmbH is one of the leading manufacturers of pharmaceutical and cosmetic cannabis products. A new cleanroom facility is to be set up in an old half-timbered house in Hochheim for the production of cannabis oil and cannabis creams.

This entails particular structural challenges such as constricted openings for the ducts, a low room height and wall and ceiling structures consisting of timber framing. All the technology must be transported into the basement via a steep sandstone staircase.

The cleanroom for pharmaceutical product must correspond to GMP Grade D and must operate as energy-efficiently as possible. As the building is in a residential area, technology installed outdoors must not exceed a noise emission value of 35 dB(A). The building windows behind the cleanroom cabin are to be accessible for cleaning.



### HOW - the idea.

The early integration of Weiss Klimatechnik into the project planning allows a customised room-in-room overall concept to be developed. This is being planned and will later be executed in accordance with the German Fee Structure for Engineers and Architects (HOAI).

The important thing is that the technology components are so compact that they come into their own when faced with the confined space conditions.

In order to be independent of the on-site media, an air-conditioning unit with its own refrigeration system is chosen. Make-up air dehumidification is planned in order to achieve the required energy efficiency, and particularly quiet capacitors are chosen to comply with the noise regulations.

## WHY

Incorporation of a cleanroom into an existing building  
Increasing demand for cannabis products

## HOW

Turnkey solution  
Room-in-room concept in a half-timbered house  
Air-conditioning technology and qualification

## WHAT

54 m<sup>2</sup> cleanroom facility  
3,250 m<sup>3</sup>/h supply air  
Self-sufficient refrigeration technology

## WHAT - the solution.

The concept developed includes the cleanroom cabin with airlock management for the production area, staff and material airlocks, the cleanroom floor, the air-conditioning technology, the refrigerant pipework, and the control technology including the control cabinet.

The GMP Grade D cleanroom has an area of 54 m<sup>2</sup>, of which 45 m<sup>2</sup> are allotted to the production area. In addition, 31 m<sup>2</sup> unqualified side rooms are available.

The centrepiece of the air-conditioning technology is the particularly small air-conditioning unit Vindur Compact 55.3. The air-conditioning unit includes all the control technology via a PLC controller developed in-house and achieves the dissipation of the load of the process heat as well as a fresh air supply and the climatic conditioning of the air. The two-stage filtration in the air-conditioning unit and the terminal suspended-particle filter combined with a room pressure control system ensure compliance with the required particle concentration for GMP Grade D.

**Product selected: Vindur Compact 55.3**

Special solutions are being developed for attaching the cleanroom ceiling and the media ducts to the beams of the half-timbered building. Beams in the room will be clad in accordance with the requirements for the cleanroom. Opening windows will be integrated into the cleanroom cabin so that the building windows can be cleaned. Because of the low room height, the suspended-particle filter outlets will be integrated into the wall and equipped with ground-level extraction.



## Overview of turkey services

- Planning & construction in accordance with GMP Grade D
- Cleanroom cabin & floor
- Ventilation technology
- Refrigerant pipework
- Control cabinet & facility
- Qualification (RA, DQ, IQ, OQ)
- Commissioning and handover