Safety fit for school

CES OMEGA FLEX in the Nümbrecht school complex: the electronic locking system helps make the school a place of trust and wellbeing.

This is a good place in which to live and learn. In the Oberbergisches Land, in the middle of an unspoiled forest and meadow landscape, Nümbrecht health resort is popular not only as a tourist destination but also as a place for families to live. This is thanks not least to its good transport links and high-quality infrastructure. One example is the school complex which, in addition to a primary school, also has a general secondary school and a grammar school. It also boasts two sports halls and a swimming pool, as well as four further primary schools in the outlying districts.

As tranquil as its location is in the midst of nature, the goals pursued by the school complex are just as ambitious and aspiring. The two secondary schools are currently being brought together on a shared campus. Broadband expansion, as well as the networking and digitisation of the classrooms, are also on the agenda. Learning at the cutting edge of science and technology in an inspiring,yet sheltered, environment – this is the guiding principle. An important component of this is an access control and locking system that meets the specific requirements of school life.

Complex requirements profiles

For the municipality, only a holistic solution was possible. “We were looking for an electronic locking system that performs different functions at the same time and can also be expanded,” says Torsten Nolden, who is responsible for building maintenance on all municipal buildings in Nümbrecht. First and foremost, the technology had to meet the needs of people in the school sector: pupils of all ages, some of whom need to move around a lot, teachers who have to concentrate fully on their demanding work and, finally, clubs that

Torsten Nolden, Municipality of Nümbrecht

use certain functional areas such as a sports hall, kitchen or auditorium after class.

To allow all these groups to move safely and freely in school, Torsten Nolden believes there is no getting past a controlled access system that combines effective school rampage prevention with an anti-panic function. The requirement was to lock the classrooms from the inside as quickly as possible in the event of an external threat, but also to unlock them from the inside at any time if required. While anti-panic locks are regulated as part of the evacuation and emergency escape route planning in various legal acts such as those regulating school buildings, there are no binding minimum standards for rampage prevention. In search of practical solutions, field visits were organised to other municipalities and talks were held with Gummersbach district police. The result of this research: there are a variety of very different approaches. Some provide an emergency button that locks all doors centrally. Others require the teacher to enter a number combination on a smartphone to activate the locking mechanism. Way too laborious and prone to human error in an emergency, says Torsten Nolden. After a tender, the municipality decided on the electronic locking system CES OMEGA FLEX which, having been installed on over 400 doors, today meets all required functionalities.

Safety first through rampage prevention + anti-panic function

"Our aim was to make the system as intuitive as possible for the various user groups", explains René Theunert, Area Sales Manager West at CES in Velbert. Thus, the doors to the classrooms are equipped with an electronic double knob cylinder, and can be unlocked from the outside with a transponder. On the inside there is a mechanical knob which can be operated at any time without locking medium. "In the event of danger, whoever is closest to the door – whether a teacher or a student – can simply turn the knob and lock the classroom securely." There is no need for a smartphone or a key. At the same time, the automatic anti-thrust latch in the special panic mortise locks ensures greater protection against someone breaking in. No unauthorised person can enter the closed classroom, while at the same time people inside can leave the classroom at any time. To do so, they simply have to push down the handle on the inside. This retracts the anti-thrust latch, and the door is unlocked. A module integrated into the knob cylinder ensures that the locking cam is automatically set back and that the lock mechanics are reliably reset.

Several problems solved in one go

Quite incidentally, the electronic access system also solves a number of other issues, some of which can very stressful. Lost keys, previously associated with significant cost and administrative expense for all involved, are no longer a security risk. Lost transponders are simply deactivated and a new transponder issued. The same goes for transferring access authorisations when there is a change of staff, which is a regular occurrence when running a school. Particularly in the school summer break, when other people go on holiday, building management staff have their hands full cancelling old authorisations and issuing new ones. But there is no comparison with the tiresome, manual key issuing process that took place in the past. Today this is all done by CES OMEGA FLEX software. Because the user interface is modelled on a locking plan, it is particularly easy and intuitive to use.

With integrated time profiles it is possible, for instance, to grant temporary access rights. The internal event memory helps in the event of theft or vandalism in the school

Multipurpose hall in the Nümbrecht school complex

Entrance to the sports arena in the Nümbrecht school complex

buildings. The software can now be used to read when, and with which transponder, a particular door was opened. In the Nümbrecht school complex, however, this function is used only if there is a specific incident, and recording can also be completely deactivated. “The software makes it easy for us to maximise safety for students and teachers while being open for the community to pursue their sporting or cultural activities,” says Torsten Nolden.

Oleg Brenner, as school caretaker and thus another central key figure in the Nümbrecht school complex, sees things the same way. In addition to a multitude of other tasks, he also takes care of security technology and has an overview of all doors and locks. His fear that the cylinder knobs could be deliberately damaged by students has not been realised; the stainless steel and copper beryllium components are too robust. To prevent damage by multimedia trolleys, a special protection device has been installed.

Oleg Brenner closes the buildings each night, and reopens them shortly before 6 in the morning. In the summer holidays, when there are no jobs in the school complex, he activates a locking mode on the entrance doors using the so-called Block-Master. Then access is no longer possible, even with authorised locking media. The only exception: the Emergency-Key. It still ranks above the Block-Master in the authorisation hierarchy, and is always authorised regardless of all other settings. For emergencies, the Nümbrecht fire brigade for instance always carries an Emergency-Key in the fire engine. With his Release-Master, Oleg Brenner can reactivate the locking devices after the end of the school holidays.

Modular expansion

Oleg Brenner and Torsten Nolden alike particularly appreciate the first-class CES customer service. “During refurbishment in particular, it is important to have a dedicated and competent contact person always by your side, someone who does not shy away from challenges,” says municipal representative Nolden. Over the years, doors and components have been replaced time and again,

Primary school in the Nümbrecht school complex

CES OMEGA FLEX panic lock cylinder on a panic door

so that out of the hundreds of doors hardly any one matches another. Different door thicknesses and materials, and a variety of different locks – the new electronic locking system had to be tailored precisely to each door.

The CES OMEGA FLEX locking system is still running in offline mode. The data from the software has to be transferred to the locking devices on each individual door using a PC and a so-called RF-Stick. This should change soon; networking has already been decided on and is to be tackled in the course of the broadband expansion. Then the "running from door to door" will end, and the entire locking system can be managed and controlled from a PC. CES has made provision for this, too. Unlike other models on the market, the electronic cylinders do not need to be replaced; the online function is simply activated through a firmware update in the locking devices. Thus the locking system grows along with its tasks and can be cost-effectively adapted to new requirements.

Project partners:

The cooperation between CES and Konntec has existed for many years now.

Together the companies installed the locking system of the Borussia Park football stadium in Mönchengladbach and the Elbphilharmonie concert hall in Hamburg.

www.ces.eu, www.konntec.de

Anti-rampage concept for classroom doors:

If someone goes on the rampage, students/teachers lock the door from the inside using the mechanical knob – they do not need a locking medium. From the outside, the door can only be opened with an authorised locking medium. The automatic anti-thrust latch in the lock increases resistance against anyone breaking in. At the same time, the panic lock can always be opened from the inside (for instance, if a fire breaks out) and people can get out.

CES OMEGA FLEX operating principles

When an authorised locking medium is placed in the reading field of a locking device, the coupling engages and the door can be opened. After a predetermined period of a few seconds, the locking device automatically disengages again. When the locking device is activated, the latchbolt and deadbolt remain in position, the knob is set to idle and the door cannot be opened.