

OBJECT REPORT

November 2022



Roof renovation during ongoing operation of the university library

Rethinking the world - with fresh air and daylight



The Magdeburg University Library contains 1.2 million media contents, which are visited by an average of 194,000 students and interested people every year for learning and research purposes. The library on the campus of Otto von Guericke University in Magdeburg is the second-largest library in Saxony-Anhalt and was opened in 2003. The positive working and learning atmosphere of the library, though, had been disturbed for several years by leaks in the skylights. Therefore, the university decided to carry out a comprehensive renovation. The challenge: the library's operations had to continue during the renovation. No problem for roda Licht- und Lufttechnik

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GmbH, thanks to which all problems have now been solved and plenty of daylight and fresh air flows through the library.

Thousands of people come together every day at the university in Magdeburg to pursue the vision of "rethinking the world together". The world is also being rethought in the university's own large library, which unfortunately already had leaks on the roof. "There had been some dripping through the old ventilation system. This was not satisfactory, and therefore renovation was necessary," reports graduate engineer Sandra Hahn-Meyer, the head of the department for technology and construction planning at Otto von Guericke University. The solution was found by roda, the expert for smoke and heat extraction, industrial ventilation, daylight technology and translucent façade technology.

The solution: PHÖNIX double flap ventilator

The refurbishment solution had to be convincing, especially due to its long-term service life and practicable implementation. The decision was made for the double flap ventilator type PHÖNIX. Manufactured with millimetre precision, it is perfectly suited for renovations. A total of 26 double flap ventilators with the dimensions 3000x1500 mm were installed instead of the outdated louvre ventilators.

The double flap ventilators were placed on the on-site base systems so that a complete replacement of the base and opening of the roof cladding was not necessary. Technically, the skylights offer thermally separated bonnets, rain sensors and position sensors for monitoring the flaps. The roda solution was also completed by the design of the motors. These were designed using smaller

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drives with two amperes instead of four amperes so that no changes have to be made to the control system. This way, the existing on-site control system can read the signals one-to-one and control the electric 24V drives. In addition, the systems offer fall-through protection tested according to GS-Bau 18, so that safe working on the roof for assembly, maintenance and renovation work is guaranteed in the long term. The most difficult challenge of the renovation, however, was that the operation of the library had to continue during the renovation.

Renovation during ongoing operations

No interference with teaching and research: that was a condition for the renovation work at Magdeburg University Library. So, to keep things running, those involved only ever closed off the area under the openings where the element was currently being replaced. There was a time window of approximately one day for each roof opening, so that only a few shelves and books were ever inaccessible. "Despite the necessary renovation work, the operation of the university library had to be maintained. roda made this possible with a quick replacement of elements and a trouble-free process during the renovation work," explains Ms Hahn-Meyer from the university. To carry out the work as locally as possible, a solution was designed that continued to use the existing control system of the old system on site. This meant that the control system could be retained one-to-one, including the feedback control. The existing one should also be continued to be used in order to keep the effort as low as possible. For this reason, the 24 V motors from roda were assembled so that the current consumption would not be high, with simultaneous power

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loss in a 24 V power network. In addition, voltage modules were installed in the SHEV control unit to increase the output power.

Better performance thanks to a feel-good climate

Daylight and fresh air are absolute sources of energy and essential for human performance - especially in educational facilities such as libraries. The roda double flap ventilators combine both in one: with a ventilation position of 90°, they ensure optimum air exchange in the library and flood the rooms with natural daylight even when closed. The roda systems with the Soflite glazing variant ensure good thermal insulation values and, thanks to the X structure of the panel, even daylight incidence, soft light transitions and thus glare-free illumination of the library with a total area of 117 m² flooded with light. In addition, they offer extra safety in case of storms and hail, since the polycarbonate multiwall sheets with the highest resistance class HW5 can withstand hailstones up to 50 mm in size. Graduate engineer Sandra Hahn-Meyer is pleased with the additional benefits of the renovation: "The rooms look much friendlier now. Certain areas that were dark before are also illuminated with daylight now. The library is perceived much more positively again now."

Problem solver and reliable expert in all matters

The renovation of Magdeburg University Library involved some special aspects for which solutions had to be found. Particular attention was paid to the smooth running of the renovation to avoid disrupting operations and to the safety topic. roda ensured safe working on the roof with a fall-through protection system, so that the necessary safety is guaranteed when entering

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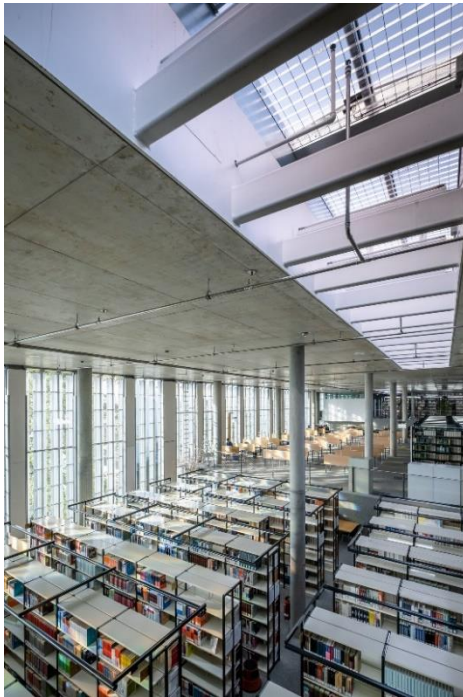
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the roof, cleaning roof drains or carrying out maintenance work. roda was convincing as a problem solver and safe expert in all aspects of the renovation of the Magdeburg University Library, as engineer Sandra Hahn-Meyer, head of the technical and construction planning department of the Otto von Guericke University, confirms: "The project managers as well as the technicians acted very quickly and flexibly to unforeseen events. The implementation was organized excellently, which meant that the job was completed quickly."

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