

Object report: Green-Building-Office



THE "GREEN BUILDING" OFFICE: BUILT WITH THE LONG VIEW



The highest standards in sustainability and fire protection were met in the construction of a modern office and administration building.

Climate change and dwindling resources demand changes in construction and industry. This is pushing the move towards “green buildings”, which use primarily ecologically sustainable and low-emission construction materials. They are also optimised to reduce energy consumption as much as possible. A recently completed office and administration building is an exemplary instance of new construction to a comprehensive green building design. As a high-traffic structure, this office complex also places high demands on fire and personal safety.

Gold status

Among the criteria for LEED (Leadership in Energy and Environmental Design) certification are the use of sustainable and environment-friendly construction materials, the implementation of a low energy design, and high air quality within the structure. This new three-storey building, with about 140 x 120 metres of space per storey, was awarded LEED Gold certification and set a high benchmark in the efficiency and ecological balance of the insulation for the heating and cooling infrastructure.

The insulation materials used, Kaiflex KKplus s1 and Kaiflex KKplus s3, have heat conduction ratings of up to $\lambda_{0,02} \leq 0.033 \text{ W/(m}\cdot\text{K)}$ at 0 °C, meaning very low cold and heat losses throughout the system for very efficient use of energy. Elastomer insulation is especially suitable for a healthy room climate, since it has no fibres (and so meets strict hygiene requirements), and is free of heavy metals (like cadmium and lead) as well as formaldehyde. This ensures more safety and better health during installation of the material and subsequent use of the interior spaces. LEED also looks at sustainability on the construction site. Thanks to its closed-cell structure, Kaiflex is protected against mould and bacteria growth without needing any additives, in line with requirements for air cleanliness. This can prevent illnesses like “sick building syndrome”.



Climate control from the floor

The three storeys house modern open-plan offices that allow for flexible, individual space divisions. All heating and cooling infrastructure is built into a 1.4-metre high raised floor in the first storey. Decentral underfloor ventilators in each storey provide for a pleasant room climate throughout the building. This kind of temperature control is especially suitable for offices with large glass facades, since it is not only highly energy-efficient, but also lets rooms appear larger due to the absence of heating elements along the walls.

All approximately 32,800 metres of cooling ductwork are insulated with Kaiflex materials, 60 % with Kaiflex KKplus s1 and 40 % with Kaiflex KKplus s3, the latter especially for large-diameter ducts in the ground floor and for cooling systems on the roof. The insulation contractor F.K. Isoliermontage GmbH in Ahorntal also installed



around 10,000 insulation caps. They were pre-cut and bonded with Kaiflex 494 special adhesive, which can be worked at temperatures under +15 °C. Thus, adhesive and insulation throughout the installation work were ideally matched.

Low energy loss, minimal smoke

In addition to energy efficiency and low pollutant content, fire protection qualities was a key criterion in selecting materials. Kaiflex KKplus s1 contributes to personal safety by developing only little smoke. This can save lives in the event that an open-plan office needs to be evacuated. At smoke development class s1 (“low smoke development”), the insulation meets the strictest European requirements for smoke and provides at least 90 minutes of fire resistance in accordance with DIN 4102-11 and EN 1366, for a variety of pipe opening solutions.

Property

Green-Building-Office, Germany

Area:

approx. 5.600 m²

Products

Total: 32,800 m² Kaiflex tubes & sheets

- approx. 60 % Kaiflex KKplus s1

- approx. 40 % Kaiflex KKplus s3

