



Ultrapure air control by Sauter in the new research and laboratory building of the Saarland University Clinic in Homburg.

This new building makes a variety of facilities available to the interdisciplinary biomedical research groups. The new three-storey structure, based on the prize-winning entry in a design competition, includes various electrically-controlled clean rooms with regulated room pressure.



Patrick Reinsch, the architect responsible for the project, of the Saarland State Construction and Property Authority. Guests from the worlds of politics and business at the opening of the research and laboratory building (from left to right): Jürgen Schreier, Saarland Minister of Education, Culture and Science; Gerhard Wack, Secretary of State in the Saarland Ministry of Finance; Prof. Dr. Margret Wintermantel, Chancellor of the University; Prof. Mathias Montemarh, Dean of the Medical Faculty

In the tightly-sealed laboratory rooms, special attention had to be paid to room pressure so that any pressure disturbances caused by external influences could be quickly eliminated.

Ultrapure air laboratory for keeping animals

The rooms are controlled by means of positive pressure, and the areas between the individual zones are divided into three pressure stages. Constant volume-flow

controllers are built into the supply-air ducts. The room pressure is measured against a reference pressure pipe with pressure-dependent correction of the setpoint for the return-air volume-flow controller.

A weighting unit is installed in order to limit the influence of room pressure. The setpoint for the return-air volume flow (80%) and the influence of the room-pressure controller (20%) yield the command signal for the volume-flow controller. The drive used for the volume-flow box is a high-speed motor with a running time of 5 seconds.

The room temperature for the individual animal cells is controlled to the appropriate setpoint by a re-heater.

The doors leading from the ultrapure corridor to the animal cells and the doors to the airlocks are fitted with panels containing differential pressure indicators and signal lamps (green = room pressure OK; red = room pressure fault). The light

switches and card readers for the access control system are also built into the panels. The panels on the airlocks are fitted with intercom systems and a door terminal.

Radionuclide laboratory (S2 laboratory) and ancillary rooms (engineering/stores)

This section of the building contains electrically-controlled clean rooms with room pressure regulation. The clean rooms here are controlled in negative pressure instead of positive pressure; otherwise, the execution is the same as in the ultrapure laboratory section.

A building that sets real challenges in terms of control

Extensive technology with functions that have been perfectly matched to each other ensure that the whole system in this sophisticated building operates really well.

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Project data:-

- EY3600 novaPro as operating station in building 16, Technical Service.
- Additional operating station in the laboratory building, ultrapure area
- Fault messages forwarded via information transmitters
- 164 BMS images
- 4344 data points
- Remote access via laptop
- 17 modular automation stations
- 18 novaFlex DDC intelligent unitary controllers
- 34 ecos DDC intelligent unitary controllers
- 1895 physical data points
- 3 switchgear installations for fire dampers and electrical signals

The building management system controls the following systems:-

- 8 ventilation systems
- 18 room-air balancing systems for laboratories with fume cupboards
- 24 recirculation cooling units
- 2 fan coils, heating/cooling
- 8 air reheaters
- Heating, refrigeration, hot water
- Various sanitary installations

