

Object report: Surgical clinic at the University Hospital Heidelberg



LEADING-EDGE BUILDING TECHNOLOGY FOR HIGH-PERFORMANCE MEDICINE

As a high-traffic healthcare building, the newly constructed Surgical Clinic at the University Hospital Heidelberg places special demands on the building materials used in terms of safety, fire protection, efficiency and hygiene.

The University Hospital Heidelberg is one of Germany's largest and most modern medical centres, and treats some 600,000 patients every year. All of the buildings of the hospital are connected in the form of a circle. This "clinic ring" results in short distances and bundles most of the hospital's clinical departments within a two-kilometre radius. The buildings are also connected underground, where most of the technical supply lines run - cables, pipes and ducts for power, communication, energy, heating, cooling, water, drainage, air and gases. An automated transportation network runs a total length of seven kilometres through these "catacombs", taking materials to where they are needed for patients.

A Surgical Clinic with the latest technology

The clinic ring has been successively expanded since the summer of 2004. Currently a new Surgical Clinic is nearing final completion. Its approx. 21,000 m² usable area will include a 900 m² research space and enable a capacity expansion by 296 beds. The building will house General Surgery, Transplantations, Heart Surgery and Vascular Surgery. The operating area, with 16 ORs featuring the latest technology, is the heart of the Surgery department. Its innovative technical systems for patient management will make it one of the most advanced surgical clinics in Europe when it begins operations in the autumn of 2019. Research and teaching will be covered by the new 196-seat auditorium and seven seminar rooms, as well as a lab area in one of the upper wings of the building. Its energy-efficient design will substantially minimise operating and follow-on costs.

Safe and efficient insulation

Closing the clinic ring is important from the point of view of technical supply infrastructure. It increases the reliability of supply for the clinics, in terms of product logistics via the automated transportation lines in the lower floors, as well as in terms of supply of heating, cooling and

technical media. Elastomer insulation from Kaimann helps maximise the efficiency of the transportation of cold air through ductwork. All told, around 12,000 m² of Kaiflex KKplus sheets (s2 and s3) in 13 and 19 mm thicknesses, and about 33,000 m of Kaiflex KKplus tubing (s1 and s2) were used to insulate the ventilation system and cold pipes. These products meet the requirements for materials used in health facilities, such as flexibility, freedom from dust and fibres, antimicrobial and noise-reducing properties, and especially freedom from formaldehyde, since it can give rise to irritation, headaches and allergies. In addition to the reliable reduction of energy losses and greenhouse gas emissions, Kaiflex's closed-cell structure hinders condensation on the outside of ducts and pipework. This makes Kaimann insulation resistant to mildew and its spores and gases (mycotic volatile organic compounds (MVOCs)).

As a high-traffic public building, fire protection in the clinic is also a high priority. The problem in hospitals and other care facilities





is that patients typically have limited mobility, so evacuation usually takes longer than for comparable non-healthcare structures. For this reason, each floor is separated into multiple fire compartments. This presents a challenge for insulation. Since ducts and pipework are normally routed through walls and ceilings, their insulation must prevent fire – including heat, smoke and fumes – from spreading from compartment to compartment through wall penetrations. The insulation product must thus act as a fire protection bulkhead. The Kaiflex insulation materials used meet this requirement well. The smoke development class 1 (“low smoke development”) insulation materials used meet even the strictest European smoke requirements. This ensures that escape routes remain visible, and greatly reduces the danger of suffocation and smoke poisoning. Thus, the clinic can be quickly and safely evacuated.

High-quality all-inclusive system

The planning office Waidhaus in Chemnitz and the contractor that did the installation work, Betrieb G+H Isolierung in Römerberg, are satisfied with the results. Among the reasons that the construction planners selected the products used was that Kaimann offers ideally coordinated all-inclusive systems. This facilitates installation and increases safety even more. Kaimann’s service and consulting were another plus factor. Kaimann application technicians visited the construction site at the start of installation to instruct the contractor’s personnel and ensure that the products were properly applied.

Property

Surgical clinic at the University Hospital Heidelberg, Germany

Area:

approx. 21,000 m²

Renovation time

Summer 2016 until autumn 2019

Products

approx. 12,000 m² Kaiflex KKplus (s2 & s3) sheets
approx. 33,000 m Kaiflex KKplus (s1 & s2) tubes

