



GEZE - SOLUTIONS IN HOSPITALS







GEZE competence in door, window and safety technology in hospitals and nursing homes

In buildings in the health and nursing sector, the focus is on economic functionality, an atmosphere of wellbeing coupled with design. GEZE creates tailor-made, property-related solutions for complete door, window and safety technology and provides a comprehensive range of services. All the requirements specifically related to the health sector are taken into consideration – from „barrier-free“ to the applicable laws and regulations.

In busy entrance areas used by patients with walking frames, safe and reliable door solutions are a must. Patient areas require extremely quiet drives for double action swing and sliding doors that are controlled manually or using buttons or radar. Access doors to the highly sensitive operating rooms must open very fast and close tightly. GEZE offers optimum door and window drives for every application, with simple intuitive operation. Special safety concepts are also part of the package: Whereas during normal operation doors may only be used by authorised persons, they automatically open as an emergency exit for everyone in the event of danger. The window functions include regulated smoke and heat vents. For public areas, GEZE offers all-glass door systems and manual partition systems in a unique design. They change the room layout quickly, comfortable and barrier-free, of course.

Whether existing buildings need refurbishing or new ones are to be built – GEZE provides you with competent support right from the beginning. Thanks to our closely woven distribution network, we can provide consultants who can demonstrate possible solutions on site for you even at short notice.

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I. BASICS



1. Emergency exit solutions

On emergency exits, doors must be able to be opened

- at any time
- by anyone
- easily and in one movement
- to their full width
- in the direction of the emergency exit

For this purpose they are equipped with special fittings and locks with a „panic function“. The fittings and locks usually provide intruder protection against the direction of escape, but can be opened in the direction of escape even when locked simply by actuating the handle, thus providing the possibility of unauthorised passage through the door. These locks are so-called fasteners and are regulated by EN 179 or 1125. Door closers and swing door drives (except for GEZE TSA 160 Invers) are not fasteners in the sense of EN 179 or 1125.

In new buildings, emergency exit systems are preferably used between two wards. During the day, patients have access to all wards, at night patients should remain on their own ward. Special locks are also used on emergency exit doors in stairwells (side exits) to prevent internal theft.

The requirement is to enable people to escape quickly and safely from a building at any time. In hospitals, however, there is a conflicting situation between those who are in the hospital building as patients or visitors and the operator. For the operator, however, it is important that the building and its equipment is protected against sabotage as well as against theft, break-in or misuse.

The task of the emergency exit RWS system is to secure the door in the direction of escape by means of an electric lock that is installed in addition to the fastener. "In addition" means that the door meets the applicable requirements and above-mentioned criteria and functions in terms of weight, width, height, function, type and shape of fittings even without an emergency exit RWS system.

Structure of the emergency exit RWS system

The structure and basic functions of an electrical locking device on doors that are part of emergency exits are regulated in EltVTR.

According to this, a system comprises the components:

- electrical locking device element
- emergency push-button
- control unit

All the components have to be tested as a system by the German Technical Board (TÜV) and approved for use. Combination with other brands is not necessarily possible.

Variant 1:

An unlocked door with a door handle on both sides. Disadvantage: undesirable entry to the building from outside is possible, since the door is not locked!

Variant 2:

An emergency exit that can be used at any time from the inside, but cannot be opened from the outside. Knob on the outside, handle on the inside. Disadvantage: no insurance protection. A bolt-latch lock is required as intruder protection.

Variant 3:

Use of a manual panic lock so that the emergency exit is guaranteed at all times and entry is refused. This system satisfies legal requirements, the panic lock releases the door even when the latch is inserted. Disadvantage: When the panic lock has been used once, the door is only kept closed by the latch, which means it is no longer locked for the purposes of insurance.

Variant 4:

Manual self-locking panic lock with mechanical timeout function. Works as described above, but when the door is closed the bolt is extended, so that the door is locked securely for the purposes of insurance after it has been opened.

The advantage of the GEZE panic lock: premature closing of the bolt is prevented by the mechanical safety function. The bar does not extend until the auxiliary latch and the divided cross latch signal release.

Variant 5:

Manual self-locking panic lock with mechanical timeout function combined with the emergency exit system. Electrical locking is installed in addition to the panic lock. If the door is passed by authorised people, brief clearance can be achieved by using the key-operated switch or the access control system so that an alarm is not triggered. In a case of panic, the system is cleared by pressing the red emergency button. An alarm is then given on site. The state of the door (open – closed / pre-alarm – alarm) is indicated on the terminal. If this should not be sufficient, a central alarm can be given through connection to a bus system. An control panel is mounted in a central position which quickly reveals the state of the doors. Authorised persons can also enter through the door with the aid of access control, biometric fingerprint, a swipe card or similar system. This also provides the opportunity of identifying the person entering the area. This is particularly important for high-security areas e.g. medication stores. For the purposes of insurance, the door is locked, the door can only be opened from the inside on site.

Variant 6:

Self-locking motor panic lock with mechanical timeout function or self-locking lever lock with mechanical safety function combined with the emergency exit system. Description as above, but locking requirements are met here for the purposes of insurance. Thanks to the use of a motor lock, the door can also be cleared remotely.

Special applications:

Solutions without local emergency push-button

This solution is particularly suitable for securing emergency exits e.g. in psychiatric wards or wards where dementia patients are being cared for. In order for several door control units to be cleared in connection with central emergency push-buttons, e.g. fire alarm systems, special permission must be given by the most senior regional building authority. Greater manipulation safety is achieved in combination with a key-operated switch as a separate sturdy operating element.

Solutions for lobbies

This system allows lobbies (active or passive) in the course of emergency exits, e.g. in operating wings, laboratory and quarantine sections, to be achieved. The doors in one group mutually lock each other. The lobby relation can be changed at any time through simple parameter setting.



1.1 Requirements for locks along emergency exits

The doors always open outwards in the direction of escape.

IQ Lock M:

The mechanical, self-locking panic lock provides reliable intruder protection in addition to the panic function. Once the door has been closed, the dead bolt closes automatically by moving 20 mm. The pre-condition for the locking of the door for the purposes of insurance is thus given. When combined with the self-locking function, the mechanical timeout function prevents the dead bolt from closing prematurely if the auxiliary latch is activated by mistake or improperly with the door open.



IQ Lock EM:

The lever lock has an electrically couplable outside handle. Thanks to the split handle follower, the outside handle initially remains idle, i.e. it is uncoupled from the lock mechanism while the panic function still works in the direction of escape. An electrical signal can be emitted by an access control system, e.g. a card reader, to couple the outside handle for a specific period of time or permanently, thus allowing the door to be opened against the direction of escape. After the door is closed, the dead bolt closes automatically by moving 20 mm. The pre-condition for the locking of the door for the purposes of insurance is thus given. The door can be opened with a key at any time from the outside. The panic function can be used to open the door in the direction of escape at any time. When combined with the self-locking function, the mechanical timeout function prevents the dead bolt from closing prematurely if the auxiliary latch is activated by mistake or improperly with the door open.



IQ Lock EL:

The motor electronic lock is the central locking system for your building. Unlocking at the touch of a button takes less than one second. The operating modes are: „Night“, „secured daytime operation“ and „permanently open with electromotive unlocking“. GEZE IQ Lock EL has an input for fire alarm systems. Irrespective of its current state, the IQ Lock EL switches to „night“ operating mode and is securely locked in the event of a danger alarm going off or a power failure. The dead bolt keeps the door securely shut – in addition to the latch locking stipulated by the fire protection regulations. The basic functions (panic function, self-locking) remain operational, of course. The GEZE cross latch design and the absolutely jamfree opening and closing of the dead bolt associated with it, together with the secured daytime operation with door opening function reduce the stress and wear on the electromechanical components to a minimum, thus extending their service life. Once the door has been closed, the dead bolt closes automatically by moving 20 mm. The pre-condition for the locking of the door for the purposes of insurance is thus given. From the outside, the door can be opened at any time by authorised persons e.g. using a key. The panic function can be used to open the door in the direction of escape at any time. When combined with the self-locking function, the electrical timeout function prevents the dead bolt from closing prematurely if the auxiliary latch is activated by mistake or improperly with the door open.

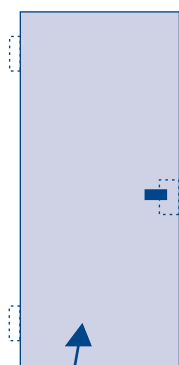


Panic bar combined with IQ lock Series:

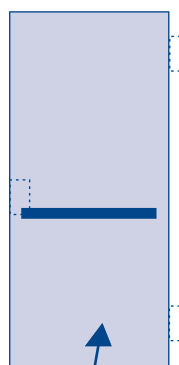
The panic bar is suitable for panic locks with horizontal actuation bar according to DIN EN 1125. It is made completely of stainless steel.



1.2 Single leaf door on the emergency exit

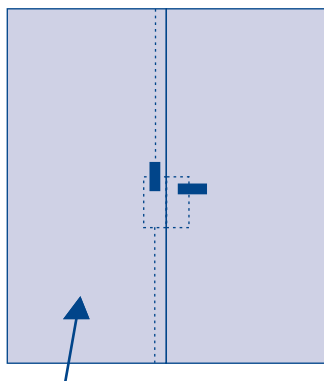


Direction of escape
Door according to EN 179:
Emergency exit door locks

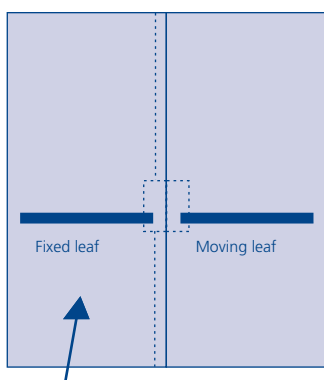


Direction of escape
Door according to EN 1125
panic door locks

1.3 Double leaf door on emergency exit



Direction of escape
Fitting according to EN 179 with dead bolt and strike plate in the fixed leaf and panic lock in the moving leaf. It has to be possible to actuate both leaves with one handle through the fixed leaf.



Direction of escape
Fitting according to EN 1125 with dead bolt and strike plate in the fixed leaf and panic lock in the moving leaf. It has to be possible to actuate both leaves with one handle through the fixed leaf.



2. Building system

A software or a control panel facilitates a complete and simple overview and control of the outer shell of the building and the power-driven and mechanical doors on the inside. All the connected doors

with GEZE drives (sliding or swing) and windows are monitored and controlled from a central position. All fault and problem messages are recorded centrally. A clear diagram indicates the current state of a door or window: door closed and locked, door closed, door active, door open, night mode active, automatic mode active. Thanks to the 3D diagram and the outlines of individual areas, spatial orientation is possible very quickly. The building system can be connected to an on-site building management system.

2.1 Access control

An access control system regulates who may enter sensitive parts of the building and rooms at certain times. The separation of areas only accessible for staff can be organised easily and conveniently using an access control system. Sensitive rooms can be monitored in such a way that they may only be entered by certain and authorised groups of people, e.g. the hospital pharmacy, technical rooms etc.. a children's ward can be secured in such a way that only authorised staff and patients' parents may enter, too. Personal identification can be by means of ID cards, a personal identification number (pin) or by fingerprint identification for legally binding authorisation. In addition, management of keys and the closing system is made easier, since only a very few keys are handed out to staff – thus automatically reducing the danger of key loss. If entry authorisation changes, this can be modified very quickly through the access control system. In addition, the state (open, closed) of especially sensitive doors can be monitored separately. This way, attempts at manipulation or doors being kept open too long (e.g. by a wedge under the door) can be detected.



3. Ventilation and RWA

3.1 Ventilation

For optical reasons, integrated chain drives are preferably used for ventilation applications. To make maximum convenience possible, fanlights are fitted with electrical motors that can be operated from the bed.

Drives

Scissor drive E170 (230 V)

Simple and fast installation, little space required, opening widths of approx. 170 mm possible.

Manual slimline fanlight opener OL 90 N, 95, 100

Opening widths of up to 260 mm are possible. Variable opening positions ensure optimum airing and ventilating. In the case of turn and tilt windows, safety scissors must be used in addition to the fanlight opener. These limit the tilting movement of the leaf after the scissor stay has been disengaged (grip position) and prevent the leaf becoming a hazard during cleaning. For this purpose, GEZE supplies gripping and cleaning scissor for vertically installed turn and tilt rectangular windows.

Automated slimline skylight opener OL 90 N, 95 and 100 with the electric motors E212 or E205 (230 V)

Slimline skylight openers can be operated easily and conveniently even from the bed thanks to electric motors. These make simple cross-ventilation possible without causing an unpleasant draught. Activation is through the vent switch or a radio remote control device provided by the customer.



Chain drives

Integrated chain drive E580 (230 V)

Installed in the window profile, opens and closes the window almost invisibly. Opening widths of up to 600 mm are possible.

Surface-mounted chain drive E740 and 840 (230 V)

Surface-mounted electric drive for the direct opening of bottom hung, top hung, pivot hung, horizontally and vertically pivoted windows; for vertically installed rectangular windows in dry rooms. Special chain drives are also suitable for tilted windows (skylights) and light domes; opening inwards and outwards. For windows with large casement areas, it is often not sufficient to lock the casement using the drive alone. The solution is to use mechanical locking brackets.

Spindle drive

Spindle drive E1500, E3000 (230 V)

Especially powerful with 1500N or 3000N. The drives can also be synchronised so that particularly large and heavy skylights can be easily opened.

Spindle drive E350 N (230 V)

Small dimensions: 40 x 47 mm (w x h), low operating noises, spindle drive for skylights, turn and tilt windows and light domes. Since the spindle projects into the room, care must be taken that there is enough head height!

Opening and locking system

Opening and locking system OL350 EN, OL360 EN, OL370 EN

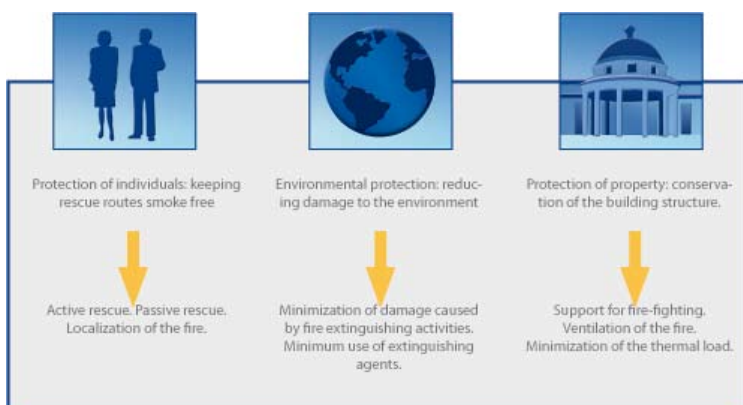
This system can be used to operate very large casements. For very large and heavy casements, 2 drives (spindle drive E350) can be installed in tandem function. Very large opening widths can be achieved with a small stroke. The use of mechanical locking devices makes the use of additional electrical locking drives superfluous.

Please note:

Shading systems, solar sails or other screen equipment should not penetrate into the window's opening area. Otherwise a timeout control must be attached which ensures that all equipment is retracted before the window is opened using the drive. When calculating load, any snow and wind loads possible must be taken into account!

3.2 RWA

RWA exhaust solutions on windows create a low-smoke layer near the ground in the event of a fire, enabling people to escape from the buildings. Additional large fresh air areas should be created in the lower part of buildings to ensure reliable function. The technically advanced GEZE system solutions enable coordinated actuation and release of all RWA fresh and exhaust air openings via an individual GEZE RWA control centre.



GEZE RWA

A GEZE smoke and heat extraction system is used for the routine ventilation of rooms and also for smoke extraction in the event of a fire. Here the emergency power supply unit controls smoke and heat extraction. The windows, smoke flaps and light domes are opened and closed by means of electric drives. For ventilation purposes, control is via vent switch, rain/wind control unit or timer, and in the event of an emergency alarm manually via RWA switch or automatically via smoke or heat difference detectors. In addition, optional alarm signals can be connected up.

RWA systems consist of at least:

- The opening system
- The emergency power supply unit
- The RWA switch
- An automatic trigger, e.g. smoke detector
- Further components such as rain/wind control, room temperature regulator, ... are optional

Use of the SHEV

The SHEV is a naturally functioning smoke and heat extraction ventilation system. It is used to extract smoke and hot gases from a building in the event of fire. A SHEV in accordance with DIN EN 12101 Part 2 must, in Germany, be used when natural „smoke extraction“ is required by the building authorities. The term smoke extraction means the removal of smoke in the event of a fire (hot smoke removal). A stable, low-smoke layer is produced near to the ground, which makes the safe use of escape and rescue routes possible.

GEZE SHEVs offer a great deal of flexibility in their choice of tested and certified drives and profile systems.

SHEV testing and classification

The standard DIN EN 12101 Part 2 generates a new structural product for the whole European economic area – the SHEV.

SHEV System

In accordance with DIN EN 12101 Part 2 this structural product is made up of

- A window with the associated components (profiles, seals, fittings)
- The window elements themselves (e.g. glass, panels)
- The drive system with associated components (drive, brackets, fittings)



Opening and locking system

Opening and locking system RWA 100E, 105E and 110E (24 V)

The RWA systems RWA 100E, 105E and 110E can also be used to operate large casements. For very large and heavy casements, 2 drives (spindle drive E 250) can be installed in tandem function. Very large opening widths can be achieved with a small stroke. Mechanical locking devices ensure an additional closing force in the closed state, whereby the windows are locked.





Spindle drive

Spindle drive E1500, E3000 (24 V)

Especially powerful with 1500N or 3000N. The drives can also be used synchronised, thus allowing particularly large and heavy skylights to be opened without effort.

Chain drives

Integrated chain drive E820 (24 V)

Installed in the window profile, opens and closes the window almost invisibly. Opening widths of up to 600 mm are possible.

Surface-mounted chain drive E740 and 860 (24 V)

Surface-mounted electric drive for the direct opening of bottom hung, top hung, pivot hung, horizontally and vertically pivoted windows; for vertically installed rectangular windows in dry rooms. Special chain drives are also suitable for tilted windows (skylights) and light domes; opening inwards and outwards.

For windows with large casement areas, it is not sufficient to lock the casement using the drive alone in many cases. As a solution for these cases, GEZE offers the possibility of using an additional mechanically operated locking bracket. It is suitable for use with the GEZE electrically operated chain drives E740 and E860 on all common profile systems and vertically installed bottom, top or side hung function.

Emergency power supply units:

The RWA emergency power supply unit E260 N is used to supply, coordinate and monitor all connected opening systems and components. In the case of a fire alarm, the windows and smoke extraction openings are opened or closed automatically depending on the configuration.

Rain or wind control:

If a rain/wind control is activated by wind and/or weather, the connected vent switches are disabled and all the connected drives are triggered to „CLOSED“. An alarm has precedence over the rain/wind control, i.e. in the event of an alarm, the windows will be opened even if the rain/wind control is active (the windows are not closed).

Please note:

In the case of casements that open inwards, it must be remembered that the opened casement must not reduce the width of the opening area. Chain drives are usually used on account of their small installation dimensions, since the fittings are hardly visible on the windows. Additional locking is possible through a locking bracket. Spindle drives are mainly used on light domes or skylights. Attention must be paid to head height here, since there is a danger of injury due to the projecting spindles.

In the RWA area, hospitals currently prefer to use lamellar windows. In the case of casements that open inwards, it must be remembered that the opened casement must not reduce the width of the opening area.



4. Fresh air / ventilation openings in the event of smoke and fire

Doors can be used as a fresh air opening in the case of smoke and heat extraction. Depending on the requirement and comfort level needed, the solutions can be of the simplest kind, using inversely working door closers that are not suitable for continual passage, through to solutions that are barrier-free and/or absolutely safe for the purpose of insurance. This way, outer doors that have an emer-

gency exit function can also be used as ventilation openings in the event of smoke and fire. In addition, misuse is effectively prevented by an emergency exit terminal.

Variant 1: RWA EL-TÖ (Overhead door closer)

As the simplest version of a door as ventilation opening, an overhead door closer can be attached as a special fitting. This system is not suitable for ventilation and frequent door passage. The door leaf is kept closed by an electric latch lock as long as current is applied. In the event of a power failure, the door is opened through the special fitting of the door closer. Every time this is triggered, the door leaf must be closed again against the resistance of the door closer. This system is not barrier-free!

Variant 2: RWA EL-TÖ (free-swing door closer)

A further possibility is the combination with a free-swing door closer as a special fitting. In this case, the door can be passed through easily. This variant can be used when a door has to be accessed frequently. After it has been triggered, the door closer must be put back manually into the free-swing function. This variant is not recommended for outer doors, since the free-swing door closer does not close the door after use, which means the outer shell of the building would be open. It can be used very well as a second fresh air opening inside the building. This system is barrier-free!

Variant 3: RWA K600 (retractable arm drive)

The combination of a door closer with the tilt arm drive RWA K600 represents a low-cost and easy-to-assemble variant. In the case of smoke and heat extraction, the door is opened through a tilt arm drive and kept open. This solution is extremely suitable both for ventilation and for daily access. On outer doors, the door closer ensures that the door is returned to its closed state after access, thus closing the outer shell of the building. This system is not barrier-free!

Variant 4: RWA AUT (swing operator)

If barrier freedom is required in addition to ventilation opening, the door can be equipped with an inversely fitted swing door drive. This makes it possible for the door to be opened and remain open for smoke and heat extraction. The door automatically returns to its initial position after the reset. The automatic swing door drive guarantees barrier freedom and maximum comfort.

Please note:

- All variants can be used for emergency exits, and all variants can also be combined with an emergency exit route terminal.
- The use of a motor-driven lock is possible if additional safety requirements have to be taken into account.
- Can be used on single and double leaf doors, but only the active leaf represents the escape route width. To ensure that both leaves of a double leaf door are not opened at the same time, causing them to get caught, the fixed leaf must open later. This can be achieved e.g. by means of a time relay or the GEZE pick-up delayer LEV before the control unit E10.



5. Door closers

5.1 Immediately closing door closers

Immediately closing door closers are used whenever the door has to be kept closed. They are often used on steel panel doors to the technical rooms in the basement, on outer doors and secondary doors. They are also used on wooden fire doors for standpipe shafts or po-



wer distribution shafts. The opening angle is limited since the door closer is often fitted on the side opposite the hinges. Since floor stoppers are a problem for floor cleaning in clinics, the use of a T-stop guide rail is highly recommended.

5.2 Hold-open devices for fire and smoke doors

These are used to guarantee doors are kept open to enable working to continue smoothly, and yet they still close in the event of a fire or smoke. Hold-open devices are usually used with an integrated smoke alarm as an independent system. The electromechanical variant (E-guide rail) with separate smoke alarms is used with on-site fire alarm systems. (Please note the approvals). The door can be opened beyond the hold-open point – thus achieving a maximum door opening angle and preventing damage. A floor stopper is not required for the hold-open point.

5.3 Free-swing door closers

These are often used for patients' rooms or nurses' offices. The door can be passed through in opening and closing direction without any resistance at all. In terms of daily use, the door is like any other without a door closer. In the event of a fire, however, the door is moved from whichever position it is in and closed. Free-swing door closers are suitable for fire and smoke doors. An additional interrupter key which makes manual triggering possible is compulsory here.

5.4 Integrated door closers (Boxer)

These are often used in shops or in administrative buildings. This is an attractive-looking variant, since the door closer and guide rail disappear completely in the door leaf. The opening angle is restricted to about 120° due to the installation position of the door closer. The use of a door stopper is recommended to avoid damage to the hinges and the door leaf. The use of the T-stop guide rail is not possible. The integrated door closer has approval for smoke and fire doors as well as for single and double leaf doors. Important: please ask the door leaf manufacturer about approval status!

Variants available:

- Boxer: Immediately closing
- Boxer E: Hold-open system
- Boxer EFS: Free-swing door closer

Please note:

With the TS 5000, all the settings can be carried out from the front; no additional door stopper is required for installation on the hinge side; optionally the TS 5000 can be equipped with T-stop guide rails. This limits the door's opening angle like a floor-mounted door stopper. With installation on the side opposite to the hinges, the opening angle is around 120°, depending on the door design.

5.5 Floor spring door closers

Floor spring door closers are not commonly found in clinics. Rather, they are used for all-glass doors or semi-circular arch doors in administrative buildings. Floor spring door closers are difficult to clean. If the door closer is not installed professionally, cleaning water and disinfectant can cause damage to the closer.



6. Sliding doors

6.1 Automatic sliding doors

These are recommended when barrier freedom and comfort are required and where high passage frequencies and cramped space conditions prevail.

Please note:

Arrangement of operating elements

Horizontal distance for frontal "approach": min. 150 cm

Control height (axle dimension above OFF): 85 cm to 105 cm

Deviations are permissible

Distance to obstacles at the side: 50 cm

ECdrive / ECdrive FR

This is a drive unit that is easy to install and has an excellent price-performance ratio for single and double leaf sliding doors. Opening widths are possible up to 300 cm and headroom up to 300 cm. There is a variety of triggering possibilities available (radar movement sensors or elbow switches) as well as adjustable and dynamic hold-open times.

Slimdrive SL / SL-FR

The advantage of this drive is its slim design (GEZE is the only supplier on the market to offer automatic drives with only 7 cm design height!). It is particularly suitable for post/rail constructions, since the drive can be integrated almost invisibly into the facade.

Powerdrive / Powerdrive FR

The sturdy drive is suitable for doors with heavy leaf weights < 200 kg, for single and double leaf sliding doors with opening widths of up to 300 cm. Activation via radar movement sensor or large surface switch is at hand level.

Slimdrive SLT / SLT-FR

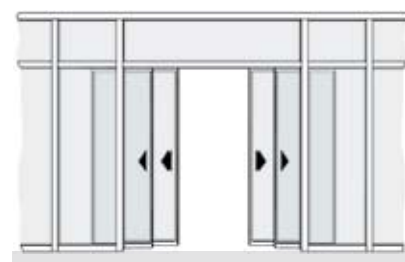
The telescopic sliding door (drive height 7 cm) is used wherever there is only little space available but a large opening width has to be achieved. Opening widths of up to 360 cm.

Slimdrive SL-RD

The SL-RD has a drive height of only 7 cm. The leaves are made up of a filigree smoke-proof profile system with end-to-end floor guide. The all-round flexible seals guarantee smoke-proofness. Triggering is through smoke alarms or an external fire alarm system. Slimdrive SL-RD is only suitable for double leaf systems. The sliding door system is executed with a fine-framed ISO fitting with toughened safety glass and tested to DIN 18095.

Slimdrive SL-T30

The Slimdrive SL-T30 is resistant to fire for 30 minutes. It is suitable for use in fire doors in buildings with increased protection requirements such as hotels, airports, clinics or retirement homes. Distribution is exclusively through Hörmann. The drive is self-closing via a mechanical force store. The system has been tested as a hold-open device, the drive is VdS-tested on single and double leaf interior doors. Slimdrive



SL-T30 is approved with door leaves made of glass (sales partner Hörmann) or wooden moving leaf (sales partner Schörghuber).

Slimdrive SLV / SLV-FR

The Slimdrive SLV is the drive for corner sliding door systems. The drive is used wherever special design requirements are given, e.g. for an architecturally sophisticated design of an entrance area. Perfect integration – even in glass facades – is possible without doubling the bars or using wide profiles. Thanks to its slim height, the drive is almost invisible, extremely powerful and thus excellently suitable for high movement cycles.

Slimdrive SF/SF-FR

If maximum passage widths are to be achieved under cramped conditions, the use of the automatic folding door drive Slimdrive SF provides the optimum solution. The break axle ensures safe locking at night.



Slimdrive SC / SCR/ SC-FR / SCR-FR

Semi-circular and circular sliding doors create more light and space. Even with small outer dimensions this special construction creates enormous space for access. The slim profile system with fine-framed laminated safety glass makes the glass surfaces seem even more spacious. Operation and assembly are simple and convenient. Slimdrive SC is suitable as a drive for semi-circular and circular sliding doors, and combined with a linear sliding door it can also act as a draught lobby.



The Slimdrive SCR is the 360° solution. Both drives have been designed as fully-modular all-aluminium unit constructions and comprise a mounting profile, sliding rail/carriage unit, side elements and clamping profile.

Please note: All GEZE sliding doors are type-approved and certified to DIN 18650.

6.2 TSA 325 revolving door

Revolving doors are the preferred version used for especially large and representative objects. The exclusion of draught air makes it possible to save on energy costs. The drive system is available as an automatic version, or power-assisted or manual. There are no dimension-related dependencies, the door can be adapted to a wide range of different constructional circumstances. The system has a comprehensive safety concept with an immediate system stop when the safety bar switches at the closing edges are actuated. Installation of buttons for the disabled to slow the rotation speed is also possible. GEZE revolving doors have certification from the TÜV and are suitable for use in escape and rescue routes.

Hermetic sliding doors Powerdrive HT

The area of application covers clean rooms with a pressure ratio of up to 125 pa, operating theatres or laboratories resulting in high airtightness. Variable viewing windows in the door leaf are possible according to specific customer wishes.

Possible modes of operation:

Hospital mode bed: The door opens as soon as triggering through a movement sensor or key takes place, and closes again after a certain time, which can be adjusted. Light curtains secure the movement paths of the leaves, thus preventing any personal hazard.

Cleaning mode: the door opens and remains open (permanently open);

Nurse mode of operation: the door only opens over a certain part of the maximum opening width (reduced opening width).

Triggering is through elbow switches, radio transmitters, non-contact proximity switches and radar movement sensors.

Powerdrive op sliding door

This is used in operating wings and intensive care wards. One of the main requirements is simple operation. The moving leaf should have a flush window cut-out that can be darkened.

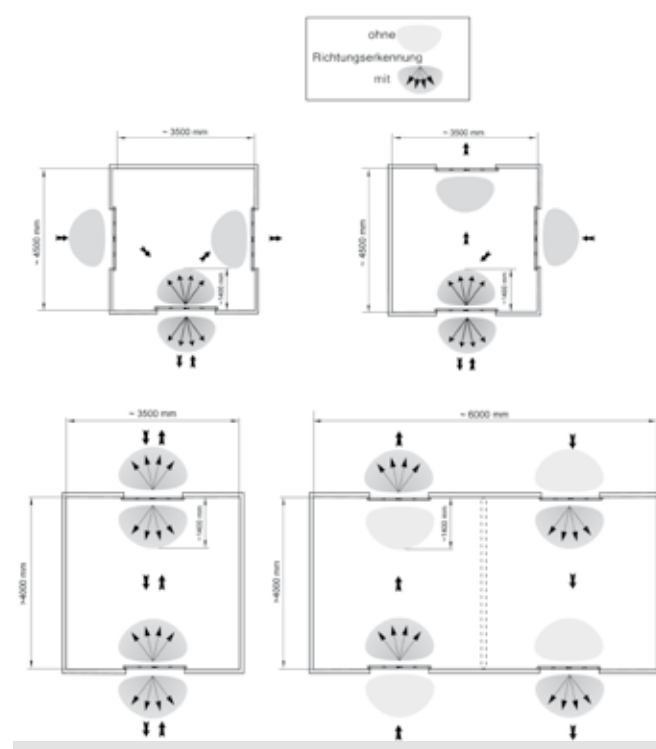
Hospital mode bed: The door opens as soon as triggering through a movement sensor or key takes place, and closes again after a certain time, which can be adjusted. Light curtains secure the movement paths of the leaves, thus preventing any personal hazard.

Cleaning mode: the door opens and remains open (permanently open);

Nurse mode of operation: the door only opens over a certain part of the maximum opening width (reduced opening width). Triggering is through elbow switches, radio transmitters, non-contact proximity switches and radar movement sensors, for example.

Draught lobby variants

Examples of possible combinations for draught lobbies.



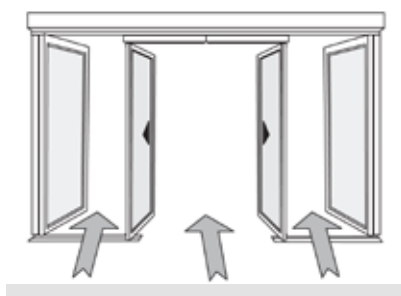


6.3 Emergency exit sliding doors

All GEZE sliding doors are available in the FR-version. The redundant triggering of the drive guarantees that the door opens safely automatically in the event of a malfunction or power failure.

Slimdrive SL-BO

A special version for escape and rescue routes is the break-out drive. The BO assembly makes it possible to open the wings in the direction of the emergency exit. It is available as a single and double leaf version with swingout side elements. The sides can be pushed open manually in an emergency or panic situation. Due to the low construction height the drive is hardly noticed; at the same time it is extremely powerful and perfectly suited for high movement cycles. Mounting and installation are quick and easy to handle, and retrofitting to existing facades is no problem. Redundancy is guaranteed in the event of a power failure or malfunction, so that the sliding door opens safely automatically in the operating modes "automatic" and "shop closing time".



Solutions for sliding doors that have to meet further requirements in addition to their escape and rescue function.

Requirement:

Escape and rescue route despite locked door in buildings used round the clock.

Slimdrive SL FR-RWS, ECdrive FR-RWS, Powerdrive FR-RWS

Solution:

The door can be locked with a monitored and tested locking device on the motor. If malfunctions occur or there is a power failure, the door opens without delay. The locking force is about 500 N (pushing open at the side). The door is opened using an emergency switch, the movement sensors are switched off. Agreement is necessary in individual cases, a technical expertise by the TÜV is available! GEZE is currently the only supplier on the market to be offering this functionality.

Requirement:

Escape and rescue route door in both directions (from inside to out / from outside to in).

Slimdrive SL FR-DUO, ECdrive FR-DUO, Powerdrive FR-DUO

Solution:

The movement area of the door in both directions is monitored by monitored and tested sensors. If malfunctions occur or there is a power failure, the door opens without delay. Regular opening of the door from inside and out is by means of movement sensors. By switching to the shop closing time mode, the system can be changed over to only one direction of escape (from inside out). The amendment to the type approval test certificate has been made.

Requirement:

The emergency exit door should be locked in the „shop closing time“ mode.

Slimdrive FR-LL, ECdrive FR-LL, Powerdrive FR-LL

Solution:

The door can be locked with a monitored and tested locking device on the motor. If malfunctions occur or there is a power failure, the door opens without delay. The locking force is about 500 n (pushing at the side). The door opens via a movement sensor on the inside. The amendment to the type approval test certificate has been made. For use at night e.g. when issuing medication.

Please note: All GEZE sliding doors are type-approved and certified to DIN 18650.

6.4 Manual sliding doors

Bathrooms that do not provide enough room for a swing door are the ideal area of application for manual sliding doors. A further application is for upgrade rooms, for separating the sleeping and recreation area.

Perlan 140

Perlan 140 is a quiet roller-guided sliding door system suitable for single, double and synchronous sliding doors. It can be used for light to heavy interior doors and shading screens, as well as with materials such as wood, plastic or metal. Wall and ceiling mounting is possible for doors with a leaf weight of up to 140 kg. Perlan 140 is tested to DIN EN 1527 and can withstand more than 100,000 cycles.

Perlan 140 with SoftStop

The draw-in damping allows sliding leaves of up to 80 kg in weight to be drawn gently and safely into their final position. The flexible use of the single or double-sided draw-in damping goes easy on the material, minimises stop noise and is thus ideal for upgrade rooms – separating the sleeping and recreation area. The system also provides pinch protection, since there is no danger of pinching by the door since it is drawn in slowly.

Perlan Telescope

When used as a shading system, this version provides large-area, convenient and reliable protection against sun radiation. With different leaf materials, such as plastic, wood or metal, double or triple-leaf shading screens with an overall length of up to 450cm can be realised. Leaf weights of up to 140 kg are possible. Perlan Telescope can be delivered in a manual or automatic version.

Perlan DuoSync

This system can be used for synchronous double leaf sliding door systems weighing up to 140 kg per element. Both leaves are opened and closed with only one grasp comfortably. Perlan DuoSync is suitable for doors made of wood, plastic and glass (toughened safety glass).

Perlan KS (with increased corrosion protection)

The slide fitting with increased corrosion protection is ideally suited for outdoor applications, e.g. as a shading screen.

Perlan AUT (set for simple automation)

The set is suitable for automating the manual Perlan system. Perlan AUT is ideally suitable for areas that are difficult to access and is a low-cost alternative to sliding by hand. The special version Perlan AUT contains a toilet control. The set can be used when two patients share a bathroom, for example.

Aerolan / Geolan

The stainless steel design gears are extremely quiet-running while requiring minimum effort. Both gears can be used for manual glass sliding doors.

Perlan 140 with GGS (manual)

With Perlan 140 GGS, GEZE is providing a new stainless steel sliding fitting that complements the fittings of all-glass sliding doors perfectly. It has a compact and modular design. Perlan140 with GGS has cut and polished edges, and is suitable for frameless all-glass moving leaves with toughened safety glass up to 12 mm. The stainless steel fittings are made of anodized aluminium. Perlan140 GGS is suitable for door leaf weights of up to 140 kg.



7. Automatic swing doors

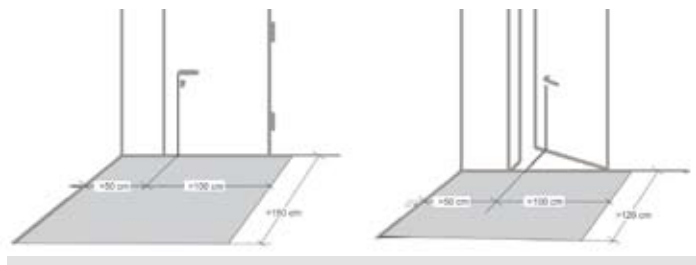
Automatic swing doors are ideal whenever unpleasant draughts are to be minimised and a hold-open device cannot be used. They are convenient and easily accessible, barrier-free and save on energy costs. In situations where every second counts they are already open before the emergency doctor reaches the door, for example, they open and close automatically – a special advantage e.g. when hands have already been disinfected.

In areas with cross-traffic an automatic sliding door is recommended, since the swing door detects the cross-traffic as an obstacle and its function is impaired.

Please note:

Hinge side: The door moves towards the user – this means that more movement area is required.

Opposite hinge side: On account of the door's opening direction, less movement area is required.



Arrangement of operating elements

Horizontal distance for frontal "approach" on the hinge side:

min. 250 cm

on the opposite hinge side:

min. 150 cm

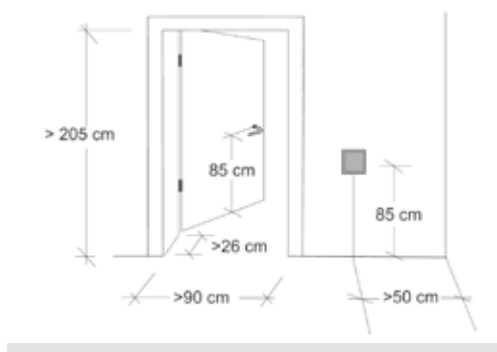
Control height (axle dimension above OFF):

85 cm;

Deviations up to 105 cm are permissible (exception door handles)

Distance to obstacles at the side:

50 cm



ECturn

The new electro-mechanical ECturn is used to quietly and conveniently open doors automatically or manually and close them automatically. ECturn makes life simpler and easier – particularly for persons in need of extreme care, for example, those who have difficulty walking or small children. Designed for interior doors, where barrier freedom is important, ECturn is the ideal solution, for room doors in hospitals, care institutions and assisted housing. The ECturn has been designed for maximum leaf widths of 1100 mm and weights of up to 120 kg and can be operated both in low-energy mode or in automatic mode. An optional battery ensures maximum safety in the event of a power failure. This is particularly important for weaker people or those who have difficulties walking.

Slimdrive SD-F(-IS) Servo:

The door opens without force being necessary thanks to power-assisted drive. Activated by sensor or switch contact. If activation is interrupted, if the handle is released, for example, the opening process is not continued. The door closes automatically after use. Slimdrive SD-F(-IS) is approved for single and double leaf fire doors. In the case of double leaf doors, the closing sequence control is integrated.

Slimdrive EMD/-F/F-IS

Slimdrive EMD/-F/F-IS is extremely quiet, the door can be moved without effort. Its design height is only 7 cm! The system is extremely flexible thanks to the wide range of different connection possibilities such as a motor-driven lock or display programme switch. The Slimdrive EMD-F (-IS) is approved for use on single and double leaf smoke and fire-proof doors. The push-and-go function can be switched on if required.

TSA 160NT (F / IS)

This is an electro-hydraulically driven automatic drive system for the fully automatic opening and closing of doors. The non-contact triggering with monitoring of the swivel range by safety sensors (the door stops as soon as a person steps into the scanned area) can be used e.g. in areas with bed transport (special key switch for earlier activation of the door). The hold-open time can be adjusted with double leaf doors. The TSA160NT (F / IS) also has an integrated closing sequence control and is also suitable for use on single and double leaf fire-proof doors.

Please note:

In addition, a smoke switch control unit, any smoke detectors necessary according to the guidelines for hold-open devices, circuit breakers (manual trigger switches) according to the guidelines for hold-open devices, an electrical door opener (approved for fire-proof doors) and a mounting plate are required for the drive.

Please note: All GEZE drives are type-approved and certified to DIN 18650.

8. Individual services

The safety and functionality of doors in hospitals must be always ensured. The availability of facilities, property value retention, safety and the economical enterprise are essential criteria, which need to be considered when it comes to service and maintenance. In addition there exist legal inspection intervals, the constantly changing legislation and the various functionalities in the building. This creates additional requirements particularly for the service partner.

Quick response times and fixed time frames need to be kept, particularly in heavily frequented areas. High safety requirements result from movement restricted users. Maintenance work must be accomplished



within law frequented time frames. Internal and external activities are dependent on the qualification and overall performance of the internal technical personnel and need to be flexibly divided. Hygiene requirements must be met during service works, particularly in operation and intensive care areas.

8.1 The GEZE Service package and its components

Maintenance and repair

Inspections, maintenance and repairs can be carried out with variable division between own and external services, depending on the qualification and degree of efficiency of the in-house staff. A central spare parts logistics service is possible with 24-hour express deliveries for spare parts supplies. The experts from GEZE Service provide immediate "first aid" when problems occur. Problem messages can be communicated online via password-protected access to the GEZE Service customer portal, and master data and system history can be viewed.

Documentation

Documentation takes place electronically with the aid of automatic system detection rather than by means of laborious test log books.

The results are:

- Efficient implementation of maintenance and inspection work thanks to automatic system detection using Bluetooth/RFID technology
- Recording of maintenance data with the aid of a personal digital assistant (PDA) e.g. a palmtop
- Automatic provision of the product-specific maintenance checklist
- Automatic provision of a transfer file for the documentation to any systems (e.g. CAFM, Maintenance software)
- Free provision of the recording hardware for the trained technical staff during the contractual period

Qualification

In an inclusive contingency for qualification measures for technical staff, technical knowledge, product know-how and special system know-how seminars are offered for technical staff in large properties. Alongside the product training events, we also offer lectures on changing laws and guidelines.

The GEZE Service package provides clear advantages:

- Flexibility in the performance of in-house services in the contractual work
- No loss of competence and know-how in the technical department
- Significantly more efficient implementation of inspection and maintenance thanks to Bluetooth/RFID technology
- Comprehensive and legally binding documentation if required in the clinic's own CAFM system
- Comprehensive service performance even for other manufacturers

II FUNCTIONAL AREAS

1. Entrance area

1.1 Main entrance foyer



Requirement:

Foyers and main entrances often demand high standards of aesthetics and architecture. Even in hospitals they often have a hotel-type look about them, are heavily frequented and thus need large opening widths, energy saving options, barrier freedom and emergency exit function.



Solution:

In very many cases, a draught lobby with sliding doors is chosen. The advantage of this solution is that it not only copes with a high passage frequency, it also achieves temperature balance.

Please note: A draught lobby structure with linear sliding doors should be < 4 m deep so that draughts can be avoided. A combination with an air curtain may be ideal (not standard, purchased by GEZE from TTL).

Alternative 1: Revolving door

This solution is highly representative and avoids draughts. The revolving door is suitable for high passage frequencies. This solution is however not barrier-free.

Alternative 2: Circular sliding door

The advantages of this solution are its representative character and barrier freedom. The circular sliding door should be fitted with an air curtain to avoid draughts.



GEZE's recommendation:

Draught lobby: outer door fitted with Slimdrive SL FR-RWS as an optimum solution. The outer door is fitted with a locking device (in accordance with insurance protection requirements) which still releases the door in an emergency and in the event of a power failure. The door control unit must be planned with an emergency off-button. The inner door is fitted with SL-FR without locking device.

1.2 Side entrance / staff entrance



Requirement:

The requirements made of these entrance systems are simplicity, safe passage and the possibility of barrier-free equipment. Employee entrances are being equipped more and more often with access control systems. In addition, the door is often used as an emergency exit. In the most compact case, this door is used as a fresh air solution for smoke and heat extraction.







Solutions:

Different combinations of swing door drives – single and double-leaf with access control, combined with emergency exit RWS system, often also as inversely fitted drive for fresh air for smoke and heat extraction.

(1) Outer door with door closer and access control: With the simplest variant, the door is fitted with a manual door closer, possibly with access control. This variant is however not barrier-free.



(2) Outer door with swing door drive and access control: The fitting of the door with a fully automatic swing door drive, possibly with access control, represents a more convenient solution.

(3) Outer door with swing door drive inversely fitted as fresh air ventilation for smoke and heat extraction, and access control: If the door has to be barrier-free and used as a fresh air opening / ventilation opening in case of smoke and heat extraction as well, an inversely fitted swing door drive is recommended. This opens the door in the current-less state. It remains open until it is closed manually. In certain cases we recommend fitting the door with an access control system.

Please note: Even in the event of a “normal” power failure the door equipped with inversely fitted drive will open. To avoid this, an uninterrupted power supply (USP) should be used.

(4) Outer door with inversely fitted swing door drive as a fresh air solution for smoke and heat extraction and a emergency exit RWS system for securing the door and access control. If this door has an emergency exit function in addition to barrier freedom and fresh air opening, and if the emergency exit is to be protected against misuse, a emergency exit system is also used. In certain cases we recommend fitting the door with an access control system.



GEZE's recommendation:

Generally speaking we recommend fitting these doors with a barrier-free swing door drive. Depending on the fire protection concept, it also makes sense to equip these outer doors as a fresh air opening for smoke and heat extraction.

1.3 Access (e.g. atrium)



Requirement

New clinic buildings often have “green oases” located in an inner courtyard area. The exits to these have to be barrier-free, often have an emergency exit function and can also be used to provide fresh air for smoke or heat extraction.



Solution

Different combinations of swing door drives – single and double leaf, combined with an emergency exit system often also as inversely fitted drive for fresh air for smoke and heat extraction.

(1) The outward opening outer door is fitted with an overhead door closer with T-stop guide rail (mounting on the opposite hinge side). The combination of the guide rail door closer with the T-stop guide rail is recommended since a separate floor stopper may not have to be used. This solution is not barrier-free and suitable for daily access. (Consider the wind conditions!)

Please note the maximum door opening angle of approx. 120° with a guide rail door closer. If this should not be sufficient, a link arm door closer TS 4000 must be used.

(2) The outer door is fitted with a swing operator; this is a more convenient and barrier-free solution. Opening angle up to about 110°. The door drive can also be controlled through a digital timer which allows patients to use the outer area with force support during a defined time window.

(3) The outer door is fitted with an inverse swing operator as RWA fresh air; this makes the door barrier-free and allows it to be used as a fresh-air opening / ventilation opening for smoke and heat extraction. The inverse swing operator opens the door in a current-less state and keeps it open.



Please note: Even in the event of a “normal” power failure the door equipped with inverse drive will open. If this is to be avoided, an uninterrupted power supply (UPS) must be used.

(4) Outer door with swing door drive inverse as a fresh air solution for smoke and heat extraction and an emergency exit RWS system for securing the door. If this door has an emergency exit function as well as barrier freedom and fresh air opening, and if the emergency exit is to be protected against misuse, an emergency exit RWS system is used in addition.

Note:

A fresh air solution for smoke and heat extraction does not make sense if the doors are allowed to be used by patients!



GEZE recommendation

Generally speaking we recommend fitting such doors with a barrier-free swing door drive. Depending on the fire protection concept, it also makes sense to equip outer doors of this type as a fresh air opening for smoke and heat extraction.

1.4 Ventilation elements / fresh air opening in facade / RWA application



Requirement:

In the foyer, windows are used for ventilation and/or for smoke and heat extraction. Doors and windows can be used as fresh air systems for smoke and heat extraction. Ventilation panels are fitted as manual or electric fanlight panels in the classical application case. In more rare cases, the fanlight panel is also used for smoke and heat extraction on account of its small size. On account of their location at the highest points on a building, skylights or light domes are excellently suited for ventilation and extraction in the event of smoke and heat development.



Solution

For ventilation purposes, manual fanlight openers or 230 Volt drives are recommended (electric motor for scissor opening, chain drives, opening and locking systems OL 350 EN and OL 360 EN, spindle drive if appropriate).

24 Volt drives with an emergency power supply unit are suitable for smoke and heat extraction (electric motor, chain drives, RWA 100 / 110 system, spindle drive if appropriate). To ensure the windows close automatically in respective weather conditions, a rain/wind control unit has to be used. The smoke and heat extraction function always takes priority over the ventilation function.

For doors, there are different combinations of single and double leaf drives possible as fresh air solutions, which can be extended by emergency exit RWS system and/or inverse function for heat and smoke extraction. Panic bars are recommended on swing doors on escape routes (with combination escape route + RWA-Invers).

1.5 Escape balconies

These connect the balcony and an external staircase. The possibility of an emergency exit is given in both directions.

Requirement:

To avoid unauthorised access by patients from other wards, the use of emergency exit RWS control units can be sensible.

Solution:

Emergency exit RWS systems with escape route in both directions. The direction of escape can be from rooms in one fire section via the balcony into another fire section, or from the fire section out onto the balcony. This allows the fire brigade to set up escape ladders.

2. Cafeteria / Canteen



Requirement:

In catering areas it is important to create a transparent, open and bright atmosphere. This is achieved with the aid of glass elements that can be completely opened if necessary.



Solutions:

Access doors on the inside of the building to the cafeteria area can be made as all-glass doors with floor spring door closers. Permanent opening is possible in the summer. In the winter, the doors are closed again with the aid of the floor spring door closer. If barrier freedom is required, the all-glass doors can also be fitted with a swing door drive.

Further access possibilities can be achieved with manual all-glass sliding wall systems (MSW) which create generous and inviting opening widths in the summer. The glass elements are stacked in the parking position. In the winter, the MSW system can be kept closed, access to the cafeteria is made possible through the manual swing or sliding door leaf integrated in the MSW system.

Access from the cafeteria to the outside of the building is usually through outer doors in the facade system. Here, door closers with hold-open function are a favourable variant, particularly for use in the summer. The use of a swing door drive is a convenient possibility here. In the summer, the swing door drive can also be set to permanently open. In the cooler seasons, particularly in spring or autumn, the swing door drive represents a barrier-free and extremely convenient possibility for the patients to use the outdoor facilities.



GEZE recommendation

Access from the inside with an MSW system for an inviting, large and transparent opening width. Access to the outdoor area through the fitting of a swing door drive.



3. Kitchens / supply area



Requirement:

For these applications, sliding door drives and moving leaf drives that are hygienic and easy to clean are required.



Solution: & GEZE recommendation

Sliding doors with heavy leaf weights e.g. GEZE Powerdrive with leaf weights of up to 200 kg. Depending on the requirement, triggering is by means of a movement sensor, e.g. key, pull switch or foot contact switch.



4. Administration



Requirement:

Two things are required here: On the one hand, safe access for administration personnel; on the other access is to be made difficult for patients. An access control system regulates "who" may enter "where and when". the public area for patients and visitors should be separated from the areas only accessible to hospital staff. The swipe card access system can be used as a working hours recording system for the employees at the same time. In many cases, access to administration areas are emergency exit doors as well. Access is designed barrier-free. The optical aspect should not be neglected in the administration area either. For this reason, high-grade door systems are preferably installed for such applications.



Solutions & GEZE recommendation:

If the offices are to be fitted with smoke doors, the installation of an integrated door closer (Boxer) with free-swing function is recommended. One variant is the overhead free-swing door closer TS 5000 FRS or TS 5000 EFS.

The access doors in the administration wing are usually closed and can only be passed through after clearance. This means that the access control unit e.g. GEZE door control unit releases the door through an intercom system and allows the correct entry of visitors who have been authorised first. In addition, the door can be monitored for manipulation attempts. If barrier freedom is also required, we recommend a swing door drive for this application.

High-quality access without access control and without barrier freedom can also be fitted with an invisible" floor spring door closer, e.g. TS 550.

Where there is little space in meeting rooms, manual sliding doors can be used in place of swing doors. For optical reasons and to create transparency Aerolan, Geolan or manual glass sliding doors can be used, for example.

Emergency exit doors into an emergency exit stairwell are often fitted with an emergency exit RWS system e.g. TZ 320 for internal reasons.

5. Shops



Requirement:

Access should be friendly, inviting and open. Patients should be able to visit shops within the hospital without assistance wherever possible.



Solutions & GEZE recommendation

Depending on the branch, the use of a small manual sliding wall (MSW) is recommended. For barrier freedom, the use of a swing door drive makes sense, but it is often not realised for reasons of cost. The installation of a hold-open mechanism in the guide rail of the overhead door closer or in the floor spring door closer is certainly recommended.



6. Stairwells

6.1 Exits (facade door) in the stairwell

? Requirement:

Pure emergency exit doors in separate emergency exit stairwells are required. The respective doors should be secured against misuse from inside and outside, but should be able to be opened quickly in the event of an emergency. Alternatively, the ward doors can be fitted with access control in the entry direction too so that the doors can also be passed by people coming via the stairwell.

! Solution:

Refer also to the explanations and problems described in chapter 1 in the basic section.

In our experience, these doors are often out of the way and not given too much attention by the technical employees in the hospital. For this reason, we recommend fitting these doors with an emergency exit system with bus connection. The doors can be passed through with local authorisation (e.g. through a key) without an alarm being triggered and are released in the event of an emergency with the aid of the red panic button. It may be sensible to connect more remote doors to the fire alarm system, so that the doors are already unlocked in the event of a fire. The advantage of connection to a bus controlled system is that the doors can be controlled through a control unit. The control unit allows doors to be released remotely, allowing authorised passage of the door.



GEZE recommendation

Outer doors with bus-capable emergency exit RWS system and an overhead door closer are recommended.



6.2 Door control unit with operating elements on the outside

The door control unit with operating device is mounted in the dry area. The emergency button and the key switch with IED indicator are mounted on the outside. The IED indicator is required according to EL-tVTR.



6.3 Windows (RWA / ventilation) in stairwells

? Requirement:

In the stairwell, windows can be used for ventilation and/or for smoke and heat extraction. The lowest window is usually used as the intake air window, the highest window on the facade is installed as an extraction window, i.e. as RWA window. Skylights or light domes are excellently suited for ventilation and extraction in the event of smoke and heat development, since they are at the highest points on the building.

! Solution:

24 Volt drives with an emergency power supply unit are used for smoke and heat extraction (electric motor, chain drives, RWA 100 / 110 system, spindle drive if appropriate).



GEZE recommendation

A small RWA stairwell centre E 260 N with motors according to specific recommendations.



7. Transition area (doors between wards)



Requirement:

Bulky beds, rushing staff, patients who may have difficulties moving at all. Hospital corridors have to provide a lot of space, and their doors must open reliably and automatically. During the day, passage should be possible for all patients and visitors, at night, patients should be prevented from entering other wards.



Solution:

The use of a hold-open device is recommended. In most cases, the requirements include smoke and/or fire protection in combination with an emergency exit RWS system which secures the doors e.g. with the aid of a digital timer or a settable time profile for access control depending on the time of day. Disadvantage: if the doors are released from their hold-open position during the day, they present a significant problem for the staff's workflow. In addition, barrier freedom is no longer guaranteed. The use of swing operators can get round this problem. This solution usually offers advantages in combination with the emergency exit RWS system.



GEZE recommendation

Swing door drive combined with an emergency exit RWS system.



8. Function and treatment rooms / doctors' rooms



Requirement:

The access should be simple, have a high-quality and attractive appearance and be able to be locked.



Solution:

If fire protection requirements need to be met, an integrated free-swing door closer (Boxer) can be used to create a both function and high-quality look door system. The free-swing door closer also meets barrier freedom requirements. If the door also has to fulfil an emergency exit function, the use of a panic lock is a must. The door can still be locked from the outside when the room is not in use. The use of a swing door drive only makes sense in exceptional cases. In combination with access control, a so-called "office" function can be used. For example, an authorised person opens the door by means of an ID; the door remains passable until a further authorised booking is carried out at the door reader.



GEZE recommendation

A solid wooden door with integrated free-swing door closer (Boxer) and panic lock (IQ Lock M).

8.1 Intensive care



Requirement:

Intensive care units should be quickly accessible for authorised persons.



Solution:

Depending on the door situation we recommend a single or double leaf door system with swing door drives that make fast opening possible. From the outside, the drives can be triggered e.g. by a handheld transmitter, a number keypad, a key switch or a non-contact transponder system of access control. This means access can be restricted to authorised persons only. There is a door knob on the outside. Visitors can request access through an intercom system. The doors can then be opened by means of a pulse transmitted through the intercom. From the inside, the doors can be triggered e.g. by a switch and can be passed manually at any time. There is a door handle on the inside to enable the doors to be opened even without contact sensor in an emergency. An emergency exit RWS system can be installed on the outside to enable the doors to be opened in an emergency.

The use of IGG (integrated all-glass) sliding or swing doors is possible in the intensive care area. These can be cleaned germ-free.



GEZE recommendation

A swing door drive is recommended, from the outside only authorised passage and a knob are possible, on the inside a switch and door handle are available. An emergency exit RWS system on the outside allows the doors to be passed in an emergency.

8.2 Operating theatre area

From today's point of view, manual operating wing doors in new buildings are not suitable for reasons of hygiene, although they are still installed in many buildings built in the 1960s and 1970s.





? Requirement:

Access to the operating wing can be made possible either through single or double leaf swing doors with drive or through a standard sliding door. Only authorised persons should be able to access the operating wing from the outside. Access control not only makes sense here, it is also necessary. The exit can be realised using a movement sensor or switch.

Operating theatre doors have to be sturdy, easy to use – opening for nurses and beds, and a viewing window that can be darkened by a blind – a function that can also be useful when x-ray or laser work is carried out in the operating theatre. Depending on any specialist treatment given in the room, the door leaf must also meet radiation or sound-proofing requirements. A non-contact trigger integrated in the door leaf is the most elegant solution. For one thing, this prevents faulty triggering by cross-traffic in the corridor, and for another the non-contact trigger fulfils the strict hygiene requirements. Access to the laboratory or research areas is often made possible through active or passive lobby controls (active lobby system: all the doors involved are permanently locked. If one door is temporarily unlocked, the other doors are blocked. Passive lobby system: all the doors are closed but not locked. If one door is opened, the others are blocked.) A door handle for the manual opening of the doors is not recommended for reasons of hygiene, here is a flush pull possible, for example, so that the door can also be moved without power.

! Solution:

Access to the operating wing can be through single or double leaf swing doors including drive, they have a door knob fitted on the outside. Only authorised persons can trigger the door, e.g. through handheld transmitter, number keypad or key switch. From the inside, the door is triggered by a switch or movement sensor and handle fitting for manual passage. Here, too, an emergency exit RWS system makes sense on the outside, to prevent access to unauthorised persons, at the same time making the doors passable by pressing the red emergency switch. The operating theatre sliding doors can be equipped with single or double moving leaves. Non-contact triggering should be integrated in the door leaf to minimise cabling work. The door leaves should be resistant to disinfectants, sturdy and fitted with collision protection at bed height. In addition, jointless signs can be integrated in the door leaf, e.g. „Do not enter – X-ray“. Furthermore, a viewing window that can be darkened when necessary can be integrated.

Hermetically locking doors can also be installed for sound-proofing requirements.

Door leaves with lead inserts are suitable for radiation protection applications.



GEZE recommendation

The use of the Powerdrive operating theatre drive is recommended. A push-and-go function is not recommended. Thanks to the flush pull handle in the door the doors can also be passed when there is no power; an integrated jointless viewing window with blind for darkening the operating theatre and nurse and bed opening are also recommended. Permanent opening for cleaning purposes should not be at hand height if possible, rather at about 20 cm above floor level (OK FFB). This prevents the doors being open permanently and disturbing the ventilation function in the operating theatre.

For use in clean rooms or if sound-proofing requirements have to be met, we recommend use of the Powerdrive drive with the same operating and equipment elements described above. Both system types can also be used in x-ray rooms, the door leaves have to be designed accordingly in this case.

9. Wards

9.1 Stairwell access

In the case of stairwells used exclusively as emergency exits, these doors are not as important since they are not used very often.

? Requirement:

Usually single leaf smoke and/or fire protection doors with a simple immediately closing door closer without hold-open function are requested.

! Solution:

The GEZE TS 3000 or 5000 is recommended, depending on the width of the door leaf. If stairwells are integrated in staff routes, it sometimes makes sense to equip doors of this kind with swing operators. If the stairwell doors are to be locked at night, and if it is to be avoided that patients use them to reach other wards, passage can be made more difficult by using an emergency exit RWS system.



GEZE recommendation

An immediately closing guide rail door closer can be recommended, or a swing door drive in combination with an emergency exit RWS system. The use of a link arm door closer is not recommended since the link arm can be manipulated by bending. A free-swing door closer is not recommended for stairwell doors either, since the doors would remain open all the time. This can lead to draughts and increased energy costs.

9.2 Access doors to wards

The access doors to wards are automated to 99%, have to meet smoke and/or fire protection requirements and are easy to pass through thanks to convenient movement sensors.

? Requirement:

Required are optically filigree, translucent, usually double leaf door structures with swing door drive. Comfortable and straightforward passage of the doors with the aid of automatic door opening through movement sensors should be possible. Access to the ward should be closed at night. If appropriate, both doors should be equipped with an emergency exit RWS system on both sides, making unauthorised entry to the wards more difficult. In an emergency, however, the door can be opened from both sides by pressing the emergency button with simultaneous alarm. For cost reasons, a double leaf hold-open system can also be used, which however does not make barrier freedom possible if the doors are closed. Equally, the additional time required for the nurses should be considered, since with this door design two nurses are needed to move a bed or the meals cart. With hold-open systems it must be considered that keeping doors open can have an unfavourable effect on energy consumption or heating costs.







GEZE recommendation

We recommend equipping the tubular frame doors with swing door drives and an emergency exit RWS system.



9.3 Patients' rooms



Requirement:

Room door: If smoke and/or fire protection requirements apply for patients' doors, the use of an integrated or overhead free-swing door closer makes sense, since in this case simple and convenient passage of the door is possible, although the door closer system keeps the door safely closed in the event of smoke or fire.

Bathroom: Manual sliding doors are recommended in bathrooms for reasons of space. Safe movement of the sliding leaf to its final position is guaranteed by the integrated draw-in damping. A further positive aspect of the draw-in damping is the minimisation of stopping noises. In upgrade rooms, the use of a comfortable automatic sliding door with a GEZE Perlan AUT is possible. The sliding door fittings can be equipped with wooden, plastic and glass (toughened safety glass) leaves.

In old people's homes, two residential units sometimes share a bathroom, where a toilet control system can be used for automatic sliding doors (Perlan AUT). As soon as the bathroom is entered from one side, the other door is automatically locked. This is indicated by a red lamp in the bathroom and in the room. When the bathroom is vacant, a green lamp lights up in both rooms and in the bathroom. Access to the bathroom is made easier by the automated sliding leaf. Not least on account of ever shorter construction periods, bathrooms are often pre-fabricated in modular form. Sliding doors are excellently suited in these cases, too.

Separation of sleeping and recreation area: In addition, the synchronised double leaf sliding door fitting DuoSync makes it possible to separate the sleeping and recreation areas in comfort rooms. With the

DuoSync, both leaves are opened and closed with only one grasp comfortably.

Windows: They are easy to operate with a small opening width in the fanlight area. Windows in patients' rooms are often only equipped with a tilt function. If patients are bed-ridden, we recommend making the windows operational from the bed. Shading systems with Perlan Telescope provide large-surface, comfortable and reliable protection from sun radiation. Two or three-part shading systems can be realised. Perlan Telescope can be delivered in a manual or automatic version. Here, too, we recommend bed-side control for bed-ridden patients.



GEZE recommendation

- Room door: We recommend the use of a free-swing door closer if smoke and/or fire protection requirements have to be met.
- Bathroom: Here we recommend the use of a manual or automatic sliding door with SoftStop draw-in damping.
- Windows: Skylight casements can be equipped manually or electrically for cross-ventilation in corridors, compulsory ventilation may be able to be triggered through the building control system (GLT) or by measuring the concentration of carbon monoxide. A well thought-out concept allows patients' wellbeing to be made possible through intelligent ventilation with a minimum of energy. The shading system with Perlan Telescope AUT can be operated from the bed.



9.4 Toilets for the disabled

The installation of one or two toilets for the disabled per floor is recommended.



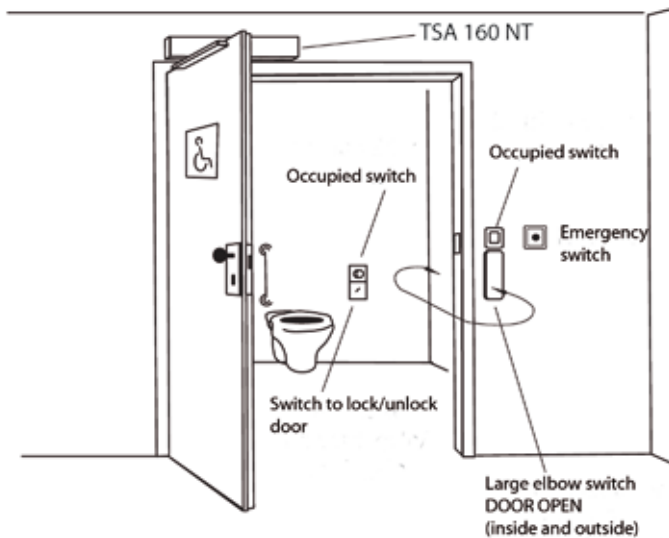
Requirement:

A door that is simple to pass and provides a maximum of safety is required, in order to prevent people entering from the outside when the toilet is occupied. The door is fitted with a swing door drive incl. toilet control.



Solution & GEZE recommendation

The TSA 160NT is recommended, which allows simple triggering through a large-elbow switch. The following functions are carried out when the switch is actuated: lighting "occupied" inside and out, door locked. In an emergency, the door can be opened from the outside. Use is however only possible on single leaf doors!



9.5 Visitor toilets

? Requirement & ! Solution:
The door should usually close automatically.



GEZE recommendation

Standard door closers are recommended. The TS 1500 allows safe door closing with leaf widths of up to 1100 mm.

9.6 Technical rooms

The standpipe shafts for distribution of power cables are equipped with a wooden door and door closer on the floors. The archive and technical rooms are usually in the basement – the doors used here are often metal doors with overhead door closer, because they are designed as smoke and fire doors.

? Requirement & ! Solution:
There are no special requirements made on the door. It should usually close automatically, which means a standard door closer is suitable.



GEZE recommendation

The link arm door closer TS 2000 or TS 4000 are recommended for installation on opposite hinge side. The guide rail door closer TS 3000 or TS 5000 are suitable for installation on the hinge side in the corridor area. Under certain conditions it makes sense to equip these doors with a hold-open device, for example in order to prevent the doors being kept open permanently by wooden wedges during work in the rooms.

9.7 Nurses' rooms

? Requirement & ! Solution:
They should be easy to enter, have a high-quality appearance, have partly non-translucent surfaces, possibly all-glass solutions or at least be fitted with glass windows. Access control by means of an "office" function is suitable for door opening for this application. This means the room can be entered for as long as until someone uses the access

control reader. The nurses' room is the optimum position for the installation of a control panel for a emergency exit or building system.



GEZE recommendation

If smoke and/or fire protection requirements have to be met, hold-open devices are recommended. Easy passage is made possible by a free-swing door closer that closes the door safely in the event of smoke or fire. Emergency exit doors that are equipped with the ward's rescue route system can be connected to a control panel or a building system. The control panel can be placed at a central position in the nurses' room.

9.8 Ward and corridor doors

? Requirement:
With the fire section doors on the wards, it makes sense to keep the doors open permanently through the hold-open function in the door closer to prevent obstacles in staff's paths. They should however close securely in the event of smoke or fire. If an emergency exit function is required, the doors should be equipped with door handles in the direction of escape. If no safety requirements have to be met, a simple latch lock is sufficient.



GEZE recommendation

Panic bars are recommended on swing doors on emergency exits in as far as panic door requirements exist and there is no emergency door available. The doors should be fitted with a hold-open device. The hold-open device in the guide rail is possible up to about 130°. If a hold-open position up to about 180° is required, this has to be by means of retention magnets.

9.9 Children's ward

? Requirement:
Children's wards can be compared with normal wards but they have increased safety requirements. Access to the children's ward should only be possible for authorised people. For this purpose, an emergency exit RWS system is installed both in the outside and inside area. Access control from the outside is a must in this area. It must be remembered that this is a more or less public area, since parents and hospital staff are authorised to enter. Since authorisation for parents and family members changes continuously, access for these people should be through a PIN code or through biometric fingerprint, since cards and passwords can easily be passed on. This means the door can then be passed from the outside without an alarm being triggered. From the inside, the door can be passed by pressing a switch or through an exit reader without an alarm being triggered. If barrier freedom is required, a swing door drive is necessary. Triggering from the outside and inside takes place e.g. through the emergency exit RWS system or the access and exit control. In the event of an emergency on the children's ward which requires the immediate intervention of a doctor, access is made possible by pressing the red emergency switch. At the same time, an alarm has to be given on site and to security staff if appropriate to make misuse more difficult. In the event of an emergency on the ward which requires people to flee the ward, the emergency exit is also cleared by pressing the red emergency button. In this case, too, an immediate alarm is given on site and forwarded to the security staff if appropriate.



GEZE recommendation

We recommend fitting the door with a swing door drive to guarantee barrier freedom. The installation of an emergency exit RWS system and access control system provides maximum safety.

9.10 Recreation rooms



Requirement:

Light and friendly recreation rooms that are easy to enter are required.



GEZE recommendation

Doors with maximum glass section are recommended. A free-swing door closer is recommended for comfortable passage, which closes the door safely in the event of smoke or fire. In certain cases, the use of a swing door drive can be sensible, e.g. if the door should always remain closed to prevent draughts.



9.11 Special wards

The use of emergency exit systems without local emergency button is possible (in accordance with EltVTR (DIBt 5/98) paragraph 2.6, paragraph 3.1.3 and construction regulation list a part 1) to secure the escape doors in special situations e.g. quarantine wards, psychiatric wards or wards for dementia patients.

There is a key switch on the door which allows authorised people to pass. Quite often, a fire alarm system is connected so that the doors are automatically unlocked in the event of smoke and fire. For electrical locking systems that are released centrally and do not have a local emergency button, the EltVTR requires permanently occupied monitoring staff. The most senior building authority in the country must approve exceptions in individual cases for the use of emergency exit systems without local emergency button.



Requirement:

People in "secure departments" must not be able to leave the ward unnoticed.



Solution:

An emergency exit system is attached to the emergency exit doors and doors to be monitored. This is equipped without local emergency button. The control panel can be mounted e.g. in the nurses' room

which is inaccessible for patients. There is a central emergency button located here. This emergency button can be used to open all doors. In addition, the system can be connected to a fire alarm system, so that the doors automatically unlock when a certain signal is received. Staff can pass through the doors from the inside or out using a switch key, a number code lock or card reader for access control without an alarm being triggered.

10. Lobbies

If there are lobbies on emergency exits, such as in the operating wing, laboratory and quarantine areas, these should be made passable with the maximum possible operating safety. On the other hand, the lobbies should be freely passable in the case of panic.



Requirement:

The possibility of opening several doors at the same time should be prevented. There is active or passive lobby control available for this. Active lobby system: all the doors involved are permanently locked. If one door is unlocked briefly, the others are blocked. Passive lobby system: all the doors are closed but not locked. If one door is opened, the others are blocked.

This can be realised with swing and sliding doors.



Solution:

The doors – with passive or active lobbies – in one group mutually lock each other. The lobby relation can be changed at any time through simple parameter setting. Signal light indicators can be triggered through the programmable relay of the door unit TZ 320. These functions are used exclusively for swing door leaves with emergency exit requirements (through the TZ 320).

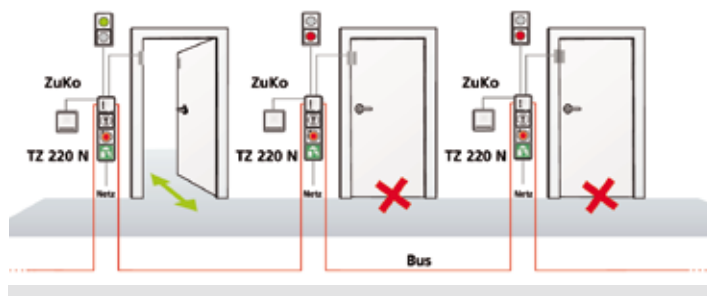


GEZE recommendation

The use of GEZE lobby control systems is recommended for the following lobby situations:

- from a total of three sliding doors (DCU)
- with mixed systems (automatic/manual swing door, automatic sliding door or similar)
- with complex requirements on lobby relations and/or the indicators
- with draught lobbies with the requirement "follow-on control" and/or "separate control"

Lobby control systems guarantee one hundred percent that only one door has priority for opening even if they are all triggered at the same time. It is possible to set up several lobby systems in one building wing both locally and centrally (e.g. in the on-site energy room).





11. Other

These days, many hospitals have a driver-less transport system that uses automatic swing door drives or hold-open devices with fire protection equipment.

Non-public areas require different door characteristics, e.g. access protection or especially hygienic solutions for the kitchen.



III PERFORMANCE PHASES IN BUILDINGS

Normally, nine performance phases are passed through when a construction project is realised. This results in different tasks and possibilities of influence for the building consultant. Some of these possibilities are examined in more detail below.

Building phases	Potential building consultant / commercial/technical consultant	Questions	The relevant contacts?
1. Determination of the basics			
Clarification of the task set with the client			
Consultation with the client on the overall performance required	Reference viewing for the architect subject to suggestions for the architect, constructor, investor	Will the draft architect also drive the execution planning and / or the assignment? Have decisions already been made for further specified planners, traders or others involved in the project? Budget size? Is barrier-free planned?	Architect, constructor, investor
Wording of decision aids for the selection of other specialists involved in planning			
Summarising of results			
2. Preliminary planning (project and-planning preparation)			
Analysis of the basics			
Agreement of targets with the client (basic conditions, target conflicts)	Realise the constructors wishes	Inventory of the planned construction project	Architect, constructor, trader
Setting up of a planning-related target-catalogue			
Preparation of a planning concept with drawings and explanatory details if necessary	Support mainly the entrance area, possibly RWS, escape & rescue routes, „parameters“ for design. References viewings for the architect subject to suggestions for architectural data FPR service topics	Basic evaluation: What type of entrance area? Is the specialised planner known? Ask about general time management: When must the compilation of the door be prepared? Will the trader be involved? Is the tender already open, limited, functional, neutral? Contract price? Is there an investor / owner occupant?	Architect
Integration of the services of others in the planning of specialists involved			
Clarification and explanation of the main correlations (in terms of town planning, design, function, technology, structural physics, economy, energy efficiency)	Service topics	Interest in life-cycle-costs?	Architect, constructor
Preliminary negotiations with authorities and other specialists involved in the planning on the subject of approval ability	Barrier-free design, emergency exit routes, fire prevention		Architect, constructor



Building phases	Potential building consultant / commercial/technical consultant	Questions	The relevant contacts?
With outdoor systems: recording, evaluating and explaining the eco-systematic structures and correlations			
Cost estimation in accordance with DIN276 or according to the residential calculation laws	Submit cost estimations / reference prices for "modules" (complete elements e.g. price for the RWA equipment in the whole building, revolving doors etc.)	Are recommended prices needed for the products? "Sample invoice" as a calculation base with single components	Architect
Putting together all the preliminary planning results	Provide photo material for presentations	CD Rom with photos from image library including search function	Architect
3. Draft planning (system and integration planning)			
Working through the planning concept (in terms of town planning, design, function, technology, structural physics, economy, energy efficiency etc.) to the complete draft	Parameters from LPH 2 specified & detailed	Potential can be roughly requested:- Number of fire proof doors?- How is the functionality of the doors described?	For doors and architect, for entrance area & RWA and facade planner, specialised planner, constructor
Integration of the services of others in the planning of specialists involved			
Building description:	Details of specifications, which differ from the competition, provide; image material from products, visit showrooms, information about current novelties		
Drawings of the complete draft (e.g. complete draft drawings; with room-forming constructions: wall procedures), detailed plans if appropriate.	IGG (integrated all-glass)		
Negotiations with authorities and other specialists involved in the planning on the subject of approval capability			
Cost calculation in accordance with DIN276 or according to the residential calculation laws	Deliver detailed cost indications (assembly-costs)	Are recommended prices needed to estimate costs?	
Cost control by comparing the cost calculation with cost estimation			
Summarising of all draft documents	Documentation, notes for the file, protocol		
4. Approval planning			

Building phases	Potential building consultant / commercial/technical consultant	Questions	The relevant contacts?
Preparing documents for the necessary-approvals / agreements inc. applications-for exceptions and exemptions	Provide certificates, test certificates, support for approach (how it is done elsewhere? What definitely needs to be done?)		
Submission of these documents			
Completion and adaptation of the planning documents, descriptions and calculations taking contributions of other specialists involved in the planning into account	Documentation		
With outdoor systems and room-forming constructions: check on necessary approvals, gain agreements and approvals			
5. Execution planning			
Work through the results of the performance phases 3 and 4 using the contributions of other specialists involved in the planning through to a solution ready for execution	Detailed specifications (eg. electrically connections, dimensions etc.), CAD data, connections details, visit reference projects, show alternatives	For RWA: define ventilation shaft, need for SHEV RWA, define type of window , point - product solution. Are emergency exits planned or are they already used? Manual or automatic? When will the door list be prepared?When will support be needed?	Architect + possibly facade end electrical designers. possibly building surveyors (constructor) or user (technical director)
Drawing of the building with all the individual details required for the execution, e.g. execution drawings on a scale of 1:50 to 1:1.			
In the case of room-forming constructions:Detailed representation of the rooms and room sequences on a scale of 1:25 to 1:1.			
Material determination	Prepare details for suitable products / samples	Creation of object related cable plans (duckwork). Availability of object related tenders. Clarification of need to be checked in advance.	Architect + possibly facade end electrical designers. Possibly building surveyors (constructor) or user (technical director)
Preparation of the basics for the other specialists involved in the planning and integration of their contributions through to a solution ready for execution			



Building phases	Potential building consultant / commercial/technical consultant	Questions	The relevant contacts?
Updating the execution planning during building execution	Offering an open house day in office, project consultant shows presence in architect's office		
Cost control	Detailed cost data	Are recommended prices needed?	
6. Preparation of contract awarding			
Determination of quantities as basis for performance descriptions using the contributions of other specialists involved in the planning	Create a list of doors etc. prepare an offer for the basics of the tender, cost data related to the tender as well as to alternatives.	Who creates the tender? From which basis? By reason of implementation planning? Which fabricant has the constructor or the user predetermined? In which trade are sheet steel doors, alu-/steel glass doors, wooden fire proof doors, standard doors with door closers, entrance areas (fascade or single), tubular framed doors, single door drives, escape exits, manual sliding doors (carpenter, door constructor,...) RWA units (electricians, facades) MSW - manual sliding wall system (metal constructors, carpenters, interior fittings, dry-liner?) operating theatres sliding doors (single) AWT respectively guideless transport system (who delivers the controls? - When are the tenders ready and from whom? Request the number of pieces for each product. Fire proof doors: how many with hold-open, single or double leaf closes immediately, swing door drives, inside sliding doors operating theatre sliding doors, emergency exit RWS systems, manual sliding doors (Perlan), glass elements IGG (integrated all-glass) + MSW (manual sliding wall) etc.	In regard to maintenance contract contact: architect, LV's provider, constructor and operator
Setting up performance descriptions with catalogue of performances according to performance areas	Provide modules, check existing text modules for topicality. Provide specifications for GU-AS.	Which specifications are missing? Check whether maintenance can be included in the tender. Which product has already been declared for tender? If neutral tenders requested, are there main makes mentioned in the preliminary remarks? When will contracts be awarded/ when is submission? - Which tender packages are there? - What timelines are involved?	
Coordination of service descriptions of other specialists involved in the planning			

Building phases	Potential building consultant / commercial/technical consultant	Questions	The relevant contacts?
7. Involvement in awarding contracts			
Putting together of the documents for all performance areas			
Obtaining quotations	Creation of offers shows equivalency	Who receives the GEZE Service Maintenance contract	Architect, contractor, operator/ user
Checking and evaluating quotations including setting up a price comparison according to partial services			
Agreeing and putting together services by the specialists involved in awarding the contracts			
Negotiations with those submitting quotations	What is offered by the tenderer? Is influence possible?		
Cost estimation in accordance with DIN276 from unit prices or flat rate prices in the quotations			
Cost control by comparison of the cost-estimation with the cost calculation			
Involvement in awarding the contracts		Awarding of the contract (the technical consultant contacts the fabricant) awarding of the contract, submission date	
8. Building monitoring (site monitoring)			
Monitoring of the execution of the work to ensure correlation with building permission, execution plans, descriptions of performances as well as accepted technical regulations and the relevant requirements	Point-out the external control of the executed operations, on-site control of the delivery situation	Project consultant continues to be the contact person for all product enquiries (alternatively the person in charge for the project). Handover to technical consultant	As before additional construction management
Monitoring of the execution of bearing structures to make sure they comply with the proof of stability requirements			
Coordination of the specialists involved in building monitoring			
Monitoring and detail correction of prefabricated parts			
Setting up and following up a schedule	State delivery time		
Keeping a construction log			
Joint measuring up with company	Conduct measurements		



Building phases	Potential building consultant / commercial/technical consultant	Questions	The relevant contacts?
Acceptance of the construction performances under involvement of the other specialists involved in the planning and building monitoring, noting any short comings	Accompany the technical approval	Who can we send the maintenance contract to?	Architect, contractor, operator/ user
Invoice checking			
Cost establishment in accordance with DIN 276 or according to the residential-calculation laws			
Application for official acceptance and-participation in this			
Handover of the building including summary and handover of the required documents, e.g. operating instructions, test protocols	Prepare technical records documentation for architect (e.g. as a document with certificates, attestations, service records, photos of the object.	Has a maintenance contract been closed? Is there a new construction stage? Are there new construction projects?	Architect, constructor, trader
Listing of warranty periods			
Monitoring the elimination of the shortcomings established during acceptance of the construction work	Also supervise the contractor on the building site		
Cost control by checking the charging of-the work done to the company in comparison with the contract prices and cost estimation			
9. Building support and documentation			
Tour of the building to establish any faults before the validity periods for making warranty claims expire	Possibility to address: follow up on contact and address architect before the period of warranty expiration		
Monitoring elimination of faults	Simultaneous monitoring by the contractor on site		
Involvement in the approval of safety performances			
Putting together the drawings and results of calculation for the building			

IV RELEVANT CONTRACTORS IN THE EXECUTION PHASE

1. Facade contractors

To be requested: automatic custom-made doors included in the facade package or direct placement with a manufacturer.

(Potential: main entrance, outer doors, RWA/windows, fresh air, emergency exit RWS system on outer doors, locks)

2. Contractor for steel doors (cellar / basement, technical rooms)

(Potential: overhead door closers, automatic, emergency exit RWS system, locks)

3. Contractor for tubular frame doors with smoke and/or fire protection requirement (steel, glass or aluminium-glass doors)

(Potential: overhead door closers, automatic, emergency exit RWS systems, locks)

4. Contractor for wooden doors with/without requirement for smoke and/or fire protection

(Potential: overhead door closers, automatic, manual sliding doors, emergency exit RWS systems, locks)

5. Contractor for inner doors without any smoke and/or fire protection requirements (partitions, inner doors such as all-glass doors)

(Potential: overhead door closers, automatic or manual sliding doors, emergency exit RWS systems, locks, IGG (integrated all-glass), patch fittings)

6. Contractor for electric installation (low-voltage electrician – 24V)

(Potential: RWA emergency power control centre, operating elements, emergency exit RWS terminals, access control)

7. Contractor for MSW (Manual sliding wall system)

(Potential MSW)





V BASIC LEGAL CONDITIONS IN GERMANY, GUIDELINES, DIN ETC.

1. Emergency exit solutions:

Guideline covering electric locking systems of doors on escape routes (EltVTR) in the version 1997-12

DIN EN 179: 2008-04 locks and construction fittings – emergency exit locks with handle or push pad for doors on escape routes – requirements and test methods

DIN EN 1125: 2008-04 locks and construction fittings – panic door locks with horizontal actuation bar for doors on rescue routes – requirements and test methods

2. Building system:

DIN EN 50090-3-2: 2004-09 Electric system technology for home and building (ESHG)

Part 3-2: application aspects – application process ESHG class 1, DIN EN ISO 16484-2: 2004-10

System of building automation (GA) - part 2: hardware

3. RWA / Ventilation:

EN 12101-2: 2003-09 Freedom from smoke and heat – part 2, requirements for natural smoke and heat extraction units

DIN 18232-2: 2007-11 Freedom from smoke and heat – part 2, natural smoke extraction systems (NRA), dimensioning, requirements and installation

4. Door closers:

EN 1154: 2003-04 locks and construction fittings – door closing elements with controlled closing process – requirements and test methods

EN 1155: 2003-04 locks and construction fittings – power-driven hold-open devices for swing door leaves requirements and test methods

EN 1158: 2003-04 locks and construction fittings – closing sequence controller – requirements and test methods Guideline for hold-open devices: Version 1988-10

5. Sliding doors:

DIN EN 1527: 1998-12 locks and construction fittings – fittings for sliding doors and folding doors – requirements and test methods

DIN EN 1670: 2007-06 locks and construction fittings – corrosion resistance – requirements and test methods

DIN 18650: 2005-12 locks and construction fittings – automatic door systems – part 1: product requirements and test methods

BGR 232. 2003 Guideline for power-actuated windows, doors and gates

Guideline for automatic sliding doors on escape routes (autSCHR) version 1997-12

EltVTR guideline covering electric locking systems of doors on escape routes, version 1998-12

6. Automatic swing doors:

DIN 18263-4: 1997-05 locks and construction fittings – door closers with hydraulic damping –

Part 4: Door closers with automatic opening (swing leaf drive)

EltVTR guideline covering electric locking systems of doors on escape routes, version 1998-12

DIN EN 1158: 2003-04 locks and – closing sequence controllers – requirements and test methods

7. In addition, the following apply:

Regional building codes for the individual regions

Model building code

Special building codes:

- High-rise buildings
- Schools
- Vocational schools
- Meeting rooms
- Sales rooms
- Guest houses
- Office buildings
- Hospitals
- Industrial buildings





VI MAINTENANCE / REPAIRS

1. Emergency exit solutions: annual inspection by an expert according to internal technical testing codes
2. Building systems: no regulation
3. RWA/ventilation in accordance with DIN 18232-2; DIN 57833-1, internal technical testing code. Please note: in some German federal states, an inspection by an external expert has to be carried out.
4. Door closers: no regulation
5. Hold-open devices: annual inspection by an expert according to the guidelines for hold-open devices
6. Automatic sliding doors: annual inspection: in the case of escape route sliding doors, 2x every year in connection with a maintenance contract with GEZE Service GmbH for 24-month warranty. There is no requirement in the guideline for inspection twice a year
7. Automatic swing doors annual inspection according to technical testing code and DIN 18650 according to the guidelines for hold open devices, if fire door
8. Revolving doors according to manufacturers' specifications and DIN 18650





VII REFERENCES

- Gynecological hospital
- Gynecological hospital
- Psychiatric hospital
- SANA-hospital
- General hospital Barmbek
- Orthopedic rehabilitations hospital
- Barmherzige Brüder hospital
- Clinic
- Destrict hospital Simbach
- Clinic Hospital building
- District hospital
- Clinic company Belimed
- German Federal Armed Forces hospital
- Clinic
- Emergency hospital Berlin-Mahrzahn
- Rheumatism clinic
- Industrial injuries corporation emergency hospital
- Clinic Hof
- Westpfalz-clinic
- Spa garden clinic
- Markus hospital
- Clinic
- Destrict hospital Fürstenfeldbruck
- Rummelsberger Anstalten
- Destrict hospital
- HELIOS clinic Volkach
- Geriatric rehabilitations clinic
- Collm clinic
- Destrict clinic 1.+2. BA
- Reha clinic with 240 beds
- Wenckebach-hospital
- Destrict clinic
- Sophien-Hufeland-clinic
- Hospital
- Quellenhof-Clinic
- Destrict clinic Ebersberg - 2.+3.B
- Clinic Niederlausitz
- Children's clinic Kohlhof
- Destrict clinic
- Medical clinic NOZ (1.BA)
- DRK-clinics Westend
- Clinic Löwenstein
- Reha clinic
- Hospital
- Karl-Olga-hospital
- BRK Rheuma-centre Bad Abbach
- Destrict clinic
- University clinic Kröllwitz
- Health care centre for medical institutes
- University of Bonn
- Civic clinic
- University clinic
- Children's clinic and new development
- Südharz-hospital
- University clinic 2000
- Surgery, internal- and neuromedicine, University
- Clinic Magdeburg
- Civic clinic
- Destrict clinic
- Weissenhof clinic
- Destrict clinic
- Nuclear medicine
- Surgical clinic
- Ulm
- Tübingen
- Greifswald
- Bergen/Rügen
- Hamburg
- Bad Gottleuba
- München
- Hagenow
- Simbach a. Inn
- Augsburg
- Ansbach
- Landshut
- Leipzig
- Oranienburg
- Berlin
- Wiesbaden
- Frankfurt
- Hof
- Kaiserslautern
- Bad Nauheim
- Frankfurt
- Passau
- Fürstenfeldbruck
- Schwarzenbruck
- Ebern
- Volkach
- Würzburg
- Oschatz
- Freiberg
- Bad Bergzabern
- Berlin
- Buxtehude
- Weimar
- Zeitz
- Bad Wildbad
- Ebersberg
- Senftenberg
- Neunkirchen
- Leonberg
- Erlangen
- Berlin
- Löwenstein
- Teltow
- Döbeln
- Stuttgart
- Bad Abbach
- Mittweida
- Halle
- Bonn
- Pforzheim
- Ulm
- Mannheim
- Nordhausen
- Jena
- Magdeburg
- Frankfurt
- Plochingen
- Weinsberg
- Eutin
- Tübingen
- Stuttgart



- Humaine clinic
- Children's clinic
- Geriatric centre
- District and city hospital
- District clinic Hoyerswerda
- Children's clinic
- Clinic Marburg
- General hospital
- Reha centre
- Clinic Dortmund GmbH
- Helios clinic Buch
- State clinic Brandenburg
- Robert-Bosch-hospital
- Pritzwalk hospital
- House no. 4 of Helios clinic
- Karl-Olga-hospital
- Surgery centre
- Clinic r.d. Isar - Clinic
- Heart centre
- Humaine-Vogtlandclinic Plauen
- Hospital
- District clinic Rudolf Virchow
- Clinic Lippe GmbH
- General hospital Barmbek
- Psychiatric hospital Görlitz
- Hospital St. Georg
- Clinic Johannes Wesseling
- Sana-Clinic
- Heart centre
- Diakonissen-hospital
- Städtisches hospital
- Clinic Löwenstein
- OhreKreis-clinic Haldensleben
- Neumarkt hospital
- West ward Uni-Clinic Tübingen
- Ward and medical centre
- -Fertility clinic-
- Diakonissen hospital
- Hessen clinic
- Hospital ward and medical treatment centre
- Marta Maria hospital
- Hohenloher hospital
- Olvenstedt hospital
- Reconstruction hospital
- Reconstruction hospital Ebersberg
- District clinic Ebersberg
- Ziekenhuis Venlo clinic
- Biomedical research centre
- Lamia hospital
- Gaziantep children's hospital
- Travmatoloji hospital
- Bad Saarow-Pieskow
- Wuppertal
- Wien
- Marktredwitz
- Hoyerswerda
- Böblingen
- Marburg
- Wismar
- Bad Eilsen
- Dortmund
- Berlin
- Brandenburg
- Stuttgart
- Pritzwalk
- Aue
- Stuttgart
- Krefeld
- München
- Bad Krozingen
- Plauen
- Grimma
- Glauchau
- Detmold
- Hamburg
- Görlitz
- Hamburg
- Minden
- Berlin
- Köln
- Dresden
- Kaufbeuren
- Löwenstein
- Haldensleben
- Neumarkt
- Tübingen
- Bonn
- München
- Dresden
- Korbach
- Bochum
- Nürnberg
- Künzelsau
- Magdeburg
- Zalaegerszeg
- Ebersberg
- Ebersberg
- Venlo
- Augsburg
- Fontenay aux roses
- Lamia
- Gaziantep Ankara
- Kayaonu Gaziantep

VII REFERENCES



PHOTO: HWP PLANUNGSGESELLSCHAFT MBH, KARL OLGA HOSPITAL



PHOTO: HWP PLANUNGSGESELLSCHAFT MBH, CLINIC LUDWIGSBURG



PHOTO: HWP PLANUNGSGESELLSCHAFT MBH, KARL OLGA HOSPITAL



PHOTO: HWP PLANUNGSGESELLSCHAFT MBH, HNO CLINIC ULM

PRODUCT RANGE

DOOR TECHNOLOGY



GLASS SYSTEMS



AUTOMATIC DOOR SYSTEMS



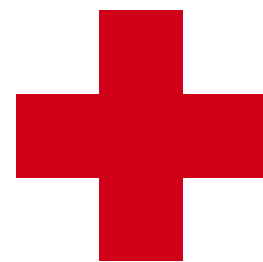
RWA AND VENTILATION TECHNOLOGY



SAFETY TECHNOLOGY







GEZE - SOLUTIONS IN HOSPITALS

Expertise in door, window and safety technology for health care applications.

In hospitals and care facilities, doors and windows have to fulfil a wide range of different requirements. Patients need peace and quiet, and convenience. Barrier-free automatic sliding and swing doors as well as window systems take the requirements particularly of those with special needs into account. For hospital staff and the operator, the focus is on process workflows and economic functionality. Security aspects and adherence to the respective standards and guidelines also plays an important role, of course.

Above all, the emphasis is on modern attractive building design – both in new buildings and where renovation is done to older buildings. GEZE offers highly modern, innovative and outstanding optical system solutions in integrated designs for all the functional areas of a hospital or care facility. Starting from the foyer, visitor areas and patient administration including bed and service transport through the treatment rooms and patients' rooms to intensive care facilities and operating theatres.