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## Cottbus school refurbished to become passive house

Target values reached after scientific monitoring

Serious structural damage and the ravages of time made it unavoidable: Max Steenbeck Secondary School in Cottbus needed a new building. The choice fell on an existing system-built school, which first of all needed, however, to undergo complete renovation. For this reason, the City of Cottbus tested four variants in advance and opted for the Passive House standard. The BINE-Projektinfo brochure "School: Refurbished from Plattenbau to Passive House" (08/2017) presents the renovated building and the scientific monitoring. The new school building saves 80% of the heating energy compared to its state before it was renovated.

Once it had been completely gutted, the building being renovated received the passive house-typical thermal insulation and window systems. The heating is partly provided by the district heating return line from a school wing. A collector system for the hot water required by the athletes in the gymnasium supports the heat generation. Ventilation is achieved using a hybrid concept. Five central ventilation systems with heat recovery provide the building with fresh air and, during double lessons, this can be supplemented with window ventilation as required. The ventilation system is regulated according to the timetable. In addition, the building also has a geothermal array that is used to control the temperature of the supply air.

In 2012, around 500 pupils and teachers moved into the renovated building and praised the pleasant indoor environment. The target values for the energy concept were, however, initially exceeded. Scientific monitoring conducted until 2016 made it possible to identify the last remaining faults and to optimise the operating parameters. In 2016, the primary energy demand achieved a value of 30 kWh/m<sup>2</sup>p.a., thus undercutting the target value and confirming the refurbishment concept. The City of Cottbus was responsible for the construction management and BTU Cottbus-Senftenberg for the scientific monitoring.

The BINE-Projektinfo brochure, which can be obtained free of charge from the BINE Information Service at FIZ Karlsruhe, is available online at [www.bine.info](http://www.bine.info) or by calling +49 (0)228 92379-0. The brochure cover and additional image material can also be downloaded from this web portal in the press section.

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