



WINDOW TECHNOLOGY
DOOR TECHNOLOGY
AUTOMATIC ENTRANCE SYSTEMS
BUILDING MANAGEMENT SYSTEMS

SPECIAL
EDITION



Inspiration Magazine

FOR ARCHITECTS AND PLANNERS

Securing technology for you



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Publisher

Gretsch-Unitas GmbH
Baubeschläge
Johann-Maus-Str. 3
71254 Ditzingen, Germany
Tel. + 49 7156 301-0
Fax + 49 7156 301-293
www.g-u.com

Preface

You are reading the first edition of our Inspiration Magazine, carefully compiled for innovative thinkers in architecture and planning.

At Gretsch-Unitas group, we know that the success of a project not only depends on the quality of the individual products, but also the synergy and efficiency of the interaction between these products.

As international market leader in the areas of window and door technology, and automatic access and building management systems, this conviction lies at the heart of our company philosophy. This magazine has emerged from the conviction that real innovation happens when knowledge is freely shared and exchanged.

Our discussions with architects, planners and facility managers have shown that there is considerable demand for information and advice at project level so that the right solution for specific requirements and questions can be found without getting lost in unnecessary details.

Our aim is to provide you with more than just solutions on the following pages. Here you not only will find a detailed overview of the requirements and systems, but also inspiring visions and experiences by leading architects, facility specialists and satisfied users. These experiences and contributions are testament to the power of collaboration and innovation.

We have created this magazine so we can give you tools, ideas and inspiration that are indispensable for turning multidisciplinary architectural concepts into reality.

Make use of our expertise and turn your vision into reality.

We hope you find it an enjoyable and that it gives you plenty of inspiration.

The Gretsch-Unitas team



THE CORE VALUES OF GU GROUP

That is what we stand for

GU group has always been in a position to adapt to the needs of customers. How do we do that? Read on to find out more.

Globally networked, locally relevant

GU group is an international company with more than 50 sales subsidiaries in 35 countries. Our employees are not only technically proficient, they also know the local markets inside out. This means we can offer customised solutions perfectly tailored to the requirements of our customers, no matter where in the world they are located.

Everything under one roof

GU group not only supplies products: we offer comprehensive solutions. Our aim is to find the perfect solution for every customer, whether architect, planner or dealer. With a range of more than 30,000 products, we ensure that our team can handle any challenge.

Leading innovator

Innovation is anchored in our DNA. We have registered more than 1400 patents which is testament to our innovative prowess and trend-setting ability. At GU group, we always look to the future, whether we are working on new solutions or developing existing products further.

In-house production

At GU group we monitor the entire manufacturing process, from our production facilities in Germany, France and Slovakia to our global logistics network. We strive not only to maximise efficiency, but also to ensure a negligible impact on the environment in all areas of the company, and have the environmental certifications to prove it. This is how we demonstrate that sustainability and high-quality manufacturing are inextricably linked.



High-quality products

Our products are developed by the best engineers and manufactured by qualified employees. Our state-of-the-art processes ensure that we can satisfy even the most complex requirements without having to compromise on quality.

Qualified employees

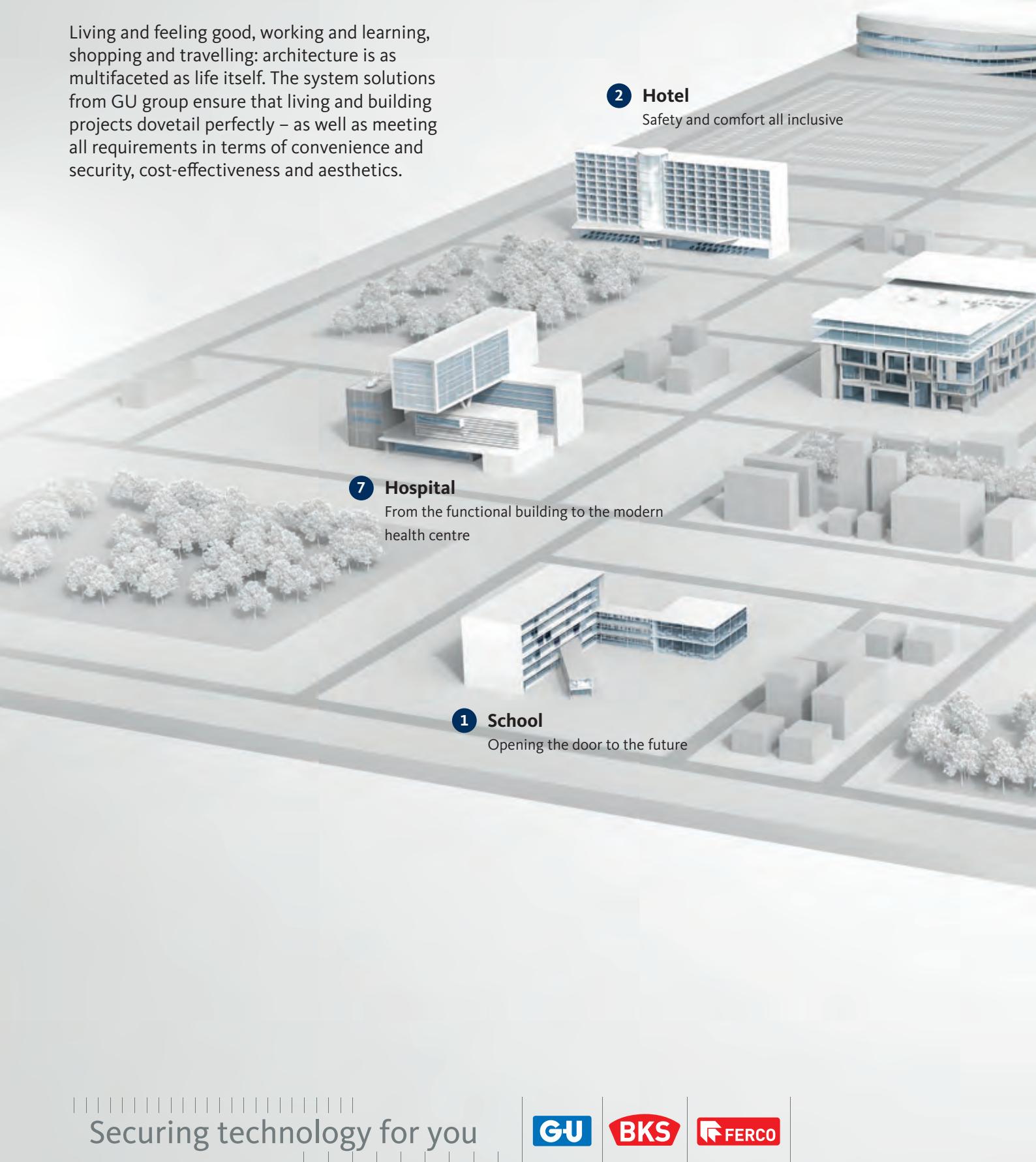
Our most valuable asset? These are our employees. We are committed to nurturing and retaining the best talent by focusing on knowledge, expertise and continuous further development. Our passion and commitment shines through in everything we do.

Added value through service

A product on its own is not a solution. Safety, functionality and cost-effectiveness can only be guaranteed with the right planning and application. We support our customers by giving them expert advice.

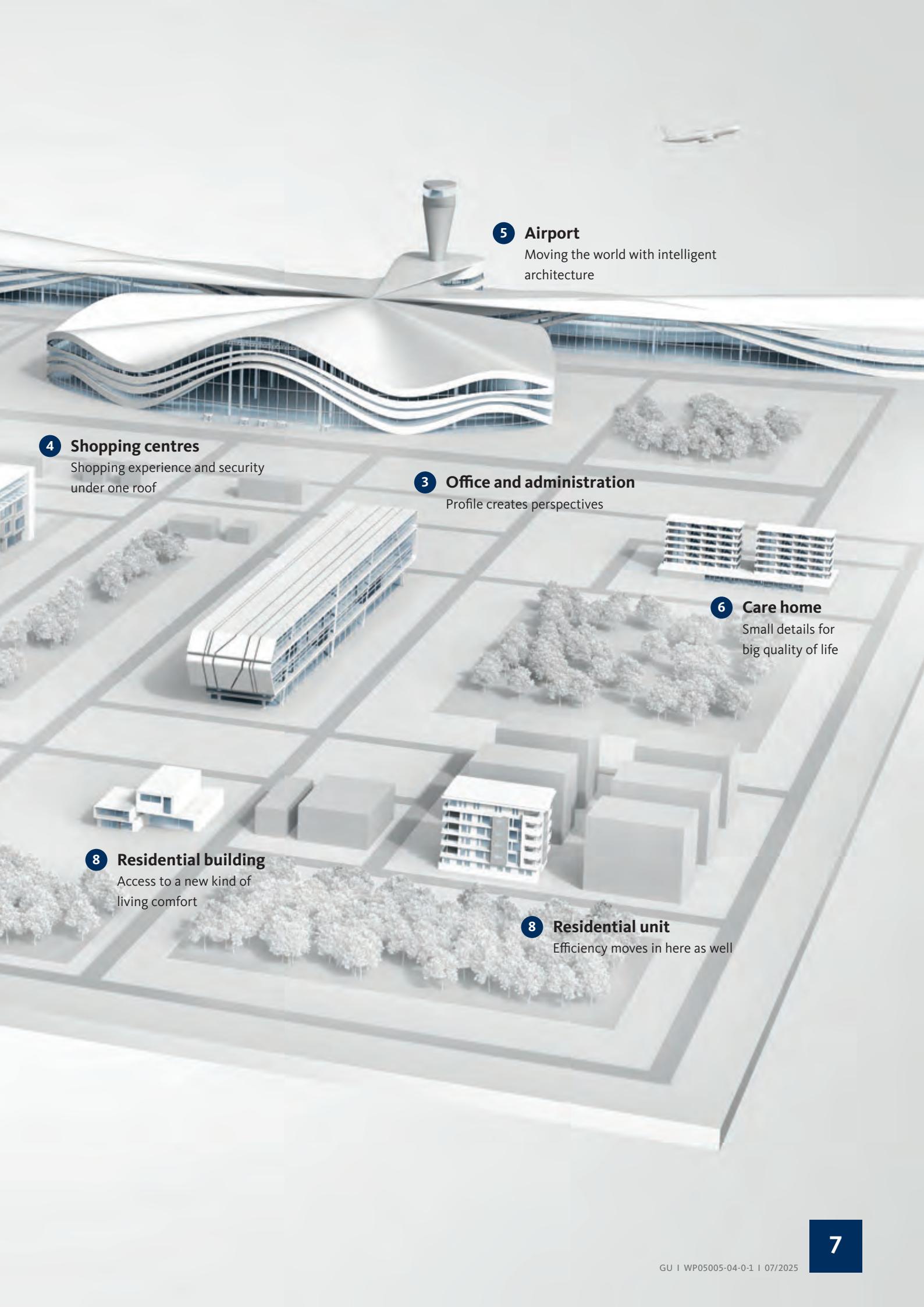
Securing technology in the project

Living and feeling good, working and learning, shopping and travelling: architecture is as multifaceted as life itself. The system solutions from GU group ensure that living and building projects dovetail perfectly – as well as meeting all requirements in terms of convenience and security, cost-effectiveness and aesthetics.



Securing technology for you





5 Airport

Moving the world with intelligent architecture

4 Shopping centres

Shopping experience and security under one roof

3 Office and administration

Profile creates perspectives

6 Care home

Small details for big quality of life

8 Residential building

Access to a new kind of living comfort

8 Residential unit

Efficiency moves in here as well



PROJECT SOLUTIONS FOR SCHOOLS

Opening the door to the future



As architect you aspire to design a functional safe place where school students are happy to be all year round. However, a school is much more than just a space for learning.

A secure feeling starts at the entrance

A school entrance area is a place where accessibility and comfort go hand in hand. The solutions by GU group provide a seamless transition from outside to inside. The swing and sliding doors open to assist the movement of school pupils during busy periods. In quiet periods security is ensured by a reliable locking system.

Safety first

Unwanted visitors need to be kept out of schools. As architect you will therefore know: security is essential in any educational facility. You take this into consideration in your outline planning. The intelligent products of GU group incorporate understated but effective security measures. Classroom doors which can only be opened by authorised personnel are an example of this. Is immediate danger present? If so,

all access points can then be automatically locked or opened.

Focussed learning

Studies have shown that a pleasant healthy room climate improves the cognitive functions and is conducive to attentiveness, creativity and productiveness of pupils and teachers. In other words, fresh air is important. In addition to our manual window openers we also offer electrical motor-driven opening variants. These provide comfort to the end user.

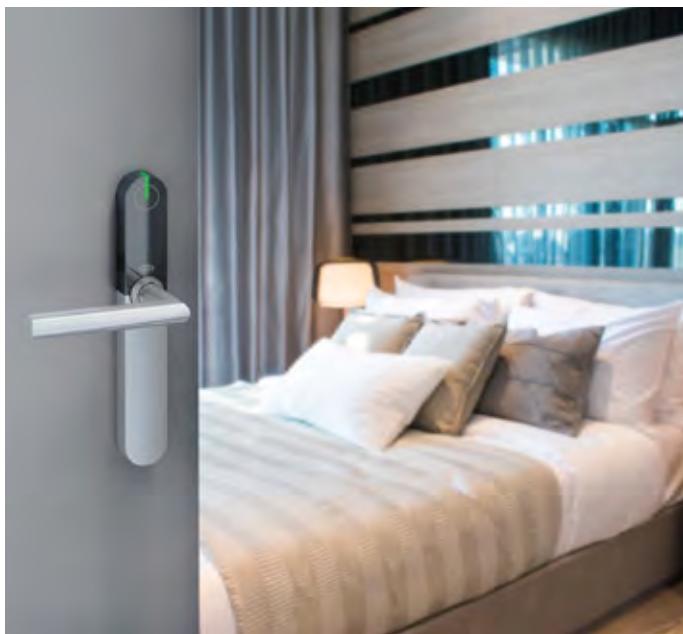
Intelligent school

An intelligent school entrance is a start, the ultimate solution is GEMOS. With this physical security information software by GU group you can link all intelligent access technologies or security systems in the school. These can range from small school buildings with one or two access points to large school complexes with thousands of access points. With GU the access control can be adapted and extended at any time.



PROJECT SOLUTIONS FOR HOTELS

**Safety and comfort
all inclusive**



As the architect of a hotel you want your design to leave a lasting impression. Hotel guests look for pleasant ambience and comfort and hotel personnel must be able to guarantee security. A pleasant room climate and uncomplicated access options play a part in this. The technology of GU group provides the solution.

Aesthetics

Security elements should not compromise the aesthetics of your hotel design. Details must be in keeping with the design and materials must have appropriate surface finishes, without visible screw connections or large distracting logos. Our products have aesthetic appeal and consequently blend seamlessly into modern hotel architecture.

An example of this is an all-glass revolving door with a range of security options.

The solution for a panic situation

Your outline planning takes panic situations that may arise in the event of fire, for example. All hotel guests should be moved to a safe location as quickly as possible. It is therefore important that the central control system knows how many hotel guests are in the building and where they are. Access media enable systematic approaches. Furthermore, the technology ensures that the fire-rated doors open and close automatically and that escape routes are visible. An example of this is the electrically locking Touch Bar EVT with integrated LED status indication in red/green.



PROJECT SOLUTIONS FOR OFFICES AND ADMINISTRATION BUILDINGS

Office buildings: modern and functional



21st century employees no longer spend every day in the office. They also work flexibly from home. More and more buildings are also being converted into offices. Your outline planning for the office building must therefore be flexible and include adaptable spaces. GU group technology gives you peace of mind in the knowledge that your design will be flexible, barrier-free and functional.

Access

Remember those days? A central 'time clock' that recorded the arrival and departure times of employees? The state-of-the-art GU group technology makes time stamping and attendance logging easier. Our access control systems provide information in real time about who is in the building and where they are.

Flexible rooms

The arrival of flexible working has transformed the organisational layout of office buildings. Just how we will be working in ten years time remains to be seen. Our access technologies are already capable of adapting individually to future changes.

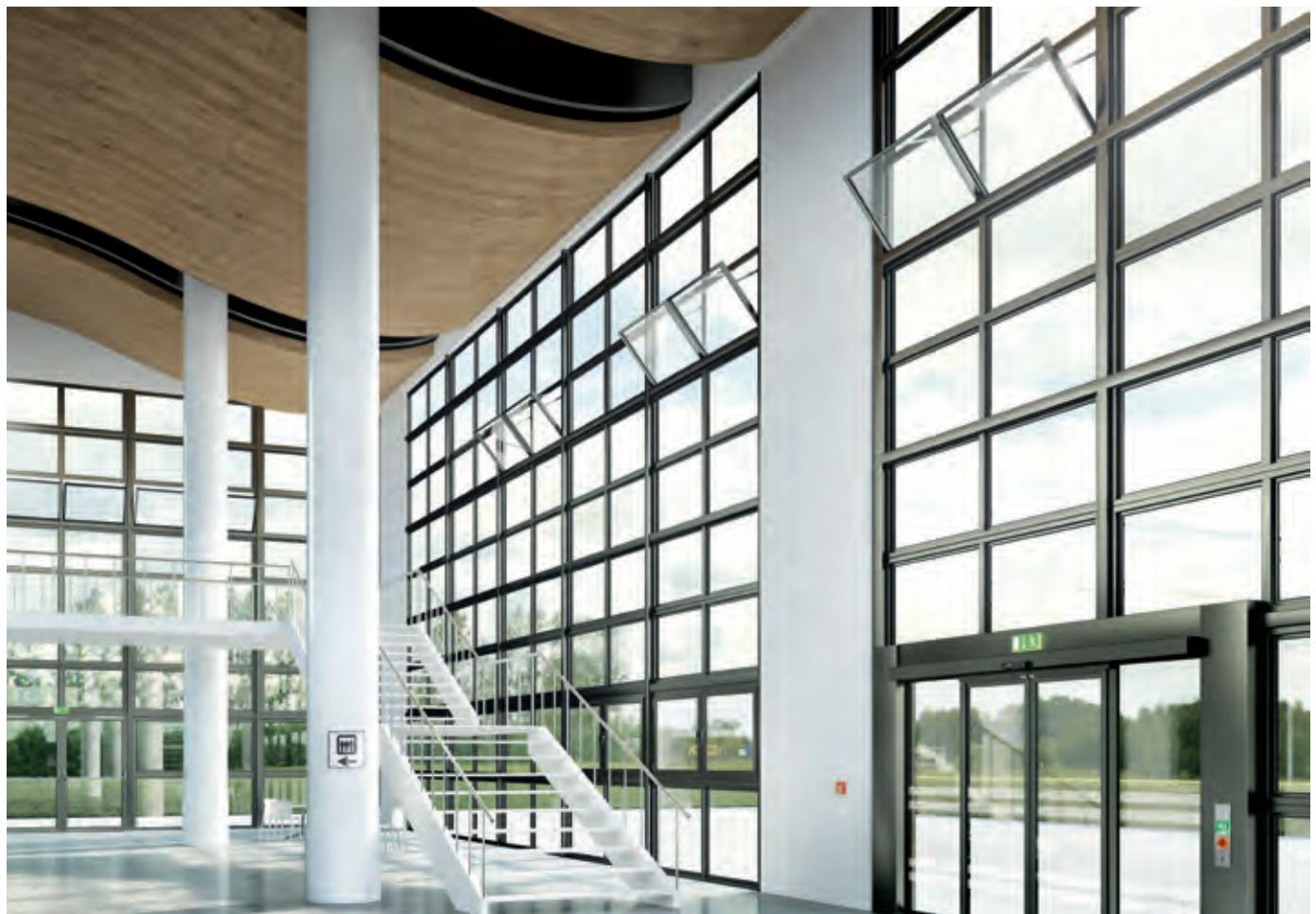
Window solutions for the façade

The façade of an office building can be seen as the "calling card" of the company behind it. GU window hardware plays a part in its appearance and functionality. As an architect, your design takes the changing effects of the weather on the façade into account, especially when designing high-rise office buildings. GU group solutions always take these aspects into account. Are you considering special hardware for Turn-Only/Tilt-Only and Parallel-Projecting windows, for example?



PROJECT SOLUTIONS FOR SHOPPING CENTRES

A secure shopping experience



Shopping centres attract huge numbers of visitors. Efficient and intelligent access solutions are required to manage these visitor flows. How do you as architect factor this into your design? GU group can give you the right advice.

Preventative fire protection (SHEV)

Fire and/or smoke and large numbers of people can be a catastrophic combination. Ensuring reliable smoke and heat exhaust ventilation is therefore important when planning a building. GU provides flexible solutions for controlled smoke and heat exhaust ventilation which are suitable for small and also large shopping centres. This could be an automatically controlled chain drive that quickly opens and/or closes windows.

Escape doors

When planning a shopping centre, the topic of security is right at the top of the list of priorities. Entrance doors and windows must therefore satisfy

strict security standards to prevent burglaries, theft and misuse. Reliable entrance doors and windows are also crucial in emergencies. They help visitors find their way safely to the outside. It goes without saying that GU group takes this into account in all its products. For example, we offer panic locks with escape door control and electrically-locking panic locks.

Energy saving

GU group access solutions are always energy efficient. Even in shopping centres where hordes of people come and go every day, you want to eliminate any unnecessary loss of heat at the entrance. You can avoid this using automatic access systems that can be precisely set.



PROJECT SOLUTIONS FOR AIRPORTS

Airports as modern cities



Airports nowadays are so much more than just a gateway to other countries. They increasingly resemble modern cities due to the expansive areas, gastronomy facilities, retail outlets, conference rooms and hotels. The security requirements are therefore exacting which calls for intelligent access solutions.

Large capacity

Airports operate 365 days a year, 24 hours a day. Due to the size of airports and continuous arrival of passengers and luggage it is important for (automatic) swing and escape doors to be able to effectively and safely manage large volumes of people. GU systems are extensively tested and have a rugged energy-efficient design which makes them particularly suitable when an organised flow of passengers is required. Also during the busy times.

Intuitively recognisable escape route

At airports where thousands of passengers can converge simultaneously, it is important to ensure a

clear escape route to safe zones in emergencies. The solutions provided by GU group go beyond intuitive operation. They have been developed with reliable safety features to ensure that escape routes can be easily identified and made secure, also in unfavourable conditions.

Central control room

Where efficient administration of access points at an airport is called for, GU group offers GEMOS, the manufacturer-neutral physical security information management system. This control software integrates all conceivable access and security systems used at an airport into a central system which is controlled via only one interface. Even at the busiest times, this system can maintain an overview and ensure that security standards never slip at all times so that the airport can be a safe monitored environment for passengers and employees.



PROJECT SOLUTIONS FOR HOSPITALS

**From the functional building to
the modern health centre**



Functionality is the overriding criterion when planning a hospital. Factors such as a healthy room climate and straightforward access are decisively important. The saying "the devil is in the details" frequently applies in this respect. The solutions provided by GU group support successful patient care and make the everyday work of hospital staff easier.

Automatic and contactless access

It is important for a hospital also to be accessible to patients with restricted mobility. The GU automatic swing door drive not only provides easier access, it also allows beds or wheelchairs to pass through. It also takes hygiene aspects into account by providing access without physical contact.

Fresh air for a healthy environment

Efficient air circulation is important for the health of patients in hospitals. GU solutions offer automated technologies for fresh air supply. The electronic chain drive for windows which enhances user comfort is one example of this.

Sustainable solutions

In view of the rising costs of care, fewer means are available for provision and also maintenance of properties. Healthcare providers therefore try to find ways of preserving and improving the quality of buildings with a view to reducing maintenance costs. GU group guarantees durable, high-quality products that require very little maintenance and care. Are you an end user who would prefer to opt for hardware and software solutions by GU group? If so, you are guaranteed a short response time by customer service. Our ability to pinpoint exactly where the problem lies and how to resolve it plays a part.

Intelligent hospital

Imagine if all locking and access systems in your design could be coordinated from one central control room? You can connect all building management systems at the hospital in the GU group software. You can monitor access to the entire hospital at the push of a button. You gain an overview of the situation in the building. This not only improves security, it also enhances comfort.



PROJECT SOLUTIONS FOR CARE HOMES

Innovative solutions for care homes



Healthcare is a pressurised business. As architect, you also take this into account. How can you improve the quality of life of the residents with your planning? And how do you make the work of carers easier? Our innovative intelligent access solutions ensure a pleasant secure care environment.

Intelligent doors

Heavy doors are often a barrier to children, older people or people with physical disabilities. You can easily avoid this by opting for products and solutions by GU group at the planning stage. As industry leader in the area of door and window technology, we know that secure entrance doors are important for the well-being of residents. Automatic doors, for example, are equipped with modern sensors and can detect exactly when they are able to close. In emergencies, these automatic escape route sliding doors are also an intelligent solution. These doors provide access when the building is being used as normal and a safe escape route in panic situations.

User-defined access

When designing a care facility, many different spaces are required. It is therefore essential to plan for user-defined access at the outset. You can use GU group software (GEMOS) to link all the components. These can be care facilities for older people with dementia where restricted access is necessary, through to large care facilities with thousands of access points. With GU the access control can be adapted and extended at any time.

Excellent quality

Health costs are rising and therefore less money is available to build residential accommodation and for property maintenance. Healthcare providers therefore look for ways to ensure and improve the quality of a building to keep maintenance costs down. GU group guarantees high-quality durable products. What if the end consumer still requires our services? When you opt for GU group hardware and software solutions, the response time is short because we can see exactly where the problem is and how to resolve it.



PROJECT SOLUTIONS FOR RESIDENTIAL UNITS

Carefree living in residential units



Maximum operating comfort: unlocking the door with a minimal turn of the key or by tapping the door handle.

Older office buildings are increasingly being turned into residential housing. But what happens if the building had to be converted to a care facility in ten years time? Nowadays buildings need to be flexible. GU group provides technology that caters for the fast moving developments in society.

User-defined access

A central laundry facility, communal parking spaces and various storage rooms. Every resident only has limited access to the various rooms. GU group provides solutions for tailoring access for each resident individually using keys or electronic access media. This is an all-in-one solution that provides optimum security and monitoring in a residential environment.

Take security to the next level

Do you want to integrate more security measures and make your residential development safer? GU group provides patented cylinders and keys (also SKG-tested) that take security to the next level. All locking

cylinders feature burglary protection as standard and are also available with security card. This is eminently suitable for complex master key systems.

User-friendly

It is important that residents of all ages with different needs can easily operate the access solutions. A complex system can be confusing. It is therefore important that residents are able to access their apartments quickly and easily. GU group offers solutions that everyone can easily use.

Low maintenance

A residential development must last many years. Ideally, you plan your residential development so it is resilient to wear and changing weather conditions. It is therefore important that the solutions require as little maintenance as possible. GU group products give you peace of mind in this regard.

System solutions

Security combined with convenience – intelligent solutions for access control

System solutions for escape and rescue routes

- 1 HM-F FT escape route sliding door
- 2 Lock and hardware solutions according to EN 179/EN 1125
- 2 FTNT escape route control unit
- 3 Electrically-locking touch bar EVT



- 12 GEMOS physical security information management system
- 8 House entrance door



System solutions for façades

- 7 Revolving door
- 9 Façade solutions



Barrier-free construction – universal solutions for greater convenience

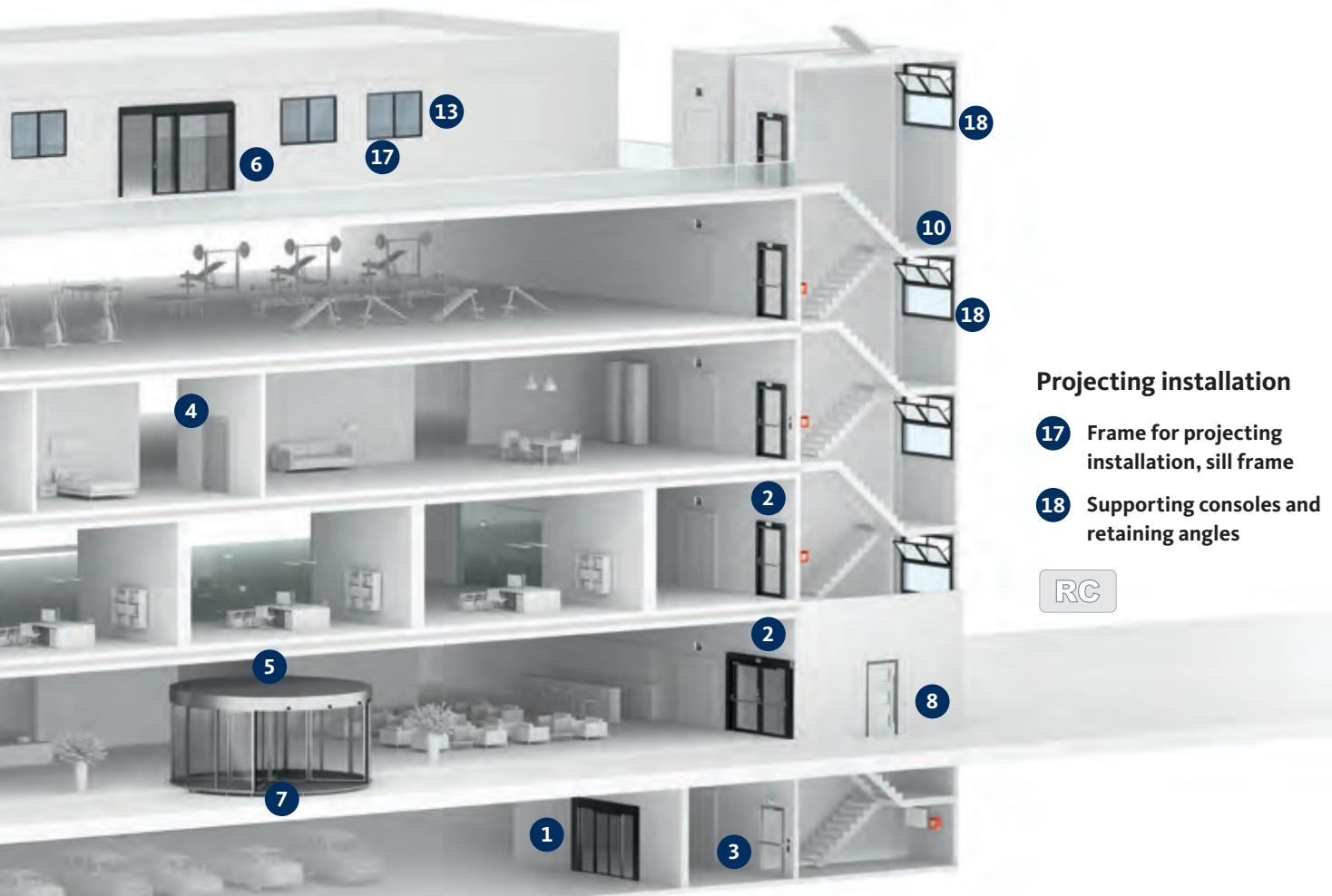
- 1 Automatic sliding door
- 6 Motor-driven Lift&Slide door
- 4 Door closer with free-swing function



Components of preventative fire protection

- 10 SHEV / NSHEV
- 5 Air vent opening
- 4 Door closer





Ventilation

- 15 Humidity-controlled ventilation
- 14 Manual fanlight openers
- 16 Chain drives
(with and without radio remote control)

Burglar protection

- 8 VdS-certified house entrance door
- 13 Tilt&Turn hardware up to RC4
- 11 Lift&Slide door up to RC 2
- 14 Fanlight openers up to RC 2



System components for preventative fire protection

The importance of fire protection in the construction industry has always been undeniable. It has become particularly relevant in recent years as buildings are getting higher and higher. Fire protection is a topic that must be taken into account from the outset. Not only authorities, but also users and companies, are placing higher and higher expectations on performance in this area.

GU group provides a wide range of perfectly harmonised system components from motorised chain and spindle drives through to door drives.

Intelligent smoke and heat exhaust ventilation system as part of fire protection

The smoke which accompanies fire poses the biggest danger to the residents of a building. It is therefore important that smoke is removed as quickly as possible. The GU intelligent smoke and heat exhaust ventilation (SHEV) system ensures that combustion gases, hazardous oxides and heat energy are quickly removed. This keeps exhaust and rescue routes more or less smoke-free.

(SHEV central control unit)

The SHEV central control unit ensures that systems work seamlessly side by side in the event of fire. The status is clearly shown on the LED display. Windows, doors, smoke exhaust systems and fanlights are directly opened or closed as required by an electromechanical drive.

Tested security with SHEV/NSHEV solutions

The windows and doors in natural smoke, heat and exhaust ventilation systems are tested and certified as one unit together with the drive according to EN 12101-2. GU provides SHEV/NSHEV solutions with tested, certified components for timber, PVC and aluminium façade elements by leading profile manufacturers. Suitable for different types of opening.

Ventilation function with SHEV systems

SHEV systems are not only designed to exhaust smoke in the event of fire, they can also be used in everyday ventilation. The ventilation function is controlled via a ventilation push-button, rain/wind sensor or timer. The function is automatically activated in emergencies.

*VENTUS fanlight opening system and
ELTRAL chain drive*



Smoke exhaust system in stair enclosures

The objective? To exhaust smoke by means of cold smoke exhaust.



Electric chain drive



Door closers are suitable for use on fire and smoke protection doors



Automatic door drive



Electric spindle drive



Systems for façades of the future

Stricter laws and regulations governing façade elements

The requirements on windows as façade elements are varied and are becoming ever more demanding. As far as architects are concerned, not only complying with laws and regulations is a challenge, the design also has to visually break the mould in some respect while also satisfying the requirements of the customer. There are countless safety regulations, for example, whose purpose is to increase the well-being of the user. Regulations regarding burglary protection and ventilation are examples of this.

GRA-F and GGR revolving doors: a stylish reception

Good façade design starts with the entrance. This holds particularly true in large commercial buildings where an elegant revolving door makes a striking entrance. What's more, it also ensures that large numbers of people can enter the building without too much heat (or cold in the summer months) being lost. It is important that this kind of door is installed in



such a way that it satisfies all safety standards. Both the GRA-F standard revolving door and the GGR all-glass revolving door are tested and ideally suited for this use. Revolving doors are also suitable for escape and rescue routes.

Accessories for windows

The hardware we combine with various window systems guarantees that façade systems will satisfy all the requirements for new opening technologies and window typologies.

GU provides solutions to cater for all requirements of sophisticated building envelopes, from concealed hardware to refined rugged hinges and hardware for heavy sashes. This gives you, the architect, free rein when designing unique aesthetically pleasing façade elements.

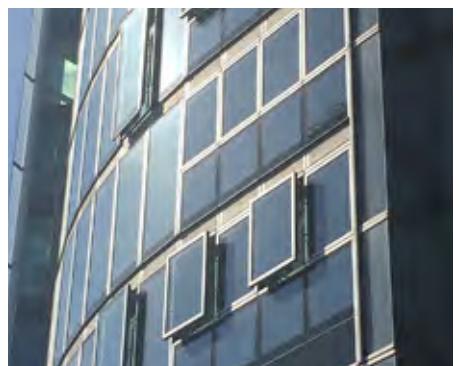
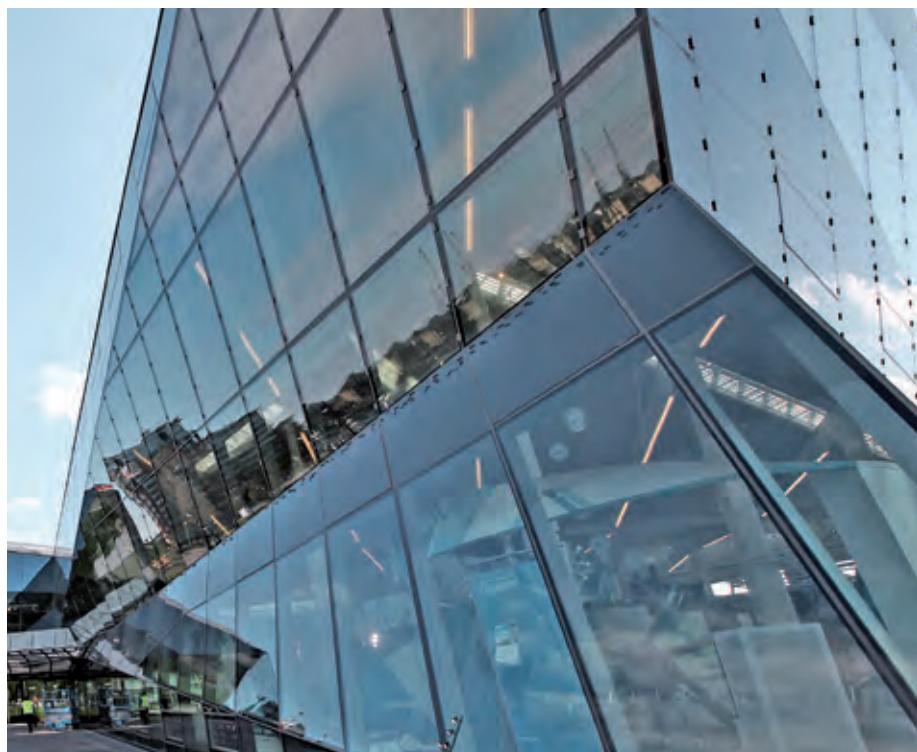
Special versions available on request

Our standard range already includes a wide range of models. If required, GU group can develop and produce customised designs in collaboration with architects and planners.

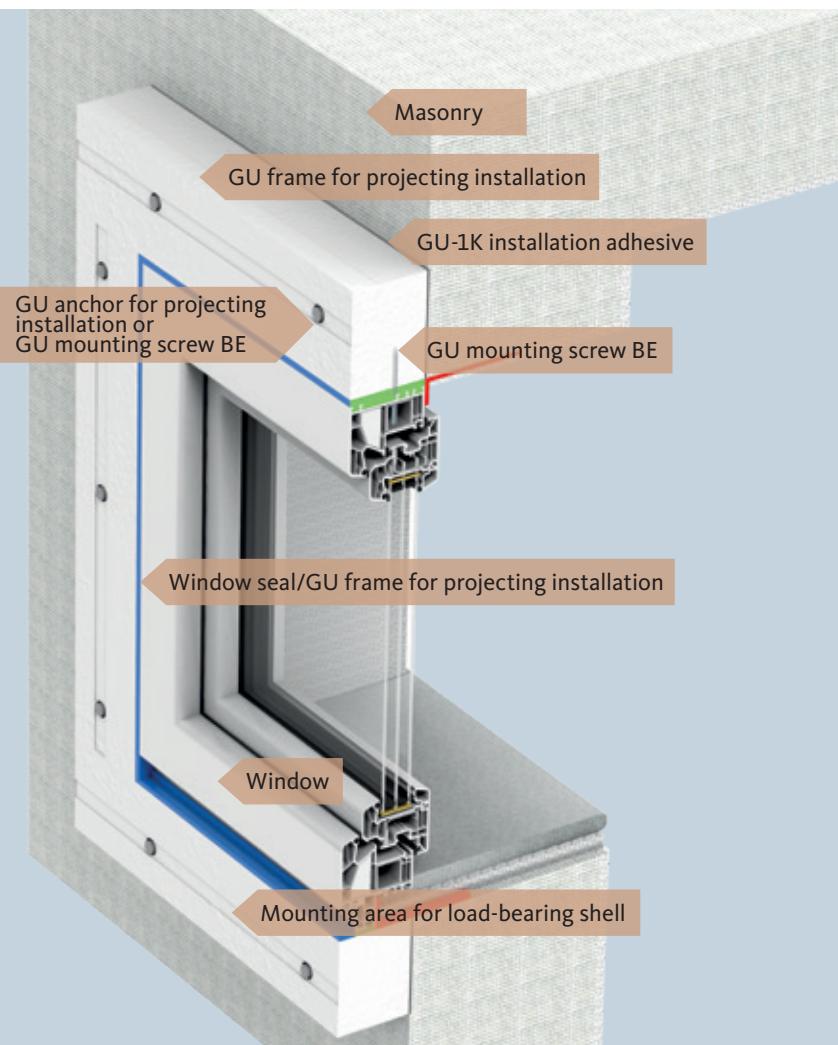
GU offers solutions for:

- Top-Hung and Projecting Top-Hung windows
- Tilt&Slide windows
- Parallel-Projecting windows
- Turn-Only windows and Tilt&Turn windows
- Horizontal and Vertical-Pivot windows
- Innovative tailor-made solutions

Of course it goes without saying that this kind of design must be rigorously put through its paces and tested. At GU we have our own inspection and test centre where the façade elements of the future will be tested. It is used by customers all round the world.



Approved GU frame system for projecting installation



The system: GU frame for projecting installation

The GU frame for projecting installation, fully assembled with system components, is the perfect mounting frame for attaching and sealing around a wall opening. This means that the door or window element can be installed in front of the masonry in any desired position, in exactly the same way as it would be if it were installed conventionally in a reveal. The frame system is also approved for burglary protection up to RC3 in accordance with EN 1627 and suitable for fall protection installation. Owing to the building-physical characteristics of the frame, the element can be installed efficiently without thermal bridges. It also effortlessly and reliably satisfies the structural requirements for attaching the window and the stringent requirements of the guidelines in relation to tightness against driving rain, wind, noise and air tightness in a range of façade types.

System overview

- Building material class B1 according to DIN 4102-1
- System sound insulation value up to 46 dB according to DIN 4109
- Thermal conductivity EN 12667:2001 $\lambda = 0.0307$ (W/mK)
- High UV and weather resistance
- Suitable for anti-fall fastening of elements
- High degree of compensation for structural tolerances
- Damage-free replacement of windows in the façade

System components

- GU frame for projecting installation
- GU anchor for projecting installation
- GU mounting screw BE
- GU-1K installation adhesive



The GU frame for projecting installation was specially developed to securely fasten and seal façade, window and door elements. Owing to its outstanding installation characteristics, the frame is tested and certified for use in low-energy buildings and as a passive house component. It is glued and screwed to the masonry to form an airtight seal and ensure optimum energy efficiency.

The GU frame for projecting installation allows construction elements in various frame materials and profile depths to be installed in front of the wall, and also avoids thermal bridges. This means that construction elements can be installed in exterior insulation finish systems (EIFS) or in the insulation plane in front of multi-skin clinker façades without detracting from the thermal insulation performance of these façades.

It is particularly suitable for projects aimed at upgrading the energy performance of buildings. The window can subsequently be replaced without damaging the façade. The frame satisfies all requirements of the current EU building guideline correctly and unproblematically. In addition, the stringent requirements of the Buildings Energy Act in Germany in relation to air tightness and thermal insulation in the building envelope are efficiently implemented.

The GU frame for projecting installation facilitates easy problem-free installation of large heavy windows or balcony-doors. The usability of the frame has been tested in relation to the various constructional factors and can transfer loads of up to 1233 kilograms per running metre at any given time. It therefore provides a reliable rugged solution for installing heavy construction elements.

The GU frame for projecting installation safely transfers all forces, such as wind loads, own weight and live loads, to the load-bearing wall skin via the screw connection which is established using the GU anchor for projecting installation with plug and galvanised steel screw or GU mounting screw BE4 and GU-1K installation adhesive which is applied to the entire contact surface. The resilient GU frame for projecting installation is verified by structural calculations for all standard substrates in the construction sector as a load-transferring substructure, and incorporates sufficient safety margins to cater for all influences and forces and therefore satisfies the requirements of the guidelines as specified in the assembly specifications for windows and external doors.

As the GU frame for projecting installation is engineered with the specific requirements in mind and the connection is perfectly designed, it unequivocally satisfies the current requirements of the trade and quality associations in every respect, also when exposed to increased loads. It is also designed to provide burglar protection and has resistance class RC3 in accordance with EN 1627.

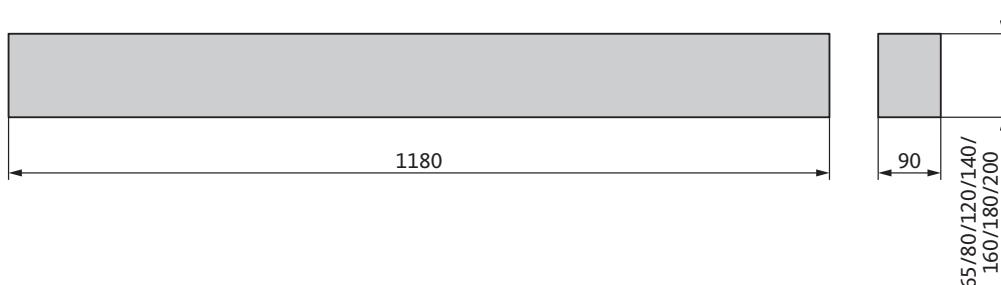
Once the GU frame for projecting installation, which consists of only three system components, has been applied, it can be flexibly adapted to the installation and structural tolerances and therefore easily and efficiently forms a perfect continuous mounting frame around the masonry opening for the window and outer door element in the relevant load-bearing shell. The GU frame for projecting installation satisfies all the prerequisites for safe and cost-effective window installation, including sealing.

GU frame for projecting installation System components

The GU frame for projecting installation is a CFC-free hard-particle foam made of EPS (expanded polystyrene). The GU frame for projecting installation is fabricator-friendly, has a low volumetric weight and is extremely stable and pliable. The entrained air in the foam pores ensures outstanding thermal characteristics.

Product characteristics:

- Thermal insulation
- Noise-attenuating
- Not sensitive to moisture
- High compressive strength
- High shock-absorbing capability
- Low weight
- 100% recyclable



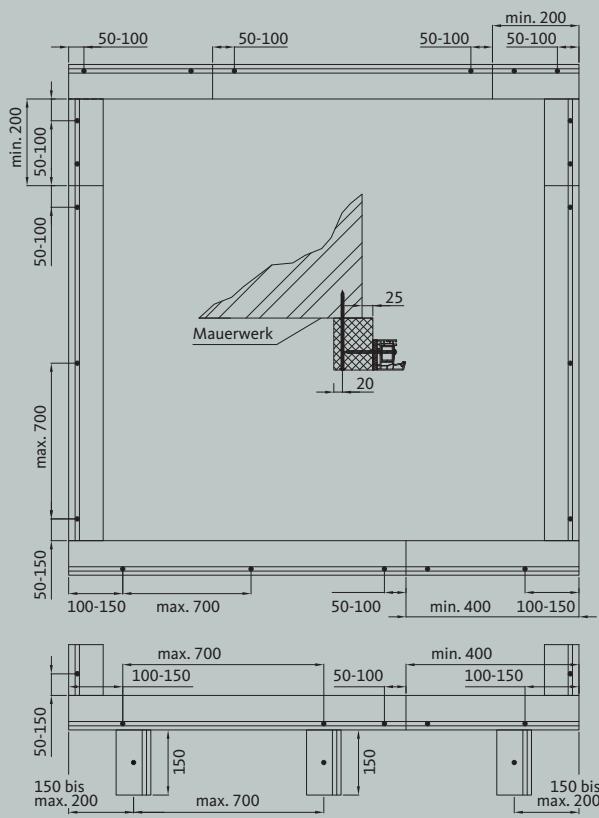
System overview

- Effective sound insulation: 46 dB
- Anti-fall installation in accordance with DIN 18008 and ETB guideline
- RC3 approval in accordance with EN 1627
- Fire behaviour:
 - in accordance with EN 13501-1, grade E
 - in accordance with DIN 4102-1, grade B1
- Approved for passive houses: $\Psi = 0.01 \text{ W (m-K)}$
- Free of thermal bridges
- Thermal conductivity: $\lambda = 0.0307 \text{ W (m-K)}$
- High characteristic load absorption up to 1233 kg/m
- Mounting and sealing in accordance with accepted rules of engineering
- Excellent ability to accommodate assembly and structural tolerances
- 18 months UV stability





Schematic view of GU frame for projecting installation from the outside (façade view) showing installation situation



The illustration shows the minimum lengths of the projecting frame elements and distances between fixings with GU anchors for projecting installation or GU mounting screws BE4. The GU frame for projecting installation is glued and screwed to the outside of the masonry opening formed by the window reveal on all sides, and can be mounted up to 25 mm in the clear structural opening. When using heavy window elements min. 150 mm vertical frame supports must be provided at the bottom.

More information?

Would you like to find out more about these systems? Contact our product specialists.



System solutions for accessibility

**The demands on buildings are increasing, also in relation to accessibility.
Barrier-free systems ensure that the projects are accessible to all.**

Easy opening and closing

Entrance doors are not necessarily all the same: individual solutions are sometimes called for depending on the building type, users and area. The requirements to be met by exterior and interior doors are many and varied. Users simply expect something different in front of a door in a hospital as opposed to a school, hotel or private house.

At GU we not only stay abreast of the latest technology and regulations, we also put ourselves in the shoes of the end user. This applies to people with physical disabilities.

How does a person who has difficulty walking or impaired vision see the world? We have the know-how and experience to decide what the most appropriate solution is for different environments and various target groups irrespective of whether comfortable operation or automatic opening and closing of a door is required.

Automatic entrance systems

These doors provide a modern entrance solution for public buildings, airports, train stations, shopping centres, banks, hospitals, retirement homes and homes for the disabled.

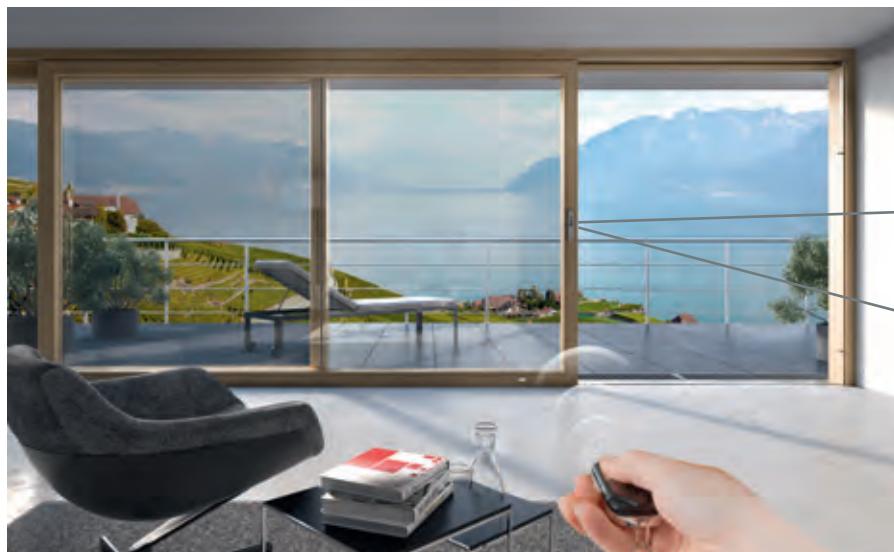
Series compactMaster

Sliding doors in the compactMaster-series are not only elegant, they are also exceptionally reliable. A further benefit: the compact design. The drive height is only 100 mm.



HS ePOWER Lift&Slide door

When living comfort and plenty of daylight are called for, more and more architects are opting for large Lift&Slide doors. A weight of 400 kg is certainly not unusual. The HS ePower by GU is the right solution in many cases. The Lift&Slide door is an intelligent combination of tried-and-tested GU standard hardware with motor drive and a completely barrier-free threshold.

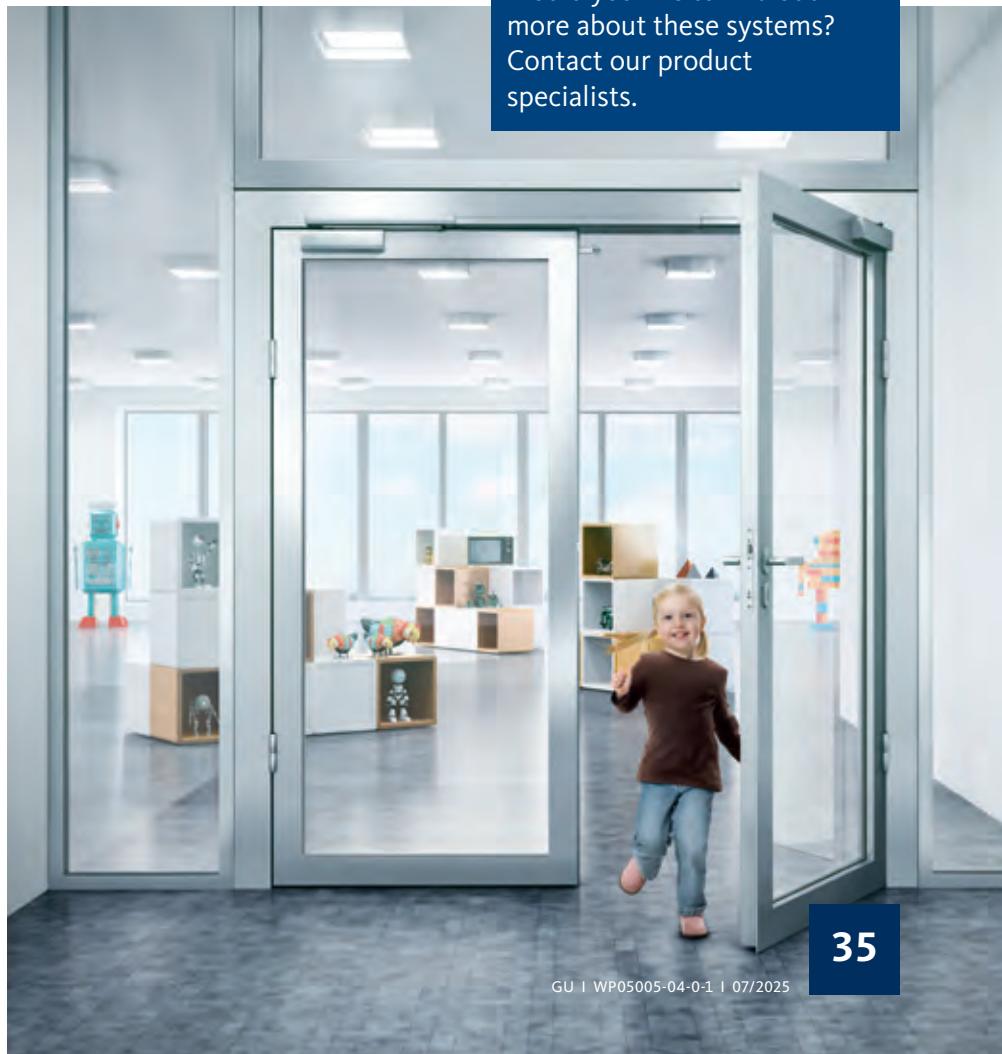


OTS 73x FL door closer

The OTS 73x FL door closer ensures barrier-free effortless passage through fire protection doors. The integrated electric free-swing function can be activated from an opening angle of 0°. This type of door closer ensures that the door can always move freely as if no door closer whatsoever is installed. Safe and reliable door locking is ensured at any time in the event of a fire. The OTS 73x FL door closer is therefore perfect for installation at fire-rated doors in schools, hospitals, residential developments and care facilities. Of course it goes without saying that the OTS 73x FL door closer satisfies the standards for barrier-free construction (DIN SPEC 1104 and DIN 18040).

More information?

Would you like to find out more about these systems? Contact our product specialists.





System solutions for mechanical access control

Sustainability and retaining old elements of the building fabric often plays a significant role in renovation projects. However, this must not be at the expense of security. Are you considering installing new multi-point locks in existing doors to meet modern day requirements? GU SECURY X is the right solution.

GU SECURY X is a designation used to describe an assortment of articles, consisting of a main lock case as well as top and bottom extension pieces. This allows dimensional flexibility in relation to door handle height and position of additional locks.

The benefits of GU SECURY X at a glance:

- Countless exchange options with only a few components when carrying out a repair
- Unhinging the door is not necessary (cost-efficiently)
- Lock recesses and L&D strikers do not have to be changed
- Variable locking positions possible

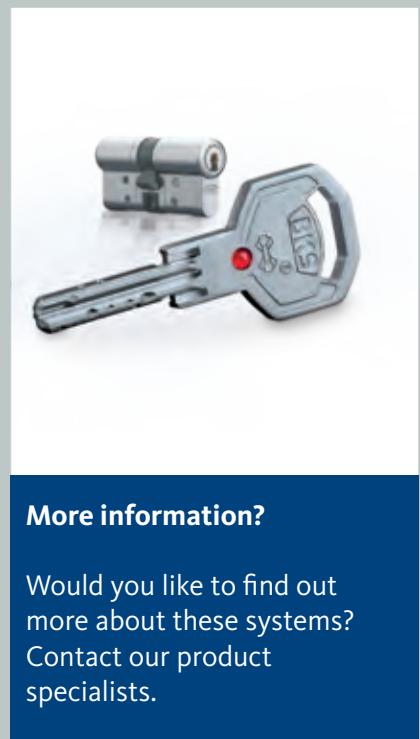


Combine GU SECURY X with one of our patented locking cylinder series

The janus8000 reversible key system meets the highest demands with regard to security, functionality and design. Sophisticated down to the last detail: several tumbler rows with different angular positions and variably arranged pairs of pins guarantee versatile locking combinations when implementing large and complex master key systems. This construction also effectively protects the cylinder plug against any manipulation attempts.

Highlights

- More comfort even with tall or heavy doors: the generous grip area of the key bow means straightforward opening and closing via the cylinder.
- Striking design: the red ball is a sign of BKS quality and accentuates the symmetry of the reversible key.
- Impressive in operation: the extended key shoulder makes janus8000 well suited for security hardware with a cylinder cover.
- Greater security: first-class anti-drill/plug extraction protection and key duplication protection.
- Straightforward handling: the symmetrical design and familiar upright key position ensure intuitive operation.



More information?

Would you like to find out more about these systems? Contact our product specialists.



System solutions for escape and rescue routes

Security considerations in (public) buildings are initially addressed in the early planning stages. GU has extensive experience with designing and implementing innovative escape and panic solutions. The various GU systems can be linked so that everything can be controlled from a central area.

Solutions that satisfy the applicable standards

The individual systems/components should be carefully matched and work seamlessly together, ideally controlled from a single source. GU group therefore intelligently links all of its products: from escape and anti-panic doors to access control and fire alarm systems through to SHEV systems. It goes without saying of course that this kind of innovative system satisfies all the project requirements and, as far as the escape routes are concerned, also the current standards EN 179, EN 1125 and EN 13637.

We also care about the details

GU not only has a grasp of the overall picture. We can also be your partner when it comes to working out the details of system solutions for escape and rescue routes. Our innovative self-locking multi-point locks with panic function are just one example of this.

Secure and elegant

We have developed a number of special solutions that effortlessly combine security and aesthetics. We offer revolving doors for example, that provide a striking elegant entrance area and maximise the escape route width. A separate escape door is therefore no longer required.



HM-F FT escape route sliding door

Have you already considered these security solutions?

HM-F FT escape route sliding door

When locked, the sliding door effectively becomes a swing door with escape door functionality. Consequently, this door can be operated outside as well as during business hours in the OFF/NIGHT operating mode – without approval in individual cases (AutSchR, EltVTR, DIN 18650 and EN 16005).



The electrically-locking panic lock

This compact solution combines a self-locking panic lock with the electric locking system of the escape door.

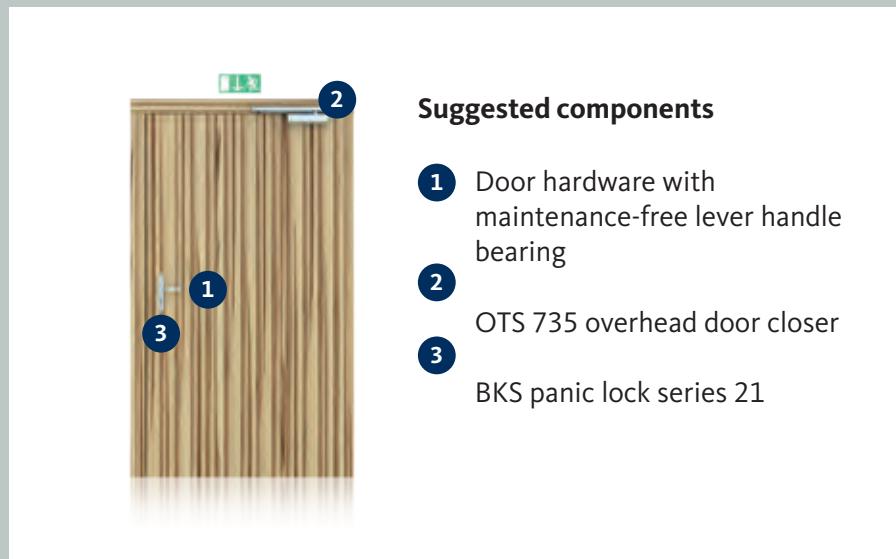


Electrically locking touch bar EVT

This touch bar is easy to use and features three operating modes: release, alarm and locking. Perfectly suites for all panic doors (EN 1125).

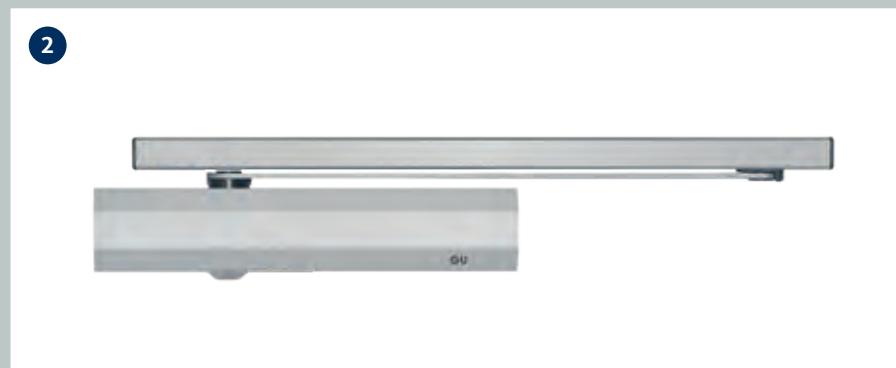
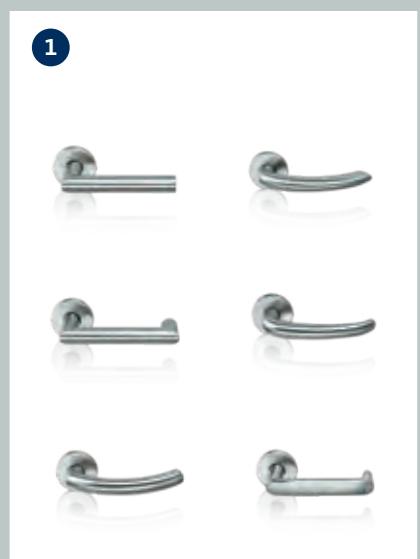
Lock and door hardware solutions

Take door hardware (WDL), panic locks (series 19 and 21) and a combination with door closers into consideration (73x series).



Suggested components

- 1 Door hardware with maintenance-free lever handle bearing
- 2 OTS 735 overhead door closer
- 3 BKS panic lock series 21





System solutions for natural ventilation

In recent years, awareness of the importance of ventilation for our well-being has increased, and justifiably so. Buildings not only need to add visually to their surroundings and be functional, they must also be conducive to the health of residents and users alike. An optimum room climate starts with ventilation.

Insulation or ventilation

Architects know that it is sometimes difficult to strike the right balance between insulation and ventilation. Buildings are becoming more and more effectively insulated. This has a positive effect on energy costs which in turn helps achieve the sustainability objectives. However, it is essential to consider good room air quality and the necessary ventilation options.

Window open? Natural ventilation

The most straightforward ventilation method is to open a window. VENTUS, our system for inward-tilting fanlights, offers a solution. This system can be operated manually or electrically in combination with the ELTRAL S. This system is suitable for almost all window types. Whether the hinges are mounted at the top or bottom, the slender design also makes the system suitable for inward-opening fanlights mounted higher up.

Waterproof and soundproof, energy efficient and secure

The internal locking mechanism in the stay-arm maximises pressure on the window surface. This satisfies the exacting requirements for wind and water-tightness, sound insulation and energy efficiency. The additional UNI-JET central locking system increases burglar inhibition.

Easy to install

The VENTUS fanlight opener system is easy to install and versatile in terms of operation. Lockable and infinitely-adjustable tilt positions guarantee perfectly controlled ventilation. If required, the opening stay can be easily detached and re-attached for cleaning purposes.

More information?

Would you like to find out more about this system? Contact our product specialists.



VENTUS fanlight opening system



Systems for modern access control

Large companies are increasingly opting for intelligent access control. They do this to ensure the comfort and safety of employees. If a client requires straightforward secure access, it is important to consider this at an early stage.

GEMOS system

Our GEMOS system provides the option of rolling a wide range of door security functions into one system. Practical and clear. One example is a combination of access control with electronically-secured escape and anti-panic doors. The system can be adapted individually and connected to security management systems or systems by third-party providers.

Door opening systems

The GU group offers both mechanical and electronic solutions for different types of door. This enables access rights to be easily configured, monitored and adapted. We combine intelligent door systems with smart software. This means that different door types and functions can be easily integrated.





Also available for less complex projects

GU products also offers solutions for smaller projects. As only the basic components are used and configured, a separate server or client installation is not required. Are doors added at a later date? Or does the system have to be extended? The system can be scaled in no time at all with a configuration.



ixalo electronic locking system

The ixalo electronic locking system requires no wiring in the door and can still be integrated into the GEMOS physical security information management system if required.

This provides an even clearer overview and access rights can be managed more quickly and efficiently.

Doors can also subsequently be integrated into the system or managed offline.



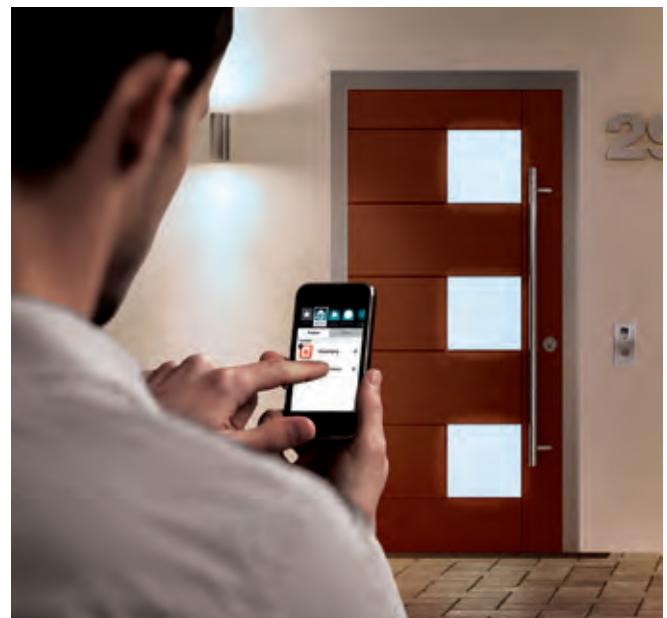


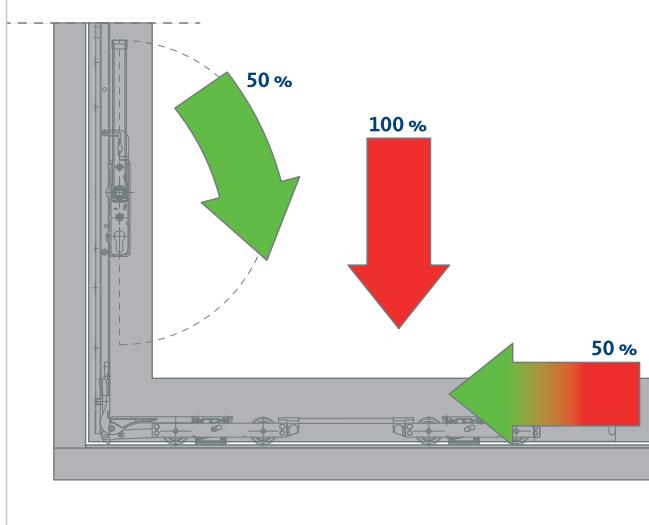
System solutions for burglary protection

Burglary prevention is an important factor for many building users. It increases the sense of security. Whoever wants to implement effective burglary protection should consider this beforehand. A tailor-made solution can then be found and directly integrated into the project. This also offers visual benefits.

GU SECURE multi-point locks

Exterior doors have numerous functions. In addition to providing access, they also protect against burglary, offer fire protection and a means of escape. GU SECURE multi-point locks with locking elements in the upper and lower door area meet more than these ambitious expectations. You receive a security system customised to your individual entrance situation. Regardless of whether it is for timber, PVC, aluminium doors.





Thanks to the HS LiftUnit, operation of the Lift&Slide door is comfortable and simple, as the operating forces have been noticeably reduced

Lift&Slide hardware

GU is the leading and innovative manufacturer in the field of Lift&Slide hardware. We guarantee a high level of burglary protection. We use different components from our extensive range to achieve this. The intelligent anti-jemmy device prevents the sliding sash from being jemmied up in the closed position, for example. And the night ventilation module combines burglary protection with optimum ventilation comfort. Both solutions are RC2-tested in accordance with EN 1627-1630.



Wide range of window and door hardware

Our wide range of concealed window and door hardware for PVC, timber and aluminium windows and doors satisfies the high design expectations of architects. It also provides greater design freedom for windows and doors. The concealed hinges emphasise clear architectural lines and offer the same degree of security and functionality as the surface-mounted hinges. This therefore provides a solution for turning, tilting and closing windows and doors.

The window and door hardware of GU group satisfies all requirements of the relevant national legislation and the European standards.



UNI-JET SCF concealed window hardware

"We have created a functional and comfortable building for our guests"

The new Duinhotel Breezand is located in the village of Vrouwenpolder, in the province of Zeeland in the Netherlands. RoosRos Architects have used round forms and a natural charisma to ensure the hotel blends into the surrounding dune landscape. The installed Lift&Slide hardware and the sliding door drive are from GU.

Interview: Leon de Visser, co-owner of Breezand Vakanties.

The Duinhotel Breezand opened on Valentine's Day 2020 following the construction phase in collaboration with Bouwgroep Peters. What requirements did you have in terms of the architecture?

"The hotel not only needs to be made of eco-friendly materials, it also has to be sustainable in the operational phase. The building should also be functional and comfortable for our guests. We have achieved this with intelligent design and sustainable installation techniques."

The winds can be very strong in this coastal region.

How have you factored this aspect into your design?

"We specified a wide sliding door which is guided on the external side. This ensures that the door remains tight, even in strong winds. Furthermore, the large window area offers guests in all rooms expansive views across the wonderful dune landscape. Although the door is 2.80 metres wide, it is easy to operate."

You also chose a sliding door drive by GU group. Was that important to you?

"The main entrance must satisfy a number of functions. It is not only the entrance to the hotel reception, but also the bungalow park and restaurant behind it. What's more, it is the night entrance for hotel guests. We therefore opted for a double glass façade to ensure the entrance has sufficient capacity to admit a large number of people. The inner façade is equipped with an automatic sliding door by GU. As the window profiles in the façade are extremely slender, it was important for us that the sliding door was as slender as possible. This worked out well."

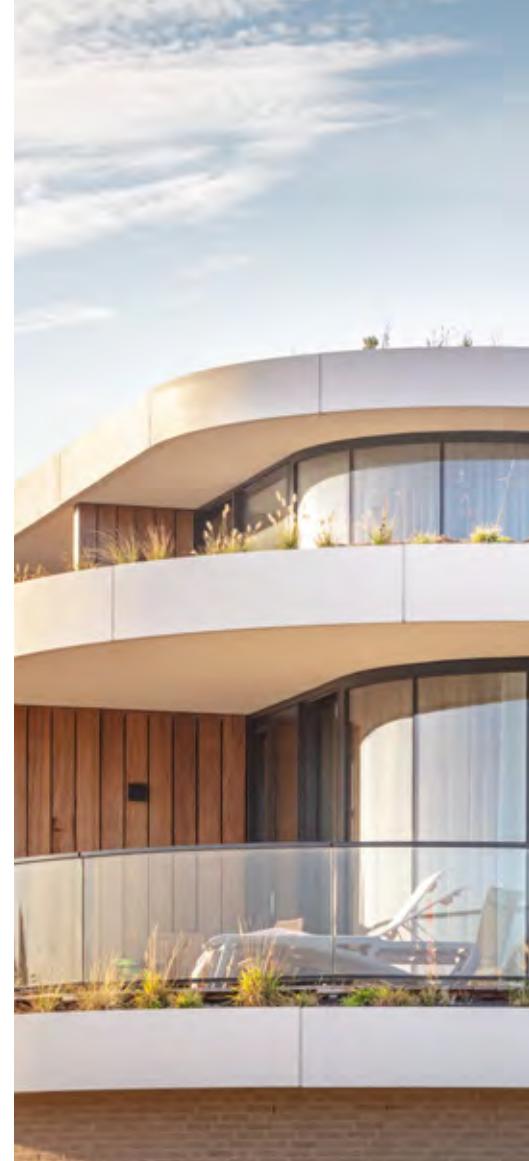


Image credits: © RoosRos Architecten



Project : Duinhotel Breezand, Netherlands

Architect: RoosRos Architecten

Façade constructor: H-GBM b.v.

GU solution: sliding door drive and Lift&Slide hardware





Project : Stadsschouwburg Utrecht, Netherlands

Architect: Van Hoogeveest Architecten

GU solution:

- mechanical panic locks of series 23 and panic hardware (EN 1125)
- electromechanical EK locks of series 21 and panic hardware
- door closers of series OTS 736
- electric strike (ET 8) and signalling of the door status

"Everything about this building was a challenge, but it was no problem to GU group"



The Stadsschouwburg in Utrecht reopened its doors following extensive renovation. GU group mortise locks and door hardware have been installed in the renovated theatre. The historic building was designed during the war by none other than Willem Dudok. An interview with Jos van Opzeeland, head of theatre technology and facility management.

What challenge did the architects have to contend with during this renovation?

"It is a listed building, so everything about it is a challenge. The original condition of the external envelope had to be preserved more or less entirely. Door openers had to be concealed, although the entrance area ideally needed to be automated. We were able to do this using GU technology."

More or less all rooms inside the building were remodelled. The large rooms are equipped with panic exit devices so visitors can exit the building safely and as quickly as possible, if required. Why have you decided for the Gretsch-Unitas group?

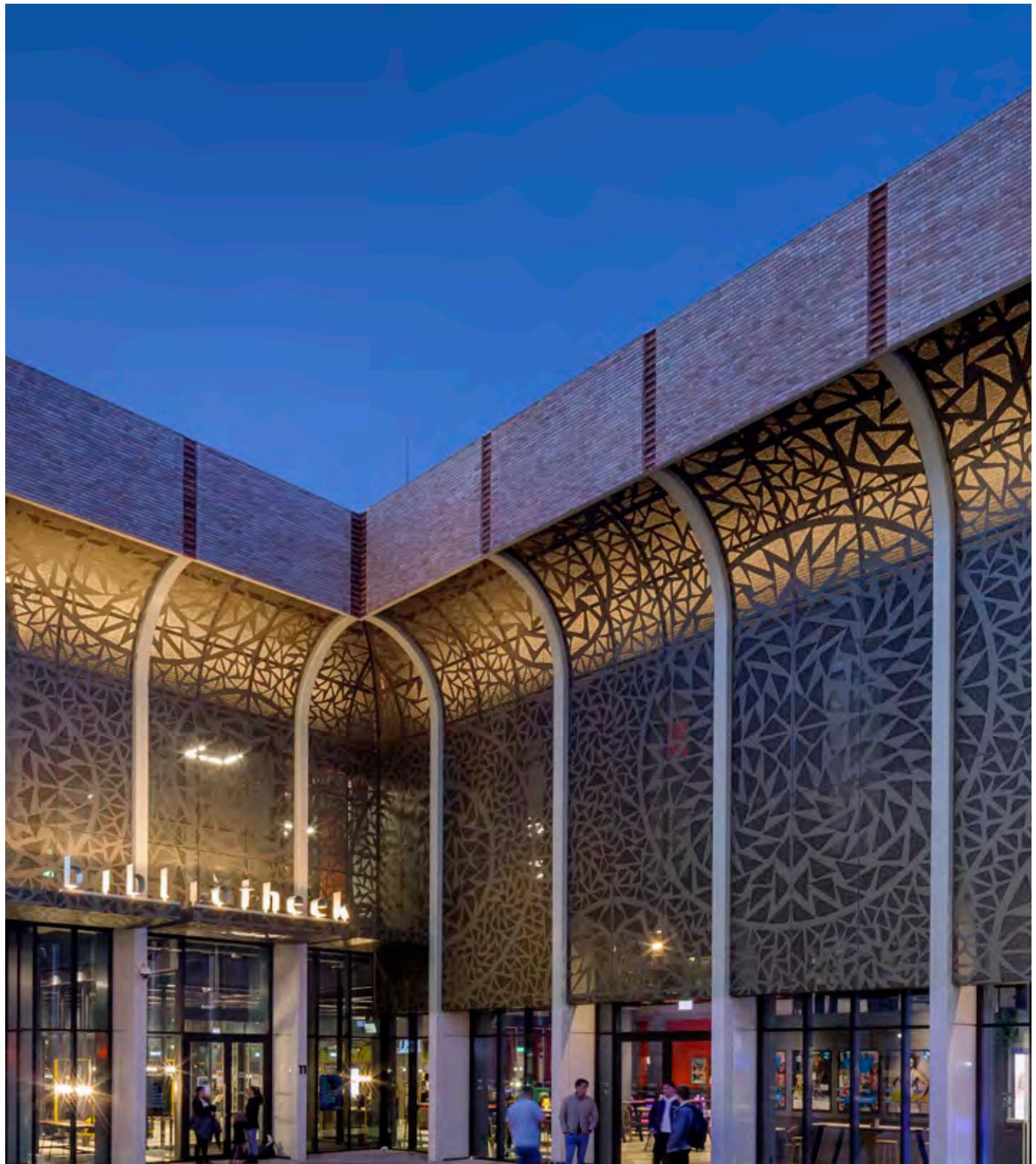
"The architect wanted the large rooms to have a plain understated appearance, both on the walls and the doors. It should look like the doors and walls are one homogenous surface. However, a large solid beam at the top of the door was incongruous with this idea. The GU group technology is design in the truest sense of the word. The panic exit devices are integrated into the doors and not surface mounted. You can't actually see the panic exit device technology at all."



What are the benefits of sourcing all window and door technology from GU group?

"We only have one contact partner, that simplifies everything. When conversion work was in progress, employees at the GU subsidiary in Netherlands visited the project to inspect the tailor-made solution for our doors. This is helpful, especially with problematic doors: if a door is not working and thousands of visitors are inside the building, you have a problem. Fortunately GU group aspires to a high standard of aftercare, and also delivers on it."

Image credits: © Dorien Hein



Project : Theater Zuidplein Rotterdam, Netherlands
Architect: De Zwarte Hond
GU solution:
- electrically coupled and mechanical panic locks of series 21
- panic hardware for 1- and 2-leaf escape doors to EN 1125

Image credits: © Scagliola Brakkee

"In an emergency situation, the public can evacuate in a very short time"

In Rotterdam you will find the iconic building of the Zuidplein theatre: it was built in 2020 and houses three theatre spaces, a café-restaurant and library. During the day, the open façade creates an unusual play of natural light in the interior; at night light streams out of the façade to the outside, highlighting the entrance.

Interview: Fred den Hartog, head of technical service/facilities/ICT at Zuidplein theatre.

The building of the Zuidplein theatre clearly stands out from its immediate neighbours such as the Ahoy. What sort of atmosphere do you want to create?

"We are in Rotterdam-Zuid. Many residents ask: what's actually going on behind this theatre door? We want a theatre which is inviting, a place where all residents of Rotterdam feel welcome. This is why the façade of our building is clad in patterned aluminium sheeting. This creates an oriental effect, especially when the interior lighting is switched on in the evenings. During the day, the building also radiates a sense of openness due to the large glazed façade."

The large room can seat 618 people, but it also must be suitable for standing concerts. How has the architect solved this problem?

"Instead of a movable platform, a solution has been chosen that allows the stage to simply be converted. The downstairs and balcony are screened off from the rest of the room by a rising wall. With this arrangement we can provide standing room for one thousand visitors."

GU group panic solutions are installed in the large rooms. Do they meet your expectations?

"Definitely!" There are touch bars on all of our emergency exit doors. We have already carried out some trial runs for evacuation of the entire building. There are double doors in the escape routes which open immediately: all the occupants were safely outside in a very short time."





Intelligent buildings are the future

By 2050, the building stock in Germany must be more or less climate-neutral. In so-called "Smart Buildings", different systems work together to make this possible.

The importance of the term "Smart Buildings" has been growing in recent years. These buildings contain intelligent technology that enables them to adapt to the requirements of users. This can be related to comfort, security and energy efficiency, for example. With GEMOS, the GU group offers the leading browser-based physical security information system (PSIM).

GEMOS PSIM

GEMOS is a compelling browser-based system that is compatible with a wide range of manufacturers and facilitates cross-trade interaction and a consistent and intuitive display including the free, individual and requirement-based design option.

GEMOS offers a comprehensive PSIM solution that takes the complexity out of building management by distilling it down to simple handling patterns and work instructions. Alarms and notifications are arranged according to type and priority so the user can efficiently and effectively respond to a variety of situations.

GEMOS is a range of products comprising software, hardware, accessories and services. Among other things, it also ensures that all security systems work together and are easy to operate.

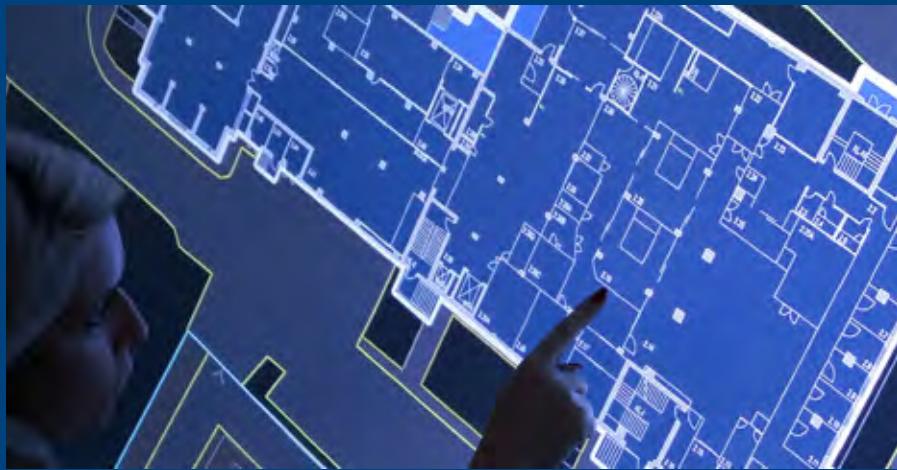
Examples of this are safety installations such as:

- lift control systems
- fire alarm systems

- intrusion detection systems
- electrotechnical systems (lighting control, socket switches via KNX/EIB)
- public sound systems
- electronic locking systems
- escape route control units
- communication and telephone systems
- media systems (audio, video, etc.)
- personal emergency response system
- video systems
- intercoms
- access control systems

One of the most powerful features of GEMOS is its scalability. GEMOS is suitable for both small systems (e.g. fire alarm systems) and for large and complex systems.

Whatever the scenario, GEMOS can satisfy the requirements: from security and protection through to risk and building management. It is the ideal solution for every organisation which is looking to optimise security and streamline building management.



GEMOS is continuously developing

Developments in the area of physical security information management systems are moving fast. GEMOS also stays abreast of the latest developments. Our experts are constantly striving to make improvements, in relation to interfaces, visualisation, monitoring, floor plans, layouts and user-friendliness, for example.

Focus on a number of improved functions: GEMOS Mosaic

- Stepless zooming into maps reveals more and more details ("Google Maps Effect").
- Geographic Information Systems (GIS) – mapping support in GEMOS 5 of fixed and dynamically acting sensors using GPS coordinates.
- Monitoring of moving objects.

The video live stream of a drone during a surveillance flight can be displayed, for example.



Our 5 highlights

GU Automatic
Door closers
ixalo
Panic solutions
Modular cylinder system



GU Automatic

Automatic entrance systems allow comfortable access. They provide a modern entrance solution for public buildings, airports, train stations, shopping centres, banks, hospitals and homes for the disabled. These automatic systems offer greater freedom of movement and security for interior and exterior doors. Comfortable access is provided via radar motion sensors, push-buttons or an access control system. This makes accessibility, burglary protection and escape route safety a reality.



DTN 80 automatic swing door drive

All applications can be implemented using only one swing door drive:

- 1- and 2-leaf swing doors
- fire-rated doors
- escape doors
- push-open or pull-open



GGG automatic revolving door

- narrow profiles
- turnstile of slim-profile aluminium-glass construction
- in manual, semi-automatic and fully automatic versions
- manual and automatic night shield
- Push&Go function can be activated



CM-F automatic sliding door

- Type CM-F: redundant drive with 2 motors for use in escape and rescue routes
- Type CM-F WK2: sliding door tested to EN 1627 in combination with AMV automatic multi-point locking systems, anti-jemmying components and use of P4A safety glass
- Running smoothness thanks to large rollers with exchangeable rubber-coated running face
- Self-learning control system with many connection and adjustment options

Door closers

Automatic closing of doors plays an important role in certain building. The compact door closers in the OTS/VTS series combine various options with an attractive design. Experts know how important it is for door closers to work reliably. Automatic closing, of all fire and smoke protection doors for example, is therefore a legal requirement of the building regulations (EN 1154). The variety of application areas is matched by the range of door closer solutions available from GU group.

Compact and elegant design

The covers and the slide arm are available in different materials and variants and can thus be selected to fit the door and the surrounding architecture.



Surface-mounted overhead door closers with slide rail

Performance features:

- for 1- and 2-leaf doors
- convenient for many variants of door widths
- non-handed (DIN LH and DIN RH usable)
- steplessly adjustable valves for closing speed and latching speed
- approved for fire and smoke protection doors (EN 1154)



Surface-mounted overhead door closers with scissor-action arm

Performance features:

- for 1-leaf doors
- convenient for many variants of door widths
- non-handed (DIN LH and DIN RH usable)
- steplessly adjustable valves for closing speed and latching speed
- approved for fire and smoke protection doors (EN 1154)



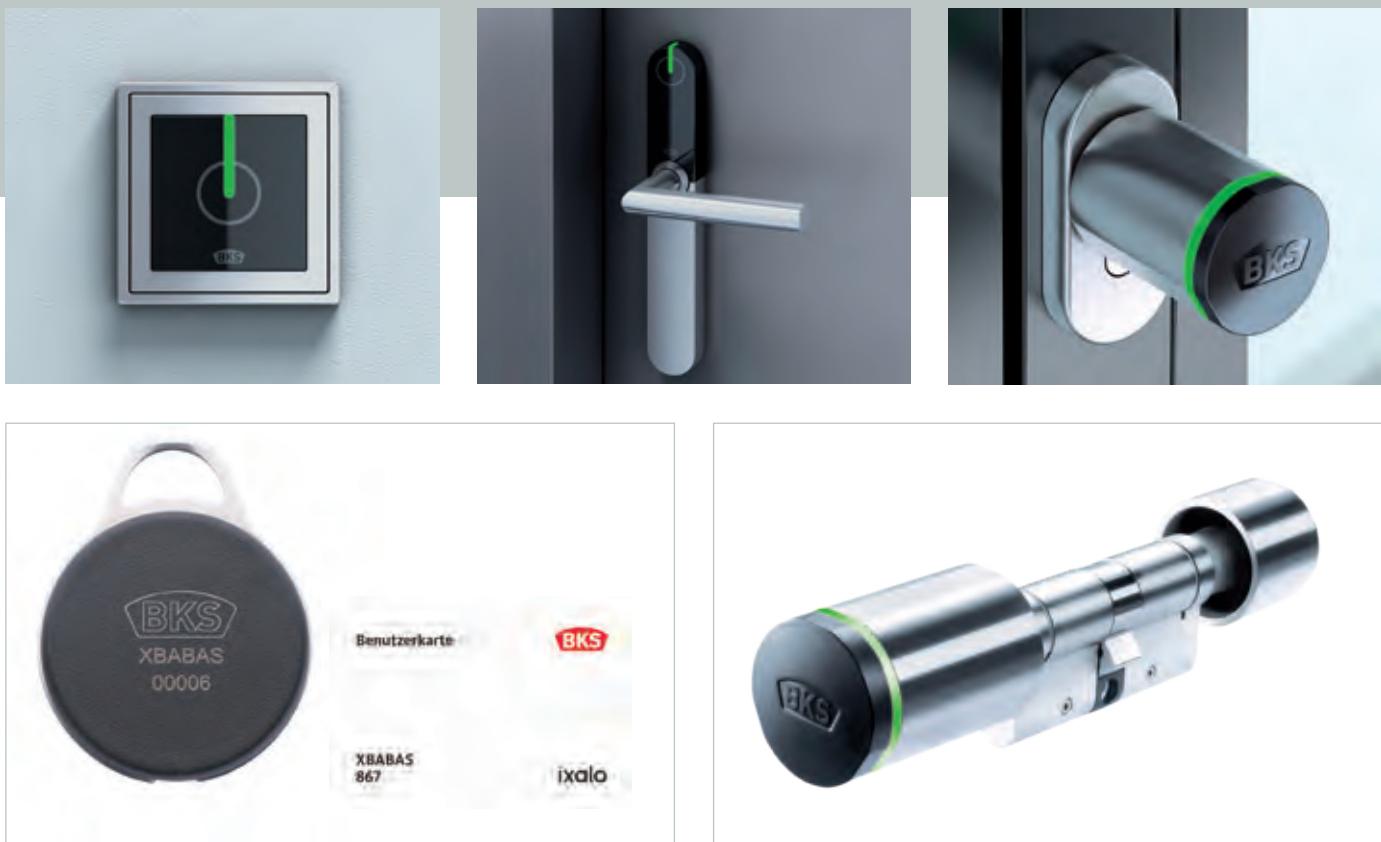
Concealed door closer with slide arm

Performance features:

- concealed door closer for 1-leaf doors
- convenient for many variants of door widths and door leaf thicknesses
- heart curve technology allows the door to be opened and accessed very easily and comfortably
- suitable for barrier-free construction
- steplessly adjustable valves for closing speed and latching speed
- approved for fire and smoke protection doors (EN 1154)

ixalo

The BKS electronic locking system is an all-encompassing system solution consisting of ixalo cylinder, ixalo door hardware, ixalo wall reader, ixalo access media and BKS KeyManager software. Besides its technical functionality, the system has an appealing contemporary design.



Advantages of the ixalo system:

- high energy-efficiency
- visual and acoustic signalling of access authorisation
- many special functions (daytime release, double-check principle, IDS function, etc.)
- ixalo | key app – the comfortable digital key
- Supported technologies:
 - SE technology by BKS
 - RFID technology
 - MIFARE Classic®
 - MIFARE DESFire®

Features of the ixalo door hardware:

- design-oriented access control solution
- comfortable operation thanks to the lever handle
- suitable for use on doors in escape and rescue routes (EN 179/EN 1125)
- can be combined with a large variety of lever handles (WDL range)
- can be adjusted for RH/LH use – also retrospectively

ixalo®

Panic solutions

The GU group offers a wide selection of touch bars and push bars. They are suitable for 1- or 2-leaf fire-rated doors, smoke protection doors or doors up to 300 kg.

In conjunction with BKS mortise locks and accessories, the touch bars and push bars are approved to EN 1125. The durability is tested to 1 million operations. The series are available in stainless steel, aluminium or PVC versions.

Panic hardware

The hardware solutions and lever handle series from the GU group make it possible to maintain a consistent design throughout a building for both windows and doors – from standard hardware and burglar inhibition versions through to versions for fire protection and smoke protection doors, and escape doors.



DIRIGENT series



BELCANTO-PANIK series



RONDO series

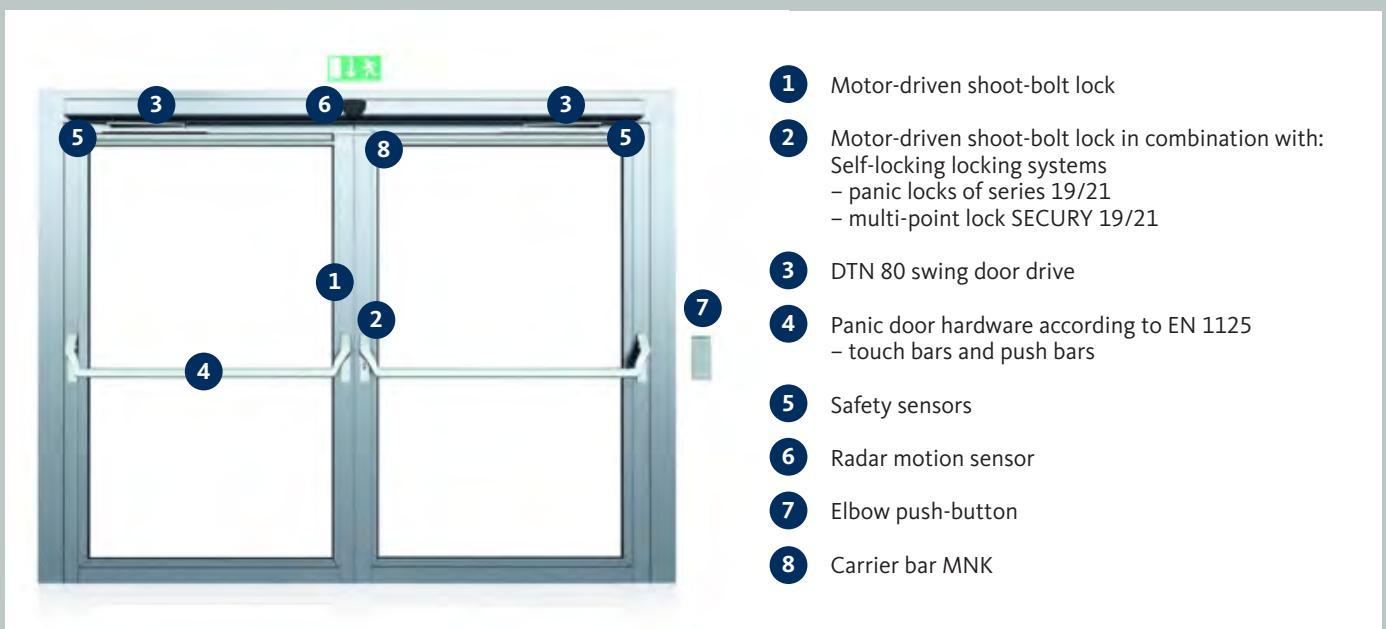


Electrically-locking touch bar EVT



Push bar

Example products for use on panic doors



Modular cylinder system

The modular mechanical locking systems from BKS take flexibility and adaptability to a whole new level. They enable adaptation to future requirements, when relocating to different premises or replacing doors. You can choose between the cylinder systems janus8000, belvius (reversible key system) and nuvius (conventional locking system).



Special features

- Problem-free integration in new doors during relocation or door modifications
- belvius and nuvius have common characteristics through intelligent use of individual components from different series
- The cylinder can be flexibly adapted to meet the requirements on site

- Variable lengths from 27 to 65 mm
- Cylinders with a fixed body length can be combined with modular cylinders in master key systems
- Efficient use of materials and resources: one connector is used for up to four lengths
- Seawater protected version on option

Worldwide projects of the GU group





University of Münster, Germany (Faculty of Geosciences)

This building has a serene façade which is arranged in horizontal bands. However, the lecture halls, the library and the main entrance are articulated from the outside as green volumes and provide a structure of the functions. In terms of sustainability, the building stands out: it is 30% more energy efficient than required in the EnEV 2009 standard, satisfies the EU Green Building Standard and was awarded the Gold

certificate from the German Sustainable Building Council. It is cooled and heated by activating a concrete core in base load.

Escape and rescue routes and access control solutions by GU group have been installed in most buildings at the University of Münster. Support at the planning stage by specialists and availability of spare parts was one of the deciding factors.

Project :	University of Münster, faculty of Geosciences building
Architect:	agn
GU solution:	<ul style="list-style-type: none">- self-locking SECURY multi-point locks- escape door control units- swing door drives- touch bars- push bars- panic locks- mechanical access control





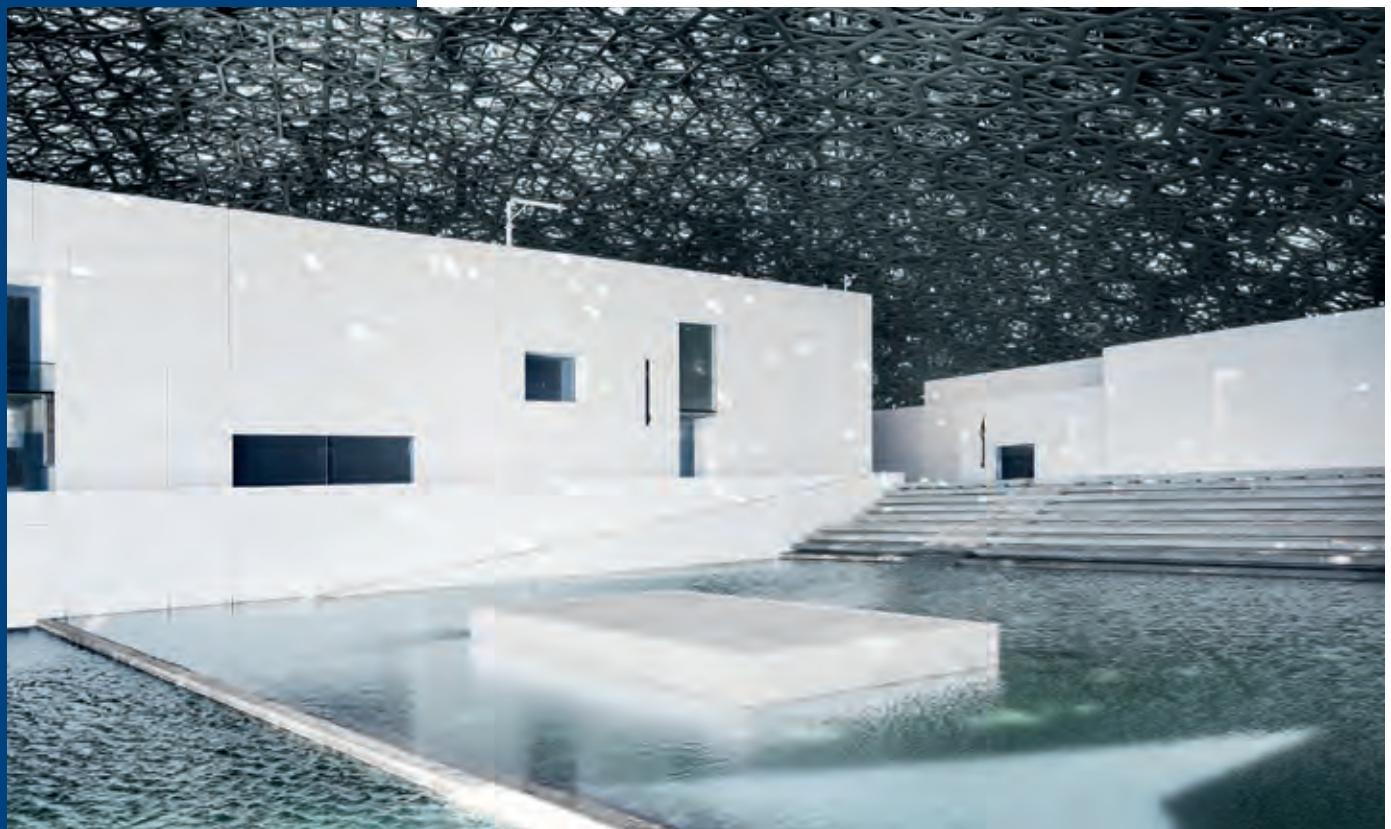
Hyatt in Düsseldorf, Germany

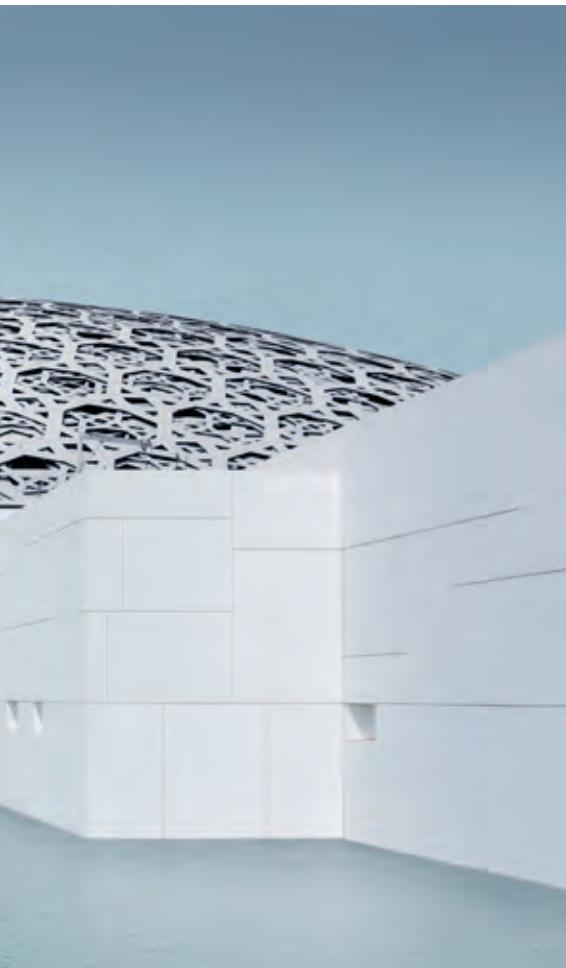
The building is perched on the narrow headland in the Media Harbour, is roughly 55 metres high and its form is reminiscent of old port cranes. This becomes clear when considering the context: this architectural highlight can be found in the former port of Düsseldorf. Today, it is a fully modernised city district. It consists of two towers with more or less identical design. The tower which faces north-west provides office space on 17 floors.

The other tower contains the Hyatt Regency Hotel which has more than 300 rooms and faces south-east to the old town and commercial harbour.

The fully automatically revolving door in the office building is from GU Automatic. With an overall height of 7.86 metres, is this door one of the tallest in Europe. The passage height is 4.24 metres. This version also features an air curtain system.

Project : Hafenspitze, Hyatt, Düsseldorf
Architect: SOP Architekten
GU solution: type GRA revolving door (fully automatically)





Louvre Museum Abu Dhabi

The museum Louvre Abu Dhabi occupies an area of 97,000 square meters and is located in the United Arab Emirates. The name is derived from Paris's Musée du Louvre and the two galleries work closely together. The building is located directly on the Persian Gulf coastline. The architect's challenge was to design a museum that combined modern architecture and traditional Arab building styles. Jean Nouvel developed

a building complex consisting of 55 rectangular buildings that are arranged next to and on top of one another. With their flat roofs and series of paths running between them, the buildings were designed to be reminiscent of an ancient Arab city. The museum has a flat 180-metre-diameter dome made from 7,850 metallic stars which let dappled light fall.

Project : Louvre Museum, Abu Dhabi
Architect: Jean Nouvel
GU solution:
- 300 electrically coupled locks
- 20 touch bars
- additional locks

What you as an architect stand to gain from working with us.

At GU we strive to make the work of architects easier every day. How do we do that? We'll provide you with a summary!



Full support

Our building project consultants support you through the entire process – from consulting to planning and tendering through to execution.



Personal and expert consultation

We establish exactly what you need and offer customised industry-specific solutions for every challenge.



Reliable products

Our system components are carefully tested at our in-house testing centres. They comply with applicable standards and directives.



Fast service

If you have questions, you normally need the answers quickly. We know exactly how it goes.



Comprehensible comprehensive information

Impress your customers with clear and comprehensive first-hand information: download catalogues, brochures and films from GU group.



Up-to-date tender specifications

We help you find up-to-date correct information. This include data sheet, technical drawings, test certificates, certificates, BIM data and operating instructions.



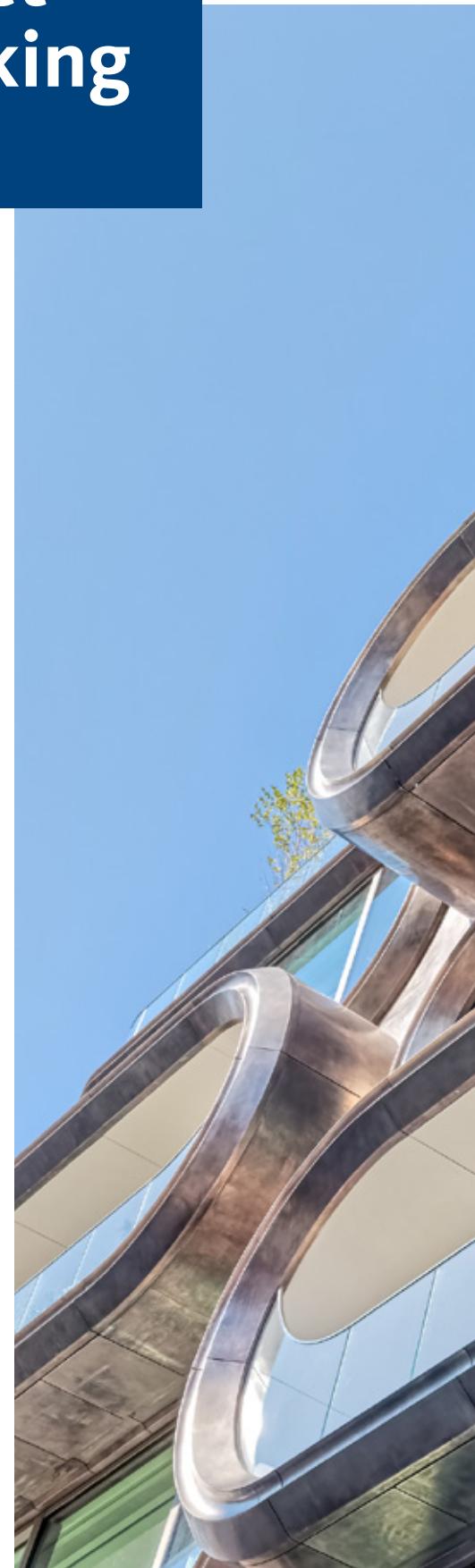
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